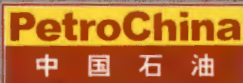


94348



The World Bank PetroChina

# 中国 天然气价格形成 管输运价设计

## Gas Price Formation in China Transmission Tariff Design

世界银行与中国石油联合报告

Consolidated Joint Report of The World Bank and PetroChina

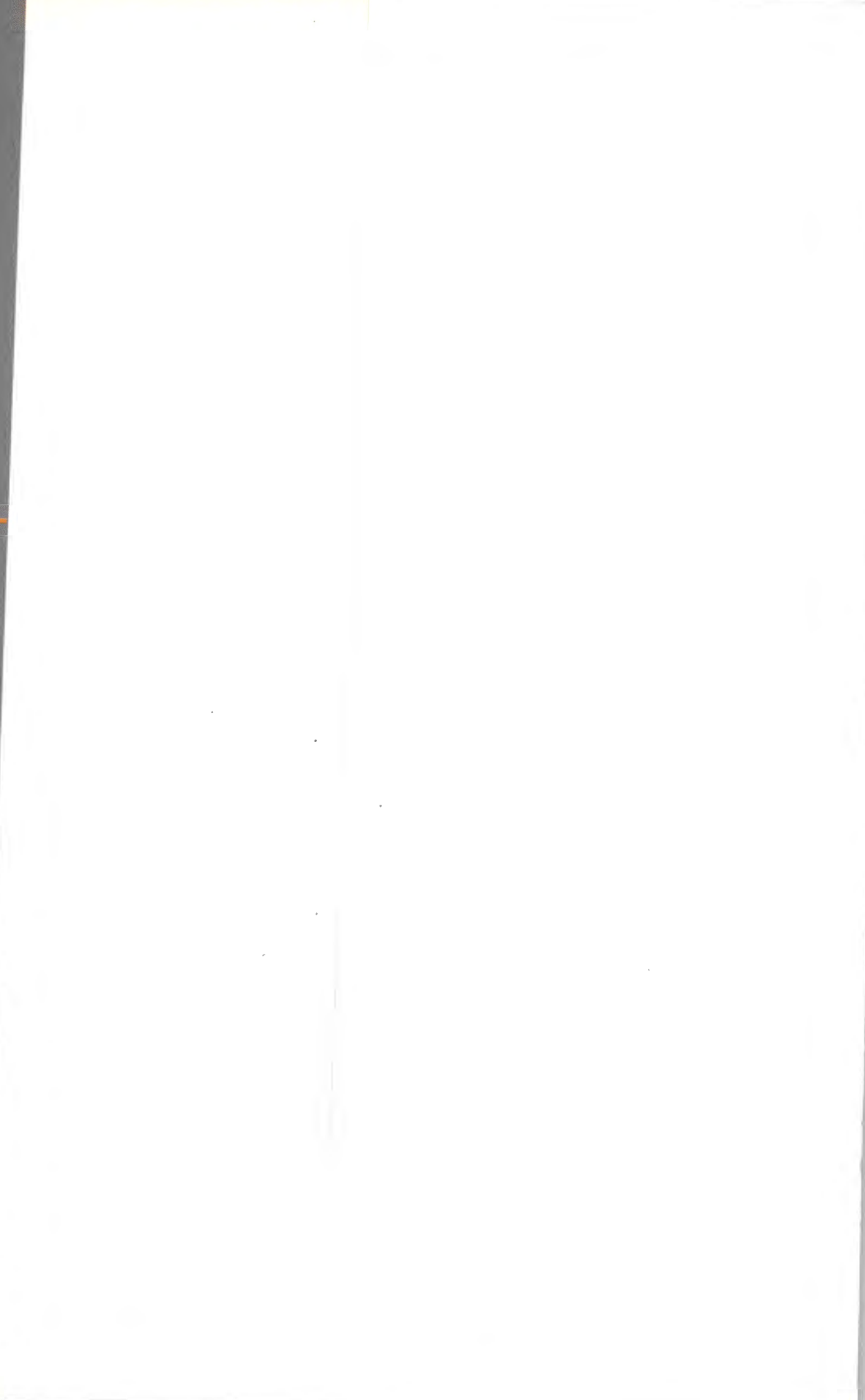
石油工业出版社

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized



**中国  
天然气价格形成  
管输运价设计**

**Gas Price Formation in China  
Transmission Tariff Design**

**世界银行与中国石油联合报告**

**Consolidated Joint Report of The World Bank and PetroChina**

**石油工业出版社**

**图书在版编目 (CIP) 数据**

中国天然气价格形成管输运价设计/世界银行与中国  
石油联合报告. —北京: 石油工业出版社, 2004.2

ISBN 7-5021-4528-1

I. 管…

II. 中…

III. 管道运输: 油气运输—运价—研究—中国

IV. F426.22

中国版本图书馆 CIP 数据核字 (2003) 第 120606 号

---

出版发行: 石油工业出版社

(北京安定门外安华里 2 区 1 号楼 100011)

网 址: [www.petropub.com.cn](http://www.petropub.com.cn)

总 机: (010) 64262233 发行部: (010) 64210392

经 销: 全国新华书店

印 刷: 石油工业出版社印刷厂排版印刷

---

2004 年 2 月第 1 版 2004 年 2 月第 1 次印刷

787×1092 毫米 开本: 1/16 印张: 25.75

字数: 345 千字 印数: 1—600 册

---

书号: ISBN 7-5021-4528-1/TE·3169

定价: 40.00 元

(如出现印装质量问题, 我社发行部负责调换)

版权所有, 翻印必究



版权 2003

中国石油天然气股份有限公司

中华人民共和国，北京东城区安德路 16 号

世界银行

1818 H Street, N.W.

Washington, DC.20433, U.S.A

保留一切权利

中华人民共和国印制

2003 年 12 月第 1 版

本报告提供的行业分析与研究成果，旨在鼓励中国石油天然气行业内部的讨论和评论，并向对行业改革感兴趣的其他国家有关各方分发。

报告中的阐述和结论与中国政府及其下属机构、中国石油、世界银行及其附属机构和执行董事会成员或他们所代表的国家，以及报告准备期间提供咨询的各部门专家无关。中国政府、中国石油、世界银行对本出版物中数据的准确性不予保证，并且对使用他们产生的任何后果不负责任。

Copyright 2003

PetroChina

No. 16 AnDeLu, Dongcheng District, Beijing , P.R.C

The Word Bank

1818 H Street, N.W.

Washington, DC.20433, U.S.A

ALL rights reserved

Manufactured in the People's Republic of China

First printed December 2003

This report presents the results of a sector analysis and research that is published to encourage discussion and comment within the oil and gas community in China and for dissemination to parties interested in sector reform in other countries.

The findings, interpretations and conclusions expressed in this paper should not be attributed in any manner to the Chinese Government, PetroChina, the World Bank, to its affiliated organizations, or to members of its Board of Executive Directors or the countries they represent, or to experts from the institutions consulted during the preparation of the report. The Chinese Government, PetroChina and the World Bank do not guarantee the accuracy of the data included in this publication and accept no responsibility whatsoever for the consequence of their use.

## 前 言

本研究专注于天然气管输运价设计，着重对定义各种输气服务及设计管输价格所需要的各项原则和方法进行探讨。这些原则和方法是在为下游天然气工业制定法律法规框架的背景下形成的，在由中国国务院体改办经济体制与管理研究所、世界银行以及基础设施咨询服务基金会于早期共同发表的报告中提出<sup>①</sup>。

本报告的即期目标是制定：

- (1) 一部管道输气运价规则，确立管理管道运价设计的原则和目标；
- (2) 一份报告，详细描述为了采用在该管道运价规则中规定的原则和目标所需要的方法。

本研究的一个首要目标是：在将政策的制定与监管有效分离，以及将政策制定和监管职能与将受到监管的企业所有权和管理也有效分离的背景下，为上述可获得的成果奠定基础。

本报告是在世界银行 EASEG 专题研究组组长 Nouredine Berrah 指导下由三位顾问 Paul T. Hunt, Peter L. Miles 和 Roland Priddle 执笔完成的。中国石油的有关专家参加了本报告的讨论。感谢 Berrah 先生对本报告所提供的帮助。首席财务分析家 Marc Heitner 和首席能源经济学家 Bent Svensson (COCP) 对本报告进行了审阅。部门代理主任 Mohammad Farhandi (EASEG) 在报告编写期间向研究组提供了有益的指导。

本报告第一章规定了输气管道运价设计的基础并对输气管道运价

---

<sup>①</sup> 由世界银行与中国国务院体改办经济体制与管理研究所组成的联合工作小组在基础设施咨询服务基金的资助下，自 1999 年以来一直在进行石油和天然气行业的分析和研究并已发表了两份报告：《中国石油天然气行业现代化结构改革和监管》[2001 年 3 月] 和《中国：长距离输气及城市配气的经济监管》[2002 年 8 月]。第三篇关于下游天然气行业法律和监管框架的报告将很快发表。

设计所处的法律、监管及商务框架环境进行了评论。由此引出第二章中对规定输气管道运价设计原则和目标的“输气管道运价规则”的讨论。在第三章对与制定一份“输气管道运价手册”有关的方法和问题进行了讨论。

## PREFACE

This study is dedicated to gas transmission tariff design. It focuses on the principles and methods required to define transmission services and to design transmission tariffs. These principles and methods are developed in the context of the legislative and regulatory framework for the downstream gas industry, developed in earlier reports published jointly by the Institute of Economic System Management of the ex - State Council Office for Restructuring of the Economic Sector (SCORES), the World Bank and the Public Private Infrastructure Advisory Facility (PPIAF).<sup>①</sup>

The immediate objective of this report is to prepare:

- (1) A Transmission Tariff Code that would establish the principles and objectives governing tariff design;
- (2) A Report detailing the methodology required to apply the principles and objectives set out in the Tariff Code. This could also be described as a Tariff Design Manual; and

An over - riding objective of the study is to develop the basis for these deliverables in the context of an effective separation of policy and regulation and an equally effective separation of these functions from the ownership and management of the businesses that will be regulated.

---

<sup>①</sup> Joint Working Group organized by the World Bank and the Institute of Economic System and Management of the State Council Office for Restructuring Economic System under the Public Private Infrastructure Advisory Facility has been conducting oil and gas sector analysis and research since 1999 and has published 2 reports: "Modernizing China's Oil and Gas Sector: Structure Reform and Regulation", March 2001, and "China: Economic Regulation of Long Distance Gas Transmission and Urban Gas Distribution," August 2002. A third report on the legal and regulatory framework for the downstream gas sector will be issued shortly.

This report has been prepared for the World Bank by three consultants, Paul T. Hunt, Peter L. Miles and Roland Priddle, under the direction of Nouredine Berrah, Task Team Leader, EASEG, the World Bank. Petrochina's Concerned experts have been involved all along in the discussion of the report. The authors wish to acknowledge the guidance provided by Mr. Berrah. The report was reviewed by Marc Heitner, Lead Financial Analyst and Bent Svensson, Lead Energy Economist (COCPO). Mohammad Farhandi, Acting Sector Director (EASEG) provided useful guidance to the team during the preparation of the report.

Chapter 1 sets out the basis of tariff design and provides a review of the legal, regulatory and commercial framework in which transmission tariffs are designed. This leads, in Chapter 2, to a discussion of a "Tariff Code" that sets out the principles and objectives of tariff design. Chapter 3 presents a discussion of methods and issues related to the development of a "Tariff Manual."

# 目 录

## Table of Contents

概述	( 1 )
EXECUTIVE SUMMARY	(171)
第一章 管道运价设计基础	( 7 )
1 THE BASIS OF TRANSMISSION TARIFF DESIGN	(180)
1.1 运价规则的范围	( 7 )
1.1 <i>Scope of the Tariff Code</i>	(180)
1.1.1 北美式运价法规	( 7 )
1.1.1 A North American Style Tariff Code	(181)
1.1.2 基于条例的监管办法和基于许可证的监管办法	( 8 )
1.1.2 Rules - based and Licenses - based Regulatory Approaches	(181)
1.1.3 推荐使用基于许可证方法	( 8 )
1.1.3 Recommended Use of License - based Approach	(182)
1.1.4 运价规则范围的含义	( 9 )
1.1.4 Implications for the Scope of the Tariff Code	(183)
1.2 天然气供应、配送和运输的价格及运价	( 9 )
1.2 <i>Prices and Tariffs for Gas Supply, Distribution and Transmission</i>	(183)
1.2.1 价格与运价	( 9 )

1.2.1	Prices and Tariffs .....	(183)
1.2.2	配气服务收费 .....	(10)
1.2.2	Distribution Tariffs .....	(185)
1.2.3	管道运价: 改革及转型的要求 .....	(11)
1.2.3	Transmission Tariffs: Requirement for Reform and Transition .....	(186)
1.3	建议的法律法规框架 .....	(14)
1.3	<i>The Proposed Legal and Regulatory Framework</i> .....	(190)
1.3.1	分级体制的作用 .....	(14)
1.3.1	Roles within the Hierarchy .....	(190)
1.3.2	立法的主要要素 .....	(15)
1.3.2	Essential Elements of Legislation .....	(192)
1.3.3	许可证发放制度 .....	(15)
1.3.3	The Licensing Regime .....	(192)
1.3.4	对其他支持性政策的要求 .....	(20)
1.3.4	Requirement for Supporting Policies .....	(199)
1.4	天然气行业的重组 .....	(21)
1.4	<i>Gas Industry Restructuring</i> .....	(200)
1.4.1	上游与下游的分开 .....	(21)
1.4.1	Separation of Upstream and Downstream .....	(201)
1.4.2	商务安排及相关的规范 .....	(21)
1.4.2	Commercial Arrangements and their Regulation .....	(201)
1.5	管输服务的定义 .....	(22)
1.5	<i>Definition of Transmission Services</i> .....	(202)
1.5.1	非歧视的原则 .....	(23)
1.5.1	The Principle of Non - Discrimination .....	(203)
1.5.2	输气和供应的一体化 .....	(24)



1.5.2	Integrated Transmission and Supply	(205)
1.5.3	业务分离的原因	(26)
1.5.3	Reasons for De-integrating Activities	(207)
1.5.4	业务与服务分离	(27)
1.5.4	De-integrated Activities and Services	(209)
1.5.5	固定的容量权	(29)
1.5.5	Firm Capacity Rights	(211)
1.5.6	可中断或“即期”服务	(33)
1.5.6	Interruptible or “On-Demand” Service	(217)
1.6	有关运价设计基础的结论	(36)
1.6	<i>Conclusions on the Basis of Tariff Design</i>	(222)
<b>第二章</b>	<b>定价规则的原则</b>	<b>(38)</b>
<b>2</b>	<b>PRINCIPLES FOR DEVELOPING THE TARIFF CODE</b>	
	.....	(224)
2.1	运价设计原则	(38)
2.1	<i>Principles of Tariff Design</i>	(224)
	.....	(224)
2.2	运价设计目标	(38)
2.2	<i>Tariff Design Objectives</i>	(224)
2.2.1	资源分配效率	(39)
2.2.1	Allocative Efficiency	(225)
2.2.2	用户分配效率	(39)
2.2.2	Rationing Efficiency	(226)
2.2.3	生产效率	(40)
2.2.3	Productive Efficiency	(226)
2.2.4	产品选择效率	(40)
2.2.4	Efficiency in Product Selection	(227)
2.2.5	足够的回报	(40)

2.2.5	Revenue Sufficiency .....	(228)
2.3	期望的特征 .....	(41)
2.3	<i>Desirable Features</i> .....	(229)
2.4	结论 .....	(42)
2.4	<i>Conclusion</i> .....	(229)
第三章	价格手册的制定 .....	(43)
3	<b>DEVELOPING THE TARIFF MANUAL</b> .....	(230)
3.1	方法介绍 .....	(43)
3.1	<i>Overview of Methodology</i> .....	(230)
3.2	资产评估 .....	(44)
3.2	<i>Asset Valuation</i> .....	(231)
3.2.1	历史成本的评估 .....	(46)
3.2.1	Historic Cost Valuation .....	(234)
3.2.2	资产现值的评估 .....	(47)
3.2.2	Current Cost Valuations .....	(235)
3.2.3	评估方法的选择 .....	(49)
3.2.3	Selection of Valuation Option .....	(238)
3.3	与成本基础有关的因素 .....	(50)
3.3	<i>Derivation of the Cost Base</i> .....	(239)
3.3.1	折旧政策 .....	(50)
3.3.1	Depreciation Policy .....	(239)
3.3.2	资金成本 .....	(51)
3.3.2	Cost of Capital .....	(242)
3.3.3	运行成本 .....	(54)
3.3.3	Operating Expenditures .....	(246)
3.4	成本基础的计算 (或要求的投资回报) .....	(56)
3.4	<i>Projecting the Cost Base (or Revenue Requirement)</i> .....	(248)

3.4.1	接入成本 .....	( 58 )
3.4.1	Connections Costs .....	(251)
3.4.2	总成本基础 .....	( 58 )
3.4.2	Total Cost Base .....	(252)
3.5	成本分类及分配 .....	( 59 )
3.5	<i>Classification and Allocation of Costs</i> .....	(252)
3.5.1	成本分类 .....	( 59 )
3.5.1	Cost Classification .....	(252)
3.5.2	成本分配 .....	( 59 )
3.5.2	Allocating Costs .....	(253)
3.5.3	成本分类及分配中的公平与效率 .....	( 60 )
3.5.3	Equitability v. Efficiency in Classification and Allocation .....	(254)
3.5.4	解决公平与效率问题 .....	( 62 )
3.5.4	Resolving the Equitability v. Efficiency Debate .....	(256)
3.6	价格设计 .....	( 63 )
3.6	<i>Tariff Design</i> .....	(258)
3.6.1	邮票法 .....	( 63 )
3.6.1	Postage Stamp .....	(259)
3.6.2	路径法 .....	( 64 )
3.6.2	Path - Based .....	(259)
3.6.3	区域定价法 .....	( 66 )
3.6.3	Zonal Tariffs .....	(262)
3.6.4	入口/出口定价法 .....	( 67 )
3.6.4	Entry/Exit Pricing .....	(263)
3.6.5	价格设计方法的选择 .....	( 68 )
3.6.5	Selection of Design Option .....	(264)

附件 1 联邦能源管理委员会法规第 284 部分 .....	( 69 )
<b>APPENDIX 1: PART 284 OF THE CODE OF FEDERAL</b>	
<b>REGULATIONS</b> .....	(265)
附件 2 许可证条件示例 .....	(104)
<b>APPENDIX 2: SOME EXAMPLES OF LICENSE CONDITIONS</b>	
.....	(306)
附件 3 输气监管方法 .....	(123)
<b>APPENDIX 3: TRANSMISSION REGULATORY TECHNIQUES</b>	
.....	(335)
附件 4 通用条款和条件 .....	(134)
<b>APPENDIX 4: GENERAL TERMS AND CONDITIONS</b> .....	(350)
附件 5 容量分配 .....	(166)
<b>APPENDIX 5: CAPACITY ALLOCATION</b> .....	(394)

## 概 述

本报告探讨输气管道运价设计，其背景是中国的天然气工业正在发展以及由前中国国务院体改办经济体制与管理研究所（SCORES）、世界银行和基础设施咨询服务基金会（PPIAF）组成的联合工作小组在共同发表的多份报告中提出的相关政策和监管方式。

一方面可以看到存在一种对于将供气的专营权与一体化结构结合在一起（至少在一段时间内）的商业需要，主要是给予投资者对自气田到天然气处理厂直至终端批发用户的城市或工厂门站的一定程度的控制权（以及由此而来的确定性）。

另一方面，所要保留的政策目标包括：

①分离输气与储气业务以明确识别各自的成本，即使在将天然气和输气作为一种“捆绑式”服务出售的情况下。由此就可以对自然垄断因素进行适当的监管，并为解除捆绑和逐步的市场开放做准备。

②确立非歧视原则，这样当竞争出现时，新的市场进入者就能够相信，在管道公司拥有自己的供销网络的情况下，他仍有平等的进入权获取管道服务。

就使用管道的输气运价来说，仍然存在一些相互冲突的目标需要去解决：

①运价收费必须足以能够完全收回有效发生的成本，包括投入的股本金成本，但是另一方面，

②运价收费也应维持在较低水平以便使天然气有市场竞争力和能够供城市配气公司和工业大用户去购买，同时也给天然气生产者提供可以鼓励其进一步勘探和开发的收入流。

③运价结构应对提高天然气的利用率提供强烈的激励作用，较高的使用率将会降低输气的单位成本。这样项目的风险将会降低，从而使管道项目获得更高比例的贷款融资，从而降低投资者处于风险

的股本金投入的数量以及股本金的风险，并进而降低单位运价。

④同时，通过使用较高比例的照付不议购气合同来转移风险也不应造成削弱工业用户和城市配气公司财力的后果。

在考虑到这些目标的背景下，本报告的目的是为以下最终的成果奠定基础：

①一部管道输气运价规则，确立管理管道运价设计的原则和目标；

②一份报告，详细描述为了采用在该管道运价规则中规定的原则和目标所需要的方法。

### 1. 输气运价设计基础

由于运价会影响收益和利润的“底线”，许多管道运输公司都趋向于开始对输气运价进行设计。但是，如果对将应用于该运价设计所处的法律和监管框架没有清晰的指导，输气运价设计也无法有效地进行。

在较早的报告中推荐采用许可证的方法来进行监管，为建立中国的监管和商业模式提供了一种有效和合适的手段，这些模式在北美详尽的运价规则或监管法规中有详细的说明。

本报告通过以下顺序使分析的重点逐渐集中于输气运价的设计上：

①建立监管部门和颁发许可证制的立法；

②许可证条件的定义和颁发许可证；

③发展各种商业模式，以便监管。

▷ 运输与供气业务的分离；

▷ 提供输气服务的运营规则或通用条件和条款。

### 2. 原则和目标

运价设计的原则和目标应集中于取得经济效率的关键方面，同时也能确保产生的收益足以收回那些谨慎而又有效率地发生的成本。达到这些目标的运价根据定义将是反映成本的和无歧视的运价。但是为了获得这些目标的益处，也需要权衡是否会削弱“对用户友好”的某些特点，这些特点包括易于理解和应用、透明、可预测性和适应性。

最后一点，输气服务的运价设计应有利于用户使用该输气系统，有利于形成供气中的竞争。

### 3. 运价设计方法

在运价设计方法的框架内有各种方案和方法可供选择。但一开始就应对需遵循的关键步骤和将导致最合适结果的选择方案达成一致意见。

(1) 为一个非捆绑式运输公司导出成本基础

成本基础的主要组成部分包括：

- ①资本收益（税前）；
- ②折旧；
- ③操作与维护成本。

前两个部分需要对资产原值（等于已使用的资本）进行评估，并评估随时间及资本成本的变化该资产原值将如何变化。

#### 1) 资产原值

在选择用于监管目的确定资产原值的方法时有两个问题需要解决：第一个问题是确定资产原值；第二个是确定该资产原值将怎样随时间而变化。在某种意义上，目前这个阶段对于第二个问题关注得较少。如果确定了资产原值，采用确定该资产原值随时间发生变化的每一种方法都将生成其资本费用〔折旧和净资产收益〕流，每一资本费用流都将有一条不同的曲线。如果对资本成本采用一致的估算方法并使用一般的投资回收期限，每一资本费用流的现值都与该资产原值相同。

经常有人主张用于监管目的的资产评估方法不应偏离企业进行财务报告时所采用的方法。如果这两种方法是相同的，资产评估可能是较方便的，但是没有理由认为为什么一套单独的监管账户的基础应与财务报告的基础相同。当两套账之间有清晰的审计脉络，就不存在任何问题。即使在北美，在那里监管部门为了执行监管以及受监管的企业为了准备财务报告各自使用历史成本，但对成本和费用的处理方式各不相同，因此在多数情况下需要保存一套单独的监管账户。

就西气东输管道项目而言，设定资产原值应是比较简单的，因为

在管道试运行并投产后该资产原值将是从事在建工程转移过来的建设成本。就现有的输气系统而言，工作将不会那么简单，这需要根据可得到的资料和数据并根据具体情况进行详细的分析。但是，最首要的目标是要确保所选择的评估方法能够生成可以反映出提供输气服务的经济成本的资本费用。保证维持评估处理方式的一致性也是重要的。在采用评估方法出现差异时，这些差异应该是透明的，无懈可击。

## 2) 折旧

在折旧方面有两个问题需要回答：应在多长期限内收回期初投资？应采用什么方法计算年度折旧费？

在一条管道技术寿命终结前，该管道将在经济上成为多余的这种几率极小的情况下，采用技术寿命作为适当的投资回收期是一般惯例。

可以采用各种折旧法，每种方法都将产生不同的投资回收曲线。但是，不能孤立地考虑折旧曲线。重点应放在包括了折旧和投资收益在内的年资本费用曲线上。

## 3) 资本成本

大多数监管委员会被要求允许运输公司在服从监管的前提下获得一个“合理的资产收益率”。就天然气来说，考虑到风险既是输气行业的内在性质又是监管过程本身施加的，合理的收益率可以定义为投资者要求获得的与所承担风险相适应的收益率。这种许可的收益率常常被称作加权平均资本成本（WACC），它是以贷款和股本各自占融资总额的比例为权重计算出来的平均资本成本。WACC通常是以实际税前收益率的形式出现的。

资本资产定价模型（CAPM）正在作为一种优先考虑的分析工具用以估算 WACC，对在该模型中应使用的参数值也正在开始达成一致。

## 4) 营业支出

任何监管制度的一个目标是向受监管企业提供激励措施使其有效率地运营。运输公司显示其正在而且将有效率地运营，这将是很有必要的。监管者一般需要审查受监管企业预测的和实际的操作和维护支出之间的不一致情况，并制定应如何处理这些差异的规则。



## (2) 导出成本基础

在本报告中采用了基于实际计划收益率（中国石油提出为 12%）的实际不变运价。这样设计是为了在中国石油提出的计划评估期收回资本和营业费用。根据所提供的关于贷款服务要求的数据，假定投资者将对剩余收益率和收益曲线表示满意。采用资产余值法<sup>①</sup>（FCM）用于中国石油假定的资产寿命期得出固定资产原值和年折旧费。这样就可以生成一条资本费用的详细曲线。

上述做法提供了一个初步（但还不完全适当）的基础去考虑对运价监管的应用。CPI-X 激励形式的运价监管已作为最适当的机制提出。所建议的初期运价机制简单假定 X 等于零，在达到与期初投资有关的容量利用水平之前的这一段时间内，监管者可能会对此方法感到满意。而后，或者在此之前条件许可的话，监管者将决定 X 为正值。

## (3) 成本分类和成本分配

总成本是由经过分类的固定成本和可变成本所构成。对输气系统而言，固定成本一般趋向于占总成本的 90% 以上。成本分类是使运价结构与成本结构相一致的第一步。

基于经济的和公平的标准，成本将根据各种类别的容量使用被分配到相关类别的托运方。在确定由具有不同负荷特征的托运方支付的最终运价中这是极为关键的一步。被分配给容量费和商品费的固定成本和可变成本的比例是运价设计的一项职能。

直接的固定变动（SFV）法——被认为在经济上是有效率的——将所有的固定成本划入容量费。这种方法向低负荷系数用户全年收取他们只在一天或两天使用容量的全部成本费用。容量转让或容量交换机制的发展会对低负荷系数托运人使用的非高峰期固定容量予以补偿。在还没有这些机制的情况下，有可能把固定成本的一部分划入商品费。这就可以使典型的直接固定变动（SFV）容量/商品比从 90:10 转变为 70:30 或 65:35。在过渡阶段把最初的比例定为 65:35 可能会比较合适，随着时间的推移逐渐变至与 SFV 相符的比例。

---

① 这种方法考虑了将减少资产置换成本的技术进步因素。

成本分类和把成本划分为容量部分和商品部分提供了设计两部制运价的基础，两部制运价是指对输气预约容量收费和对在该年内使用该容量收费。

对初期中国现有的输气系统来说，这些机制的发展将需要时间，但在设计管输运价水平和结构时，可以谨慎地尝试构想未来的商业和监管模式。这里为了进行解释，使用了直接固定变动法。

#### (4) 运价设计

设计运价的一个重要考虑因素是运价与距离的关系。这里存在两个极端：一种情况是不论运距长短均按同一标准收费的邮花费率运价；另一情况则是点至点运价，试图包罗从每一进气点至每一提气点的距离对整个成本的影响。

“区域运价”这个术语被用于描述这样一个系统：在这个系统内对经过不同地理区域的交易采用不同的运价，但对在同一个区域内的所有交易均采用相同的运价。它包括将临近的进气点和提气点编组分区。在某种意义上，这是一种区域之间与距离相关，区域内采用邮花运价的混合运价。从经济学的角度看，一个运价取决于进出点的精确结合的“单纯”基于路径的运价制不大可能会比区域制有更显著的优越性，因为区域制基于许多区域，足以包罗所有关键的成本要素。区域运价在反映成本准确性方面的任何不足可以通过以下几个方面得到更多的补偿：在进气点和提气点设立上的灵活程度，促进建立市场中心和活跃的管道容量二级市场的潜力以及简单易行性和可预测性的增加。

本报告建议中国有关当局考虑对中国现有的长距离管道系统采用区域运价。区域运价提供了有效的手段对输气系统收费并且最终也推进了这些生产或市场中心的出现。

# 第一章 管道运价设计基础

本章讨论在制定运价规则和运价手册时需要考虑的一些问题和选择。由定义运价规则的范围和澄清一些有关天然气定价和运价的术语开始，回顾了现行的管道运价设计方法（见 1.1 节和 1.2 节）。由于本研究的一个总目标是制定出一套有别于政策和法规的管道运价定价方法，1.3 节介绍了早先报告<sup>①</sup>中推荐的法律法规框架建议的几个重要方面。为了使政策的制定能赶上市场开放的步伐并使其遵照有关法律法规框架，天然气行业需要进行重新整合，这种在框架实施前业务能继续整合和重组的含义在 1.4 节中进行阐述；1.5 节随后又更详细地研究了运输服务的定义，最后在 1.6 节给出结论。

## 1.1 运价规则的范围

对运价规则的作用和范围进行定义的方法可能有多种，这是由于在广义上“运价”（tariff）可以用来描述一项服务提供的条件和条款以及它的价格，在北美尤其如此。在美国，运输服务的监管“价格”被统称为“费率”（rate），在加拿大经常将它们称为“运费”（tolls）。

### 1.1.1 北美式运价法规

中国石油已将美国联邦能源管理委员会发布的联邦管理法规中第 284 部分提出来作为西气东输项目运价管理办法的一个参考，这些法规指导的是“在 1978 年颁布的天然气政策法案和有关当局管理下的天然气的特定销售和运输”，这些法规的副本在附件 1 中提供。

这些法规十分详尽地列示了受联邦监管的运输和储存企业的权利和义务，这些法规规定了用于指导运输体系日常运营的行业规定的性质。

---

① 见前言中的注脚。

### 1.1.2 基于条例的监管办法和基于许可证的监管办法

有关部门在世界银行和基础设施咨询服务基金会 (PPIAF)<sup>①</sup> 联合工作组的支持下进行的调查和分析得出这样的结论,用如此详细和规定性的方法来管理中国下游天然气行业是不适宜的,这一结论是基于对中国天然气行业和法规框架现阶段的发展以及行业所面临的困难的了解。联邦管理法规是经过相当长的时间才制定出来的,可以肯定的是如果美国政策法规当局在 25 年前就知道他们现在知道的事情,那么现今的这个版本就会大不相同。这一结论也是基于有另一种可选择的监管方法,这种方法正成功地应用于环境与中国情况相类似的国家里但并非北美。

为了便于讨论,将北美的方法描述为“基于条例”的方法,将另一种方法称为“基于许可证”的方法。两种方法的应用都将达到一个竞争的天然气批发市场的关键政策目标,并且这两种方法有许多共同的特性。不同之处在于它们采用的手段不同且采用的方式也不同。基于许可证方法的主要特性见下面的 1.3 节。

### 1.1.3 推荐使用基于许可证方法

建议使用许可证的方式界定天然气市场参与方(包括那些可以使用运输系统的天然气托运人)的权利和义务;它们将列示出法规应用的方法和参与方需要制定并遵守的商务安排及业务规范的种类<sup>②</sup>。这种方法的一个重要区别点是市场的参与方将根据它们许可证的条件及所受到的监管以一种咨询的方式制定商务安排。

这种方法比规范性的基于条例的方法允许有更多的商务自主性,对于天然气市场和法规正处于发展和健全过程中的中国,这种额外的商务自主性是必要的。另外,在决定建立一种天然气监管机制后,制定一套综合的、详细的和具指导性的法规还将有一段时间。再者,当制定法规时,为那些将受法规管制的业务制定一套适宜的行业规则和商业安排也是合理的。

---

① 见前言中的注脚。

② 许可证也将包括解决联邦管理法规中提到的这些问题的条款。

#### 1.1.4 运价规则范围的含义

基于许可证方法的应用提供了处理联邦管理法规第 284 部分提到的所有问题的手段和方法，主要的手段和方法将在 1.3 节中进一步讨论。这意味着相对于这套用于导出管输监管价格的方法的原则和目标而言，在这里运价规则定义的范围可能很窄。

### 1.2 天然气供应、配送和运输的价格及运价

在此阶段澄清与天然气价格和天然气运价有关的术语是有益的。这有助于鉴别哪些是由法规监管的价格，哪些是由竞争确定的价格以及哪些尽管是由竞争确定的但还是受法规监管的价格（至少在一段时期内）。这也提供了机会来审视目前的管道运价定价方法。

#### 1.2.1 价格与运价

关于天然气价格形成中的术语“运价”和“价格”现在还没有一致的准确定义。为了这份报告后面的讨论，建议当价格是由供需关系决定时使用术语“价格”，这一价格可以是在一个清晰界定的市场中以标准化的产品或服务由一个单独的买方和一个单独卖方谈判后形成的，也可能是由许多买方和卖方通过讨价还价形成的。

在不存在竞争和没有可能性（或有限的可能性）发展竞争的市场环境时使用术语“运价”，这发生在具有自然垄断特性的业务及引入竞争对经济无益的业务中，这就是为什么运价是专为垄断业务设计的，如天然气运输和配送，目的是使设计的“运价”尽可能地接近在竞争市场下所形成的价格。

对这些运价实行监管是因为从事垄断行为的行业是不会有朝着反映竞争情况下结果的方向设计运价并生产产品（或服务）的数量和质量。事实上，一个垄断者几乎总会想办法设定一个比竞争的市场中会出现的价格高的运价（但低的数量和质量），这样垄断者就能将它的利益最大化。既然垄断者要么能设定价格要么能确定数量（但两者不能都同时做到），运价的监管应当通过价格自动确定数量。然而，垄断者还可能针对一个特定的供应量降低服务质量，监管机构应有能

力加强服务质量的最低标准。

基于这一点，“运价”可以被称为“监管价格”。最初，在从纵向一体化的自然垄断到操纵垄断的转变过程中，将被考虑的惟一“价格”是天然气供应的批发价，如果有证据表明是供气方拥有市场权力，那么达到这一“价格”的方式就可能受到监管。所有的其他“价格”将被监管并且也有可能被称为“运价”。这些运价包括本研究报告要重点研究的管道运价以及向城市配气公司（UGDC）的用户收取的捆绑式配气和供应服务的收费。

尽管这份报告呈现的分析范围只到城市配气公司的城市门站结束，还是有必要就如下方面插入一些评论：

- 城市配气公司的有效发展；
- 城市配气公司提供的运输与销售捆绑式服务的定价；
- 在市场进一步开放时非捆绑输送服务的定价。

#### 1.2.2 配气服务收费

在一个特定地理区域内配气公司之间（涉及管网系统的部分或全部）进行竞争对经济是无益的，对于这一点，很久以来就已得到公认。其结果，配气管网系统具有自然垄断特性且由一家公司提供服务并制定收费价格也是合理的。另外，按照用户消费形式或要求将用户分类有利于收费价格的设计并可避免单独谈判合同时产生的交易成本；再者，设计一种收费结构可以减少发生在用户之间不公正的歧视事件。

正像世界上的许多其他管辖权，在中国，可以设想在一个特定的地理区域内城市配气公司将拥有独家专营权向低用量的居民、商业和行政事业单位提供捆绑式天然气销售和配气服务，有时被称为“特许权”的这项权利可以是国家政府机关、省政府机关或市政府机关授予的，这些用户将为此项捆绑式服务支付一个单独的收费价格，但这一收费价格将受到监管。要解决有关配气系统的自然垄断特性和在一个特定区域内供应天然气的独家专有权问题就要出台一套法规，可以预见，城市配气公司将被要求将其输配和天然气供应的业务成本分开，以使法规更加有效并能就每项服务向用户提出一个收费价格。

长期以来一直建议由城市配气公司服务的大工业用户应有机会接触到竞争的天然气供应商，这将使竞争的天然气市场的规模得到阶段性的有序扩大，这还将最大限度地减少有了竞争天然气供应商时可能出现的异常情况。例如，大部分大用气量用户都是由输气系统直供的并且在大多数情况下都将有机会接触到竞争的供应商。但不管怎样，一些大用气量用户还是要由城市配气公司供气的，当允许类似的或用气量较小的用户接触竞争供应商时（实际上他们的位置靠近管输系统），防止这些大用户接触竞争的供应商很难说是合理的。这些用户将直接就天然气供应签署合同并从城市配气公司那里寻求配气服务，这就进一步解释了将配气服务成本计算、收费价格设计分开的原因。

就像已经发生在英国和正发生在美国、加拿大和澳大利亚的情况一样，可以预见最终所有的用户都将接触到竞争的供应商，预计到2007年许多欧洲国家都会是这种情况。但此种模式只有在天然气批发（批量供应）市场有效地运转并已充分评估了到达所有用户的成本和利益时才可效仿。

在这份报告中特别要注意的是对于配气系统收费价格设计的紧迫性远不如管道运价设计，尽管目前的重点是在管道运价设计，但有关原则和方法的许多讨论对配气收费价格设计同样有效。

### 1.2.3 管道运价：改革及转型的要求

在澄清了天然气价格与运价概念的关键区别后，现在可以审视一下：

- 中国现阶段提供的输气服务；
- 天然气输送与天然气批量供应的定价；及
- 保证有效市场开放要求的改革的性质。

#### (1) 一体化服务

在现阶段，中国的主要陆上石油天然气公司（中石油和中石化）提供着被称为捆绑式一体化批量供应的服务，这是一种“批量供应”服务，大批量的天然气交付给了城市配气公司和与管输系统相连的大用气量用户，这是一项结合了（或捆绑了）管输服务的捆绑式天然气供应服务。这个捆绑的性质只是“一体化”服务性质的一个方面，这

项管输业务不论纵向还是横向都是一体的。纵向一体化是指由一个企业完成开采、净化<sup>①</sup>和输送等一系列业务构成；横向一体化可以描述为输气的操作、储气设施的运行及在管输系统设计和安全的参数范围内保持天然气供需的持续平衡。

另外，在预期到天然气需求会增长时，相应地管输容量也需要增加时，就要对管输系统扩容或增容。也许在这种需求的增长不会出现时，管输企业就要承担无法从这项投资中收到适当的回报的风险。没有什么有效的机制来确保管输容量将被使用或为此付出的成本将被回收，这实际上也抑制了为维持管输系统的物理完整性和确保提供的服务质量而进行资本性支出和营业性支出的积极性。如果运输公司对其已经投入的资金的回收毫无保障可言，那么也就没有动力去进一步投入资金维持系统的运行。最后，这个行业的特点在于非相互连接的管输系统，其复杂性是从单独的管线到广泛的省内连接或跨省连接的管输系统不等。尽管西气东输项目将主要作为一个非相互连接的系统运行，但它将构成管输容量的主要增长。一个管输系统的复杂程度与其天然气接入点的数量和提气点数量的多少有关，以及与通过置换方式（而不是容易追踪的点到点的天然气流动）输送天然气的程度有关。尽管投资的规模很大且进气点到提气点的距离很长，西气东输项目至少在开发初期不会成为一个复杂的输气系统。

## (2) 指导价与监管价格

目前的这种就管输服务和批量天然气供应分别制定管道运价和天然气气价的方法确实显示了非捆绑的一些方面和成本基础的分离，国家计委（SDPC<sup>②</sup>）的价格司制定天然气净化后和将天然气从井口输

---

<sup>①</sup> 据了解并不总是进行天然气净化，一些管输系统运送未经处理的天然气给最终用户，这样用户就不得不安装一套小规模的天燃气处理设施。尽管这些用户避免了向运输公司交净化处理费，但到最后却要支付更多的费用，安装和运营他们自己的处理设施的成本要比运输公司在系统入口处提供天然气处理（净化）服务的费用高，另外流入管道系统的未经处理的天然气会腐蚀损坏管道系统。通过管输服务质量和可靠性的降低、维护开支的增加和大修更换费用的提前发生，会增加未来的成本。

<sup>②</sup> 由于改革与经济重组国务院办公厅和国家经贸委的一些部门与国家计委合并了，国家计委（SDPC）已经被更名为国家发展与改革委员会（SDRC），但在报告中我们继续沿用了国家计委的叫法。



送到城市配气公司（UGDC）的城市门站及与管道系统相连的大用量用户的工厂门的执行价格，天然气价格将围绕同样是由价格司制定的指导井口价在一个受限制的范围内通过谈判确定。这种方法的主要问题是无法获知这些指导价和执行价格在何种程度上反映了供应的天然气的经济价值和提供服务的成本。当气价背离了经济价值且执行价格背离了经济成本时，必然导致生产投资和消费的低效。

### （3）转型的要求

这种性质的低效率是经济学家最担心的，从经济理论上讲，它们将导致资源的错误配置，在现实中，这是所有市场参与方所关心的主要问题。例如，当井口指导价加上天然气管输、配气的成本后，将形成一套针对最终用户的价格，然而，计算得出的这些价格与竞争燃料的价格相比可能高于或低于用户愿意支付的价格。如果价格高于用户愿意支付的水平，天然气在市场上的渗透力就会非常有限，且将无法获得天然气带来的战略上的、经济上的和环保上的益处，从经济角度上说，可开采的天然气储量将被锁定、或开采不足及低效开采。另一方面，如果价格低于用户愿意支付的水平，就会导致资源方面的浪费和资源利用的低效，造成为满足这部分不经济的额外需求而进行投资上的浪费和低效，为满足这项额外的、浪费的投资将发生在生产、运输和配气领域。这两种情况都将造成严重的损失，应当尽量避免。

按照此种方法，极少有可能获得生产、投资和使用消费的最优水平。另外，还没有形成一种内部机制来确保当与最优水平发生偏离时，市场参与者将会采取措施以达到一种平行的和有效的平衡。因此，有必要制定并应用一些能确定天然气供应链每个阶段的准确的成本和价值的方法。

有关“天然气价格形成”的一份单独的报告审视了不同的用来确定天然气供应链的每个阶段的天然气价值和价格的机制，这就要求开始从现在的执行价格向批发竞争转型。由成熟理论的应用和广泛的国际惯例得知，确认发生在管输中的经济成本以及这些成本如何转化为运价方面，在这方面形成一个统一意见对向批发竞争转型是有帮助的。

只有伴随下述事件的发生，这些方法才能成功地得到应用：

- 一套具有激励、控制和指导作用的法律法规；
- 现有天然气企业的内部重组；
- 对所提供的服务重新进行定义。

以下三节将依次讨论这些问题。

### 1.3 建议的法律法规框架

这个框架是由分级的法律法规监管和商务手段组成，有些是新制定的，有些是天然气立法授权的。

下图对此进行了说明。

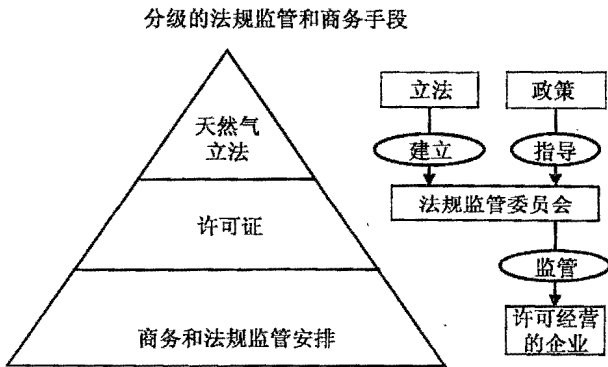


图 1.1 分级的法规监管和商务手段

#### 1.3.1 分级体制的作用

政府负责天然气立法的起草、制定和执行（连同政策说明）是对天然气行业重组的一种推进器。这项立法需要组建监管委员会，作为对行业进行重组和监管的运行手段。对天然气行业下游履行政策职责负责的政府部门（政府“职能部门”），在听取了监管委员会的意见后，将向下游天然气企业发放必须的第一批许可证。

这些许可证中将包含有关被监管企业的权利和义务的标准条款，监管委员会将根据被监管企业的许可证申请自由修改这些条款，这种

自由当然还要受限于天然气立法中确立的申请过程和程序。

为了履行具体的许可证条款，每个受监管的企业还需依据法规监管和控制多样化的组合，设计出具体的商务安排。对于一个管输企业，商务安排的内容包括行为规范（确保管输和天然气供应业务的有效分开），操作规范（管理管道系统准入和使用的业务规范）和管输服务明细表及价目表。

以下两节叙述立法的主要要素并讨论许可证授予体系。

### 1.3.2 立法的主要要素

国际经验表明，实现对天然气行业的重组需要下列要素：

- 目的的陈述；
- 在中国政府内部确定一个制定能源政策的职能部门；
- 监管委员会的组建；
- 为通过管道系统输送、储存、配送和托运天然气的业务建立一套通过许可证界定的制度；
- 授权给职能部门以便：
  - ▷ 向监管委员会提供公开的政策指导；
  - ▷ 公布许可证标准条款；
  - ▷ 界定符合直接签署天然气供应合同条件的用户（有资格的用户）的种类；及
  - ▷ 不时地调整这一界定。
- 授予委员会监管的权力有：
  - ▷ 发放、修改或撤消许可证；
  - ▷ 对已获得许可证的实体进行调查看其是否违规；
  - ▷ 监控天然气市场的运行情况，当有证据表明市场权力在起作用时，对供气合同的谈判进行干预。

### 1.3.3 许可证发放制度

许可证发放制度是使下游天然气行业发展成有效运行的天然气市场结构的关键手段。

(1) 许可证的定义及关于许可证的一些限制

天然气法要求管输、储气和配气企业以及天然气托运人每一方都持有一个许可证，这为行业带来并保持一个“非一体化结构”是必要的，而目前该行业的特点却是一个从天然气供应（生产）、到集气、净化和长距离运输的纵向一体化。一个被授予许可证的管输企业将为天然气托运人提供输气服务，而不允许该企业购买、销售或做天然气贸易，因此它也不可能成为天然气托运人<sup>①</sup>。

配气企业将继续向一些在它们服务区内的有资格用户（和它们的托运人）提供一种非捆绑式的配气服务，以及向其他不符合资格条件的用户提供一种捆绑的配气供应服务。这就意味着配气企业许可证的持有者也可以持有一个天然气托运人的许可证来向其捆绑服务用户供气。如果一个配气企业决定向其服务区内的有资格用户供应天然气，则要考虑建立一项分离的天然气供应业务，这是它们申请自己作为天然气托运人的许可证所必须的。

天然气托运人即是购买、销售或做天然气贸易的任何一方，托运人需要将天然气从一个地方转运到另一个地方以使交易完成，“天然气输送”和“天然气托运人”的概念是直接伴随输气、配气（自然垄断）和批发零售供应（操纵垄断）的分离而来的。一个被授予许可证的天然气托运人将不被允许拥有或运营运输天然气的管输系统<sup>②</sup>。

## （ii）管输企业许可证的授予

没有明确要求同种业务活动的许可证要采用统一的条款，它有可能包括其他额外的条款，按照具体情况删除或修改一些条款，然而以一套基本的针对某项业务的许可证中出现的有代表性的条款作为起点还是合理的。为了方便起见，这套基本条款被称为许可证的标准条款。管输许可证的标准条款可以归为四类，这些分类包括如下具体的条款：

### ● 一般性监管条款。

---

① 允许购买天然气供自己使用或应付损耗，以及为了系统平衡的目的购买或销售天然气，但那属于它参与天然气交易的范围。

② 允许由同一个企业对分离的业务板块持有不同种类的许可证，但监管委员会必须对两个业务板块分离后的效果感到满意。

- ▷ 定义；
- ▷ 提供并保留记录；
- ▷ 向监管委员会提供信息；
- ▷ 向天然气托运人提供信息；
- ▷ 进入的权力；
- ▷ 许可证持有人向监管委员会付款；
- ▷ 许可证的分派。

这些条款与提供准入服务的任意管网运营公司（如天然气、水、电信和电力）的许可证中出现的条款相类似。要求保留记录并提供信息对受监管的行业来说是至关重要的条款，因为在监管机构所能得到的信息和被监管企业所掌握的信息之间总是存在严重的不对称，因为如果需要保证天然气供应的安全性和可靠性的话，安全上没有问题的天然气管道公司可能会被授予进入权（接入到与它们的管网相连的消费者财产上）。有一套清晰的程序规定许可证持有者应交的费用，款项如何支付及随着时间的推移这一收费是如何变化的，对许可证持有者和监管机构都是有利的。监管机构还要监控许可证的分派以确保竞争没有受到不适当的限制或市场权力没有增长。

#### ● 管输服务。

- ▷ 运行规范；
- ▷ 管道系统安全标准；
- ▷ 标准的执行。

每一个许可证持有者都将被要求编制一个运行规则，它将列出规范管输服务的业务要求，在北美这可能类似于固定输气服务合同的有代表性的一般性条件和条款，在英国这可能就成为像管网规则一样冗长而复杂的文件<sup>①</sup>。

管道运营企业有必要制定出客观的系统安全标准，这些经常被界定为天然气需求达到高峰时和持续的大需求量时系统的输气容量。需

---

<sup>①</sup> 管网规则的主要文件包含了 20 几个部分和几百页纸，管网规则的一个综述可以从 [www.transco.uk.com](http://www.transco.uk.com) 上下载。

要确定这些标准的几点理由如下：它们为运行和投资政策提供了一个基础；它们为评估运营企业的执行情况设定了标准；并且它们也为管道系统的所有用户提供了必须遵循的统一标准。在一些托运人不愿为维持这些标准全额支付成本的情况下（因为他们可能满足于一个较低质量的服务），就有必要强制执行这些标准以确保不会对系统的其他用户造成不良影响。

在一些实例中，监管机构可能不满足于管输服务合同中确定的足以去鼓励或强迫管输企业达到高标准业绩的奖惩机制。很明显，解决办法是确保制定出足够清晰的合同来达到操作的高标准。然而，特别是在与行业重组相关的转型时期，需要监管机构确定并强制执行标准，并对没有达到要求的企业进行惩罚。例如，监管机构可以设定与运输公司答复服务申请所需花费的时间有关的标准，与通知其系统进行施工和维修的程序有关的标准和与该项工程有关的短供期限和程度有关的标准。

● 管道运价。

- ▷ 天然气托运人的运价和运价的限制；
- ▷ 有关对制定运价方法的责任；
- ▷ 连接费。

管道运价的水平和结构都受限于法规，假如采用具有代表性的会计年度，那么运价的水平可能就要每年调整一次。然而，可能在相当长的一段时间里管输结构不会有很大的改变且有关运价结构存在着广泛的统一意见。在管输企业提交的运价计算方法初步获得监管机构的批准后，采用激励价格监管方式的主要优点之一是监管机构可以就某一特定时期的运价水平建立正式的监管控制。从理论上讲，这样会削减法规的范围和力度，在这段时期里（通常称为“控制期”），管输企业有义务将这个运价保持在监管规定的最高价格之内。不管怎样，如果它更加有效（如将其成本降低到监管机构预期的水平以下），就应允许被监管企业通过降低成本获取额外利润。

伴随着这种监管形式，价格控制是作为许可证条款的形式规定出来的，并且监管的努力要一直延伸到控制期结束之前，来确定下一个

期间的价格控制参数并相应地修改许可证的条款。将解决管输企业接入政策的许可证条款包括在内也是合理的，公司可能会由于一个“公共服务义务”（PSO）被迫同意免费连接位于天然气管道一个特定距离内的预期的天然气消费者，然而，一个管输企业被迫执行这种公共服务义务的情况并不经常发生，但在配气企业却比较常见。在多数情况下，管输企业会想办法从一个新接入的用户那里回收为连接该用户而发生的成本，然而连接发生的真实净成本涉及为保证天然气能输送给新用户的系统可使用容量，并与运价的结构有关。如果系统有足够的剩余容量能确保向新连接的用户输送天然气而不需要为新接入点的上游扩容支付额外的资金或运行费用，那么就只会发生接入的施工成本。另一方面，如果需要为新接入点的上游扩容支付额外的资金或运营费用，那么管输企业就会想办法从新用户那里回收除了接入施工成本以外的这些费用。

许可证的条款会要求管输企业制定处理这种接入情况的政策（或程序），政策中将会列出一系列程序来规范：

- 新接入的申请和新接入的施工；
  - 如何确定新接入点上游发生的额外资金或运行费用（如果有）；
  - 这些费用是如何回收的；以及
  - 在确定接入净成本时，是如何将从新接入用户那里获得的额外运价收入考虑在内的；
- 管道系统投资。
- ▷ 管道的施工；
  - ▷ 长期发展报告。

从理论及实践角度，很难证明授予一家管输企业的（向一个特定地理区域内或向不同类型的用户或在一个特定时期内或是所有这些的不同组合）独家输气权是正当的。事实上，不论从经济角度还是从可操作性角度，给予现存的管输企业独立建设并运营输气管道的权力是可行的，另外，政策制定者和监管者都认为通过管输企业来控制市场力量的作用是一个有效手段。“旁路”（在已有的管道系统旁边建一条

新管道) 的威胁经常被用来迫使不情愿的管输企业以一种反映成本的管道运价提供非歧视性的准入服务, 也在一个较长时期内提供了促进管道与管道竞争的基础。

管输企业许可证的标准条款的范例见附件 2。

### (iii) 天然气托运人许可证的授予

并非所有的管辖权都要求授予天然气托运人许可证, 然而要求这样做的两个重要理由如下: 第一, 授予许可证制度使监管委员会有权用非歧视和透明的标准来判定所有天然气市场参与方(不托运天然气的天然气消费者除外) 是否适宜。例如, 天然气托运人有权参与制定由管输企业和配气企业提供的服务的条款和条件, 但许可证的条款会要求需要许可证的天然气托运人必须执行, 例如:

- 遵守提供服务的条款条件;
- 及时向管输企业和配气企业提供有关他们服务要求的相关信息, 以便使管输和配气企业能安全有效地运营他们的管道系统。

这些条款在商务和合同安排形成过程中是尤为重要的, 就像中国目前的情况, 它也许不能证明能及时有效地改善合同, 但当一个天然气托运人违反了许可证条款时, 就可授权监管机构去进行调查, 如果这种违反条款的说法被证实了就可立即对这种行为进行严惩。这种授予监管机构的权力可以保证不可靠的供应商不被鼓励进入市场。

#### 1.3.4 对其他支持性政策的要求

除了建立这个监管框架所要求的立法的起草、制定和执行, 还要求制定并执行一些政策, 以便有助于立法作用的有效发挥及竞争性天然气市场的发展。

这些政策包括:

- 促进本土天然气储量的勘探与开发;
- 允许新的生产商进入石油勘探和开发行业;
- 确保新的生产商和供应商无歧视地进入上游集气管线和净化设施;
- 清除获取外部天然气供应的障碍;



- 确保电力行业的重组和监管不会限制在混合燃料发电方面天然气的有效使用；
- 促使与天然气竞争的燃料定价的经济合理性；
- 促进城市配气企业的公司化改造；
- 完善与城市配气公司有关的健康、安全、技术标准、环境与规划方面事务的法律法规。

#### 1.4 天然气行业的重组

以上所描述的法律法规框架的建立为现存的（和正在形成中的）天然气行业的重组提供了基础，天然气行业的重组又是向竞争性的天然气市场转型的需要。然而建立这个框架是要花费一些时间的，但开始向竞争性的天然气市场转型的进程是不能延误的，如果延误就会阻碍天然气在使用方面的十分必要的扩张，并可能陷入一种使天然气行业在组织和行为方面业已存在的低效率得到巩固并长久地存在下去的危险境地。下面两个小节讨论对天然气行业进行重组的特性，这种重组可能是行业自身发起的，也可能是有足够力量来推行这种改革的主要内容的政府机构发起的。

##### 1.4.1 上游与下游的分开

首要的关键问题是在净化厂的出口处将上游生产、集气和净化业务与下游的运输和配气业务分开。

天然气生产商的主要职责是将符合管输质量要求的天然气交付到管输系统的入口处，一般认为管输系统的入口与净化厂的出口是在同一地点，这种分开使天然气集气管线中未经处理的天然气和符合管输质量要求的天然气之间形成一个清晰的界限。在存在多个气田、生产商或供应商的情况下，确定天然气管输系统入口的位置是有意义的，这将为天然气交易和所有权的转移提供区分点。

##### 1.4.2 商务安排及相关的规范

需要解决并制定的一些主要的组织问题和商务安排，已经在上面的1.2节中提到了，如操作规则和管道运价规则。这些商务安排最终

将受限于法规的监管与法规的控制。在法规的监管和控制之间不可能进行精确地区别，但有必要对这种区别做一些解释。所有的商务安排最初都是由受监管的企业起草的，并提交给监管机构批准。如果监管机构没有被授权或选择了不直接干预，但又需要他们批准和就某些特殊问题发表意见，就会形成法规监管。在其他情况下，监管机构将就受监管企业提交的商务安排做出有约束力的决策，这时就会产生法规控制。这经常发生在对管道运价水平及所提供的服务的质量与特性进行监管的情况下。

这种受限于法规监管或法规控制的主要商务安排已在先前的《中国下游天然气经济监管报告》<sup>①</sup> 中进行过讨论，在本章中有关监管技术的部分在附件 3 中又提了出来，它讨论了主要商务安排，即

- 保证输气业务与供应业务有效地分开；
  - ✓ 在分离同属于一个公司的两个业务板块时，经常通过一个行为规则的应用将其分开。
- 制定与管道系统准入的条件与条款有关的业务规范和程序；
  - ✓ 通常被称为操作规则（在美国被称为一般条件与条款）。
- 对所提供的管输服务进行定义；
  - ✓ 这个内容通常在管输服务协议中列出。

对这些商务安排制定过程中出现的一些问题的讨论见附件 3。

### 1.5 管输服务的定义

适当的管道运价设计需要对进行收费设计的服务有一个清晰的定义。有可能列举出用于指导管输服务定义的无数个原则，然而下一小节讨论的非歧视原则包含了所有其他的原则，并被应用于评估从一个捆绑的一体化输气、储存和供应服务向分离的每种单项服务转型的含义。

---

<sup>①</sup> 中国长距离管道和城市配气管网的经济监管，由世界银行、中国国务院体改办经济体制与管理研究所和基础设施咨询服务基金于 2002 年 8 月联合完成。

### 1.5.1 非歧视的原则

对于受到监管的服务，非歧视原则适用于对其定义和定价。“歧视”这个词如此频繁地以一种贬义词被使用并已被滥用到失去了它原有的意义，以至于很快就失去了它应有的准确性和有效性。尽管非歧视原则还没有丢失它词义的关键部分，但却有必要对这一术语的使用作一些说明。

对于受监管的服务，可能会区别出两种类型的歧视——允许的歧视和不允许的歧视。不允许的歧视经常被用来描述不适当的和不公正的歧视，由于显而易见的原因，它引起了更多的注意；不允许的歧视是指对于受监管的业务，拒绝让一个用户进入、限制用户的使用或增加向用户收取的服务成本的任何行为或不作为行为，而类似的限制却没有用于其他用户。有必要让服务在数量、质量或成本上的任何差别都建立在客观的和可识别的基础上，允许的歧视和不允许的歧视的定义是与这项要求相联系的。如果这样的一种基础得到了证实，那么这种歧视就可能被视为是允许的了。

在管输行业早期的非捆绑阶段，引起有关歧视指控的主要原因是管输业务板块与相关的（或附属的）供应业务板块之间的不适当（或被断定为不适当）分离。以前作为一体化的管输业务可能会阻止与它的相关供应业务形成竞争进而减少其市场份额的天然气托运人的进入，或向其相关供应业务板块提供比其他托运人更优惠的条件。其方式从通过提供劣质的或高价的服务直接拒绝进入，到向其供应业务板块提供有关天然气托运人保密的营销信息。

即便是在服务的数量、质量或成本之间的差别有客观的和可识别的基础的情况下，托运人想要找出理由指控管输业务歧视也并不困难。在许多情况下，这将使运输公司确信有必要将管输业务和供应业务彻底分开，并为每项业务在战略上和管理上制定一个适当的中心，以避免陷入无休止地法律纠纷。它还同时鼓励管输企业提供标准化的管输服务并使它们完全透明。在一些国家，有关的定价和服务制度已经被提升到原则的高度，但在多数情况下，是为了防止出现不允许的歧视。促进管输系统的相互连接和共同操作是该等“原则”的一个例

子。阻止或推迟原先相互未连接的管输系统的相互连接是一种阻止或推迟托运人进入的有效办法。与此相类似，在管输系统的相互连接方面，在技术和操作标准或天然气规格方式达不成一致意见，也是一种拒绝和限制进入的方法。这两个例子都属于不允许的歧视。

当然，如果向每一个托运人提供服务的成本存在差异，就允许管输企业在托运人之间就征收的费用采用“歧视”性政策。需要强调的是，只有当管输业务和供应业务之间严格地分离时，才能证明这种“歧视”是合理的。

### 1.5.2 输气和供应的一体化

在考察非捆绑（管输和供应分离情况下的）服务的定义之前，有必要对捆绑服务做一些回顾，这有助于澄清非捆绑的含义。

图 1.2 给出了在管输与供应捆绑方式下，是如何对天然气的供应与需求进行管理，以便同需求负荷期间曲线相匹配的。

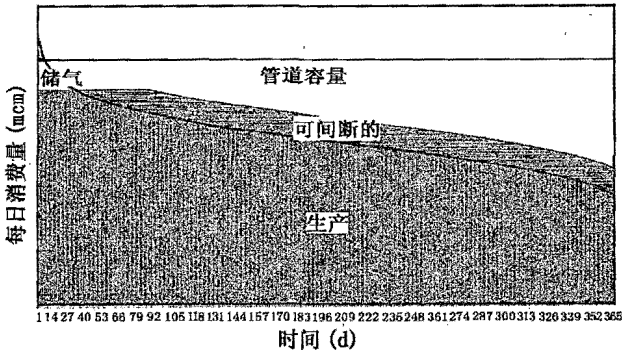


图 1.2 管输供应捆绑下的负荷期限曲线

这个需求负荷期间曲线是由固定需求和可中断需求（天然气的供应以可中断为基础）组成的。为系统设计和操作目的，需求负荷期间曲线通常是按照在极端需求情况下的可能性估计的，这些极端的需求情况是根据高峰日需求量和高峰需求期间来确定需求量并且是按照典型的恶劣天气情况考虑的。管道容量水平是按照最大固定需求（或高

峰日需求)设计的,对于某些系统,它的需求负荷系数(平均每日需求量除以高峰日需求量)远远超过管道容量水平的50%,通常按照或接近高峰日固定需求量来设计。对于其他一些需求负荷系数低于或刚好达到50%的系统(如范例中说明的),策略性的考虑是设置一些液化天然气储罐<sup>①</sup>,在高峰期注入系统,可以替代有限天数内(如5~10天)的管输容量。

目标是最大限度地利用所提供的管输容量。通过最低限度地减少所提供的管输容量(例如使用上述方法)可以达到这个目标,在可间断基础上销售天然气也可以达到这个目标。当固定需求的水平下降,管输容量是可获得的,在可中断基础上销售天然气可以充分利用管输容量。

不管怎样,这是与天然气的成本和储气的成本紧密相关的。生产商或供应商提供的在管输系统入口处的天然气成本将趋向于直接随着这种供应的波动而变动,这种供应的波动是需求负荷系数的倒数,它被定义为最大每日量除以平均每日量(年合同量除以365天),这种波动越大,单位成本就越高。在可中断基础上销售天然气,在高峰需求期间使用储存的天然气并在非高峰期重新将储罐注满将会减少供应波动的幅度,由此减少天然气单位成本<sup>②</sup>。

储气也为全年在平衡和运行上提供了调节余地,以便解决不可预期的供应短缺或需求量增加。在运输与供应捆绑方式下,可以根据储气设施的成本和特性以及可中断供气合同的条款来确定是否需要起用储气设施来支持可中断供气需求。在图1.2中,可中断的供气是在引入储气设施前就已结束。不管怎样,如果储气设施在高峰需求时期临近时已储满了气且运营商对储气设施中有足够的天然气来满足高峰期需求充满信心,他可能会选择用储气设施中的天然气继续向一些

---

① 在英国,用于将天然气在非高峰期液化、储存并在高峰时输送出去的液化天然气设施位于管输系统的末端。在其他国家一些储气设施也用于类似目的。

② 这些储气设施和其他那些托运人可以自行决定注气和提气的储气设施之间的差异是TSO必须控制液化天然气的使用输出以支持管输系统,受储存容量、供应能力、注入和提气方面的具体条件和技术条件的限制,所有的其他储气设施都应能提供非捆绑的储气服务。

或所有可中断用户供气。另外，为了保证供应的安全性，可能会建设超出运营计划要求的储气设施，这部分容量也可能被用来支持可中断用户的供应<sup>①</sup>。

### 1.5.3 业务分离的原因

1.5.2 节中简要描述了关于管输和储气容量的提供与维持、管输和储气系统的运营以及天然气购买和供应完全是一体的系统。从一种纯粹的工程或技术角度看，这种一体化水平是十分合理的；然而从经济的角度看，它存在着严重的缺陷，因为这种一体化不允许由市场的力量（由多个供应商和买家互动形成的力量）来决定供应的和消费的天然气数量。

正如在报告“中国天然气价格形成”中讨论的那样，天然气价格形成机制的两种主要方式是趋向于采用天然气供应、输送和营销系统一体化的、捆绑的模式。第一种是市场价值定价法，在这一方法中要确定终端用户的价格，该价格尽可能地接近用户愿意支付的水平。这就在天然气供应链上产生了低效及超额（不应得的）利润并限制了在提供给终端用户的服务质量和范围方面进行改革和选择。第二种方法的终端价格是基于按照成本加成法制定的井口价，这种方法造成最终消费和投资上的扭曲，并且也限制了改革和选择。国际经验表明这些缺陷的不利影响超过了由业务一体化带来的范围经济。

对这些不利影响理解的不断增强以及在计算机和信息技术方面取得的重大进步（降低交易成本）已经激励决策者进行天然气行业重组；特别是在管输行业逐步引入竞争。天然气行业的发展阶段以及为它建立一个适宜的、永久性的法律法规框架的进程可能会影响引入竞

---

<sup>①</sup> 在许多欧洲国家，为了保证供应的安全性建设了大容量的储气设施。随着时间的推移，欧盟成员国依赖国外供应商（如阿尔及利亚、俄罗斯、挪威和利比亚）供应天然气的依赖性越来越强并且还将继续增强。这个额外的储存容量就在这些气源中的一个或几个持续停供时使用。然而在许多情况下，来自这个额外的储气设施的天然气被整年用于供应可中断天然气。因此，就能在一个稳定的基础上有效地向技术上为可中断的大用气量用户供气，大用气量用户享受了一个价格可以与重燃料油竞争的几乎稳定的供气，这样运输公司能保持销售量，增加需求负荷系数并获得一个较低的天然气单位成本。像石油产品价格变化一样，大用气量用户支付的价格趋向于围绕实际供应成本变化，但所有其他用户支付的价格则都高于实际的供应成本。

争的速度。另外，大型基础设施项目谨慎的、注重实效的风险分配与管理（如西气东输项目），可能会在项目的早期开发和实施阶段引导投资者在天然气供应链上寻求一个相对高水平的纵向及横向一体化，而政策制定者通常也会对此让步。

承认可能存在减缓引入竞争速度的因素并不能证明新建的和已有的管输系统采取一体化方式就是正当的。一体化在最初被认为是必要的，这有助于天然气行业的发展及扩张，然而，持续的一体化会产生“既得利益”，它不利于竞争性天然气市场的兴起并拒绝了由此带来的优化后的经济效益。正如联合工作组（JWG<sup>①</sup>）报告中推荐的，应立即采取措施判断哪些业务是可以引入竞争的并开始为它的引入创造条件，这些措施的实行要伴随着适当的法律法规框架的建立。

下一小节考虑了由一个管输和供应一体化的公司从事不同种类的业务并判断：

- 受限于法规监管措施，在哪些方面可以较快地引入竞争；
- 在哪些方面无期限地受限于法规控制；
- 在哪些方面将最初受限于法规控制，但随着时间的推移将引入受限于法规监管的竞争。

#### 1.5.4 业务与服务分离

在以前的讨论中，5种主要的运输与储存一体化业务已被明确：

- 输气容量的提供和维持；
- 储气容量的提供与维持；
- 在系统入口处购买天然气并在提气点供应天然气来保证系统中供需之间持续的平衡与协调；连同
- 在确保维护系统安全性和完整性的同时，以一种使系统的天然气输入与输出保持平衡的方式来运营管输系统；及
- 支持前两项业务的储气设施的运营。

在分离的过程中，第一个关键步骤是从储运设施的提供、维护和运营中将天然气购买和天然气供应分开，达到这一目标的方法已经在

---

① 见前言中的注脚。

上面的第 1.3.2 节中讨论过了，在这个阶段依然认为其他四项业务还是一体的。

正如第 1.4.2 节中提到的，要求制定具体的商务安排来确保在这种分离之后管输系统能有效地发挥作用，这些具体的商务安排将典型地依据运行规则来制定，这些运行规则将包括如下关键性商务特征以便使天然气管输企业提供非捆绑式的运输与储气服务：

- (1) 必须允许管输提供者 (TP) 向天然气托运人定义并分配管输权 (并且在理想情况下，这些权利应该是可以转让的，以确保有效地使用)；
- (2) 所有的托运人必须一致同意遵守安全标准，管输提供者有责任达到在投资运输容量和/或储气容量方面的任何共同安全标准；
- (3) 天然气托运人必须向管输系统运营商 (TSO) 及时通知他们指定的输入输出量，要求的输入输出必须符合他们的输气权且必须遵守 TSO 的输气计划和安排；
- (4) 托运人必须提供一些输入输出的灵活性 (或建立一个与 TSO 有关的机制以确保这种灵活性)，以便使 TSO 能确保系统安全性和完整性得以维护；并且
- (5) TSO 和托运人必须制定一种程序并且要达成一致意见，以便解决气流 (通过 TSO 计量) 的计划与实际之间的不平衡。

前面的两点与容量的提供、维护和分配有关；后面三点是关于托运人利用容量来确保管输系统安全有效地运行。这一组特点将管输提供者和管输系统运营商的作用区别开来，通常这些功能会一直保持作为一个整体直到一些受限于法规控制的输气和储气的分离措施完成。一般来说，这种情况会持续到分离过程的第二个步骤。

紧随分离的初始阶段和储气业务的分开，储气服务能够由一个垄断的实体提供，结果是他们也将受到与管输系统同种类型的法规控制。随着时间的推移，当储气服务的价值与提供这项服务的其他可选择途径相比更加明确时，法规控制的程度就将被削弱。竞争服务包含新储气设施，在天然气生产方面波动的增加以及大用量用户的自行



中断。

与 TP 和 TSO 分离有关的第三阶段的分离可能要花些时间，但已经被很好地建立起来的非捆绑式的管输企业却在日益增加。在这种情况下，就容量的确定、分配和定价而言，TP 将继续受法规的控制，但只要一个功能完备的、获得一致同意的运营规则一出台，TSO 就将只受到法规的监管。

北美管道公司的一般条件和条款（等同于运行规则）的范例可以参见附件 4。

#### 1.5.5 固定的容量权

管输企业（同样适用于现有的管输企业和像西气东输这样的新项目）的主要作用是提供符合托运人要求的输气容量。其他国家的经验表明固定容量权是发展竞争的先决条件。消费者和供应方自然不愿意签订无法保证交付的合同。因此，这样的保证对所有第三方交易（这种交易通常属于短期合同）都是必要的。怎样在天然气托运人中界定并分配这些容量权将决定提供服务的范围和需要设计的运价种类。

为此，需要考虑以下四个问题：

- 现有容量的分配；
- 新容量的获得及定价；
- 剩余容量的确定与分配；
- 信息披露的要求。

下面对上述每个问题依次做些分析。

##### (i) 现有容量的分配

对于现有的管输系统，可以使用不同的机制来授权使用可用的管道容量，包括“先到先服务”的政策、抽签或不同类型的拍卖。从效率、非歧视和促进竞争角度，这些方案的吸引力还取决于现行的市场条件<sup>①</sup>。这些可选方案将在附件 5 中更全面的叙述，附件 5 也讨论存

---

<sup>①</sup> 在某些情况下，方法的选择并不重要。如果输送容量并不缺乏，通常可以做到输送容量的有效分配。在这种情况下，所关注的目标是输送容量的价格具有竞争性和公平性。但是，按照中国天然气消费的增长趋势，输送容量将会出现不足。输送管线之间的有效竞争，也可以确保输送容量的有效和公平分配，但对中国近年来不会有什么影响。

在活跃的二级管道容量市场的益处。

如果容量短缺并且不存在管道之间竞争的话，那么现有容量的分配就可能出现效率低和/或歧视的危险。活跃的容量权二级市场的存在（像附表 5 讨论的那样）最终能使容量有效地分配，但却不能防止容量在定价上的歧视或解决在容量市场中的市场权力问题。在这种情况下，分配容量权中所使用的方法就至关重要了。

每一种方法都有它的优点和缺点，优缺点的比重视具体的市场条件而不同。“先到先服务”方法在市场发展的早期有不利的方面，但这可以通过建立一个“开放期”得到解决。如果能够采取严格的安全措施来防止滥用，建议采用拍卖的方法而不是抽签。一旦市场发育完全，这些方法都是可以考虑的。

在容量缺乏的基础上，管输企业应有权拒绝进入管输系统。但是，一个由于缺乏管输容量而拒绝进入它的系统的管输企业，应该将支持它的容量拥塞的证据公开，并且应当做必要的投资（假定进行这种投资在经济上是合理的和/或托运人愿意支付费用）。容量权的最初分配以及对提供额外的固定容量的相关要求，如果被证明在满足系统进入需求方面是低效的，就可能要求在现有的容量拥有者中推行“不使用即失去”。此外，监管部门应该对最近签署的可能企图防止剩余容量产生的长期合同进行密切监视。

#### （ii）使用新容量及新容量的定价

为了保证投资适当地提前进行，在初始容量的使用接近可供使用的总量时，就应该制定有关系统扩容的计划。在这一阶段，应该允许新的托运人在一个固定基础上按照与现有托运人完全一样的条件预定一部分这样的新增容量。这可能并不简单。

一般认为，这种额外容量增加的成本低于初始容量<sup>①</sup>的成本（在每单位的基础上），因此，有人会争议，获得这种额外容量的容量

---

<sup>①</sup> 情况并不总是这样，由于规模经济的影响，管输企业可以较低的单位成本增加容量，并允许管输企业在相当长的一段时间里这样做。但是，最终这些规模经济不再发挥作用，新增容量成本将会等于或高于原有的成本水平（考虑过渡期技术进步对成本影响的调整）。

权的运价应低于获得最初的容量权的运价，这被称为新容量的“新增定价”。

然而，在大多数情况下，新增容量较低的增量成本却是源自初始容量扩张的规模经济。如果没有初始容量的拥有者的初始投资，也就不会有新增容量较低的增量成本，因此，如果初始容量的拥有者不能从管输容量的扩容中得到任何好处，就是不公平的。此外，由于是作为更大的系统（这个系统属于单一的系统运营商）的一部分，新增容量可能会具有更高的使用价值，初始容量的拥有者由于允许使用他们拥有的容量来增加新增容量的价值而应获得补偿。很难在原有的和新增的容量权的拥有者之间将成本和利益量化并分配。因此，为了对初始投资的系统使用者进行补偿，重新平衡管道运价是有道理的，这样就出现了一个比初始运价低但比由新增成本算出的运价高的平均运价，被称为“滚动”定价。

当一个以市场为基础的分配新增容量权的体系与一个活跃的容量权二级市场建立起来后，就可能对新增容量采用“增量”定价。随着上述安排趋于完善，“滚动”定价就成为惟一可行的选择<sup>①</sup>。

### （iii）剩余容量的确认和分配

非歧视原则和确保管输企业执行对原有的和新增的固定容量分配的有关义务，要求管输企业只要有可使用的容量就应提供。因此这个要求包含着这样一种义务，即一旦有可使用容量，就必须出让剩余的固定容量。

剩余容量的分配是至关重要的。剩余容量发生的情况包括当合同期满时，或当用户选择更换义务供应商。原有容量拥有者在任何情况下都不享受特殊优惠待遇，如权利自动更新或享有“第一拒绝权”来更新合同。

基本的要求是，当一个与管输企业有联系的供应商的用户选择更换供应商时，管输企业依然提供所需的管输容量。不能期望用户的天然气消费总量会增加。所有其他方面都保持不变，“剩余”容量的形

---

<sup>①</sup> 输气系统的接入成本将在本报告的后面章节中单独讨论。

成只是由于用户决定更换义务供应商。一般认为这种情况在市场开放早期会经常出现，对于例外情况的要求只有在极特殊情况下才被允许，并且要求管输企业提供详细的支持证明。

这项义务的一个重要组成部分是关于每个系统中与固定容量权目前的或未来的分配有关的信息公开。

#### (iv) 信息披露的要求

首先是要求管输企业应全面、详细地披露管输容量使用情况历史的和当前的数据。以前的容量使用情况为估计现在和未来的使用情况及预测剩余容量的可使用情况提供了一个基础。这样的基础有助于第三方和监管者监督对预期容量的利用存在任何过高估计的企图。如果预测的容量使用情况与以前的使用情况差距悬殊，就要求管输企业提供客观的理由。在可能涉及商业敏感信息的地方，只应该对监管者或解决纠纷的部门披露信息，但是，在其他情况下，或在这些部门认为不构成敏感商业信息时，企业就应向公众披露。

关于现在和未来容量使用的信息可能在两方面具有商业敏感性。下面举例予以说明。

例一，某一新进入的供应商正在与一个原有义务供应商的用户谈判，并要求从相关管输企业取得固定容量。如果这一信息被传递到原有义务供应商，将刺激采取掠夺性定价，阻止用户转向新供应商。解决这一问题最有效的办法就是执行输送业务与供气业务在法律上的完全分离。然而，在这两项业务还没有完全分离的情况下，有力地执行《行为规则》也可能有效地避免商业敏感信息的争论。

例二，某制造商计划扩大其某一工厂的经营规模，因而要求其供应商预留为未来新增的容量，但他不愿意将其扩建计划透露给他的竞争对手，因此管输企业应只公布数据指出是哪一个时段及目前就那一时段分配的固定容量，而这些容量持有人的身份是没有必要公布的。

英国在这方面的实践就是一个很好的例子。管输企业 Transco 公布可用输气容量的详细信息，包括每年公布的“十年规划”，对未来十年输气容量的扩容情况做出预测，它也给第三方提供计算机程序，使得第三方可以模拟天然气管输容量并对可能出现的限制做出预测。

### 1.5.6 可中断或“即期”服务

对所预定的固定容量的使用会随时间推移发生较大变化，这反映了天然气供应与需求之间的波动。这种波动是很难预测的，因此需要预留一些固定容量，这些预留容量在某些时候是闲置的。这些数量可观但数量不定的闲置容量的存在，使得运输公司除了满足固定容量权，还可以提供短期的可中断（即期）服务。经验表明，天然气经销商对这种服务非常感兴趣，并且可以提高输送容量的利用率和市场的流动性。

#### （i）可中断服务的意义

短期的可中断服务可以从多方面促进竞争。首先，它有利于天然气现货市场的发展。如果没有可中断服务，各市场参与方只能从现货交易中得到固定容量权。如果容量市场还不是非常完善，在短期内就很难迅速得到所需要的容量。因此，短期的可中断服务对于现货市场的发展是非常重要的，现货市场已出现在其他国家。

其次，如果能够获得这种短期容量，可以减少那些为了降低竞争风险而蓄意囤积空闲容量的行为。如果没有短期的可中断服务，囤积容量就会妨碍其它各方有机会使用这部分容量。即使市场中有囤积容量的行为，可中断服务的存在将为各方提供使用运输系统的另一种手段，这将促进空闲容量在二级市场的交易并提高了市场的流动性。

第三，如前所述，提供可中断服务可以减轻各方因对可用固定容量的衡量存在争议而带来的负面影响。例如，由于已签约用户的全部容量在需求高峰时期全部都使用了，管道企业将拒绝继续提供其他进入服务，这就可能引起争端。那些寻求进入的用户可能难以接受这种决定，解决争端的过程相当复杂：由于双方对需求高峰时期的看法不同，他们将得出可用容量的不同估算结果，而且他们对于可以承受的输送容量的削减量也存在不同的意见。义务供应商可能会提出不承担任何风险的条件，即坚持他不能向一位新加入的客户提供固定的进入权除非客户百分之百的肯定这个固定容量绝对不会中断，同时新加入的客户可能建议一些较小但并非为零的风险是可以接受的。可中断服务的提供可以最大限度地减少这种纠纷。如果寻求进入的一方被说服

在管道中有足够的剩余容量，那么它就会同意购买可中断容量而不是固定容量，因为它可能无法预测到重大的中断。

这种避免纠纷的形式可以通过下述方式得到改进，即确保中断的原因是透明的、客观的和容易被各方证实。通过按中断的可能性不同提供多种可中断服务，也有助于保证对中断有较大担忧的用户比对中断不太担心的用户获得供气优先权。购买中断可能性较高的服务支付较少的服务费，但是会比购买中断可能性较低的服务先中断供气，这样的安排存在于天然气市场和电力市场。

### （Ⅱ）实践中的可中断供气服务

由于可中断和其他短期服务所创造的价值，可以设想在一个竞争的市场上拥有固定容量的商家将十分乐意提供它们，因此，在一个完全成熟市场中，在那里固定容量权可以广泛地获得以及可以在活跃的二级市场交易中交易，是没有必要要求提供可中断供气服务的。购买固定容量的第三方自然有动力提供接近于替代可中断服务的短期服务，因此，在有活跃的容量权二级市场的地方，与这样的第三方竞争就意味着管输企业没有理由再保留可中断服务，并且会自觉地以市场价提供服务。

然而，为了在中国达到天然气行业政策目标，应要求管输企业在向完全竞争市场的转型过程中提供可中断供气服务，直到一个活跃的二级容量市场的兴起，管道企业才有动力拒绝提供可中断服务。

在这个转型阶段提供短期可中断服务的义务也是从提供非歧视服务的要求而来的，短期可中断服务通常可以隐含地用于从属于管输企业的供应企业，对西气东输项目来说就是统一销售公司，如果合资公司的参与方对容量有一个在短期基础上的不可预测的需要，很明显，管输企业将提供这一容量。在这种情况下发生的地方，非歧视的原则就要求管输企业向其他用户也提供相同的可中断服务直到一个活跃的二级市场的兴起来确保相同的服务也会提供给其他各方。

不管怎样，只有当预定了足够的固定容量来保证提供固定管输服务的成本得以回收时，提供可中断管输服务的要求才能被提出。

### （Ⅲ）可中断服务的分配和定价

由于可中断服务能被拥有容量权的商家以竞争的方式在天然气市场中提供，那么就需要规范它的价格。然而在转型时期，如果可中断供气服务的收费价格不受监管，管输企业就可以从中赚取垄断利润，为此就应由监管机构确定收费价格并定出收费的最高上限。可中断服务的最优价格应定在提供这项服务的成本（等于为此发生的可变成本）和固定容量服务价格之间。原则上，应通过应用“拉姆其定价（Ramsey pricing）”<sup>①</sup>的经济原理确定确切的最优价格，然而事实上由于所要求的信息而无法采用。所以允许管道自主定价是符合逻辑的，但要有两个约束条件：一是最高限价，另一个是收入分配机制，向固定容量持有人分配出售可中断服务赚取的净收入中的绝大部分。在美国，一般要求管道运营商将出售可中断服务收入的90%分配给固定容量持有人。

最高限价是为了防止滥收费<sup>②</sup>，由于可中断用户并不要求管道系统扩容，因此可中断容量比固定容量在计价时应享受一个折扣。在留给管输企业一些提供可中断服务的财政激励政策的同时，收入分配机制避免了管道企业的收费过度并将可中断服务利润引向拥有固定容量的商家。由于信息上的不对称使得我们很难确定一个管输企业是否将它所有的未使用管输容量拿出来供使用，财政激励政策就是必不可少的。收入分配机制也为固定容量的拥有者提供了额外吸引力，从而有动力确保管输企业提供可中断服务。

收入补偿机制也能防止可中断服务定价方面的歧视。如果管输企业向所有托运人（包括它的关联供应企业）收取的运价高于可变成本，服务的成本就是所有托运人偿付的运价，但对于关联供应企业来说仅仅是个转移，这种付款的转移经常在关联方之间发生，并且会计师会将固定的管理费用和资本费用在这些交易之间分配，但是从经济角度，合并公司使用剩余管输容量的唯一成本是短期可变成本。在这

---

① “拉姆其定价”是一种由于需要回收固定成本，边际成本定价方法不切实际的情况下确定价格的方法（或更一般地说，就是筹集超出边际成本的资金，例如，在税收优化理论中它首先被应用）。在拉姆其定价法下，通过对需求最缺乏弹性的那些产品或服务设定最高的价格——成本加成，固定成本以最小限度的经济失真进行回收。

② 设定最高限价应被作为一个在活跃的二级市场成熟之前转型过程中的措施。

种情况上，拥有管道和其相关企业单位的公司使用可中断服务的成本显然低于第三方，并且这将引起对其他托运人的歧视。不管怎样，收入分配机制确保管输企业收取的支付给它的关联供应企业的费用不仅仅是一种付款转移。这种收入分配机制可以在非歧视的基础上向拥有固定管输容量的商家分配固定成本回收中的绝大部分。

一个有效的短期可中断服务要求定期公开有关容量可使用的信息，上面提到的有关固定容量权的同样的观点也适用于这里。当义务供应商占有这部分信息时，披露该信息的义务就由非歧视的原则而来，它与用来证明拒绝进入是正当的信息条款是一致的，也与向管输和配气企业提供足够的信息来保证管输系统的有效使用的条款是一致的。再者，披露信息要以避免泄露商务敏感信息的方式进行，通过将信息限制在仅披露可使用容量的总量可以达到这个目的。

总之，可中断管输服务的发展是市场开放和引入气与气竞争的重要方面，即便要求提供可中断管输服务的潜在可能性没有立即出现，也有必要确保建立的商务和合同安排不会妨碍将来这种服务的提供。

一旦预定了足够的固定容量以确保合理的成本回收，并且新的供应商进入了市场，提供可中断输气服务的潜在可能性就将出现。给定管输系统的运营商占有的高质量的信息，对于管输企业提供这项服务能够有更好的理解（如上面提到的）。然而，受系统运营商执行的计划安排的限制，托运人可能准备在他们之间建立一个非正式的场外交易（OTC），信息发布的要求将随兴起的服务本质的不同而有所不同。

## 1.6 有关运价设计基础的结论

以许可证为基础的监管方式提供了一个在中国制定法规监管和商务安排的有效的适宜方法，该法规监管和商务安排在北美的运价规则或监管规则中进行了详细说明。

依照如下次序，逐步将分析的焦点过渡到管道运价的设计：

- 建立监管机构和许可证制度的主要立法；
- 许可证条件的定义和许可证的发放；以及
- 制定商务安排，以便将



- > 管输与供应业务分开，以及
- > 提供管输服务的运行规则或一般条件与条款。

如果没有一个清晰的适用于管道运价设计的法律和监管框架作指导，管道运价设计不可能有效地进行。

本报告中建议的方法和描述的管道运价设计是与法律法规监管框架及在早先联合工作组（JWG）报告<sup>①</sup>中提出的和在本章中总结的法规监管和商务安排相适应的，这就使运价规则必须把重点放在运价设计的原则和目标上，下一章将讨论这些问题。

---

① 见前言中的注脚。

## 第二章 定价规则的原则

本报告所定义的“运价规则”用于确定西气东输项目的输气价格设计和储气价格设计的原则、目标和所采用方法的某些适当特点。对于如何将这一规则应用于现有的运输系统也将给予关注。本章介绍了定价规则中应包括的原则、目标和适当的特点。

### 2.1 运价设计原则

正如前面的 1.5 节所述，运价设计的最高原则就是无歧视原则。这意味着如果两个经销商接受完全相同的服务，就应该支付同样的价格。如果管输企业对每个经销商采用不同的价格，就被视为不允许（或不适当）的歧视的首要证据。确保价格反映成本，可以最有效地避免这种不被允许的歧视。换句话说，无歧视原则的应用要求价格反映管输企业在为经销商提供服务时所发生的成本。这一原则（和相应的成本配比要求）就是详细论述运价设计目标的基础。

### 2.2 运价设计目标

天然气输送具有自然垄断性。因此，为了保障公共利益，防止在市场上拥有垄断地位的管道业主滥用其垄断权，必须进行管制<sup>①</sup>。管制的目的是替代天然气市场竞争，以实现以下目标：

首先，产品的总生产量是有效率的。当用户所消费的最后一个单位产品的价值等于其价格，当所生产的最后一个单位产品的成本等于其边际成本时，社会总剩余达到最大。这通常称为“资源配置效率”。

其次，所生产的产品量在用户之间合理地进行分配。这些产品仅

---

<sup>①</sup> 这一问题曾经被广泛讨论，在联合工作组报告的第一章做出建议。参见报告《中国长输管道天然气运输及城市天然气配送的经济管制》，世界银行、中国国务院体改办经济体制与管理研究所和基础设施咨询服务基金会，2002年8月。

在那些支付意愿高于产品价格的用户之间分配。这通常称为“分配效率”。

第三，总生产成本最低。每个生产商都尽量降低其生产成本，生产商数量适当，因此，每一单位产品以最低平均成本生产。这通常称为“成本或生产效率”。

### 2.2.1 资源分配效率

难以实现资源分配效率通常与垄断及存在市场权力有关。垄断集团可以将价格提高到边际价格之上，客户的支付意愿也超过了边际成本，这降低了社会总剩余，但垄断集团由于其所占社会总剩余的比例提高而获得了更多的利益。

在管道运输价格设计中，面临的挑战是如何管制价格使它接近长期边际成本 (LRMC)。北美的管制经验表明，当管道运输价格等于其长期边际成本时，投资回报可能高于市场水平。然而，一些北美的研究试图证明管道输送的长期边际成本与长期平均成本比较接近。

为了实现资源配置效率，某类服务价格和不同地区的价格应尽量基于其成本定价。

### 2.2.2 用户分配效率

这牵涉到在短期内，将来自管网的一定数量的产品在管网所服务客户之间进行分配。当分配这些产品使它对用户的价值达到最大时，就实现了用户分配效率。

运价设计问题在于平衡解决这一事实：一方面不同的管网用户认为输送服务给它们创造不同的价值，另一方面管网管制遵循的基本公众利益原则要求对接受同等条件输送服务的所有人收取同样的价格。

为了实现公平，避免不适当的歧视，各天然气运输公司应该是相互独立的合同执行方，他们根据合同条款为购买输送容量的用户提供服务，以有效地实现供需平衡，即实现用户分配效率<sup>①</sup>。

---

① 报告中对此问题将作进一步详细讨论。

### 2.2.3 生产效率

生产效率或成本效率要求在生产一定数量的产品时（对西气东输项目，每年输送 120 亿立方米天然气），使用尽量少的资源；同时也要求尽量高效率地使用与生产相关的各种要素（劳动力和资金）。如果这两个条件中的任何一个不能满足，这些产品就不是用最低成本生产的，也就不具成本效率。

运价设计所遇到的主要问题是，（北美）传统的“投资回报率”管制方法以成本加成法为基础，几乎没有激励实现生产效率，因此，受管制的垄断管网的建设和运行很有可能不具成本效率，通常导致多计资产（术语“金盘子”）和高价取得管网运行所需要的各种要素（劳动力、购买的物品和服务）。

为了实现生产效率，定价机制应该是“绩效管制”，而不是“回报率管制”<sup>①</sup>。

### 2.2.4 产品选择效率

如果产品之间存在差别，产品选择效率就很重要并应受到关注。不同的天然气输送服务在可靠性、目的地和季节性等方面都存在差别，保证服务和可中断服务对用户来说显然是两种不同类型的服务。

产品选择效率要求所能提供的服务类型应与所需要的服务类型相吻合。如果为所有需要保证容量服务的经销商提供同样可靠性的服务，就可能不能实现产品选择效率。不同经销商对所需服务的可靠性要求可能高于或低于标准的输送服务条款中所规定的可靠性要求。

实际中的解决办法是，设计特定的服务，以便最大限度地满足用户需求。这需要时间，对用户需求进行更好的了解以及与用户的充分协商。

### 2.2.5 足够的回报

应该允许受管制的运输公司根据其预测的输气量收取相应的费用，从而得到足够的收入以回收其包括合理投资回报在内的全部合理

---

① 此问题在报告中作详细分析。

成本，这一点很重要。这些需要回收的成本当然包括以折旧形式反映的投资回收、借入资金的成本、运行和维护成本以及投资回报。

传统的北美管制中按照“公平回报”确定输气价格，这一回报参考那些存在市场竞争并且风险与管网公司同等的其它经济部门的回报来确定。在“回报率”和“激励型管制”模式中，计算价格时首先要评估受管制企业需要达到的利润水平。

为实现以上目标，运输公司应以第一年的收入状况为基础确定价格，还应预计自己第一年和后续各年所需要的资金和运行成本。这些建议是为了保证运输公司取得足够的回报<sup>①</sup>。

为了鼓励运输公司在第一年以后仍能维持生产效率（第 2.2.3 节），联合作业建议，管制委员会应该对价格计算期内中国天然气输送行业的技术进步状况进行预计，考虑技术进步后，实际价格将呈现逐年下降趋势（对管网用户有利），但同时可以激励运输公司进一步提高效率并超出管制委员会所预计的技术进步水平，从而增加运输公司的利润。

### 2.3 期望的特征

如果价格的设计完全满足上述目标，这种价格必定将充分反映成本并且是无歧视的。然而，花费很大的力气完全实现上述目标可能是不太现实的，因此，有必要根据一些标准对价格设计方法进行评价。这些标准可以称为是价格设计适当但不是绝对必需的特点。价格设计的这些特点应该是：

- 客观，易于理解和采用；
- 透明；
- 可预见性；
- 可适应性。

---

<sup>①</sup> 此问题在报告中作详细分析。

## 2.4 结论

确定定价规则时，价格设计的原则和目标应集中在实现经济效率的关键问题上，同时，确保产生的收入足以回收其成本，该成本的发生遵循谨慎性原则，并且是有效率的。能够实现这些目标的价格必定反映成本，是无歧视的。然而，实现这些目标所带来的收益绝对需要与降低“用户友好”特点（如易于理解和采用，透明，可预见性和可适应性）的成本权衡考虑。本报告强烈推荐并遵循这种分析方法。

## 第三章 价格手册的制定

### 3.1 方法介绍

价格设计模型的主要目的是：

1. 允许运输公司回收运行成本，并获得足够和可靠的投资回报；
2. 反映所提供服务的成本结构。

为达到这些目的，必须完成如下所述的三项主要工作：

- 资产评估的管制。无论是电力、水、天然气还是铁路，所有的网络都需要投入大规模的、长期的、专用的和不可逆转的投资。这些投资所产生的年回收资本（投资回报和折旧）构成输送企业每年成本的很大一部分。对这些投资进行适当评估是建立基础成本和推导价格的一个主要方面。这种评估将受到管制约束，但是要求进行资产评估是输送企业的职责。
- 基础成本的推导。基础成本的主要组成部分是：
  - ▷ 投资回报（税前基础）；
  - ▷ 折旧；
  - ▷ 运行和维护成本。

根据这些因素可以得到每年要求的收入水平，再根据所预测的产品产量，就可以确定产品的价格水平。如图 3.1 所示。

- 成本分类、成本分配及价格设计。这项工作确定了输气的价格结构，其所包含的任务是：
  - ▷ 将基础成本分为固定成本和变动成本；
  - ▷ 将固定成本和变动成本分配到容量费用和商品费用中；
  - ▷ 根据各分类成本和输送容量的使用，计算输气价格。

资产评估、基础成本的计算和价格设计，这三个最主要的任务可

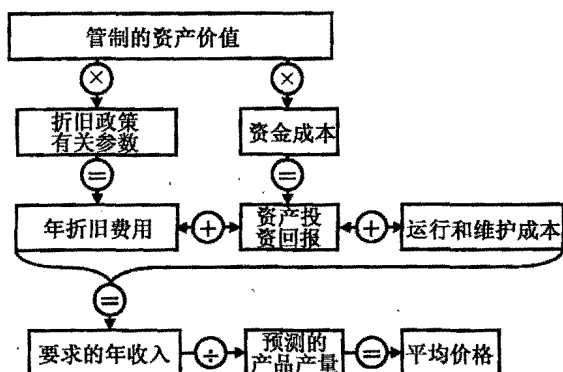


图 3.1 确定的价格水平

分多步来进行。这种定价方法在建立正式的管制框架以前会受政策和管制的混合制约；提供运输方采用这种方法进行输气价格的设计具有很重要的意义。

### 3.2 资产评估

有些国家运输公司和供气企业是相互分离的，有些国家仍旧采用一体化结构，为了进行价格设计和价格管制，需要评估输气系统的资产价值。在这点上各国由于情况不同而存在较大的差别。原则上，应该采用会计方法进行计算或者在法律文件里直接规定其价值。而实际上，与受管制和受竞争制约的分离后的运输公司和供气企业相比，一体化垄断企业的投资者总是倾向于高估其资产的价值。

因此，政府决策部门面临一个两难的抉择。一方面，它们希望尽量扩大一体化企业经营所能带来的好处；另一方面，它们又希望引进竞争和现代管制方法；但同时它们也意识到这两个目标存在相互冲突。如果企业为垄断的一体化企业，政府决策部门由于担心企业的垄断利益受到侵害而不愿意因竞争和管制的需要强迫企业分离其业务。企业分离潜在的风险是，它可能会推迟投资者继续进行投资或参与将来的业务。通常政府决策部门（和立法部门）常常不管这个问题，而



把它转移给管制机构处理。管制机构则利用各种各样的方法来履行政府决策部门这一未尽的职责。

这往往造成有关以下几方面管制的不确定性：

- 业务拆解的必需范围；
- 输气系统资产的初始评估；
- 对现有投资和后续投资回收的保证。

输气业务和供气业务的拆解对于避免利益冲突来说是必不可少的，而这些利益冲突会降低整个供气链的效率。效率的获得可以通过批发市场中的竞争和单纯的输气服务，这已在有些国家中获得证实。但业务拆解会导致规模经济的损失和交易成本的增加，必须对两者进行利弊比较分析。同时，业务拆解也有可能被认为侵犯了那些输气系统原始投资者的财产权，这些投资者投资输气系统的目的是为了自己使用。另一个主要问题是，业务拆解所带来的提高效率的好处需要花上一段时间才能显现出来，而重组所需要的成本几乎马上就要发生。这种效益和成本的不同步，以及由于侵犯财产权而引起的相关问题，常常使得政府决策部门在确定业务拆解的必需范围和对解捆后运输公司进行初始资产评估时犹豫不决。

最佳的解决办法是让一体化的输气和供气企业认识到，将企业完全分离最终将对输气和供气企业双方有利<sup>①</sup>，这与各企业的战略及管理目标——经营效率和盈利——是一致的。管制机构可以利用某些激励手段和控制手段促使这些企业尽早认识到完全分离所带来的好处。

但是，管制机构不应该将它们的主要精力放在输气系统（或其他现有的市场参与方）身上，以促使用户更换其供气商。这有时被称为“为竞争而引入竞争”<sup>②</sup>。

---

① 1997年，英国天然气公司自愿成立部分分离的英国天然气交易企业 Centrica，它是作为一个独立的公共服务有限责任公司来运行的，并拥有自己独立的证券交易。其他的企业，其中包括管道企业 Transco，作为另一个独立的公共服务有限责任公司来运行。在北美，有许多类似的管道企业与其附属交易企业自动分离的例子。

② 这会走向另一个极端。现有的供气商可能会给最终用户设定一个较高的价格，直到新参与方进入市场并开始竞争以后，才将价格调整到竞争时的低价格水平。见例，Alfred E. Kahn 所著“贿赂消费者避免竞争”，《电力期刊》，1999年5月，第88~90页。

这个极端的例子不应掩盖这一事实：在天然气供应链中超额利润的存在常常会使得管制者进行干预。如果消除这些超额利润能够真正提高效率，那么这种干预是合理的。但是应该注意到这种超额利润可能有效激励新参与方进入这一市场<sup>①</sup>。当行业进行重组时，天然气供应链中超额利润存在的区域和范围将在行业垄断部分和竞争部分之间转移并发生变化。因此，特别是在重组的过渡时期，管制机构应关注对新参与方的有效激励。

在中国，现有输气系统的资产评估问题很可能比西气东输项目的资产评估问题更难解决。合资集团需要对西气东输项目进行初始的资产评估，政府决策部门和管制机构将对这一评估进行后续审查并有可能修正这一评估结果。资产评估有两种方法。第一种是基于原始的资产购置成本进行评估；第二种是基于利用各种方法测得的资产现值进行评估。

### 3.2.1 历史成本的评估

一般情况下，资产评估的“原始成本”（或净投资）标准等于所有资本资产的原始购置成本减去累积折旧。因为这样定义的资产价值等同于相对明确的“账面价值”（或公司资产负债表里的相应数据），所以利用原始成本进行资产评估不会引起很大争议，产品价格可以基于原始成本计算得到。

利用原始成本标准（也称为历史成本会计）进行资产评估不需要确定资产的“最优性”和它们现有的经济价值。通常认为资产每年都要贬值一部分（会计术语中的折旧），最终未折旧完的资本则表现为公司的负债，债权人为投资方<sup>②</sup>，但这些负债都已到期。因此，折旧（投资的返还）和投资回报就构成了价格计算中投资的这一部分。

---

<sup>①</sup> 二十世纪80年代中期和90年代，中国电力行业实行“新电厂/新政策”：为进入市场的新电厂提供激励机制，允许其取得高的回报。这造成了电力市场短缺。这项政策在2002年通过在发电厂引入竞争而得以改变。

<sup>②</sup> 当然，如果长期债务完全还清，企业完全依赖股东投资。（对风险资本密集程度较低的企业来说是不太可能的），将不存在进行债务融资的负债。

### 3.2.2 资产现值的评估

资产现值的评估方法有三类，它们在经济目标、会计目标和管制目标等方面各有侧重：

- 重置成本法是指重新建立（或替代）一个完全相同的企业所花费的成本；
- 改进的重置成本法是新建一个新型企业替代原有的企业，并提供完全相同的服务所花费的成本；
- 资产余值法。资产余值的意思是指，在不向业主分配利润和业主不再追加投资的情况下，财务期末与财务期初相比，净资产增量的财务价值或货币化价值。这通常去除了通货膨胀因素。

#### 重置成本法

通过确定现在重置每项注册资产的成本来估计重置成本，这是一个耗时耗力的工作。实际上需要定期做这种工作，比方说，每五年一次。对中间各年，需要考虑各项成本组成部分（钢铁、原材料和设备、劳动力和项目管理、租借的道路通行权等）的价格指数来估算重置成本。通过这项工作可得到按现行成本重置所有资产的总现值，再考虑累积折旧的调整，可估计得到按现有成本计算的净资产现值。通常称这种资产评估方法为“保证运营能力的完整性”（OCM）。它在重置、“如新”的基础上对资产进行再评估，并且考虑重置和重修的费用以维护“如新”的运营能力。

从会计角度看，支持采用原始成本标准进行资产评估的人认为：与利用重置成本法得到系统的“真实和公平”的价值所带来的好处相比，这种方法的代价太大。另外，这些估计值都是带有主观性的，很难建立一个适用不同时间段的再评估的基础。

采用重置成本法进行资产评估能够更好地反映提供输送服务的当前成本。支持这种方法的人认为：原始成本可能比重置成本要低得多，相应计算得到的价格要低得多，因此，基于原始成本支付较低的费用就难以回收全部的现行成本。这会导致两种类型的低效率：

- 由于用户不按照现行成本支付其消费，会造成消费的浪

费；

■ 这种消费量上涨的压力会导致新投资的过度增加。

### 改进的重置成本法

这种方法的目的是评估输气系统的新型等价资产（MEA）的价值。随着时间的推移，天然气市场的供求方式将发生变化，相应输气系统要进行扩展，因此系统结构就绝不可能像原来确定的天然气供求市场时那样没有变化。另外，随着时间的推移，由于技术进步的影响，实际成本呈现下降趋势。

从经济和管制角度来看，采用改进的重置成本法可以估算输气系统的“有争议的”价值。这意味着这些资产的价值应等同于假想的市场新参与方可能进行的投资，新参与方将提供与现有者同等水平和数量的产品。

从会计角度甚或经济角度来讲，支持采用原始成本标准进行资产评估的人认为：除了与重置成本法具有同样的问题之外，改进重置成本法常常需要对运输公司的管道系统重置成本进行十分详细的工程分析。另外，这将使得投资者承担重大的附加风险。

### 资产余值法

资产余值法主要用于已上市企业的市场资本化方面。股东愿意支付的企业股票价格乘以发行的股票数，再加上贷款方提前准备支付的资金总数等于企业的市场价值。这是对企业净资产价值的合理初始估计。随着时间的推移，初始净资产价值可用通货膨胀指数进行调整。通货膨胀指数，例如消费价格指数，是投资者计算其投资真实价值时最常用的紧缩指数。

这种方法的另一个优点是：与重置成本法相比，它可以反映由于技术进步而造成的“持有损失”。技术进步可以降低重置的真实成本，这在运用重置成本法（或改进的重置成本法）重新估算企业对于股东的价值时有所反映。比较资产余值法得到的净资产与重置成本法得到的净资产，就反映了这种“持有损失”的程度。从管制角度看，股东蒙受这些损失，会降低受管制公司降低单位成本的积极性。而采用资产余值法对资产进行评估，可使受管制公司保护它的股东使其免受这

样的持有损失。

虽然这种方法在理论上是十分吸引人的（英国的天然气和电力管制机构 Ofgem 和其他管制者，都已经采纳了这种方法），但是还是存在一些问题。如果企业没有上市，那么就需要应用前文提到的方法之一来得到资产的初始价值。如果运输公司作为上市公司，但它隶属于更大的一体化天然气或天然气石油企业（如中国石油的输气业务那样），就难以确定运输公司占整个市场资本化的合理份额。同样难以决定的是：应该选择什么时候（以什么价格）的市场资本化水平作为管制中的资产初始价值。

### 3.2.3 评估方法的选择

在选择管制中的净资产价值评估方法时，有两个问题需要解决。第一个是设定初始价值，第二个是确定这个初始价值如何随时间变化。在某种意义上，本阶段不需过多关注第二个问题。如果已经确立初始净资产价值，那么初始价值随时间变化的任何一种方式都会产生各自的回收资金流（净资产价值的折旧和回报），并且每一种资金流都有不同的模式。如果采用一致的方法对资金成本进行估算，并采用同样的投资回收期，那么每一种资金流的现值将与初始净资产价值相同。资产价值的变化和回收资金的模式将在下文讨论，它涉及折旧及资金成本。

常常有人主张为管制而进行的资产评估不应该偏离企业做财务报表时所采用的方法。如果这两种方法相同，可能会很方便，但是，要求管制账目和企业的财务报表采用同一套会计科目标准，这是没有道理的。只要这两套标准能够相互对应，有公开透明的审计追踪程序，采用不同的标准就不会有什么问题。即使在北美，管制者和企业在管制账目和企业会计报表中分别采用历史成本进行记账，在大多数情况下，需要保持一套单独的管制账目。

对西气东输项目而言，它的初始净资产价值的确定比较简单，在管道完工并开始投运以后，基于在建工程完工报告计算得到的建设成本就是它的初始净资产价值。但对现有的管道系统来说，情况就没那么简单了，需要根据已有的信息和数据逐个案例进行详细的分析。总

的目标是要确保所选用的评估方法得到的回收资金能够反映输气业务的经济成本。保证各种评估方法的一致性也是非常重要的。当在应用评估方法出现变化时，这些变化应该是明晰的和经得起推敲的。

### 3.3 与成本基础有关的因素

#### 3.3.1 折旧政策

与利润相对应，折旧是投资成本随时间的逐步回收，它是对资本资产损耗程度的衡量，也是积累资金更新或重置资产的一种内部机制。折旧仅能用于回收投资。资本资产的损耗是一个技术和工程问题，它仅与资产技术寿命内的投资或继续投资决定相关。更新或重置资产的决定最终是由企业所有者做出。

涉及折旧，需要回答两个问题：初始投资的回收期有多长？要用何种方法来计算年折旧费用？

##### 折旧期

对于特定的资产，它的技术或物理寿命为投资回收期的上限。资产的经济寿命要短些，指的是资产所提供的服务能够继续产生其全部经济价值的时期。然而，不同的投资者和融资方对投资回收期有着他们各自的看法。例如，银行希望尽快回收资金来使风险最小化。倘若股东们不能将风险转移给别人，为了尽量降低未回收投资的风险，并得到适当的报酬，他们可能会延迟投资回收期。

西气东输项目是具有重大发展潜力的核心输气工程，因此应按照它的技术寿命来确定投资回收期，这一回收期可能是40年或者更长，它取决于正在进行的设计试验。当然，组成管道系统的不同种类的资产拥有不同的技术寿命，例如，具有活动部分的设备，例如压缩机，比起管道来说寿命要更短。每项资产都将按它自己的折旧率进行折旧，而平均折旧期可依据各项资产的折旧情况计算得到。

##### 折旧方法

无论是用原始成本还是现行成本作为资产评估标准，直线折旧是对长寿命资产进行折旧的最常用方法。一旦确定了一种资产的折旧期，年折旧费用就等于初始价值除以折旧期。当使用现行成本评估方

法时，初始资产价值、年折旧费用和累积折旧等需要用选定的价格指数进行调整。在折旧期期末，总累积折旧等于按通货膨胀调整后的初始资产价值。

为纳税目的折旧提存的计算方法可能与这种方法有所不同，这将影响公司财务报表中的一些会计科目，但并不影响在管制账目中采用直线折旧方法。可是，在计算税前资金成本时，需要计算受管制企业的实际边际税率。

除直线折旧外，另一种主要折旧方法就是“经济折旧”。这种方法的目的是再现竞争市场中的均衡价格模式，也即，按不变价格计算得到的价格应保持恒定。按照“经济折旧”方法得到的各年折旧费用是间接计算出来的。首先计算为了回收投资和必要的投资回报，而得到一个每年恒定的资金流（按不变价格），然后减掉各年投资回报便得到年折旧费用。

经济折旧方法有许多优点，包括：

- 如果用这种方法时能够考虑不同时期建设成本的通货膨胀，那么针对已有管道和新建管道计算得到的折旧费用不会有太大区别；
- 即使各年的送气量不同，采用这种方法可以得到各年稳定的折旧费用。例如，假定在管道使用的前几年送气量较低，利用经济折旧方法可保证这些送气量不需支付更高的价格。更确切地说，这种方法可以将部分投资回收放在日后送气量较高的时期来完成，确保按通货膨胀调整后的单位送气量的费用在整个折旧期保持不变。竞争市场中的价格也有类似的特点。

然而不应孤立地考虑折旧，而是应该把重点放在包含折旧和投资回报的年资本收入之上，这就需要考虑资金成本，它是确定合理的投资回报的基础。

### 3.3.2 资金成本

大多数管制委员会应该允许受管制企业的资产能够有“合理的回报率”。对天然气企业来说，考虑到输气行业自身的特点和管制委员

会进行管制所带来的风险，这一合理的回报率可定义为企业融资方要求企业给予的回报基础上考虑风险因素调整后的资金回报率。这样的回报率常被称为资金成本。

一般来说，企业的风险越大，要求的资金成本就越高，这是因为融资方要求获取更高的回报来补偿他们所承担风险。保持企业能够得到合理的高于资金成本的投资回报，这是决定企业财务生存能力的主要因素。

由于大多数企业的融资包括债务和权益两部分，所以资金成本是债务成本和权益成本的加权平均值，其中权重反映了企业的负债比。

#### 债务资金成本

一个受管制企业的债务成本通常是以下几方面的总和：

- 无风险投资项目如政府债券等，投资者所要求的不变价格税前回报；加上
- 在企业借债的债务利率基础上的某一额度，这一额度反映了企业的资信度。

在这里，有争议的主要问题是无风险资产的期限。一方面，有人主张无风险资产的期限应该反映企业资产的可用寿命，对输气项目来说可能是 40 年或者更长。他们认为在资产的生产寿命内每年都应有合理的收入，这一收入能够支付每年的资金成本。

另一方面，也有人认为无风险资产的期限应短一些（通常为 3~5 年），这样才能与管制者重新调整价格水平的期限相一致。

#### 权益资金成本

有很多种方法可以用来估算税前权益资金成本，这些方法的复杂程度有所不同：

- 采用国内或国际上“同等风险”行业的可比回报。使用可比回报的一个难题是不同的风险因素如管制委员会的不同管制政策将导致资金成本存在较大差别。更常用的是采用国内或国际上该行业更长期的回报作为不变价格的资金成本更为合适，尽管也可以根据该行业的风险因素对回报进行相应调整得到不变价格的资金成本。



- 股利增长模型，这种方法是基于未来红利的期望值进行计算的。美国管制委员会很多都采用这种方法，但是刚上市的公司因缺乏红利支付的历史数据而不能使用这种方法。当母公司和子公司同为受管制企业时，也不能使用这种方法。
- 资本资产定价模型，在计算回报率时，考虑在权益资本市场投资的机会成本、市场自身变化以及保留权益资金在公司所不可避免的风险等。这种方法是澳大利亚和英国计算资金成本的现有“传统明智”方法。这两个国家的管制委员会倾向于使用资本资产定价模型，至少把它作为概念框架。然而这种方法尽管在原理上得以承认，但人们对估计各主要参数的方法也是有争议的。历史资料 and 未来发展之间的关系值得探讨：资金成本是为了吸引未来资本所期望得到的回报。如果风险因素发生变化，那么主要参数的历史状况就可能无法反映其未来的特征。有些风险如管制委员会的管制风险就很难在资本资产定价模型框架中予以反映。

虽然确定权益资金成本是影响更长期输气价格的最重要的量化工作之一，但是它也是最困难的量化工作之一。

### 税负

税后加权平均资金成本是投资者愿意对企业进行投资所必需的投资回报。为了得到税后加权平均资金成本和纳税，企业必须保证有一定的税前回报率。两者之间的差值为税负。税负的多少与政府的税收政策和企业的税负状况有关。根据法律规定的税收体系计算税负（法定税负）比较容易，但是一个企业的实际纳税（有效税收）将考虑许多其他因素，例如是否有投资补贴等。

管制者倾向于采用财务模型模拟企业各年的资金流，在此基础上估算企业的实际税负。对于西气东输项目来说，这可能也是最合适的方法。

### 负债比

债务与权益之比决定了计算加权平均资金成本时，权益资金回报和债务成本之间的权重。管制者更多关注基于管制资产允许的总回报

水平，而不是该企业各投资方的回报。因此，在决定如何将这部分允许的回报在权益持有者和债务持有者之间进行分配的时候，或者在决定企业资产负债表的结构时，管制者所起到的作用有限。

但是，管制者的目标是允许受管制企业得到他所需要的那部分财务收入。在融资结构不是最佳的情况下，会导致资金成本增加，这部分增加的成本可能得不到偿还。因此，管制者力求基于有效的或“最佳的”负债比估算资金成本，这样在管制者确定加权平均资金成本之前，受管制企业有激励降低其负债比，从而企业可以在后期逐步提高负债比，以增加股东回报。管制者可以要求受管制企业保持一定的投资资信等级来抑制这种情况的发生。

### 3.3.3 运行成本

任何管制制度的目的都是为了激励受管制企业提高运营效率。必须保证西气东输项目的运营是有效率的。一般而言，管制者必须对受管制企业的运行和维护费用进行监察，如果实际费用与预计费用出现偏差，必须制定如何处理这些偏差的有关规章制度。

出现这种偏差的主要原因包括：

- 价格影响，预测投资回报或经营效率时使用的价格指数具有不确定性，其意外变动可能导致这种价格影响（也即，企业的采购价格低于原来按价格指数估算的预测值）。
- 送气量差异，比方说，由于实际需求与预期不符，那么增减送气容量的投资就会高于或低于预计值。
- 没有达到商定的服务质量标准，对这种情况要进行惩罚。例如，由于实际投资不足导致服务质量的恶化。
- 效率提高，对这种情况要进行奖励。尽管实际投资低于预计值，但仍提供了同样质量和数量的服务。

然而，对成本关系的分析，特别是运行和维护费用与服务质量之间的关系，是管制中比较难也相对较新的一个领域。管制者很少会去试图搞清造成实际运行费用和预测运行费用差异的原因。管制者更愿意在决策时设定实际运行费用的允许范围（从而一次性消除这种差

异)，或者在一定时期内逐渐消除这种差异。

在决定这些分析的深度时，大多数管制者都会权衡利弊，对可能带来的益处和获得有用结果的可能性以及所要花费的代价进行比较。一种方法是根据有效率的运行成本而不是企业实际的或预测的成本（这其中可能包括一些低效率的成本开支）确定企业运行成本的允许范围。这种方法就提出这样一个问题：运行成本在何种水平下是有效率的。至少有两种方法可以解决这个问题。

第一种方法，与相似国家类似的受管制企业比较，为企业设定一个需要达到并能够达到的努力目标。以参考企业为基准设定容许企业得到的收入，这将强有力地激励企业提高其运营效率，但是选择哪种参考企业来设定运输公司和配气企业的运行成本标准，就不能不是管制者的任务。在许多国家，同一国内有多个天然气输送企业，就可以选择某一个企业作为参考企业。如果情况不是如此，那么就可能需要与国际上的企业进行比较。但是这种方法可能不能简明，因为有很多因素会影响企业可控的运行成本，而这些因素在这种方法中很难考虑完全。这些因素包括人口密度、网络规模、网络已使用的年限、气候、地形特征和服务质量的差别等。

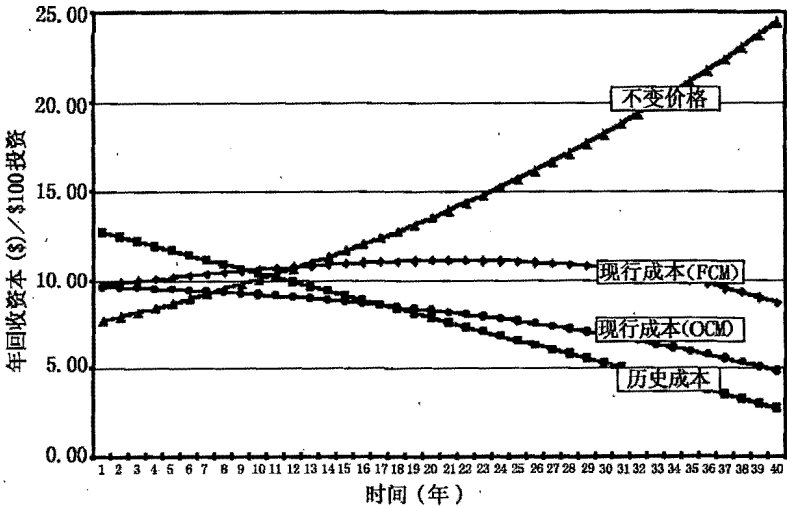
其次，这种方法要求受管制的企业按成本有效率的方式运营，但这种有效率的成本是基于对参考企业的成本进行估算得到，这种估算具有可疑性和主观性。如果受管制企业的运营效率超出管制者规定的水平，而且效率提高所带来的好处能够归企业享有，就可以激励企业提高效率。运营效率提高所带来的好处是由运输公司和用户共享的。如果管制者将受管制企业所能达到的最高运营效率定为基准，那么就会丧失激励功能，因为企业即使运营有效率也很难回收其成本。

与选择参考企业作基准的方法相比，另一种方法是：基于对全行业或全社会范围内劳动生产率和资本生产率等因素的发展变化趋势的客观判断，来判断企业未来的运行成本，以此作为确定企业未来运行成本的依据。与使用参考企业的运营效率并进行适当调整的方法相比，这种方法引起的争议较小。然而，对当前运营状况较差的企业来说，不能采用这种方法，因为这些企业的运行成本中包括现有的（巨

大的) 无效率支出。

### 3.4 成本基础的计算 (或要求的投资回报)

天然气运输公司需要进行多年的基础成本测算, 测算时要考虑输气价格的稳定性并保证成本的回收。可以预计对未来投资和容许运行成本将会有多种形式的管制干预, 而管制者容许的年资本回收模式是影响基础成本计算的主要因素之一。图 3.2 为资产成本在 40 年内回收时各种年资本回收的模式。



说明: 不变价格 WACC=7%; 通胀率=3%; 技术进步=1.5%

图 3.2 年资本回收模式

有四种模式:

- 不变价格——基于“经济折旧”方法;
- 现行成本——基于资产余值法 (FCM);
- 现行成本——基于保证运营能力方法 (OCM);
- 历史成本。

这些模式是对初始价值明确的单个资产而言的。为便于比较, 假

设不变价格税前加权平均资金成本为 7%，总通货膨胀率（例如，以消费价格指数的变化百分比来度量）为每年 3%。历史成本模式开始年份的资本回收量是这几种模式中最高的，然后逐年线性下降；基于资产余值法计算的现行成本模式各年资本回收保持相对稳定，开始年份逐渐增加，然后逐年下降，总平均值为初始投资的 10% 左右。不变价格模式开始年份的资本回收量最低，然后逐年随着假定的通胀率持续上升。当用名义税前加权平均资金成本来进行贴现时，这三种模式都得到同样的现值。基于保证运营能力方法的现行成本模式各年的资本回收都低于基于资产余值法计算的结果，且随时间两者差距越来越大。这种模式假定技术进步是以每年 1.5% 的速度使原资产贬值的，并在资产再评估的时候考虑了这一因素。结果显示投资者蒙受的“持有损失”为基于资产余值法的模式与基于保证运营能力模式之间的差距。因此，这种模式不能回收这些持有损失，它的现值也低于其他三种模式。

考虑不同资产的不同投产时间，采用不同方法得到的资产回收并不像图 3.2 那样有这么大的差距，有时不同方法得到的总资产回收是非常接近的。各年总的资产回收代表了运输公司用于维护和扩大输气服务范围的后续投资。这意味着，与选择初始资产评估方法相似，为计算资产回收选择适合的方法时需要可利用的数据和信息进行详细地分析。

本研究建议基于不变价格项目回报率（由中国石油假定）来确定一个恒定的输气价格。在中国石油设定的 24 年项目评估期内，基于这一价格回收投资和运行成本。倘若能得到债务偿还方面的相关数据，投资者应该会对计算得到的回报率和回报方式感到满意<sup>①</sup>。净固定资产和年折旧费用可根据中国石油假定的资产寿命期使用资产余值法计算得到，这就得到各年资本回收模式。

这为价格管制提供了一个初始的基础，尽管可能并不完善。价格

---

<sup>①</sup> 虽然这种方法有其潜在不足，但由于缺乏主要数据和参数，不能采用其他更有效方法。在中国使用这种方法，由于对运输商进入市场的限制，需考虑投资者的公正的需求。

控制的 CPI-X 激励方法是比较先进的也是最合适的一种机制。建议在初始的价格机制中定 X 为 0，在初始投资的管网输送能力还没有充分利用之前，管制者应该对这种方法感到满意<sup>①</sup>。之后，或者因环境需要，管制者可以设定 X 为某一正值。

#### 3.4.1 接入成本

接入费用向新用户收取，并为运输公司提供了另一种收入来源。在确定要求的收入水平时，需要考虑接入费用。而接入输气系统是一种垄断行为，它应受到管制<sup>②</sup>。在设定天然气的输气价格时，所收取的接入费用必须从资产中扣除。

一个重要的问题是决定哪些成本需要通过接入费用来回收：

- “浅”层收费，只回收连接新用户的直接费用和当地费用（供气管道和仪表等费用）
- “深”层收费，除了收取上述费用外，输气系统其他部分需要进行改造的费用也从中回收。

运输公司喜欢采用深层收费方法（或者强行深层收费），因为深层收费可以确保回收实际成本，从而降低企业的风险，但这种方法为新用户设定了进入市场的障碍，并会降低供气企业的市场份额。然而，除了大用户以外，新用户接入导致的输气系统进行相应改造而发生的附加费用总量较少，大多数小用户的影响可以忽略不计，这意味着使用深层收费不是成本有效的。要确定这些附加费用也是相当困难的，因为网络越“深”，这些费用就为越多的用户所分摊，变成大多数用户的共同成本。采用深层收费缺乏透明度，存在费用不公平分配的风险。因此，建议使用浅层收费，将输气系统相应改造费用向所有用户回收<sup>③</sup>。所有要求进行业务拆解的国家都采用这种方法。

#### 3.4.2 总成本基础

必须注意：即使运输和存储业务是一体化的，也必须分别确定它

① 墨西哥的能源管制机构 CRE 正在考虑采用这种方法。

② 但是，接入服务也可以进行竞争。在接入服务竞争市场建立以后，可能不需要进行管制。

③ 采用这种方法需要考虑电厂等大用户的意见。

们各自的基础成本。

### 3.5 成本分类及分配

确定基础成本之后就可以设定价格水平。在确定价格结构之前首先要做两项工作——基础成本分类及分配。

#### 3.5.1 成本分类

基础成本包括固定成本和变动成本。固定成本定义为无论多少送气量或产量，都保持不变的成本和费用。在较短时间内，固定成本保持不变。这些成本包括劳动力工资、企业办公费用和与资本相关的成本如设备投资、折旧、利息、投资回报和所得税。后三种成本（折旧、投资回报和公司所得税）构成固定成本的主要部分。通常这些成本指的是“与容量相关”的成本，因为它们与运输公司提供服务的输送容量直接相关。变动成本与设备的利用率成正比，这些成本基本上是与压缩站业务相关的。

成本分类是良好的价格设计的开端。在分类过程中将各项成本分离出来，这使得设计出来的价格比没有分类时更加经济有效，并更能保证财务安全。在竞争性市场中，为了使价格能更好地反映所提供服务的成本，价格通常包括多个组成部分，特别是关于“提前支付”部分。分类就是使输气价格能够做到这样的常用方法——使价格结构和成本结构相匹配。

#### 3.5.2 成本分配

下一步工作是将固定成本和变动成本在容量费用和商品费用中进行分配。

基于经济效率和公平原则，根据各类经销商的容量利用特点，可以将成本分配给各类经销商。这是确定具有不同负荷率的经销商所支付的最终价格的重要一步。将固定成本和变动成本按比例分配到容量费用和商品费用中，这是价格设计的功能之一。

成本分配这个过程使经销商使用输气系统的特性与为他们提供这种服务的成本相匹配。将成本直接分配给那些必须为此付费的用户，

换言之，核心工作是确定经销商承担相应成本的次序。

### 3.5.3 成本分类及分配中的公平与效率

美国在从 20 世纪 40 年代早期到 20 世纪 90 年代大约 50 年的时间里，成本的分类和分配一直是他们争论的主题，并在不断修正当中。无论是在输气和供气捆绑在一起的时候，还是在后来的 20 世纪 80 年代中期输气供气开始拆解的时候，价格设计所基于的服务成本和管制都一直是天然气市场参与者和管制者的关注焦点。

争论常常针对公平与效率间的权衡。为说明这个问题，图 3.3 描述了天然气市场参与者所关注的两个重要问题。

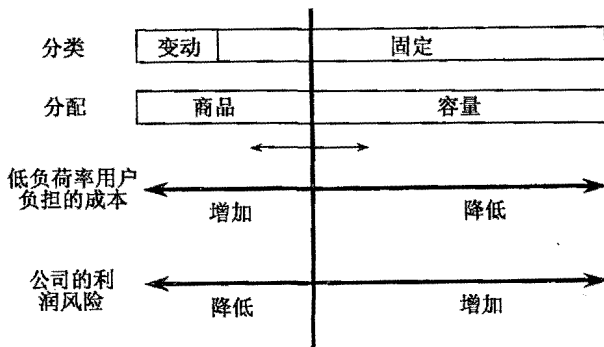


图 3.3 成本分类及分配

第一个水平条代表输气系统的典型成本分类。一般来说，总成本的可变部分占 5%~10%，在某些系统中，这一比例可能更低。第二个水平条代表这些成本在商品成本和容量成本间的分配。这是一个两部制价格，其中商品成本通过使用量（送气量或者能量）价格回收，单位为元/立方米或元/百万焦耳；容量成本通过预约（容量或需求）价格回收，单位为元/高峰日（或高峰小时）立方米/月或元/高峰日（或高峰小时）百万焦耳/月。

竖直线表示在商品和容量成本间的分配。它的图示位置表明，除变动成本外，部分固定成本被分配到商品成本里。而竖直线可以左右



移动。如果移到最右端，结果就是一部制价格，这是中国现在常用的方法，价格和费用都表示为元/立方米。这是公平的极端情况，不论天然气经销商何时从输气系统抽取天然气，还是此时为保证运输所承担的费用是多少，天然气经销商为每立方米天然气支付的价格是一样的。

“效率”的极端情况出现在将竖直线左移，直到容量/商品成本分配与固定/可变成本分类线重合的时候。这就是价格设计的直接固定变动法（Straight Fixed Variable, SFV）。美国联邦能源管制委员会（FERC）1992年第636条法令要求使用这种方法（能证明运用这种方法会扭曲价格的情况除外）。SFV这个术语的原义精确描述了这种方法：固定成本全部“直接”分配给容量，而变动成本全部“直接”分配给商品。

有关效率的争论在于输气容量的提供是为了满足高峰时的容量需求。低负荷率的经销商（例如，城市供气公司或他们的供应商）对该峰值需求的贡献比例高于其他经销商，如大工业用户和发电厂（或他们的供应商）。固定成本是为了提供（和维护）输气容量。因此，低负荷率经销商分担固定成本回收的比例也应高于其他（较高负荷率的）经销商。SFV方法通过分配固定成本和变动成本，来确保经销商所承担的回收成本跟运输公司为他们提供服务所花费的成本相对应。这种方法对于阻止低负荷率用户浪费性消费而导致输气容量增加，是很有效的。这种方法也可以提高分配效率，因为城市供气公司为其用户提供供气服务的保证率比较高，它在高峰负荷时所用的输送容量的价值应高于其他经销商。

这在图3.3中也可以说明。当竖直线左移，低负荷率经销商承担的成本增加。当竖直线右移时，低负荷率经销商承担的成本下降，较高负荷率经销商补贴了低负荷率经销商，而运输公司也蒙受更大的利润风险。通过收取固定容量费或保证金所回收的成本比例越低，公司需要从送气量上回收的成本就越高。这个问题的重要性随着价格结构或价格管制的不同而各异。这将在下一章做进一步讨论。

### 3.5.4 解决公平与效率问题

已经有两种方法用于解决这个问题。第一个方法出现在发达国家向市场开放的过渡期；第二种出现在市场开放的进一步发展过程中。

#### 向市场开放的过渡

在过渡期，“公平与效率”争论的各种解决办法都倾向于减少低负荷率经销商所承担的成本。虽然用 SFV 方法分配成本可以达到效率标准，但是这种方法不是完全公平的。如果将固定成本分配给容量，这些固定成本就与输气容量在负荷高峰时期的可用率相关，那么低负荷率经销商将按他们在峰值时刻所使用输气容量的份额成比例地承担固定成本的回收。然而，运输公司在负荷低估时也可以使用这部分容量（此时低负荷率经销商不使用）来增加或扩展他向其他经销商提供的输气服务，或者提供可中断输气服务。参见前文 1.5.4 节。

在缺乏正式的容量转让或其他类型的协议，为使用低负荷率经销商所占有的保证容量权进行补偿的时候，有可能将部分固定成本分配到商品成本中，这使典型的 SFV 方法中容量/商品比从 90:10 变为 70:30 或 65:35<sup>①</sup>。如果不是立刻使用 SFV 方法，而是想办法给低负荷率经销商一定的补偿，那么要确定合适的分摊比例就不太容易。在过渡期内，将初始比率设为 65:35 可能是比较合适的，然后随时间逐渐将它增加到与 SFV 方法一致的比率。

#### 市场开放的进一步发展

一旦已经将输气容量权分配给经销商，而且可以在流动二级市场交易这些容量权，那么就不会存在公平与效率的争论。低负荷率经销商可以在流动二级市场交易他们的容量权，从市场中获得别人对使用这些容量权的相应补偿。另外，随着时间的推移，经销商将会努力引导其用户的用气特性，从而能达到他们所期望的负荷率。这意味着应

---

<sup>①</sup> 英国和其他欧洲各国也存在对成本分配的争论，尽管他们所争议的程度不同。英国天然气运输及存储公司 (BGT&S) 在 20 世纪 90 年代不考虑成本分配，直接采用 50:50 的容量/商品成本比例。对于输气业务，这一比例逐步过渡到 65:35 并最终为 90:10。爱尔兰采用 90:10 比例，而法国、比利时、卢森堡、荷兰和德国决定采用 100% 容量价格回收全部成本（包括固定成本和变动成本）。

用 SFV 方法，就不必关注低负荷率经销商在负荷低谷时期所保留的容量权的使用问题。

使用 SFV 方法为输气业务的进一步发展提供了基础。上文第 1.5 节讨论了将运输公司进一步拆解成输送服务提供方 (TP) 和输送系统运营服务方 (TSO)：TP 提供和维护输气容量，按 100% 容量价格回收固定成本；TSO 负责输送系统的运行，按管制中的激励政策回收变动成本。

对中国现有的输气系统来说，要发展到这一阶段需要花费一些时间。但是在设计输气价格的初始水平和结构时，试图考虑未来的商业和管制安排是一种谨慎的做法。

### 3.6 价格设计

将成本进行分类、并分配到容量和商品成本中是设计两部制价格的基础。

有多种价格设计方法可以考虑，但是普遍使用的有四种：

- 邮票法；
- 路径法；
- 区域定价法；
- 出口—入口法。

本章对这些方法在现有输气系统中的应用提出了一些建议。

#### 3.6.1 邮票法

在纯粹的邮票法中，所有交易都按同样的输送价格收费，而不考虑注入点和提取点的不同。邮票价格设计被用于回收使用输气系统的平均成本。对天然气运输来说，“纯粹”邮票法的变通包括：与注入点和提取点无关的固定容量费用，加上涵盖输送变动成本的商品费用。而商品费用与注入点和提取点的位置相关。对复杂网状系统来说，确定天然气输送路径既不重要也很困难，邮票法也许是适用的。可是，对像西气东输项目这种长距离送气系统来说，输送距离是决定成本的重要因素，采用邮票法就不太合适。

### 3.6.2 路径法

路径法是指根据合同中规定的送气路径确定不同价格的一种方法。利用这种方法，根据天然气注入点和提气点位置就可以构成价格矩阵，如图 3.4 所示。

		进气点 ( $\times 10^6 \text{ m}^3$ )			
		$I_1$	$I_2$	...	$I_n$
提气点 ( $\times 10^6 \text{ m}^3$ )	$O_1$	$T_{11}$	$T_{12}$	...	$T_{1n}$
	$O_2$	$T_{21}$	$T_{22}$	...	$T_{2n}$
	.	.	.		.
	.	.	.	$T_{ij}$	.
	$O_n$	$T_{n1}$	$T_{n2}$	...	$T_{nn}$

图 3.4 路径法价格矩阵

路径法最明显的一个例子是使用与距离相关的价格，如图 3.5, 3.6 和 3.7 所示。

		进气点 ( $\times 10^6 \text{ m}^3$ )			
		$I_1$	$I_2$	...	$I_n$
提气点 ( $\times 10^6 \text{ m}^3$ )	$O_1$	$PV_{11}$	$PV_{12}$	...	$PV_{1n}$
	$O_2$	$PV_{21}$	$PV_{22}$	...	$PV_{2n}$
	.	.	.		.
	.	.	.	$PV_{ij}$	.
	$O_n$	$PV_{n1}$	$PV_{n2}$	...	$PV_{nn}$

说明：一些  $PV_{ij}$  可以为零，如果进气点和提气点之间没有通道

图 3.5 高峰时段送气量矩阵

		进气点 ( $\times 10^6 \text{m}^3$ )			
km		$I_1$	$I_2$	...	$I_n$
提气点 ( $\times 10^6 \text{m}^3$ )	$O_1$	$DPV_{11}$	$DPV_{12}$	...	$DPV_{1n}$
	$O_2$	$DPV_{21}$	$DPV_{22}$	...	$DPV_{2n}$
	.	.	.		.
	.	.	.	$DPV_{ij}$	.
	.	.	.		.
	$O_n$	$DPV_{n1}$	$DPV_{n2}$	...	$DPV_{nn}$

说明:一些 $DPV_{ij}$ 可以为零,如果进气点和提气点之间没有通道

图 3.6 高峰时段送气途经距离矩阵

		送入点						
km		$I_1$	$I_2$	...	$I_n$			
提取点	$O_1$	$DPV_{11}$	$xPV_{11}$	$DPV_{12}$	$xPV_{12}$	...	$DPV_{1n}$	$xPV_{1n}$
	$O_2$	$DPV_{21}$	$xPV_{21}$	$DPV_{22}$	$xPV_{22}$	...	$DPV_{2n}$	$xPV_{2n}$
	.	.	.	.		.	.	
	.	.	.	.	$DPV_{ij}$	$xPV_{ij}$	.	.
	.	.	.	.			.	.
	$O_n$	$DPV_{n1}$	$xPV_{n1}$	$DPV_{n2}$	$xPV_{n2}$	...	$DPV_{nn}$	$xPV_{nn}$

图 3.7 距离—高峰送气量矩阵

对一个具有多重注入点和提气点的输送系统来说,一定比例(最高可达 100%)的容量成本可以通过与距离有关的容量价格回收。因为容量可能与高峰时的天然气流量相关,所以建立高峰时段送气量矩阵如图 3.5。

相应的高峰时段送气途经距离矩阵如图 3.6。将这些矩阵的相应元素相乘得到距离—送气量矩阵(图 3.7)。

与距离相关的容量成本除以  $\sum_{i=1}^n \sum_{j=1}^m PV_{ij} DPV_{ij}$  得到与距离相关的容

量价格，单位为元/（日高峰立方米×千米×年）。这一价格乘以高峰时途经距离矩阵，就得到各路径的容量价格矩阵，单位为元/（日高峰立方米×年），与图 3.4 的矩阵类似。

对年送气量也可进行类似的计算，对注入点和提取点之间的每条路径，将与距离相关的商品成本分配到与距离相关的商品价格中（单位：元/m<sup>3</sup>）。

往前看，这种方法可以作为多年后确定价格的基础，因为这种方法具有“基于成本定价”的内在机理。它还拥有无需“干涉”就能自动促进天然气合理流向的优点。虽然路径法具有良好的理论依据，但是实施起来并不理想。在实践中总是权衡理论上的经济效率和实施上的简易灵活性来选择路径法还是其他方法。

例如，纯粹的路径法要求的计算比较复杂，易受注入点或提取点分布变化的影响，计算得到的价格比较复杂。另外，过于关注具体路径相应降低了注入点和提取点间的灵活性，而这是经销商所希望的特点。此外，这种方法会降低对输送容量进行交易的能力从而降低输送容量二级市场的潜在流动性。最后，尽管这种方法是基于成本进行定价，但这也并不绝对，因为网络阻塞成本在其中就没有考虑。流动二级市场是充分考虑这些成本、解决这些问题最有效的方法。

因此，权衡理论与实际实施，采用更简单一些的方法比较好一些。区域定价方法就是一个例子。

### 3.6.3 区域定价法

区域定价法是指不同地理区域采用不同的交易价格，而同一个区域内采用相同的交易价格的一种方法。涉及上文的图 3.4 到图 3.7，这种方法包括将距离较近的注入点和提取点按区域分组。在某种意义上，这是区域间采用与距离相关价格，而同一区域内采用邮票法的结合。从经济的角度来看，纯粹的路径法与注入点和提取点的确切位置有关，但如果在区域价格法中将区域划分得较为详细，能够抓住各区域的主要成本决定因素，纯粹的路径法并没有什么优势。区域定价法不能详细反映成本的缺点，可通过它的注入点和提取点方面的灵活性、建立输送容量的流动性二级市场的可能性以及它的简单和可预测

性等优点得到弥补。

#### 3.6.4 入口/出口定价法

“入口/出口”收费方法是对天然气网络各注入点或者提取点设定一个单独的价格。对每一入口（或输入）点，入口容量价格为一个单一的数字，例如，单位为元（/高峰日立方米×年），它与所注入天然气的预期或实际提取点无关。可是，每个入口点都可以有不同的入口价格。出口容量价格也是这样。

要估算入口—出口价格，首先要依次估算从每个注入点到每个提取点的输气成本。这些成本可以通过研究最近的天然气合同中所定的实际成本得到，或者通过估计每个入口点和出口点间的输送长期边际成本得到<sup>①</sup>。与上文描述的路径矩阵不同，当特定的注入点和抽取点间不存在直接送气时，路径法矩阵中出现零，而本方法中所有的入口点和出口点之间都要估算一个输送成本。

使用最小二乘法可以估算  $m$  个入口价格和  $n$  个出口价格，累积生成  $n \times m$  输送成本矩阵。可是，为了得到惟一解，必须预先确定某个入口或出口的成本，或者对入口和出口成本间的分配做出初始假定。

入口、出口价格的计算基于初始的假定得到一套惟一解，这将降低它的客观性。这种方法，特别是英国将这种方法与长期边际成本估算结合采用时，消耗了大量的时间和资源。虽然这种方法具有灵活简单的特点，但它得到的价格并不反映成本。另外，在英国<sup>②</sup> 已经将这种方法与名义国家平衡点（National Balancing Point, NBP）的概念相结合，英国今天、明天和未来市场中都采用这种方法。这已经阻碍了英国天然气流动现货市场的发展，并阻碍了英国天然气市场进入新兴欧洲市场。

关于西气东输项目，这种方法几乎毫无用处。也不太可能采用这种方法对现有系统进行价格设计。

---

① BG Transco 采用后一种方法。

② 荷兰和意大利也有同样的想法，他们采用了入口—出口法的一种变通。

### 3.6.5 价格设计方法的选择

在这四种方法中，区域价格法对西气东输项目来说是最适合的。不足为奇的是，这种方法也是北美长距离输气中使用最广泛的方法。一方面，这种方法体现了价格反映成本的原则；另一方面，这种方法具有简单、灵活和可预测的特点。更重要的是，这种方法有利于促进输送系统中特定区域天然气市场以及输送容量二级市场的形成<sup>①</sup>。

---

<sup>①</sup> 当预留了足够的保证容量以确保提供这种保证输送服务的成本得到回收时，就需要设计可中断输送服务价格。



# 附件 1 联邦能源管理委员会法规第 284 部分

## A 节 总则和条件

### 第 284.1 条 定义

- (a) 输气包括储存、交换、回输、置换或其他运输方法。
- (b) 相应的州监管机构指在该州境内监管州内管道公司和地方配气公司的州立机构。当涉及费率和收费使用本词时，仅指那些基于服务成本制订费率和收费的机构。
- (c) 市场中心是指在不同条管道交汇处进行天然气购买和销售的地区。

[44 FR 52184, 1989 年 9 月 7 日, 根据 636 号令修改, 57 FR 13315, 1992 年 4 月 16 日]

### 第 284.2 条 退款和利息

- (a) 退款。对根据本条款规定进行的任何销售、运输或转让所收取的费率或费用，超出本条款规定授权的费率或费用部分，都应退还。
- (b) 利息。根据本条规定的所有退款必须包括根据本章第 154.501 条 (d) 款所确定的利息数额。

[44 FR 52184, 1979 年 9 月 7 日, 44 FR 53505, 1979 年 9 月 14 日修改; 273 号令, 48 FR 1288; 1983 年 1 月 12 日; 581 号令, 60 FR 53072, 1995 年 10 月 11 日]

### 第 284.3 条 《天然气法》赋予的权限

- (a) 《天然气法》第 1 条 (b) 款规定, 如果州际天然气运输和销售依据《天然气政策法》第 311 条或第 312 条得到授权, 《天然气法》的条款和该法案赋予联邦能源管理委员会的权限将不适用于任何州际天然气运输或销售。
- (b) 《天然气法》规定, 如果由于本条 (a) 款的规定, 《天然气法》的条款不适用于州际天然气运输或销售, “天然气公司” (定义见该法案第 2 (6) 款) 应不包括由于从事或涉及州际天然气运输或销售的任何人。
- (c) 《天然气法》不适用于根据《天然气政策法》第 311 (a) 款授权专门用于输气的设施。

[44 FR 52184, 1979 年 9 月 7 日, 根据 581 号令修改, 60 FR 53072, 1995 年 10 月 11 日]

### 第 284.4 条 报告

- (a) 报告使用百万英热单位 (MMBtu)。依据本条款规定所有提交的报告必须用百万英热单位 (MMBtu) 来表示天然气的数量。MMBtu 为一百万英热单位。一英热单位或 Btu 为将一磅纯净水的温度从华氏 58.5 度加热到 59.5 度所需要的热量, 根据本条 (b) 款和 (c) 款的规定确定。
- (b) 计量。在本条 (c) 款中明确规定的标准条件下, 一立方英尺天然气所含的英热单位是, 在与空气相同的温度及常压条件下, 该立方英尺天然气完全燃烧所产生的英热单位数量, 此时燃烧后的产物冷却至天然气和空气的初始温度而且通过该燃烧所生成的水凝结成液态。
- (c) 标准条件。按本条 (b) 款, 标准条件是: 在相当于华氏 32 度时 30 英寸水银柱的压力下以及标准重力 (980.665 立方厘米/秒) 条件下, 华氏 60 度时天然气与水蒸气饱和。

[581 号令, 60 FR 53072, 1995 年 10 月 11 日]

### 第 284.5 条 进一步的条款和条件

联邦能源管理委员会可以按照法规或法令预先就本条款授权的天然气交易实施进一步的条款和条件，如果委员会认定这些条款和条件是适当的。

### 第 284.6 条 费率解释

- (a) 程序。依照本章第 385 部分 L 节中的规定，管道公司可以获得有关特别费率和费用是否符合本条款要求的解释。
- (b) 地址。费率解释的要求应寄往以下地址：华盛顿 DC 20426，联邦能源管理委员会总理事会办公室，法规第 284 条解释。

### 第 284.7 条 固定输气服务

- (a) 固定输气的可用性。
  - (1) 根据本部分 B 节或 G 节的规定，提供输气服务的州际管道公司必须提供固定输气服务，而且这种服务要与任何销售服务相分离。
  - (2) 根据本部分 C 节中的规定提供输气服务的州内管道公司可以提供固定输气服务。
  - (3) 固定输气服务是指：这种输气服务不受另一客户优先权利要求或另一种输气服务类别的限制，与任何其他类别的固定服务一样有同等的优先权。
  - (4) 在 1992 年 5 月 18 日提供固定售气服务以及根据本部分 B 节或 G 节规定提供固定输气服务的州际管道公司，必须提供固定输气服务，在这种服务中固定托运人可以在不被罚款的情况下每天提取其固定的权益气。
- (b) 无歧视准入。
  - (1) 根据本部分 B 节、C 节或 G 节的规定，提供固定输气服务的州际管道公司或州内管道公司必须提供无歧视性或无优先的固定输气服务，包括所提供的服务质量、

服务期限、种类、价格或准备输送的天然气气量、客户分类上，都没有任何差别和优先。

(2) 根据本部分 B 节或 G 节的规定，提供固定输气服务的州际管道公司必须在每一种固定输气服务中对所有的供气提供质量相同的服务，无论这些天然气是从管道公司还是从其他卖方处购买。

(3) 根据本部分 B 节或 G 节的规定，提供固定输气服务的州际管道公司在其运价表中不可以包括任何禁止发展天然气市场中心的条款。

(c) 合理的营运条件。

与本条 (b) 款的内容相一致，管道公司可以对依据本条款提供的任何服务实施合理的营运条件。这些条件必须由该管道公司作为其输气运价表的一部分备案。

(d) 分割。根据本部分 B 节或 G 节的规定提供输气服务的州际管道公司必须允许托运人利用其已签合同获得的固定输气容量，该托运人可将该容量分割成几部分供自己使用或将该容量转让给替代托运人，但条件是该容量分割从营运角度看是可行的。

(e) 预约容量费。在用户购买固定输气服务时，管道公司可以向托运人收取预约容量费作为提供这种服务的条件。除了按照本部分 C 节规定的管道公司外，如果收取预约容量费，该预约容量费必须包含用于该固定输气服务的全部固定成本，除非联邦能源管理委员会允许该管道公司回收两部费率内气量部分中的一部分固定成本。预约容量费可以不包括没用于固定输气服务的任何可变成本或固定成本。除了本款规定的以外，管道公司可以在依据本部分 B 节、C 节或 G 节规定所提供的任何输气服务的费率中不包括最低额度账单或最低提气量条款，或其他任何具有保证收益影响的条款。

(f) 限制。不要求按照本部分 B 节、C 节或 G 节的规定提供服务的人提供任何超出其输气能力的输气服务或是需要建设或购

买新设施的输气服务。

### 联邦能源管理委员会第 284.8 条

[436 号令, 50 FR 42493, 1985 年 10 月 18 日]

编者注：关于影响第 284.8 条的联邦注册援引案例，参见受影响的 CFE 章节的清单，该文出现在印刷卷宗通过 GPO 路径进入阅读帮助一节中。

### 第 284.8 条 向州际管道公司转让固定输气容量

- (a) 根据本部分 B 节或 G 节的规定提供固定服务的州际管道公司必须在其运费表中包含一种机制，使固定托运人可以向该管道公司转让固定输气容量，并使该管道公司按本条规定再出售该固定输气容量。
- (b) 必须允许固定托运人在不受转让条款或条件限制的前提下永久或短期转让其全部或部分输气容量。一个固定托运人可以安排一个替代托运人从管道公司处获得由其转让的输气容量。
- (c) 除了本条 (h) 款规定的以外，一个想要转让其任何或全部固定输气容量的固定托运人必须将其转让输气容量的条款和条件通知管道公司，该固定托运人还必须通知管道公司其指定的并依照其特别规定的条款和条件获得所转让容量的替代托运人。
- (d) 管道公司必须在一个互联网址上并在一段合理的时间内向对转让或购买输气容量提出的报价、该报价的条款和条件以及在本条 (b) 款中指定的替代托运人的姓名。
- (e) 管道公司必须将转让的输气容量分配给出价最高（不超过最高费率）且提出满足任何其他转让条款和条件的人。如果出价最高且满足条款和条件的不止 1 个人，那么转让的输气容量可以根据管道公司运价表提供的基础进行分配。但条件是：如果在本条 (b) 款中指定的替代托运人出价最高，则

该输气容量必须分配给该指定的替代托运人。

- (f) 除非经过管道公司同意，否则托运人转让容量的合同将一直有效，从转卖给替代托运人中所获得的净收益记入转让托运人的预约容量费。
- (g) 根据本部分 B 节或 G 节的规定提供固定输气服务的州际管道公司的固定托运人，在必要时，根据《天然气政策法》第 7 条，可授予一定权限的公益必要设施通用许可证书，只用于按照本条进行固定输气容量的转让。
- (h) (1) 固定托运人向替代托运人转让输气容量 31 天或不到 31 天或者按照适用于转让的最高运价费率在任何期限向替代托运人转让输气容量，不需要遵守本条 (c) 到 (e) 款规定的通告和竞价要求。按本款规定进行的转让可以不超过最高费率。按照本款进行的固定输气容量转让通告必须尽快在管道公司的电子公告上公布，而且转让交易开始后 48 小时之内必须公布。  
(2) 当按照本条 h (1) 款进行的转让低于最高运价费率时，在不符合本条 (c) 到 (e) 款的要求的情况下，固定托运人不可展期、延期或以其他方式继续以低于最高运价费率进行转让。在第一次转让期结束后 28 天之内，固定托运人不可以低于最高运价费率的条件将其输气容量再转让给按照本款规定的同一个替代托运人。
- (i) 最高运价费率上限的放弃。

直到 2002 年 9 月 30 日，最高运价费率才应用于期限不到一年的输气容量转让交易。按照本节 (h) (1) 款的规定，对以适用的最高运价费率要求提供管道服务，免除输气交易所需的公布通告和竞价要求，但这一规定在最高运价费率上限生效时将不予以应用。关于按照本节 (h) 款进行的 31 天之内的转让，(h) (2) 款的要求将适用于所有此类转让而不考虑所收取的费率高低。

[636 号令, 57 FR 13318, 1992 年 4 月 16 日, 根据 636 - A 号令

修改, 57 FR 36217, 1992 年 8 月 12 日; 577 号令, 60 FR 16983, 1995 年 4 月 4 日; 577-A 号令, 60 FR 30187, 1995 年 6 月 8 日。

根据 637 号令重新设计和修改, 65 FR 10220, 2000 年 2 月 25 日; 637-A 号令, 65 FR 35765, 2000 年 6 月 5 日]。

### 第 284.9 条 可中断输气服务

(a) 可中断输气的可用性。

(1) 按照本部分 B 节或 G 节的规定提供固定输气服务的州际管道公司还必须按照 B 节和/或 G 节的规定提供可中断输气服务, 而且这种服务要与任何售气服务相分离。

(2) 按照本部分 C 节提供输气服务的州内管道公司可以提供可中断输气服务。

(3) 可中断输气服务是指用于提供输气服务的容量受到另一用户或另一类服务优先权的限制, 其得到的输气服务优先级别低于另一用户或另一类服务的优先级别。

(b) 关于包含在第 284.7 条 (b)、(c) 和 (f) 款中的无歧视准人、合理营运条件及限制规定, 适用于根据本节规定提供可中断服务的管道公司。

(c) 预约容量费。对可中断输气服务不收取预约容量费。根据本节规定提供输气服务的某个管道公司的费率, 可以不包括最低额度账单或最低提气量条款, 或其他任何具有保证收益影响的条款。

[436 号令, 50 FR 42494, 1985 年 10 月 18 日]

编者注: 关于影响第 284.9 条的联邦注册援引案例, 参见受影响的 CFE 章节的清单, 该文出现在印刷卷宗通过 GPO 路径进入阅读帮助一节中。

### 第 284.10 条 费率

(a) 适用性。根据本部分 B 节和 G 节的规定对提供输气服务收取的任何费率必须依据费率明细表确立, 该费率明细表在开

始提供此类服务之前要在联邦能源管理委员会备案并符合本节的规定。

(b) 费率目标。必须设计用气高峰期和非高峰期的最高费率以达到以下三个目标：

- (1) 高峰期输气服务费率应使容量定量分配；
- (2) 非高峰期固定输气服务费率和在高峰期或非高峰期可中断输气服务的费率应使管输量最大化；
- (3) 通过以最高费率在高峰期或非高峰期对固定输气服务与可中断输气服务提供经过计划的单位服务量，应达到管道公司分配给固定输气服务与可中断输气服务的收益要求。

(c) 费率设计。

(1) 体积费率。

除了第 284.7 条 (e) 款规定的以外，用于根据本节提供服务已备案的费率必须是一部制费率，包括了分配至该服务的成本即实际购买的该服务的预计单位服务量，但可以不包括需求费、最低额度账单或最低提气量条款，或其他任何具有保证收益影响的条款。该费率必须分别确定出用于输气、储气和集气的成本。

(2) 基于预计的单位服务量。

必须设计根据本节条款提供服务的已备案的费率以便依据预计的单位服务量来回收服务成本。按照第 284.7 条 (e) 款确定的分配给预约容量费的固定成本应与管道公司所接受的计划指定气量一起使用以计算出单位预约容量费。应使用剩余的固定成本和所有可变成本确定根据预计输气量计算出的体积费率。依据本节备案的服务费率预计提供的单位服务量只可以在依据《天然气政策法》第 4 节规定的后续费率申报中改变。

(3) 由于时间和距离造成的费率差异。

依据本节备案的服务费率必须在提供服务的成本中合理



反映由于以下原因造成的实质性差异：

- (i) 提供的输气服务是在高峰期还是在非高峰期；
- (ii) 提供输气服务的距离。

(4) 费率的成本基础。

- (i) 必须设计依据本节备案的最高费率以单位费率方式专门去回收那些适当分配给该费率所适用的服务的成本。
- (ii) 依据本节备案的最低费率必须以适当分配给该费率所适用的服务的平均可变成本为基础。

(5) 费率的灵活性。

- (i) 依据本节备案的任何费率明细表都必须说明一个最高费率和一个最低费率。
- (ii) (A) 除本条 (d) (5) (ii) (B) 款的规定外，管道公司可以向个别用户收取既不高于该项服务已备案的最高费率也不低于最低费率的费率。  
(B) 如果管道公司没有按照本部分 G 节中的规定持有通用资格证书，在涉及其市场销售关联公司的交易中，该管道公司收取的费率不可以低于其与非销售关联公司交易所要求的最高费率。
- (iii) 管道公司可以不提出修订或设计新的费率，以回收在以前实行的费率中未回收的成本。

[436 号令，50 FR 42493，1985 年 10 月 18 日，在 50 FR 52274，1985 年 12 月 23 日修改；53 FR 22163，1988 年 6 月 14 日；522 号令，55 FR 12169，1990 年 4 月 2 日；581 号令，60 FR 53072，1995 年 10 月 11 日。根据 637 号令重新标出和修改，65 FR 10220，2000 年 2 月 25 日。]

**第 284.11 条 符合环境保护要求**

- (a) 任何依照第 284.3 条 (c) 款、本部分 B 节或 C 节中规定授

权的进行管道设施建设或拆除后废弃的任何活动都应遵守本章第 157.206 条 (b) 款条款和条件的规定。

(b) 预先通告。

(1) 总则。除本条 (b) (2) 款规定的以外, 在开始管道建设之前至少 30 天, 有关公司必须通报联邦能源管理委员会关于本条 (a) 款中所述的任何活动。

(2) 例外。如果项目成本不超过本规章第 157.208 条 (d) 款中表 I 第 1 栏中所规定的成本限额, 无需本条 (b) (1) 款中所述的预先通告。

(c) 预先通告的内容。

本条 (b) (1) 款中所述的预先通告必须包含以下信息:

- (1) 简要描述将要建设的设施或拆除废弃的设施 (包括管道直径和长度、压缩机功率、设计输量和建设成本);
- (2) 证实符合本章第 157.206 条 (b) 款每一条款的规定;
- (3) 美国地质勘测局最新 7.5 分钟系列地形测量图显示这些设施的位置;
- (4) 描述用于土壤侵蚀控制、重新植被和维护、溪流和湿地穿越等的程序。

(d) 报告要求。

每年 5 月 1 日之前, 公司必须提交年度报告 (按照本章第 385.2011 条有关电子媒体要求, 提供电子版及七份纸质报告), 列出在上一公历年中本条 (a) 款中所述的各项活动及已完工情况以及根据本条 (b) (2) 款规定无需预先通告的活动。对每项活动, 该公司都必须包括本条 (c) 款中所述的所有信息。

[544 号令, 57 FR 46495, 1992 年 10 月 9 日, 根据 581 号令修改, 60 FR 53072, 1995 年 10 月 11 日; 603-A 号令, 64 FR 54537, 1999 年 10 月 7 日]

**第 284.12 条 管道业务经营和信息标准**

(a) 电子公告。根据本章条款或其运价表要求州际管道公司在电

子公告上显示信息时，该管道公司必须在其电子公告上提供以下使用特征：

- (1) 用户下载；
  - (2) 电子公告显示信息每日备份，必须可让用户对至少 3 年的信息进行查阅；
  - (3) 从目前文档中清除已完成交易的信息；
  - (4) 在以前登载的信息条目之前显示最新的信息项；
  - (5) 有在线帮助和用户使用户能够查询到特定交易全部信息的搜索功能；设置菜单允许用户分别进入有关网页了解可用输气容量的通告、销售关联公司的折扣信息、销售关联公司容量分配记录以及行为标准信息等。
  - (6) 当根据本条 (c) (3) (i) 款提供了所有相关信息时，管道公司根据本款提供信息的义务终止。
- (b) 气体工业标准委员会 (GISB) 标准的参考文献。

(1) 按照本部分 B 或 G 节的规定输送天然气的州际管道公司必须遵守以下商业惯例和天然气工业标准委员会颁布的电子通讯标准，包括以下汇总参考：

- (i) 与指定气量有关的标准 (1999 年 8 月 31 日 1.4 版)；
  - (ii) 流动气体相关标准 (1999 年 8 月 31 日 1.4 版)，但标准 2.3.29 和 2.3.30 除外；
  - (iii) 开发票相关标准 (1999 年 8 月 31 日 1.4 版)；
  - (iv) 电子交付机制相关标准 (1999 年 11 月 15 日 1.4 版)，但标准 4.3.4 除外；
  - (v) 容量转让相关标准 (1999 年 8 月 31 日 1.4 版)。
- (2) 这一套汇总参考是联邦注册部门根据 U.S.C.552 (a) 和 1 CFR51 条款批准的。从位于得克萨斯州 77002 休斯敦 3625 房路易斯安娜 1100 处的天然气工业标准委员会可获得这些标准的复本。这些复本可能会在联邦能源管理委员会公共参考文献和档案维护部门 (888

First Street, NE., Washington, DC 20426) 及联邦注册办公室 (800 North Capitol St., NW., Suite 700, Washington, DC) 受到检查。

(c) 营业实践和电子通讯要求。

根据本部分 B 节或 G 节规定输送天然气的州际管道公司必须遵循以下要求。本款中各项法规采用的缩略语和定义都包含在天然气工业标准委员会的标准汇总参考中。

(1) 指定气量。

(i) 日内指定气量。

(A) 管道公司必须在为可中断输气服务托运人安排指定和计划气量之前优先安排固定输气服务托运人提交的日内指定气量的供气时间表。由于供应固定输气托运人的日内指定气量而不得不减少可中断输气服务托运人的计划气量时, 必须预先通知可中断输气托运人该减少的输气量, 而且必须告知该托运人在其气量减少的那天是否实施罚款。

(B) 在天然气流动之前一天提交的日内指定气量将在当日 9 点钟开始生效。

(ii) 容量转让指定气量。管道公司必须允许获得已转让容量的托运人在获得容量之后在尽可能早的时间内提交指定气量, 如果管道公司要求该替代托运人签署合同, 这份合同必须在通知管道公司该转让后一小时之内缔结, 但是签署合同的要求不能妨碍该替代托运人在尽可能早的指定气量时间内提交指定气量。

(2) 流动气体。

(i) 营运平衡协议。管道公司必须在其管道系统与另一个州际或州内管道公司的系统之间的所有交汇点处都签署营运平衡协议。

(ii) 不平衡供气的联网与买卖。管道公司必须制订条款, 允许托运人及其代理冲抵该托运人持有的与管道公司的不

同合同中出现的不平衡气量，在该不平衡气量对该管道公司的输气系统具有相似的营运影响的情况下，允许他们与其他托运人买卖不平衡气量。

- (iii) 不平衡气量管理。在其运价表中订有不平衡气量罚款条款的管道公司在营运可行的情况下，必须提供临时储存、出借或其他服务，以帮助其托运人提高管理输气不平衡的能力。管道公司还必须为其托运人提供从其他供气方获得类似不平衡管理服务的机会，并且无歧视或无优惠地向那些利用其他供气方的托运人提供输气准入和其他管道服务。
- (iv) 运营应急指令。管道公司必须采取各种合理的行动尽量减少运营应急指令（OFO）的发出和负面影响，或者采取其他措施以应对在其管道系统上发生的不利运营事件。管道公司必须在其费率表中针对这些措施开始和终止的时间制订明确的标准，而且必须及时提供信息使托运人能够尽量减少这些措施的负面影响。
- (v) 罚款。管道公司可以在其费率表中包含输气罚款但仅在必要时去阻止对可靠服务的损害。管道公司可以不留存净罚款收入，但必须以管道公司费率表中规定的方式把这些收入记入托运人的账上。在其费率表中包含罚款条款的管道公司必须定期向托运人提供尽可能多的有关每个托运人的不平衡气量和超量情况以及管道系统不平衡输气情况的信息。

### (3) 通讯协议。

- (i) (A) 管道公司提供的电子信息 and 进行的电子交易都必须在公共互联网上进行。管道公司必须按照要求提供使用互联网工具的私人网络连接方法、互联网目录服务以及互联网通讯协议，而且管道公司必须向这些网络提供全部的电子信息无歧视准入。管道公司可以收取合理的费用来回收提供这种互联的成

本。

- (B) 管道公司必须在 2000 年 6 月 1 日前执行此项要求。
- (ii) 管道公司必须遵守下列在管道公司网站上公开披露信息的文件要求：
- (A) 文件必须是在公共互联网上使用市售浏览器公众可以进入的，不设置口令或其他准入要求；
- (B) 用户必须能够用所选择的词汇在线搜索到完整的文件，能够复制所选择的部分文件；
- (C) 网站上的文件应可以直接下载，而无需用户先看到网站上的文件。
- (iii) 如果管道公司使用数字或其他标识来代表信息，那么用户必须可以得到该数字或其他标识以及所代表信息的电子对照表，其费用不应超出合理的运送和处理费范围。
- (iv) 管道公司对所有信息都必须提供相同的目录，而无需考虑提供信息的电子格式。
- (v) 管道公司必须对显示的所有信息和根据本款进行的电子交易信息保留三年，并且必须能够恢复和再现所有此类的电子信息和文件。管道公司必须使这些归档信息以合理的费用就可以电子版的形式获得。
- (vi) 管道公司必须在其互联网站上发布营运输气顺序（订单）、关键的期限及其他关键事项的通知，并且必须向受影响方以其选择的下述方式发送上述通知（以电子邮件的形式或者直接将通知传至该方的互联网 URL 地址）。

[587 号令, 61 FR 39068, 1996 年 7 月 26 日, 根据 587-B 号令修改, 62 FR 5525, Feb. 6, 1997 年 2 月 6 日; 587-C 号令, 62 FR 10690, 1997 年 3 月 10 日; 587-G 号令, 63 FR 20095, 1998 年 4 月 23 日; 587-H 号令, 63 FR 39514, 1998 年 7 月 23 日; 587-I 号令, 63 FR 53576, 1998 年 10 月 6 日; 587-K 号令, 64 FR 17278, 1999

年4月9日。根据637号令重新标注和修改,65 FR 10220,2000年2月25日;637-A号令,65 FR 35765,2000年6月5日;587-M号令,65 FR 77290,2000年12月11日]

### 第284.13条 对州际管道公司的报告要求

根据本部分B节或G节的规定提供输气服务的州际管道公司必须遵守以下报告要求。

- (a) 相互参照。管道公司视情况许可必须遵守本规章第161条、第250条以及第260条的要求。
- (b) 关于固定输气服务和可中断输气服务的报告。州际管道公司必须在其互联网站上发布如下信息,并以可下载文件的格式提供信息(依照第284.12条),而且从信息发布之日起90天之内必须保持这些信息的准入查阅。
  - (1) 对于管道固定服务以及根据第284.8条进行的容量转让交易,管道公司必须在进行交易的第一次气量指定之前发布关于每一份服务合同或修改服务合同的下述信息;
    - (i) 托运人的合法全称,根据该合同获得服务的托运人身份证号,如果涉及输气容量转让则为转让托运人的合法全称和身份证号,或指出管道公司是输气容量的出售者;
    - (ii) 根据该合同得到服务的托运人的合同号,此外,对于转让交易,则为转让托运人合同的合同号;
    - (iii) 每个合同收取的费率;
    - (iv) 最高费率,但容量转让交易不受限于最高费率,适用于比较销售管道服务的最高费率;
    - (v) 合同期限;
    - (vi) 合同规定的接收和交付点和区域或区段,包括每一交接点、区域或区段的行业通用代码;
    - (vii) 合同数量或体积转让数量;

- (viii) 适用于容量转让的特殊条款和条件，包括合同与管道公司运价偏离的所有方面以及与管道输气合同有关的特别细节，包括合同是否为议价费率合同和适用于折扣输气合同的条件等；
  - (ix) 管道公司与托运人之间是否有关联关系，或者转让托运人与受让托运人之间是否有关联关系。
- (2) 对于管道可中断输气服务，管道公司在根据可中断输气服务协议进行第一次气量指定服务之前必须每日发布如下信息：
- (i) 得到服务的托运人的合法全名称和身份证号；
  - (ii) 收取的费率；
  - (iii) 最高费率；
  - (iv) 合同规定的接收和交付点和区域或区段，包括每一交接点、区域或区段的行业通用代码；
  - (v) 托运人有权输送的气量；
  - (vi) 与该输气协议有关的特别细节，包括适用于折扣输气合同的条件以及该协议与管道公司运价偏离的所有方面；
  - (vii) 托运人与管道公司是否有关联关系。
- (c) 用户索引。
- (1) 在每个公历季度的第一个营业日，州际管道公司必须向联邦能源管理委员会提交一份与委员会的要求内容一致的依据合同截止到该季度第一个营业日的所有固定输气和储气用户的索引。提交该索引的要求和格式将由委员会来制订。根据第 284.12 条采用的标准，用户索引还必须公布在管道公司互联网页上，并可以从互联网站上下载，下载格式与委员会制订的格式相一致。在下一个季度的用户索引公布之前，管道公司互联网页上公布的信息必须一直保留。
- (2) 对于每个接受固定输气或储气服务的托运人，用户索引



必须包括以下这些信息：

- (i) 托运人合法的全名称和身份证号；
  - (ii) 正在提供服务所适用的运价明细表编号；
  - (iii) 合同编号；
  - (iv) 合同的生效日期和终止日期；
  - (v) 对于输气服务，合同的最大日输气量（指定的计量单位）；对于储气服务，最大的储气量（指定的计量单位）；
  - (vi) 合同适用的接收和交付点和区域或区段，这些点和区域或区段所具有的接收和交付能力，包括每一交接点、区域或区段的行业通用代码；
  - (vii) 说明合同中是否包括了已经谈判过的费率；
  - (viii) 管理托运人输气服务的代理人或资产管理人员的姓名；
  - (ix) 管道公司与托运人之间或管道公司与托运人资产管理或代理人之间是否有关联关系。
- (3) 本款提出的要求不适用于仅与依照第 284.8 条进行容量转让有关的合同，但如果这种容量转让是永久性的除外。
- (4) 不要求按照本款的规定公布和提交用户索引的管道公司，必须根据委员会规章第 157 部分及在本章第 154.111 条 (b) 和 (c) 款的规定，遵守适用于输气和销售的公布和提交用户索引的要求。
- (5) 关于电子索引的要求可从位于华盛顿特区 20426 的联邦能源管理委员会信息服务部公共参考及档案维护分部得到。
- (d) 可用容量。
- (1) 根据第 284.12 条的规定，州际管道公司必须提供互联网地址、可下载的文档格式以及使用户无论在何时一旦容量计划做出就能平等及时地获取与所有可用输气服务

有关的信息，这些信息包括但不限于接收点的可用容量、干线管道的可用容量、交付点的可用容量、储气库的可用容量、该容量是否可以从管道公司直接获得还是要通过容量转让获得、管道系统上的每个交接点或区段的总设计容量、无论在何时容量计划做出后每个交接点或区段的计划输量、所有计划的或实际的储运服务损耗及服务能力的减少。

- (2) 在每年的3月1日前，州际管道公司必须提交一份年度报告，在报告中给出在有代表性的合理运行假定工况下管道系统的高峰日估计输气能力、估计储气能力和储气设施的最大日交付能力以及将该容量分别分配给该管道公司提供的各种固定服务用户的数量。
- (e) 半年储气报告。在每个天然气储存注入或采出季节结束的30天内，州际管道公司必须向委员会提交一份储气业务的报告。这份报告必须在高级官员宣誓的约束下签署，包括一份原件和5份与原件内容完全一致的复印件；报告对天然气储存注入或采出进行总结，包括以下一些内容：
  - (1) 每个向储气库注入和/或采出天然气的用户的身份，并说明他们与州际管道公司是否有关联关系；
  - (2) 进行储气注入或采出服务所执行的费率明细表；
  - (3) 适用于每个储气用户的最大储气量及最大日采出量；
  - (4) 每个储气用户在整个储气期间向储气库注入和/或从中采出的气量；
  - (5) 在注入/采出期间从每个储气用户收取的单位费用和总收入，并注明在整个注入/采出期间所允许的折扣范围。
- (f) 旁行通知。向位于地方配气公司服务区域的用户提供输气（储气除外）服务并且将不会向该配气公司交付该用户天然气的州际管道公司必须在开始该输气服务后的30天内向联邦能源管理委员会提交一份声明，说明该管道公司已在开始该输气服务前书面通知地方配气公司以及该地方配气公司相

关的监管机构有关已建议的输气情况。

[637号令, 65 FR 10221, 2000年2月25日; 根据637-A号令修改, 65 FR 35765, 2000年6月5日]

**第 284.14 条 (保留)**

## B 节 由州际管道公司输送某些天然气

**第 284.101 条 适用性**

B节贯彻实施《天然气政策法》第311(a)(1)款, 适用于代表

- (a) 任何州内管道公司或
- (b) 任何地方配气公司

的任何州际管道公司进行天然气输送。

**第 284.102 条 由州际管道公司输送天然气**

(a) 根据本条(d)、(e)款、B节中的其他规定以及本部分A节中的条件, 在无需事先得到委员会同意的情况下, 州际管道公司被授权代表以下这些公司输送天然气:

- (1) 任何州内管道公司; 或
- (2) 任何地方配气公司。

(b) 依据B节规定收取的输气费率不应超过依据A节确定的公正合理的费率。

(c) 根据B节的规定, 从事输气业务安排的州际管道公司必须依照本章第284.13条和第284.106条的规定提交报告。

(d) 并不是代表州内管道公司或地方配气公司或根据本条款的授权输送天然气, 除非:

- (1) 该州内管道公司或地方配气公司在某一点上对天然气有实际监护权并且输送天然气; 或
- (2) 该州内管道公司或地方配气公司可能在州际管道公司输

送天然气之前、期间或之后，在某一点上对该天然气有所有权，这种所有权与其作为州内管道公司或地方配气公司的地位和职能有关；或

(3) 在某一点上将天然气交付给用户，这些用户或是位于地方配气公司的服务区内，或是实际上能够直接从州内管道公司接收交付的天然气，而且州内管道公司或地方配气公司证明其代表该用户在接受州际管道公司正在提供的输气服务。

(e) 根据本条的规定，州际管道公司必须取得其托运人的证明，该证明应包括足够的信息以证实其服务的质量。在开始本条(d)(3)款描述的输气服务之前，州际管道公司必须依据本条(d)(3)款规定从地方配气公司或州内管道公司取得所要求的证明。

[436 号令，50 FR 42495，Oct. 18，1985 年 10 月 18 日，根据 526 号令修改，55 FR 33011，1990 年 8 月 13 日；537 号令，56 FR 50245，1991 年 10 月 4 日；581 号令，60 FR 53072，1995 年 10 月 11 日；637 号令，65 FR 10222，2000 年 2 月 25 日]

第 284.103 条至第 284.106 条（保留）

## C 节 由州内管道公司输送某些天然气

第 284.121 条 适用性

C 节贯彻实施《天然气政策法》第 311 条 (a) (2) 款，适用于代表

(a) 任何州际管道公司；或

(b) 任何由州际管道公司提供服务的地方配气公司的任何州内管道公司进行天然气输送。

**第 284.122 条 由州内管道公司输送天然气**

- (a) 遵照本条 (d) 和 (e) 款的规定、C 节中的其他规定并考虑本部分 A 节中的适用条件，在无需事先得到委员会批准的情况下，州内管道公司可以代表以下公司输送天然气：
  - (1) 任何州际管道公司；或
  - (2) 任何由州际管道公司提供服务的配气公司。
- (b) 依据 C 节授权收取的输气费率不应超过依据第 284.123 条规定的公平公正的费率标准。
- (c) 根据本款授权从事州内管道输气业务安排的州内管道公司必须根据第 284.126 条的规定提交报告。
- (d) 并不是代表州际管道公司或由州际管道公司提供服务的配气公司或者根据本条款的授权输送天然气，除非：
  - (1) 该州际管道公司或地方配气公司在某一点上对天然气有实际监护权并且输送天然气；或
  - (2) 该州际管道公司或地方配气公司可能在州内管道公司输送天然气之前、期间或之后，在某一点上对该天然气有所有权，这种所有权与其作为州际管道公司或地方配气公司的地位和职能有关。

[436 号令，50 FR 42495，1985 年 10 月 18 日，根据 537 号令修改，56 FR 50245，Oct.4，1991 年 10 月 4 日；537-A 号令，57 FR 46501，1992 年 10 月 9 日；581 号令，60 FR 53073，1995 年 10 月 11 日]

**第 284.123 条 费率和收费**

- (a) 通则。根据第 284.122 条 (a) 款授权输送天然气的费率和收费应依照本条 (b) 款确定的是公正公平的费率和收费。
- (b) 费率的选择。
  - (1) 根据本章第 284.7 条和第 284.9 条中的条件，州内管道公司可以选择：

(i) 根据以下使用方法来确定其费率基础：

(A) 在设计费率时要回收包含在一份当时已生效的用于城市门站服务的固定售气费率明细表（该费率明细表已申报给相关的州监管机构）内的集气、处理、加工、运输、交付或类似服务（包括储气服务）的成本；或

(B) 确定将包含在提供城市门站天然气服务的配气公司费率内的并被州相关监管机构所准许的补贴；或

(ii) 使用已包含在一份当时已生效的用于州内输气服务的输气费率明细表（该费率明细表已申报给相关的州监管机构）中的费率，而且州内管道公司确定该州内输气服务包含的服务与依据 C 节规定的服务有可比性。

(2) (i) 如果州内管道公司不打算根据本条 (b) (1) 款的规定进行费率选择，那么州内管道公司就应通过向委员会提交建议的费率和收费以及表明建议的费率和收费是公平和公正的资料，向委员会申请批准其提议的费率和收费。每提交一份批准请求都应同时缴付根据本规章第 381.403 条规定的收费，或者依照本规章第 384.106 条规定请求放弃。在提交批准申请后，州内管道公司可以开始输气服务并按提议的费率收费，但只限于偿还款。

(ii) 在委员会收到依据本条 (b) (2) (i) 款提交的申请 150 天以后，申请中提议的费率将视为是公正和公平的，而且该费率金额不超过州内管道公司提供类似输气服务所允许收取的数额；除非在 150 天内，委员会延长付诸实施的时间或提起诉讼，在诉讼过程中所有有利害关系的当事方都将给予机会可以书面或口头方式陈述自己的观点、数据和论据。在诉讼过程中，委员会或者将批准该

费率，或者不批准该费率并责令连同利息一起返还已确定为超出公平和公正的费率金额的部分，或者是超出州内管道公司提供类似服务所允许收取的费用。

(iii) 根据本款批准或不批准一项输气费率的委员会令取代根据本条 (b) (1) 款确定的费率。

(c) 收入处理。委员会认为对在根据第 284.122 条 (a) 款授权下的州内管道公司通过运输天然气所收取并根据本条 (b) (1) 款计算出来的一切收入，州有关监管机构已经或将要予以考虑，目的是确定州内管道公司向州内用户提供输气服务收取的费用。

(d) 假定。如果州内管道公司正在收取的费率是根据第 284.123 条 (b) (1) 款计算的，那么收取的费率就可以假设是：

(1) 公正和公平的；和

(2) 没超过州际管道公司提供类似输气服务所允许收取的费率和收费。

(e) 申报要求。在开始新服务的 30 天内，依照本节的规定从事天然气运输业务的州内管道公司都必须向委员会提交一份声明，声明中应叙述管道公司将如何从事天然气输送业务，包括运营条件，如质量标准和托运人的财务能力。声明中还必须包含该州内管道公司根据本条 (b) 款所选择的费率。如果管道公司改变其管道运营条件或改变根据 C 节规定的费率选择，那么在运营条件改变或费率选择改变开始后的 30 天内，该管道公司必须对上述声明做出修正并将这些修正申报。

[44 FR 52184, 1979 年 9 月 7 日，在 44 FR 66791 修改，1979 年 11 月 21 日；394 号令，49 FR 35364, 1984 年 9 月 7 日；436 号令，50 FR 42496, 1985 年 10 月 18 日；50 FR 52276, 1985 年 12 月 23 日；581 号令，60 FR 53073, 1995 年 10 月 11 日]

## 第 284.124 条 条款和条件

依据本节授权输送天然气的合同应规定天然气输送业务应服从本节的条款规定。

## 第 284.125 条 （保留）

## 第 284.126 条 报告要求

- (a) 旁行通知。依照第 284.122 条规定，向位于地方配气公司服务区域的用户提供输气（储气除外）服务并且将不会向该配气公司交付该用户天然气的州内管道公司必须在开始该输气服务后的 30 天内向联邦能源管理委员会提交一份声明，说明该管道公司已在开始该输气服务前书面通知地方配气公司以及该地方配气公司相关的监管机构有关已建议的输气情况。
- (b) 年报。在每年的 3 月 31 日以前，州内管道公司都必须向委员会和相关的州监管机构提交年度报告，该报告包含根据第 284.122 条在上一年度提供的每项输气服务（储气除外）的信息如：
  - (1) 接受输气服务的托运人姓名；
  - (2) 服务类型（如固定的或可中断的输气服务）；
  - (3) 托运人的输气总量。如果是固定输气服务，报告中应分别说明预约气量和实际管输量；
  - (4) 从托运人收取的总收入。如果是固定输气服务，报告中应分别说明预约气量收入和实际管输收入。
- (c) 半年储气报告。在每个天然气储存注入或采出季节结束的 30 天内，州内管道公司都应向委员会提交一份根据第 284.122 条授权提供储气业务的报告。这份报告必须在高级官员宣誓的约束下签署，包括一份原件和 5 份与原件内容完全一致的复印件；报告对天然气储存注入和采出进行总结，



包括以下一些内容：

- (1) 每个向储气库注入和/或采出天然气的用户的身份；
  - (2) 以前曾批准的储气注入或采出费率单据；
  - (3) 适用于每个储气用户的最大储气量及最大日采出量；
  - (4) 每个储气用户在整个储气期间向储气库注入和/或从中采出的气量；
  - (5) 在注入/采出期间从每个储气用户收取的单位费用和总收入；以及
  - (6) 州内管道公司所报告的与储气相关的注入/采出输气服务的相关单据号码。
- (d) 终止通告。在依据第 284.122 条授权的输气业务（储气除外）终止后的 30 天内，州内管道公司必须向委员会和相关的州监管机构提交一份声明，向委员会提交的声明由一份原件和 5 份与原件内容一致的复印件组成，声明中应包含以下信息：
- (1) 输气交易指定的单据号码和交易的终止日期；
  - (2) 根据交易安排的总输气量；
  - (3) 收取的总收入；以及
  - (4) 一份声明，证明该输气服务是根据该单据中以前公布的条款和条件提供的。

[436 号令，50 FR 42496，Oct. 18，1985 年 10 月 18 日，在 50 FR 52276 修改，1985 年 12 月 23 日；636 号令，57 FR 13317，1992 年 4 月 16 日；581 号令，60 FR 53073，1995 年 10 月 11 日]

## D 节 由州内管道公司进行某些天然气销售

来源：44 FR 12409，1979 年 3 月 7 日，另有注明除外。44 FR 52184，1979 年 9 月 7 日重新指定。

### 第 284.141 条 适用性

D 节贯彻实施《天然气政策法》第 311 条 (b) 款, 适用于由州内管道公司销售某些天然气给:

- (a) 州际管道公司; 和
- (b) 由州际管道公司提供服务的地方配气公司。

### 第 284.142 条 由州内管道公司销售天然气

在没有事先得到委员会批准的情况下, 任何州内管道公司都可以向任何州际管道公司或任何由州际管道公司提供服务的地方配气公司销售天然气。依据本节州内管道公司收取的费率不得超过合同中已谈判过的气价加上根据第 284.123 条确定的公正和公平的管输费率。

[581 号令, 60 FR 53073, 1995 年 10 月 11 日]

### 第 284.143 条 - 第 284.148 条 (保留)

## E 节 - F 节 (保留)

## G 节 通用许可证书

授权州际管道公司代表其他公司进行某些输气业务  
以及授权地方配气公司进行服务

### 第 284.221 条 通则: 由州际管道公司代表其他公司输气

- (a) 通用许可证书。任何州际管道公司都可以根据本款申请一份通用许可证书, 授权其依据本节代表其他公司输送天然气。根据《天然气法》第 7 条的规定, 授予依据本款的公益必要设施证书。
- (b) 申请程序。

- (1) 根据本款规定申请通用许可证书必须以电子文件形式提交。电子申请文件的格式可从联邦能源管理委员会信息服务部的公共参考资料与档案维护分部获取，地址是华盛顿 20426 号。申请文件必须包括：
    - (i) 该州际管道公司的名称；和
    - (ii) 该州际管道公司的一份声明，表示该公司将遵守本条 (c) 款的条件规定。
  - (2) 在收到依据本款规定提交的申请后，委员会将根据《天然气法》第 7 条 (c) 款和本规章第 157.11 条的规定举行听证；如果是由于公益必要设施的需要，委员会将根据本节规定向州际管道公司颁发通用许可证书，授权该管道公司运输天然气。
- (c) 一般条件。根据本节规定授予的任何通用许可证书都应服从本部分 A 节中规定的条件。
- (d) 废弃或放弃的事先批准。
- (1) 除了本条 (d) (2) 款的规定外，在合同条款到期或根据本条规定授予证书而授权开展的每一单独输气业务终止后，依照《天然气法》7 条 (b) 款的规定对放弃输气服务授权。
  - (2) 如果个别输气安排是合同期限为一年或一年以上的固定输气服务，则本条 (d) (1) 款的规定不适用，而且固定托运人：
    - (i) 行使合同权利继续获得该输气服务；或
    - (ii) 发出通知告知：该固定托运人希望继续其输气安排，将使其固定输气服务的最长期限和最高费率与第 284.10 条规定的适用最高费费率相一致，并与任何希望获得固定输气容量的其他人给管道公司在制订管道费率期间提出的报价相当，而且该固定托运人履行与该报价的期限相一致的合同。固定托运人要取得该种优先取舍权的资格，其合同必须为连续

12个月或更长时间的输气服务合同并且为该服务支付适用的最高费率；但合同期限超过一年而又可能连续12个月提供服务的合同除外，该类合同将受限于优先取舍权。

(e) 普通证书的可用性。

本节并不排除州际管道公司申请用于特殊输气服务的单项公益必需设施证书。

(f) 参照。

(1) 任何由州际管道公司提供服务的地区配气公司都可以申请通用许可证书以完成依据本规章第284.224条规定的某些服务。

(2) 任何州际管道公司都可以根据委员会规章第157部分F节中的规定申请通用许可证书以建设或获得和运营根据第284.223条规定提供输气服务所必需的某些天然气设施。

(3) 本规章第157.208条提供自动授权，可以建设、获得、运营、置换和重新配置本规章第157.202条定义的某些合格设施，但须服从本规章第157.208条(d)款和第284.11条详细规定的限制条件。

(4) 交付点的授权须服从第157.211条(a)(1)款自动授权的限制以及依据第157.211条(a)(2)款和第157.205条规定的预先通知程序。

(g) 灵活接收点授权。

(1) 在托运人的要求下以及没有预先通知的情况下，依照本条款授予证书进而授权去输送天然气的州际管道公司可以：

(i) 在某一特殊接收点，减少或停止接收供应商的天然气；和

(ii) 在某一特殊接收点，开始或增加从该供应商或其他供应商接收天然气。

- (2) 在依据本款对接收点气量重新分配后，州际管道公司所接收的天然气总气量不得超过其根据本条款授予的证书代表托运人可以输送的天然气总气量。
  - (3) 根据本款规定可以重新分配气量的接收点包括第 157.208 条规定的合格设施，根据依照本规章第 157 部分 F 节颁发的证书已授权可以建设和运营这些设施。
- (h) 灵活的交付点授权。
- (1) 在托运人的要求下以及没有预先通告的情况下，依照本条款授予证书进而授权去输送天然气的州际管道公司可以：
    - (i) 在某一特殊交付点，减少或停止交付天然气；和
    - (ii) 在某一特殊交付点，开始或增加交付量。
  - (2) 在经过交付气量的重新分配后，州际管道公司交付的天然气总气量不得超过其根据本条款颁发的证书代表托运人输送的天然气总气量。
  - (3) 根据本款规定可以重新分配气量的交付点包括仅依照本规章第 157.211 条以及第 157.205 条规定的预先通知条件授权建设和运营的合格设施。

[436 号令, 50 FR 42496, 1985 年 10 月 18 日, 根据 433-A 号令修改, 51 FR 43607, 1986 年 12 月 3 日; 636 号令, 57 FR 13317, 1992 年 4 月 16 日; 636-A 号令, 57 FR 36217, 1992 年 8 月 12 日; 581 号令, 60 FR 53073, 1995 年 10 月 11 日; 603 号令, 64 FR 26610, 1999 年 5 月 14 日; 637 号令, 65 FR 10222, 2000 年 2 月 25 日; 637-A 号令, 65 FR 35765, 2000 年 6 月 5 日]

#### 第 284.222 条 (保留)

#### 第 284.223 条 通过代表托运人的州际管道公司输气

根据 G 节的规定和本部分 A 节中的条件，在没有预先通告或委员会批准的情况下，依照第 284.221 条的规定已取得证书的任何州际

管道公司授权在任意期间内为任何托运人、为该托运人或其他人的任何最终用途输送天然气。

[436 号令, 50 FR 42497, 1985 年 10 月 18 日; 50 FR 45908, 1985 年 11 月 5 日, 在 50 FR 52276 修改, 1985 年 12 月 23 日; 537 号令, 56 FR 50245, 1991 年 10 月 4 日; 581 号令, 60 FR 53074, 1995 年 10 月 11 日; 637 号令, 65 FR 10222, 2000 年 2 月 25 日]

#### 第 284.224 条 由地方配气公司输送和销售某些天然气

- (a) 适用性。本条款适用于由州际管道公司提供服务的配气公司, 包括由于《天然气法》第 1 条 (c) 款的规定而不受联邦能源管理委员会权限约束的个人。
- (b) 通用许可证书。
  - (1) 任何由州际管道公司提供服务的配气公司或任何 Hinshaw 管道公司都可以根据本条款的规定申请通用许可证书。
  - (2) 在根据本条款的规定申请证书后, 将依照《天然气法》第 7 条 (c) 款、本章第 157.11 条及本章第 385 部分 H 节中的规定进行听证。
  - (3) 如果是由于目前或将来的公益必需性设施而提出要求, 委员会将依据本条款向该地方配气公司或 Hinshaw 管道公司授予通用许可证书。该证书将授权该地方配气公司从事依据《天然气法》由委员会管辖的天然气销售或输送业务, 而该地方配气公司销售或输送天然气的范围和方式与本部分 C 节和 D 节中授权给州际管道公司从事这些业务的范围和方式相同, 但本条 (e) (2) 款规定的除外。
- (c) 申请程序。申请通用许可证书必须同时缴纳本规章第 381.207 条规定的费用, 或者提交依照本章第 381.106 条做出的自动弃权诉讼, 并应说明:
  - (1) 申请人准确的法律名称; 主要经营地点; 公司是否是个

人、合伙、集团或其他类型的公司；公司依州法律组建或授权所在的州；对费率和运价规则有管辖权的机构；与该申请人联系时的联系人姓名、职务和通信地址；

- (2) 天然气量，包括：
  - (i) 在最近 12 个月内，申请人在州内或州边界处接收的气量；和
  - (ii) 由于《天然气法》1 条 (c) 款的规定，从委员会《天然气法》管辖权中免除的气量（如果有的话）；
- (3) 在同一时间期限内，申请人从所有来源接收的天然气总气量；
- (4) 根据《天然气法》第 1 条 (c) 款引用联邦能源管理委员会所有当前有效的免责声明（如果有的话）；
- (5) 一份声明表示申请人将遵守本条 (e) 款规定的条件；
- (6) 根据本规章第 157.9 条的考虑，一份要适合在联邦注册 (FEDERAL REGISTER) 上公布的通告，该通告要简要地总结出在申请中陈述的事实，以便使公众熟悉其范围和目的；和
- (7) 一份声明，说明在其提供服务计算费率时所使用的计算方法，依据第 284.123 条或本条 (e) (2) 款选择费率计算方法并利用当前数据使用其计算方法进行一个实例计算。如果根据本条 (e) (2) 款进行费率选择，该声明应包含如下项目（反映 12 个月的情况，用以证明在最近的由相关州监管机构批准的费率案例中提出的成本是正确的）：
  - (i) 总的经营收入；
  - (ii) 购气成本；
  - (iii) 配气成本（包括分摊给配气业务的共同成本部分）；
  - (iv) 根据销售、输气和交换分类别的管道系统输气量；以及

(v) 一份根据本条 (e) (2) 款规定以单位收入基础确定输气成本的研究报告, 包括辅助研究工作的论文。

(d) 证书的作用。

(1) 根据本条款规定取得的证书将授权证书持有人从事本规章部分 C 节和 D 节中规定授权的交易类型。

(2) 接受证书或根据下文的授权从事业务将:

(i) 根据《天然气法》第 1 条 (c) 款的规定, 不会削弱任何可能适用于证书持有人的排他性权利的持续有效性, 以及

(ii) 不会使证书持有人受到《天然气法》赋予委员会的权利的约束, 但强制执行该证书的条款和条件所必需的约束除外。

(e) 一般条件。

(1) 根据通用许可证书授权的任何交易必须采用与依据本部分 C 节和 D 节中规定对州际管道公司授权进行交易所采用的相同的费率和收费、条款和条件以及报告要求, 但本条 (e) (2) 款的规定除外。

(2) 费率选择。如果证书持有人没有任何门站服务的现行费率在相应的州监管机构备案, 则该证书持有人可以在第 284.123 条 (b) 款明确说明的费率选择方法中选定, 但前提是:

(i) 证书持有人的现行费率已经相应的州监管机构批准。

(ii) 计算出输气的费率和收费, 采用的方法是: 通过计算现行费率生成的证书持有人加权平均年单位收入 (每百万英热单位), 该收入应可以收回集气、处理、加工、输送、交付或类似服务 (包括储气服务) 的成本; 以及

(iii) 联邦能源管理委员会已批准了本条 (e) (2) 款明



确规定的费率和收费的计算方法。

- (3) 体积测定。根据通用许可证书销售的或分配的天然气气量不得超过从州际管道以外来源获得的气量。
- (4) 提交报告。向联邦能源管理委员会提交的每项单独交易的报告，都应参照授予通用许可证书程序过程的记事表号。
- (5) 运价规则申报。本规章第 154 部分的运价规则申报要求不适用于通用许可证书授权的交易。
- (f) 预先准予放弃。依据《天然气法》第 7 条 (b) 款的规定，当根据本条通过通用许可证书授权的每一单独业务安排的合同条款到期后，就可以授权放弃输气服务和销售业务。
- (g) 没有通用许可证书的 Hinshaw 管道公司。依据本条款没有获得通用许可证书的 Hinshaw 管道公司将不授权进行根据本部分 C 节和 D 节的规定州际管道公司可以进行的天然气的销售或输送。
- (h) 定义。只用于本条款：
  - (1) Hinshaw 管道公司是指任何从事天然气输送业务的人，仅仅由于依据《天然气法》第 1 条 (c) 款的规定而不受《天然气法》授予委员会的权限的约束。
  - (2) 州际供气是指可以直接或间接地从下面的渠道获得天然气：
    - (i) 州际管道公司系统供气；或
    - (ii) 自 1978 年 11 月 8 日开始承诺或专供给州际商业的天然气储量。

[45 FR 1875, 1980 年 1 月 9 日, 根据 319 号令修改, 48 FR 34891, 1983 年 8 月 1 日; 48 FR 35635, 1983 年 8 月 5 日; 433 号令, 50 FR 40346, 1985 年 10 月 3 日。根据 436 号令重新标出和修改, 50 FR 42497, 42498, 1985 年 10 月 18 日; 478 号令, 52 FR 28467, 1987 年 7 月 30 日; 581 号令, 60 FR 53074, 1995 年 10 月 11 日]

第 284.225 条至第 284.226 条 (保留)

第 284.227 条 由州内管道公司进行的某些输气

- (a) 通用许可证书。通用许可证书应依据本条款颁发给接收产自联邦水域、邻近州的陆上或近海的天然气的州内管道公司，但前提是：
  - (1) 该州内管道公司接收的天然气必须来自集气公司或其他州内管道公司；
  - (2) 该州内管道公司在管道公司运行所在的州向最终用户或其他州内管道公司交付天然气；
  - (3) 由在同一州内的最终用户最终使用天然气。
- (b) 有效日期。如果一个州内管道公司自 1992 年 2 月 1 日起提供如本条 (a) 款描述的输气服务而且依据本部分 C 节第 284.122 条的规定该输气服务是不具有资格的服务，就应依据本条 (a) 款颁发通用许可证书给该州内管道公司，该通用许可证书的生效日期为 1992 年 2 月 1 日。如果一个州内管道公司自 1992 年 2 月 1 日起还没有提供如本条 (a) 款描述的输气服务，应颁发通用许可证书给该州内管道公司，通用许可证书生效的日期应为该管道公司开始进行依据本部分 C 节第 284.122 条的规定原为不具有资格的输气服务的日期。
- (c) 接受证书。如果一个州内管道公司在 1992 年 2 月 1 日以后继续提供本条 (a) 款描述的输气服务，而依据本部分 C 节第 284.122 条该服务为不具有资格的服务，或者该管道公司自 1991 年 11 月 4 日以后就开始了这种输气服务，那么依据本条该州内管道公司就视为已接受了通用许可证书。
- (d) 条款和条件。依照本条款州内管道公司的通用许可证书输气权限的应与本部分 C 节中规定的所有条款和条件相一致，但依照本条款的服务不必代表由州际管道公司提供服务的州

内管道公司或地方配气公司进行。

(e) 预先准予放弃。依据《天然气法》第 7 条 (b) 款的规定，当根据本条通过通用许可证书授权的每一单独业务安排的合同条款到期后，就可以授权放弃输气服务。

(f) 证书的作用。接受依据本条款颁发的证书或从事根据本条款授权的业务，将不会使证书持有人受到《天然气法》赋予委员会的权利的约束，但强制执行该证书的条款和条件所必需的约束除外。

[537 号令，56 FR 50246，1991 年 10 月 4 日，根据 544 号令修改，57 FR 46501，1992 年 10 月 9 日；581 号令，60 FR 53074，1995 年 10 月 11 日]

## H 节 州际管道公司输气容量的分配

来源：636 号令，57 FR 13318，1992 年 4 月 16 日，另有注明的除外。

### 第 284.241 条 适用性

H 节适用于根据本部分 B 节和 G 节的规定提供输气服务的任何州际管道公司。

### 第 284.242 条 上游管道固定输气容量的分配

根据本部分 B 节和 G 节的规定，提供固定输气服务的州际管道公司必须将其所有上游管道的固定输气容量（包括合同储气）无歧视性地分配给其固定托运人，无论该固定输气容量是根据规章第 284 部分还是第 157 部分取得的授权。授权上游管道公司并要求其允许下游管道公司将其固定输气容量分配给下游管道公司的固定托运人。

## 附件 2 许可证条件示例

下述的许可证条件要点勾勒出作为输气公司许可证（即负责运输天然气的实体将被授予许可证）标准条件的范例。这些条件与储气或者配气企业许可证的条件很相似。此处的用语摘自英国编制的条件。您可以在 Ofgem（英国天然气工业的政府监管部门）的网站：[www.ofgem.gov.uk](http://www.ofgem.gov.uk) 中找到由英国出版发行的标准许可证条件。

### 控制进入输气系统的条件

#### 输气业务分立账

1. 许可证持有人应该留存正确的会计账目以及其他记录，并且这些记录的格式应使其管道服务业务的收入、成本、资产以及负债或者可合理归入其管道服务的业务与该许可证持有人的其他业务的会计记录格式可以分开识别。

2. 在对段落（1）的普遍有效性没有任何影响的前提下，只要合理实施，获得许可证的人应在连续性的基础上，并以其会计记录在其输气业务方面做出如下准备——

（a）在获得许可证的初始时期以及每一个后续会计年度，编制会计报表，包括——

（b）损益账

（i）一份资产负债表，包括有关对在该年度年初和年末资产负债表中显示的净资产进行调整的必要细节；以及

（ii）一份即期现金流量表，包括对（i）和（ii）款中所指明的会计报表的调整，并且在每一个会计年度的最初六个月（自初始日期当天或第二日开始），编制一份中期损益帐。

3. 根据（2）（a）段编制的会计报表应——

（a）陈述并清楚地显示管道服务业务或者可合理归属于管道服务业务的成本（包括折旧）、收入、所用资产以及负债，并且分别以适

当的详细程度来显示所有收入、成本、资产或者负债的金额，这些金额或是——

(i) 从许可证持有人其他业务中收取或者支付的；或者是

(ii) 许可证持有人的输气业务和其他业务间的费用分摊；同时说明这些收费或者分摊费用的基础；

(b) 只要实际合理可行（如果许可证持有人是一家被要求准备年度总账的公司）——

(i) 该会计报表中涉及有关业务的内容应与许可证持有人按照[具体指定中国涉及管理财务会计报告的相关法律或者通用的相关国际原则及标准]编制年度总账所涉及到的业务内容相同。

4. 除非得到监管委员会的认可，否则，许可证持有人不得改变自初期或前一财务年度（根据具体情况而定）输气业务会计报表所采用的费用或者分摊的基础，因而改变初期开始后任何财务年度其输气业务会计报表所采用的收费或分摊基础。

5. 就依据段落(2)(a)款编制每一份会计报表而言，许可证持有人将获得一份由适当的审计师提交给天然气监管委员会的审计报告，在审计报告中，该审计师应该声明他的观点——这套会计报告

(a) 是否充分披露了许可证持有人输气业务的财务事项，是否符合本许可证条件，并且

(b) 从真实与公允的角度披露该输气业务的收入、成本、资产及负债，或者可合理归入该项业务的收入、成本、资产及负债。

6. 在切实可行的情况下，许可证持有人应向监管委员会提交一份每套财务会计报告的副本，和本文中段落(2)(a)和段落(5)所要求的审计师报告以及提交一份段落(2)(b)所要求的中期损益表，但无论如何不得迟于——

(a) 在报表编制期结束以后六个月，提交每套会计报表以及此处所指的审计师审计报告，或者

(b) 在中期损益表编制完成后两个月，提交损益表。

7. 许可证持有人应以其合理观点并以能够保证会计报告充分公开性的方式，公布段落(2)(a)所要求的会计报表，因此，会计报

告的公布日期不得迟于——

(a) 会计报告所及许可证持有人会计年度的年度报告公布时间，或者

(b) 该会计年度结束后六个月（或者监管委员会认可的更长时间），以较早的为准；

但在依照段落（3）（a）公布此类内容将或者也许会严重影响以及不利影响到许可证持有人的利益的情况下，本节应不要求根据段落（3）（a）分别公布任何费用或者分摊费用的数额或其计提基础。

8. 段落（7）限制性条款所引起的关于此类公布事宜是否会或者可能对许可证持有人产生严重或不利影响的任何问题，均应该由监管委员会决定。

9. 在本条中，在许可证持有人为一家〔指定参考中国相关公司法〕含义内的公司时，“合适的审计师”指的是被任命为审计师的人。“会计（财政）年度”与〔指定参考中国相关公司法〕中该词的含义相同，但在上述相关法律不适用的情况下除外，此时，“财政年度”指的是以〔日期〕或者是许可证持有人在通知中指定并提交给监管委员会的其他日期；“初始日期”指的是在该指定日开始的日期或者（如果稍后）在许可证生效以及许可证持有人的后续财政年度开始以前刚结束的日期；关于业务的成本或者债务或者可合理归属于该业务的成本或债务的参考数据应解释为不包括不只与该业务有关的税款、资本债务及其利息；关于损益表或者现金流报表的参考数据也应予以相应地解释。

### 输气业务的经营

1. 许可证持有人应以精心计划的方式来经营其输气业务，以确保——

(a) 许可证持有人或者段落（7）中所提及的任何人或者

(b) 任何天然气托运人或者天然气供应商均不得获取不公平的商业利益，特别是包括那些从优惠或者歧视性安排中获得的任何商业利益，而且如果在许可证持有人获得此类利益的情况下，该商业利益也应与其某一业务而非输气业务有关。

2. 按照段落 (3) 的规定, 许可证持有人将竭力确保——

(a) 不得将其输气业务有关或者来自输气业务的信息予以披露, 目的是为了许可证持有人或者段落 (7) 中所提到的任何人的经营利益。

(b) 不得将来自其输气业务的信息用于由许可证持有人经营的任何贸易业务或 (只有该许可证持有人有权利取得该项利益) 段落 (7) 中所提到的任何人所经营的任何贸易业务。

3. 段落 (2) 不适用于下列各项——

(a) 在监管委员会同意的情况下,

(b) 为了此目的, 天然气托运人或者天然气供货商已书面同意可以使用或者披露与该托运人或供货商有关的信息;

(c) 为了使段落 (7) 中所提到的人能够与许可证持有人达成输气协议或者使该协议生效, 使用或者披露该信息是必要且有利的;

(d) 依据本许可证的其他条件, 如段落 (2) (a) 中所提到的, 已公布或经要求而披露信息, 或者

(e) 该信息 (而非违背本许可证条件的原因为) 属公知范畴。

4. 在此条件下, “贸易业务” 意指与在中国境内获取以及处理天然气有关的活动, 或者指与一家输气企业协商进行输气安排、由该企业通过其管理的管道系统来输气或者自其管道系统提取天然气的活动, 但以下情况除外——

(a) 该贸易业务与打算在中国境外天然气消费的输气活动有关, 该业务在监管委员会颁布的本许可证条件中已指定, 或者

(b) 对许可证持有人而言, 这些业务与其管道系统的有效运行或者对该管道系统天然气损耗进行补充有关。

#### 运行守则

1. 许可证持有人应确定有利于促进达到下列目标的有关事宜的输气安排 (与标准条件 3 和 4 有关的事宜除外) ——

(a) 许可证持有人有效、经济地运行其管道系统;

(b) 符合子段 (a) 的要求, 有效地履行了其本许可证项下的义务;

(c) 符合子段 (a) 和 (b) 的要求, 确保相关托运人之间以及相关供气商之间的有效竞争,

(d) 自下文起, 上述目标称之为“相关目标”。

2. 许可证持有人应——

(a) 准备一份文件 (在本许可证条件中称为“运行守则”) 阐述 (与许可证持有人认为在该文件中适宜陈述的其他任何的商务安排条款一同) 符合段落 (1) 要求的商务安排条款, 但是这些条款要与根据标准条件 5 或者 6 监管的事宜有关, 或者包含在本监管委员会为本许可证条件之目的而指定的协议中, 或者此类等级的协议或者描述性文件中, 并且

(b) 将其副本提交给监管委员会。

3. 除了监管委员会认可的其他情况之外, 许可证持有人应只能达成符合该运行守则任何相关规定的输气协定安排。

4. 如果运行守则的一条规定要求: 在该规定明确指明的情形下, 由许可证持有人依据该规定确定某一事例是否有利于促进相关目标的实现, 那么由此所产生的关于许可证持有人是否已经满足了该项要求的问题, 将由监管委员会做出决断。

5. 许可证持有人应建立并运行段落 (6) 中所提及的程序, 以便修改运行守则, 从而能够为实现相关目标提供便利。

6. 段落 (5) 中所指的程序是为了——

(a) 评审运行守则;

(b) 由许可证持有人或者相关托运人为其修改事宜提出建议;

(c) 充分公开这些建议, 特别是要引起所有相关托运人的注意, 并且将建议书副本发送给任何天然气托运人或者其他索取该建议书的人;

(d) 寻求监管委员会对与任何此类建议书相关联事宜的观点;

(e) 考虑某一相关托运人或者任何天然气托运人或者其他 (如果实施该建议) 可能受到重大影响的人所作出 (而不是退出) 的与该建议书有关的陈述, 而且

(f) 在监管委员会同意由于事关紧急可能需要修改运行守则的情



况下，经委员会批准，可以排除、加快或者变更任何在其他情况下本来适用的特定程序性步骤。

7. 许可证持有人将——

(a) 准备一份文件（“修订规则”），阐述依据段落（5）确立的程序，并将其副本提交监管委员会；

(b) 不得更改修订规则，除了——

(i) 在与所有相关托运人磋商并考虑了由该相关托运人所做的任何陈述之后；

(ii) 在将该磋商以及就有关陈述所作出的考虑意见的报告提交给监管委员会之后，并且

(iii) 得到监管委员会的首肯，然后

(c) 将所作出的任何修改之副本提交给监管委员会。

8. 许可证持有人不得修改运行守则，除非——

(a) 为了符合段落（10）（b）或者（11）的要求，或者

(b) 在得到监管委员会认可下，将提交给监管委员会一份修改副本。

9. 在[负责健康及安全之法定机构]按照本段落之要求向许可证持有人发出关于保护公众安全免受天然气在其管道系统中输送发生危险的通知，而且对运行守则的修改（与相关目标始终保持一致）也能够适当地处理该事宜的情况下，许可证持有人应根据修改规则提出修改建议，如果所做之修改与这些目标保持一致，就应认为已满足了关于修改应有利于实现相关目标的要求。

10. 在按照修改规则提出建议书以便修改运行守则的情况下，许可证持有人应——

(a) 尽可能早地通知监管委员会——

(i) 提供建议书的细节；

(ii) 在由某一相关托运人做出建议书的情况下，应注意备选建议书以修改运行守则中由许可证持有人对相同事宜已做出的修改；

(iii) 提供与这些建议书有关的天然气托运人或者其他人所做陈述的详细情况；

(iv) 说明根据其看法是否应该或者不应该进行建议的修改；  
(v) 说明根据其看法能够证明对建议的修改做出调整或者不做出调整的各种因素，并且

(vi) 按照修改规则，也可能根据要求需将此类详情提供给监管委员会；并且

(b) 遵守监管委员会发出的任何指令，根据依照 (a) 款给监管委员会发出的通知中所叙述的建议书对运行守则进行修改；按照监管委员会的观点，与现有运行守则的规定或者任何可替代的建议相比，该建议书应该如段落 (5) 中所述更加有利于实现相关目标。

#### 11. 许可证持有人应——

(a) 编写并发布不时修改或变化的运行守则及修改规则摘要，要按照监管委员会可能不时指示的形式及方式来进行；

(b) 将不时修改的运行守则副本或者已变更的修改规则副本寄给提出要这些副本并为此也许需要向许可证持有人支付费用的人，该费用金额不应超过监管委员会可能不时批准的为此目的的费用金额。

#### 12. 该修改规则所引起的任何问题若涉及——

(a) 如果实施该建议，天然气托运人或者其他是否可能受到修改运行守则建议书的重大影响，或者

(b) 许可证持有人是否已适当考虑了有关此建议的陈述以及根据修改规则作出的陈述，这些问题应由监管委员会来确定。

#### 管理运价规则的条件

##### 天然气托运人应付的运费

#### 1. 许可证持有人应向监管委员会提交以下陈述：

(a) 按照与详细说明了的天然气托运人达成的输气协定安排，在不同的特定情况或者情况说明下准备收取的费用，并且

(b) 根据段落 (5) 或段落 (6) (依情况而定) 中提到的方法，说明确定这些费用采用的方法和依据的原则，在不会给段落 (2) 带来损害的前提下，如果费用以及确定这些费用采用的方法和依据的原则发生了变化，在费用改变生效以前 (或如果费用改变不合理可行)，但只要今后费用改变合理可行，许可证持有人就应该将声明修改本提

交给监管委员会，或者如果监管委员会认可，将能够反映这些修改的前述声明的修改本也提交给监管委员会。

## 2. 许可证持有人

(a) 应把有关其正在考虑改变的、段落 (1) 中所提到的管输费的建议书通知以及这些建议书（如果实施的话）对这些费用的影响的预测提交给监管委员会，并且在执行建议书前的至少 150 天内尽一切努力来提交这些通知及预测。

(b) 在确定实施这些建议书来更改段落 (1) 中所提费用的情况下，应将其决定及执行建议书的日期通知给监管委员会，除非经监管委员会同意，否则，该执行日期不得迟于在将本子段所要求的通知提交给监管委员会以后一个月。

## 3. 许可证持有人将——

(a) 以确保信息充分公开的方式按照段落 (1) 和 (2) 的要求公布所提交的声明或声明的修订或增补本或者发出的通知

(b) 将上述公布的声明、修订、增补或者通知发送给任何提出查看它们的人。

4. 除非在得到监管委员会认可的其他情况下，否则许可证持有人将只能达成确保费用将符合依据段落 (3)

(a) 在达成协议以前先公布的声明的输气协定安排，或者

(b) 在不时拟议变动的费用开始变动以前，出于本段落的目的，在该声明须受限于在相关时间以前所公布的修订本的情况下，按照段落 (3) 以前所发布声明的参考数据应被解释为已修订的该声明的参考数据。

## 5. 依据段落 (6)，许可证持有人应——

(a) 建立一套方法，通过这套方法来显示段落 (1) (a) 中所提到的费用的确定方法和依据原则（得到监管委员会认可的其他情况除外），并且

(b) 遵守这套已建立但按照标准条件 4 的要求不时进行修改的方法。

6. 如果在指定日期以前，许可证持有人已经建立了一套方法来

显示与段落 (1) (a) 中所提到的确定费用采用的方法和依据的原则，同时，监管委员会也已经批准了此套方法（“旧的方法”），那么，只要许可证持有人一直采用该方法（仍须进行任何必要的修改）——

(a) 段落 (5) 将不适用，而且

(b) 在旧的方法适用（仍须进行任何必要的修改）的任何情况下，许可证持有人应遵守此方法，并不时按照标准条件 4 来对此进行修改。

7. 在任何情况下，许可证持有人愿意签署与段落 (10) 所提到的设施有关的储气协议——

(a) 如果根据这些协议，收费不受依据段落 (5) 所建立的方法或者旧的方法（依情况而定）的支配，许可证持有人应避免不适当的优先选择或者不适当的歧视其达成这些协议的条款，

(b) 如果这些收费或者按照输气协议而非储气协议收取的任何费用，不受前述条款的支配，那么只要合理可行，许可证持有人就应确保在其达成的储气协议条款与其达成的输气协议条款之间不会涉及不公平的交叉补贴。

8. 应由监管委员会来判定第 (7) 段落中的不公平交叉补贴所引起的问题。

9. 段落 (1) 至段落 (5) 中的收费参照方法不包括——

(a) 与为了平衡许可证持有人的管道系统而获取或处置天然气有关的收费，或者

(b) 在监管委员会已认可的某些事宜方面，确定的收费参照方法应是通过参照运行守则中陈述的规定来确定的收费，如前所述，本条件及标准条件 4 中界定的收费参照方法包括收费可以确认的方式，但不包括标准条件 6 含义内的追加费用的参照方法。

#### 制定运价方法的义务

1. 除非许可证持有人得到监管委员会的赞同不进行修改，否则按照段落 (2) (3) 的要求，许可证持有人应不时对按照标准条件 3 中段落 (5) 所建立的方法进行修改，或者依情况而定对段落 (6) 中提到的旧的方法（此处称为“方法”）进行修改，这也可能是为了实

现相关目标所需要的。

2. 未征得监管委员会的批准，许可证持有人不能对该方法进行修改，除非许可证持有人已经

(a) 就建议的修改方案与相关托运人进行过磋商，并允许他们在不少于 28 天的时间里提交书面陈述材料，并且

(b) 向监管委员会提交一份报告说明

(i) 初始建议修改的条款，

(ii) 相关托运人所作出的陈述（如果有的话），以及

(iii) 由于相关托运人所作出的陈述，原建议修改的条款的任何改动，但条件是在该报告提交监管委员会已过去 28 天后，监管委员会未给予许可证持有人任何关于不得进行修改的指示。

3. 依据段落（4）的要求，许可证持有人在每个公历年都应提交给监管委员会一份关于在当年 10 月 1 日以前的 12 个月中采用费用计算方法的申请，同时还应该提交一份声明，说明

(a) 按许可证持有人的观点，在该相关期限内已实现的相关目标；

(b) 是否通过修改该方法这些目标可以更易于实现，同时

(c) 如果的确如此，出于该目的应该进行的修改内容。

4. 关于本许可证生效的公历年——

(a) 如果许可证在当年 10 月 1 日或之后生效，则段落（3）将不适用，或者

(b) 如果许可证在 10 月 1 日以前生效，则段落（3）将生效，如同该日期前 12 个月，并将参考日期替换为许可证生效日起的前述日期。

5. 依据段落（6），段落（1）和（3）中的“相关目标”意指下列目标——

(a) 与制定费用的该方法相符合，这些费用能够反映许可证持有人在输气业务中发生的成本；

(b) 符合子段（a）而且该方法适当考虑了输气业务的发展；

(c) 具有一致性并与该方法相符合

该方法有助于天然气托运人之间和供气商之间的有效竞争。

## 6. 一般而言

(a) 在采用该方法制定的费用或者从这些费用获得的收入，依据本许可证的任何条件（标准条件 3 除外）没有受到控制或限制的情况下，以及

(b) 监管委员会没有认可在特定的期限内本段不应该适用或者按照不满意的条件已认可本段，则“相关目标”应该包括下列目标，即采用该方法制定的费用（收取每项费用并逐年收取），允许许可证持有人只能从其输气业务获得合理的利润，然而，出于本段落的目的，下列各项应该略去——

(i) 在标准条件 6 指定的时间内，为了某一地区的利益，与管道施工有关的业务目的而发生的成本；

(ii) 通过收费（在标准条件 5 的含义内）而从该项业务中获得的收入，标准条件 5 的任何规定对该收费都具有效力，而且前提是在目前指定的一个地区内；

(iii) 通过追加收费的方式从该项业务中获得收入（在标准条件 6 的含义内），以及

(iv) 与拟议开发一个地区但目前并没有指定一个对该地区的土地有权益的人有关的许可证持有人进行的支付，而不是通过合理考虑土地权益或者向许可证持有人提供的货物或服务，就本段来讲，“成本”和“收入”指的是根据应计制确定的成本和收入。

7. 许可证持有人应遵从监管委员会不时发出的指示，要求许可证持有人——

(a) 依据段落 (8) 和 (9) 来发布监管委员会在该指令中可能具体指明或描述的信息——如许可证持有人在其输气业务中所发生的任何成本，或者有关按照段落 (1) 不时进行修改的运费方法的信息，同时

(b) 指令中也可能具体说明发布信息采用的格式和方法以及发布的频率。

8. 根据段落 (7) 不应要求许可证持有人公布任何信息或者文件

(a) 不能强制许可证持有人举证或在民事诉讼开庭以前出示的信息或文件，或者

(b) 如果信息中包含着与为标准条件 6 之目的暂时指定一个地区的管道施工所发生的成本有关的信息或者在指定该地区后为管道施工做准备所产生的成本信息。

9. 在按照段落 (7) 的要求公布任何信息过程中，许可证持有人应尽可能注意信息中不要包括与任何人的个人事务有关的任何问题，因为公开这些问题将或可能会严重和有害地影响其利益。

10. 将由监管委员会来判定由段落 (9) 所产生的任何问题，即是否公开与任何人的个人事务有关的任何问题将或可能会严重和有害地影响其利益。

#### 输气服务的价格限制

1. 在制定自 [管输费年起始日] 起生效的使用其输气系统的价格时，许可证持有人应采取所有合理的步骤以确保自 [公式年起始日] 或之后开始的每一公式年中，其每一能量单位的平均输气价格不得超过按照下列公式计算出的每能量单位 [或者每兆焦耳] 的最高平均输气价格——

$$M_t = \left(1 + \frac{CPI - X}{100}\right) + K_t$$

但自 [公式年起始日] 开始的公式年， $M_{t-1}$  的值将为 [ ] RMB

其中

$M_t$  = 在公式年  $t$  的每能量单位最高平均输气价格

$K_t$  = 每能量单位的修正系数（无论其为正数或者负数）按照公式年  $t$  来确定，可以从下列公式得出

$$K_t = \left(\frac{T_{t-1} - Q_{t-1}M_{t-1}}{Q_t}\right)\left(1 + \frac{I_t}{100}\right)$$

其中

$M_{t-1}$  = 在公式年  $t-1$  中，每能量单位的最高平均输气价格

$Q_t$  = 公式年  $t$  中认定的输气数量

$Q_{t-1}$  = 公式年  $t-1$  中认定的输气数量

$T_{t-1}$  = 公式年  $t-1$  的输气收入

在本条件下的该公式中——

$CPI_t$  = 消费者价格指数百分比变化（无论是正数还是负数），该价格指数是公式年  $t$  中已公布或者已确定的 [月份名称] 价格指数与已公布或者已确定的前一月 [月份名称] 的价格指数之比值；

$I_t$  = 在  $K_t$ （不考虑  $I_t$  的影响）为正数的情况下，公式年  $t$  中的利率百分比与平均特定利率加 3 的值相等，或者，在  $K_t$ （不考虑  $I_t$  的影响）为负数的情况下，与平均特定利率相等。

## 2. 在本条件中：

“每能量单位的平均输气价格”指的是，在任何公式年，该公式年的输气收入除以该公式年认定的输气量；

“零售价格指数”指的是由 [负责公布国家统计数字的相应机构] 每月公布的涉及所有商品的消费价格指数，或者——

(a) 如果任何年中的 [月份名称] 的该月价格指数不会在 [当月 + 接下来的 3 个月] 的最后一天予以公布，由监管委员会在与许可证持有人协商后判定该月（或数月）的价格指数在该情形下是否恰当；或者

(b) 如果价格指数的基础发生了本质变化，由监管委员会在与许可证持有人协商后确定其他指数在该情形下是否恰当；

“托运人”指的是与许可证持有人进行安排将天然气引入输气系统、通过输气系统交付或者从输气系统中提取天然气的任何天然气托运人；

“特定利率”指的是在开始进行计算期间，[既定的受管制商业银行的名称] 的现行基本利率

“提供输气服务”指的是为了收益和报酬承担和履行以下约定：

(a) 通过输气系统输送天然气；以及

(b) 为了防止许可证持有人为他人从输气系统提取的天然气逃



逸，但与为了输气系统的有效运行或为了对该输气系统的天然气损耗进行置换而获取或处理天然气有关的约定除外；

“输气数量”指的是已提取的、以能量单位计算的天然气的总量；

“输气收入”指的是在向托运人提供输气服务过程中所获得的营业额（以应计制为基础计算）但不包括与以下各项有联系的营业额：

- (a) 与提供或进行修改输气系统进气点或取气点有关的施工；
- (b) 为了输气系统的有效运行而获取或者处理天然气；
- (c) 从不是根据托运人通常所要求的输气服务中获得的营业额；
- (d) 包括在上述子段（b）内，由许可证持有人按照许可证持有人运行守则规定所进行的收费或者向其支付的费用中获取的营业额。
- (e) 从在标准条件 6 含义内的追加收费中获取的营业额；
- (f) 表示与由于标准条件 24 中段落（4）和（5）而要求放弃的补贴或者收费（天然气看成还尚未从其管道系统提走）相等的收入；或者

(g) 从按照特别条件 19 达成的合同项下提供紧急维修服务收取的费用中获取的营业额；

但是，为了计量在任何公式年（在该年中自输气系统提取的天然气直接进入储气设施，完全或者主要用于储气之目的）的输气量或大用户气量，应该仅考虑与下述两者间的差额量相等的气量（可能为负值）：

(i) 在该公式年中，从输气系统提取直接进入该储气设施中的天然气数量；和

(ii) 在该公式年中，从该储气设施进入到输气系统的天然气数量。

3. 除非监管委员会同意许可证持有人可以不按照上述要求做，否则，许可证持有人应参照监管委员会对以下问题的判定：根据段落（2）中“输气收入”的定义，为了收益和报酬承担和履行一项约定是否是一般由托运人要求的类型，或者提供任何输气服务是否是一般要由托运人提出要求。

4. 如果在任何公式年中，每能量单位的平均输气价格超过每能

量单位最高平均输气价格 4 个百分点以上，则许可证持有人应向监管委员会提交一份解释说明，在下一个公式年，许可证持有人应不再提价，除非

(a) 许可证持有人已论证并使监管委员会比较满意：在下一公式年中每能量单位的平均输气价格将不可能超过每能量单位的最高平均输气价格，或者

(b) 经许可证持有人申请，监管委员会同意该提价。

5. 如果在任何连续两个公式年中，每能量单位平均输气价格已超过每能量单位最高平均输气价格的总金额，已连续第二个年度超过每能量单位最高平均输气价格百分之五以上，则在下一公式年中，如果监管委员会提出要求，许可证持有人应调整价格，使每能量单位平均输气价格（根据监管委员会的判断）不太可能超过下一公式年中每能量单位的最高平均输气价格。

6. 在许可证持有人依据标准条件 3 项下的输气收费发布任何声明或者修改或者增补声明的情况下，许可证持有人应在进行上述发布的前 28 天以内向监管委员会提交——

(a) 一份关于在准备生效的输气收费变动的公式年中以及下一公式年中每能量单位最高平均输气价格以及价格构成的书面预测报告；

(b) 一份关于在准备生效的输气收费变动的公式年前一公式年中每能量单位最高平均价格以及其价格构成的书面估算报告，除非在发布输气收费拟议的变动之前已向监管委员会提交了关于第一个提到的公式年中输气收费变动符合下面段落 10 的声明。

7. 如果在任何公式年开始的前三个月内，许可证持有人没有公布或者使该收费变动生效，则许可证持有人应向监管委员会提交一份在该公式年的每能量单位最高平均输气价格以及价格构成书面预测。

8. 在提交前述预测报告的同时，应该同时提供一些必要信息，使监管委员会能够基本认可这些预测报告是在一个一致的基础上准备的。

9. 在一公式年结束后的六个星期以内，许可证持有人应该向监管委员会提交一份声明，说明根据其观点在该公式年中上述段落 4 和

5 是否适用以及对在下一公式年中可能的 K 值做出最佳预测。

10. 在每一公式年结束后的三个月内，许可证持有人应向监管委员会提交一份声明，说明该公式年的输气收入以及输气量。

11. 上述子段 (5) 提到的声明要附有审计报告，根据审计师的观点，该声明根据本条件的要求公正地提供了输气收入及输气量的数字。

### 管理投资的条件

#### 长期发展声明

1. 许可证持有人应遵守监管委员会的指示，按照指示中可能具体说明的格式准备一份声明，说明在 10 月 1 日起首的连续 10 年每一年的如下预测信息——

(a) 可能使用的任何独立管道系统，包括由许可证持有人所运行的高压管道以及可能使用的如段落 (6) 所提到的管道设施，以及

(b) 该管输系统和管道设施可能的发展，许可证持有人预期在确定接入该管道系统的输气费和执行输气协定时应对此不时予以考虑，这将有助于那些考虑寻求将其管道与许可证持有人的管道系统相连接的人，在鉴别和评估这样做的机会的过程中与许可证持有人达成输气协定，或在合理预期每年的供气超过 [ ] 吉焦的前提下寻求与许可证持有人的管道系统相连接。

2. 除非监管委员会同意许可证持有人不这么做，否则，许可证持有人应以年度为基础准备一份按照段落 (1) 编制的声明的修订本，以确保所修订之声明中的信息（在实际可行的情况下）为最新信息。

3. 按照与下面段落 (4) 相一致的要求，许可证持有人应——

(a) 向监管委员会提交一份按照段落 (1) 准备的声明报告副本，以及按照段落 (2) 准备的声明修订本；

(b) 按照监管委员会指示的形式及方式，公布声明摘要或者（依情况而定）公布声明修改本，这将有助于相关人决定是否要求提供子段 (c) 中所提到的修订本，同时

(c) 准备一份声明副本或者修订本，在切实可行的情况下，该修订本不包括段落 (4) 中所提到的任何问题，并将此副本发送给任何

索取人，索取人应向许可证持有人支付可能要求支付的有关费用，但该费用不应超过监管委员会为此不时批准的金额。

4. 在按照段落 (3) (b) 的要求做的过程中，许可证持有人应考虑需要（在可行的情况下）排除与个人事务相关的任何问题，因为公布此类问题将或者也许会严重且不利地影响该人的利益。

5. 段落 (4) 所引起的关于公布个人事务问题是否将或者也许会严重并且不利地影响到该人的利益的任何问题，应该由监管委员会作出判断。

### 高压管道的建设

1. 许可证持有人不应不时进行建设高压管道的施工，除非在施工开始的前 1 年（或者主管当局所许可的更短的期限内），已经向 [负责健康及安全的法定机构] 通告——

(a) 声明其计划进行该施工；

(b) 在子段 (b) 未做要求的情况下，也应包括——许可证持有人地址；在管道建成后，对该管道进行运行管理的办公地址（如果知晓的话）；所建议的管道的正常及最大允许运行压力的细节；关于在管道选线指导原则中可能不时指定需要说明的细节（如果有）；并将通知副本提交给该管道计划通过的地区的当地规划部门。

2. 如果在提交段落 (1) 项下的通知以后，与该通知有关的施工在自主管当局给定的日期起三年的期限届满时或者在给予的延期期限届满时，仍没有充分展开，则该通知将依照该段落的要求而停止生效，但已开始施工的工程（如果有）除外。

3. 在所建议的管道路线不符合选线指导原则的情况下——

(a) 许可证持有人应为此通报 [负责健康及安全的法定机构]；

(b) 许可证持有人应就建议的管道路线咨询 [负责健康及安全的法定机构]；并且

(c) 如果在按照子段 (a) 的要求通告 [负责健康与安全的法定机构] 的当日起，在 3 个月的期限内（或者经许可证持有人和执行机构书面同意的更长期限内），执行机构书面通知许可证持有人，不同意所建议的管道路线（无论有无许可证持有人可接受的修改），则许

可证持有人应（除非决定不继续进行所建议的工程）把段落（1）提到的通知副本提交给主管当局；

(d) 如果在上述期限内，[负责健康与安全的法定机构]——

(e) 同意所建议的管道线路（无论有无许可证持有人可接受的修改），或者

(f) 没有将子段（c）提到的通知发送给许可证持有人，按照段落（4）和段落（5）的要求，许可证持有人可以继续进行所建议的管道施工。

4. 已经接到段落（1）提到的通知副本的当地规划部门，在接到该通知副本以后的两个月内，出于安全原因（考虑了管道选线原则以及风险标准，或者在缺少此类标准的情况下，考虑了由[负责健康与安全的法定机构]提供的建议）或者其他原因，书面通告许可证持有人，所建议的管道可能会危害他们的发展计划某个方面的实施。在这种情况下——

(a) 许可证持有人应向主管当局咨询其建议；

(b) 如果在主管当局对许可证持有人进行如上通知之日开始的三个月（或者许可证持有人与主管当局书面同意的更长期限）内，主管当局书面通知许可证持有人不同意其建议书（无论有无许可证持有人可接受的修改），则许可证持有人应（除非其已决定不再继续进行所建议的施工）向主管当局递交段落（1）提到的通知；

(c) 如果在上述期限内当地规划部门——已经同意了许可证持有人的建议书（无论有无许可证持有人可接受的修改），或者没有向许可证持有人发出子段（b）提到的通知，则许可证持有人依据段落（3）和段落（5）可以继续进行所建议的施工。

5. 如果自收到段落（1）提到的通知之日起的六个月期限内，按照段落（3）（c）或者（4）（b），主管当局（考虑了与安全和风险标准有关的问题，或者在缺少此类标准的情况下，考虑了由许可证持有人所阐述的风险标准或[负责健康与安全的法定机构]所做的有关该建议的陈述）向该许可证持有人发出指示——

(a) 不应继续管道建设，或者

(b) 如果许可证持有人希望继续建设管道，则应满足在该指示中具体指明的要求包括管道选线方面的特别要求。在这种情况下，许可证持有人应该遵从该指示。

6. 在本条件中——“选线原则”指的是，在咨询 [负责健康与安全的法定机构] 和在指定或者修改此类原则时持有许可证的人以后，主管当局所指定的指导原则；“风险标准”指的是基于标准（如果有）的风险，这些标准已——

(a) 由 [负责健康与安全的法定机构] 在与采纳时持有许可证的人协商之后制定并采纳。

(b) 为执行本条件被主管当局指定，或者是这些已制定并采纳的标准的任何修订。

## 附件3 输气监管方法

输气监管方法可以广义地分为符合先前报告所考虑原则的三类方法：

- 建立输气企业的规则与程序，这些规则与程序将支配管输系统准入的条款和条件。
- 管输系统管输费的制定与调节。
- 管道及管道扩容的授权。

本节提出了这些分类并讨论了每一分类中的监管方法。目前，中国境内的输气系统是由未相互连通的管道段网络构成。在这些管网中，有相对复杂的四川及东北管道系统，也有从盆地至市场中心的单一管道。为了监管，每一管网（从单一管道乃至最复杂的管网）均构成一个独立的输气实体。

监管的初始重点将主要放在现有的输气网络上，而无论是否有第三方要求准入。即使在客户目前还无法立刻获得替代供气商准入的管网，输气与供气业务的分离（或解除捆绑）通过展现基础成本的驱动因素和增进效率的潜力也能产生好处。另外，随着时间的推移，当相互分离的管网交互连接在一起时，合适的准入条款和条件的制定将加速把合适的监管安排应用于中国境内的输气系统。通过增加管网用户对天然气供应新来源的准入，这将更快地获得在天然气商品市场提升竞争力的利益。

制定适宜的准入条款和条件需要应用三套监管方法。这些方法包括：

- 确保天然气供气与输气经营活动相互分离的方法；
- 建立输气经营业务规则及程序去控制单独管网用户准入的条款和条件的方法；以及
- 评估以及（如果可以接受）批准输气服务报价的方法

## 供气与输气经营活动的分离

第一套监管方法涉及要求有效分离供气与输气经营活动的原则的应用。

三个选择粗略地勾勒了可以选择的范围，以实现不同程度的分离：

选择 1：分离账户及经营管理，同时通过行动守则来监管这种分离。

选择 2：在不同地点分离输气与供气经营单位。

选择 3：撤销输气经营或者供气经营。

这三种选择各不相同，从最低的分离要求（选择 1）到最激进的撤销（或出售）输气或者供气经营选择。选择 2 可视为一个折中的办法，但是，该选择是多个变量之一，可在选择 1 和选择 3 所定义的两个极端之间进行定义。这些选择逐个笼统地描述了全世界输气企业当被要求提供对其管网准入服务时它们努力适应所带来的变化的经验。大多数的输气企业最初都抵制分离其输气与供气业务的监管要求，主要是为了保护其天然气市场份额（在欧洲更为普遍），同时也为了避免重组其企业的成本以及避免进行新的管理安排（在北美较为普遍）。结果，他们只做出一点让步，只进行了最小程度的分离。

随着时间的推移，监管委员会寻找更有效的分离方法，在许多情况下寻找有效分离方法的行动是由那些来自托运人的抱怨推动的，他们抱怨说：输气企业歧视他们而青睐与其有关（或者关联）的供气企业。最终，许多输气企业发现将其供气业务放在一个完全分离的公司是有利可图的。这就提供了战略及管理的焦点并降低了监管委员会与天然气托运人之间产生争端的几率。北美及英国的输气企业都是如此。顺应这一潮流的举措目前正在澳大利亚和新西兰涌现，这两个国家的天然气产业改革要晚于北美及英国。西欧（例如法国的 Gaz de France、比利时的 Distrigaz、荷兰的 Gasunie、西班牙的 Gas Natura 以及德国 Ruhrgas）的大部分输气企业刚开始解决分离事宜，而且在大多数情况下，都在考虑采用选择 1 的变化形式。

就中国的大环境来讲，在过渡期从选择 1 开始并评估其满足监管



委员会和托运人的要求的能力是合乎道理的。经常（也是最有效的）通过行动守则的方式来取得选择 1 的实施。

本示例的目的是为非捆绑输气的提供和监管提供基础。对于每一家输气企业，监管委员会将列出在每一份文件中都需要解决的问题。并设想这些文件和程序将通过在监管委员会的指导和监督下经输气企业及合格的管道系统用户的讨论和协商而制定出来。

### **行动守则**

行动守则是用来描述一家输气企业为实施与执行分离其输气与供气经营活动而已制订好的各种程序的文件。受监管的每一输气实体都将被要求编写该行动守则。根据设想，这些行动守则将作为监管委员会与受监管的输气实体之间的咨询过程的一部分而进行编写，同时在该咨询过程中也向其他感兴趣方（例如：生产商、符合条件的消费者以及城市配气公司）提供参与的机会。

典型的行动守则文件包括下列要素：

说明性注释：说明与特定输气实体有关的文件要求。

定义：对行动守则中所提及的相关各方及行为进行准确描述。

目标及原则：本节内容包括输气实体向所有符合条件以及有资格的申请人作出提供无歧视性准入的承诺。该承诺的主要特点将构成指导信息流管理以及信息准入的原则。输气实体将从只要求提供输气服务的申请人处接收商业保密信息。输气业务部门具有将此信息传递给其关联供气业务部门的动机。例如，该输气业务部门将在其当前接受捆绑式服务的客户中，找出是谁打算与其他供气商订立天然气供应合同。这将使其关联供气业务部门可以这些客户为供应目标并诱使他们继续作为其客户。这就使得该关联供气业务部门与其他供气商相比较具有不公平的优势。

### **执行行动守则**

本节内容说明行动守则的执行，包括下列内容：

输气企业的各项义务。这些义务包括重组程序、政策、部门结构以及工作职责，从而确保符合行动守则之要求。本节也包括对建立雇员交流及培训方案的承诺，以确保雇员能够获得信息以及资源供应以

便遵守。还将建立一个抱怨程序。

功能分离的性质。该分项将涉及下列事项：

设施及资源共享；

保存账簿及记录；

禁止从事受限制的经营行为；

提供业务支持服务。

经营行为。本分项涉及运价、收费和折扣的应用以及将需要的通告以确保提供非歧视性服务。

处理系统紧急情况程序。本分项涉及违反行动守则的系统应急响应处理的程序。

维护账户及记录。该分项涉及会计规则及法定要求。

进行符合性审查的官员的任务。本分项列出了进行符合性审查的官员的权利、责任和职责，该官员负责监督并强制执行符合运行守则的经营行为以及勾勒出外部审计的条款。

行动守则草案见附件 5。

**运行守则和输气服务协议**

**运行守则**

现在可以来探讨阐述“行规”和提供输气服务的第二和第三套监管方法。运行守则说明了受监管的输气企业（作为输气服务提供商）和输气系统用户的职责和义务。输气服务协议将按照运行守则来定义，同时将详细说明输气实体与符合条件的管网用户间的输气服务合同。

典型的运行守则将由下列要素构成：

定义及说明；

通用管网安全标准以及管网计划方案；

连锁转运及所有权的转移；

技术规格、压力及质量；

计量及测试。

收缩：

入口（输入或者接收）点要求；

出口（分输或者交付）点要求可用容量及所提供容量；  
气量指定、重新指定以及时间安排；  
气量平衡以及不平衡的解决。

维护：

紧急事件及输送量缩减（不可抗力）；

开具发票与支付；

税金及应纳费；

争议解决。

附件 6 是北美一家管道公司的通用条款和条件，与运行守则相符合。

### 输气服务协议

通常而言，标准输气服务协议由分开的固定输气服务以及可中断输气服务构成。典型的固定服务提供将依照运行守则来定义，并将包括特定合同条款，比如下列条款：

服务的本质及定义；

接收点及交付点；

服务收费；

金融保险；

开具发票及付款；

容量分配与转让。

附件 6 中的通用条款和条件中包含固定及可中断输气服务协议的格式（作为附件）。附录 6 还提供了北美及欧洲输气公司网址，可以进入这些网址查看准入的条款和条件。

该通用条款和条件中的各项条款与上文阐述的运行守则的主要组成部分不完全吻合。这有两种原因。第一个原因是该通用条款和条件与一特定管道及一条北美管道有关；第二个原因（与此相关）：运行守则构成部分的目的是对将需要在中国背景下解决的问题提供总的看法。

### 一些重要的问题

在中国背景下，共有六个问题值得进一步讨论：

输气容量的定义及分配；  
容量权的性质；  
网络规划以及通用管网安全标准；  
天然气质量；  
气量平衡及解决办法；  
气量减少（缩减）。

前三个问题密切相关因此可放在一起讨论。

### 输气容量、容量权及安全性

在北美地区，输气管道公司传统上一直就是“为预约而建”。这意味着现有或者新客户订购的是输气容量，并通过签署一份预购该容量的长期合同的承诺来支持其购气的请求。在管道公司同意并且随后经授权提供非捆绑式输气服务（与供气相分离）时，在大多数情况下，将其合同中的日最大气量（MDQ）转化为预约容量证明是不困难的。这事实上产生了一种长期的输气容量的财产权。另外，该财产权可以合理并准确地被定义及定价，特别是对于长距离输气管道公司而言，因为管输费最初是根据预约容量以及输送该容量的距离确定的。

通过对比，已证明定义及分配更复杂的欧洲国家输气管网的输气容量要更难。除了英国的 BG Transco 以及主要的德国输气公司，大多数欧洲输气公司或者完全归国家所有——或者正准备逐步上市。所有的欧洲输气公司建立并发展其自身的管道网络，以符合建设足够的供气基础设施的公共服务义务（PSO）的要求，从而确保安全、可靠的天然气供应并符合关于天然气渗透的公共政策目标<sup>①</sup>。结果，欧洲输气公司根据预计需求量来建设具有相应输气容量的管道，而没有获得其客户履行长期合同并为该容量付款的任何承诺。

另外，欧洲已建成的天然气基础设施如果是按照客户的长期合同承诺而建立的，则其配置很可能不同。一体化的供气与输气系统的发

---

<sup>①</sup> 在许多情况下该 PSO 都不太明确，但可以从规范输气公司建立和运行的法规文件推断出。

展以及相应日益增加的对外部供气的依赖，已使得对输气和储气设施进行了大量的投资，而这或许只能用一种极端悲观的评价即欧洲面临着供气风险来说明其正确性。

开放式准入的采用为天然气网络用户提供了该网络所提供的服务增值的机会。同时，天然气网络用户将总是试图以最低的成本来使其所获得的服务最大化。这就有可能产生“搁浅”或者“高于市场”的成本。全部的成本回收包括投资回收、投资回报以及现有输气和储气设施的相关运行及维护成本。如果管道网络用户不愿意签署合同并为从这些设施所获得的服务支付费用，则实际的利润回收将无法实现全部的利润回收。这些收不回来的利润即等同于“搁浅”或者“高于市场”的成本。在中国，情况可能是：在将资产纳入资产基础已进行运价设计前，输气（以及配气）公司将不得不接受降低其一些资产账面价值的规定。

所有这些因素都使得在欧洲关于输气容量的定义及分配以及基于该定义的提供长期输气合同方面只取得了有限的——实际上，几乎可以忽略的——进展。结果，一般输气合同的期限均为一年，通常与始自10月1日的天然气合同年并行。这些合同中的预约容量与管道网络中实际可用的容量两者间的关系即使按最好的情况估计也是非常脆弱。管输费按年计，并且不可以任何有意义的方式涉及输气公司的利润回报要求。

这些因素对中国的影响程度尚不明了，但是，比较清楚的是中国的输气企业与欧洲而非北美具有更多的共同点。然而，如第3章所讨论的内容一样，可以把输气服务协议作为以实际管输容量的客观定义和分配为基准的长期合同来开发，为此制定一个强有力的方案<sup>①</sup>。

在中国，与在欧洲一样，天然气产业正从按照需求预测而非固定的长期合同承诺来提供容量的情形，转变为管道网络用户决定他们需

---

<sup>①</sup> 在英国不将管道网络用户（托运人）的预约容量与英国国家输气系统（NTS）天然气入口点的实际可用容量相联系的做法曾导致托运人的预约容量过高，从而造成天然气输入量的频繁缩减。BG Transco 最近已开始拍卖其入口容量，作为向管道网络用户分配容量的最有效方式，这些用户对此给予很高评价。也正在考虑对系统的出口容量“合同化”。

要多少容量来运送其天然气。管道网络用户将总是趋向于少报其容量需求，从而使其成本最小化。输气公司也同样有此强烈的动机以确保管道网络用户尽可能充分地预约可供使用的容量，以便使搁浅成本的影响范围最小化。在有正当理由的情况下，输气公司将能够声称其有权收回根据先前的法律及商务安排所谨慎进行的全部投资成本。然而，当有证据表明有些成本高于市场成本时，监管委员会是不会允许收回全部投资成本的。

在发生搁浅成本问题的大多数管辖权案例中，监管委员会已被迫达成妥协。这种妥协可以采取很多种形式，但是一般来说，它具有一些共性特点。第一个特点就是建立一个包括在运行守则中的通用管道网络安全标准，同时要求所有的管道网络用户遵守该标准<sup>①</sup>。这就将要求管道网络用户如果已经对其预约的容量进行了全面的判断，其预约容量水平就应高出其将接收的气量水平。而另一方面，已预约的容量水平通常低于总的可供气量，因此会出现一些搁浅成本。

第二个特点与回收这些搁浅成本有关。通常，监管委员会倾向于允许部分回收这些搁浅成本，有一些方法可以做到这一点。例如，可能要求输气公司立即或者短期内冲销部分搁浅投资。可允许公司继续按照已确定的折旧政策回收其他部分投资的成本，但是，不得回收该部分投资的投资回报。最后，可能允许该输气公司完全回收投资部分，但是，只允许获取降低了的投资回报率。

而在中国，这将需要详细分析每一个已识别的输气实体所提供的输气服务的可用性以及需求量。这项任务对于单条管道以及新管道项目应该是相对简单直截了当。而对于较为复杂的管道系统，可能会消耗更多的时间及资源。但是，这一做法极为重要，因为成本回收水平以及可用容量水平的不确定性将使增加容量合同的可能性大大减小。

### 天然气质量

尽管中国的天然气输气系统目前由许多分开的管道及网络构成，

---

<sup>①</sup> 这些规范就定义而言各不相同，但在具体实施中通常是吻合的。在大多数情况下，它们都试图去识别为满足在某一寒冷日需气量所要求的输气容量水平。

但是，明确制定一份通用的天然气质量规格并将其应用于所有的输气网络是至关重要的。该规格书主要是一种强制性的技术规章，但是，对于中国境内输气网络的当前运行以及未来发展而言，它都具有重大的意义。

对于所有进入输气网络的天然气都采用一种严格的质量规格——即有效地强制采用一种管道商品气的标准——将降低腐蚀性并能够维持输气网络的整体性。当建设互连管道时，采用通用的质量规格也将有助于这些输气网络的互用性。

管道商品气的一份典型质量规格的示例见附件 4（第 2 条）。

#### 气量平衡与问题的解决

就北美长距离管道（如附件 4 所做说明）而言，通常 30 天为一时段对接收量及交付量进行平衡，而且在该时段末通过支付现金结算。征收罚金以鼓励管道网络用户使两者间的不平衡最小化。保持这些管道尽可能充满天然气具有经济意义，所以，这些管道以较高负荷运行。然后通过紧邻交付点以及需求中心的储气设施来进行每日以及季节性需求波动供应调节。结果，在输气管道的输气量中相对较少的日差异量将是很可能的。从国际上来看，这一点对那些人口密度可能较低或者人口居住地区较少但人口较为集中的国家境内或国与国之间的长距离管道来说，更是如此。

相反，在高人口密度国家（尤其是欧洲国家）中的输气管网，输气量的每日及季节性变化趋向于大得多。此外，这种差异变化与天然气市场的渗透程度直接相关。居民及商用（R 和 C）需求量的比例愈高，日需求差异也愈高。而且，日需求的变化与靠近需求中心的储气服务的可用性呈相反趋势。调节供气量的储气服务的可用性愈高，输气网络输气量的每日变动差异愈小。例如，在英国就需要对每日气量进行平衡调节。意大利和西班牙也正在考虑类似的气量平衡调节。而比利时、法国和荷兰正在寻求建立小时气量平衡制<sup>①</sup>。

---

<sup>①</sup> 这种做法被广泛地认为不现实，一些评论人士把它看成是一种策略，以阻碍实行对这些管网的准入。

应进行气量平衡的时段是输气网络技术及运行特点的一个功能。它也与需要到位的信息与控制系统的成本有关，以支持与某一气量平衡时段有关的气量指定、时间安排及结算安排。

在中国的背景下，这是需要详细研究的问题。应该注意的是，除月、日气量平衡以外，考虑周平衡也是可能的。平衡时段的选择将确定所需程序，以确保有效的气量指定、时间安排、平衡及结算。

不平衡罚金应该与输气企业维持管网气量平衡所产生的成本联系起来。一般来说，这包括在短时间内获取或者处理天然气的成本。很难设计一种制度去提供有效激励以使这些自管道用户回收的成本最小化。

在美国，在现货市场上立时获得天然气正日益减少对不平衡罚金的要求。输气公司以及管道用户正在利用这些市场来直接处理气量不平衡问题。同样，在英国，“每日商品市场”（OCM）已得到发展，这就允许 BG Transco 以及管网用户能够在短时间内购买和出售天然气以维持天然气供求的日平衡。

以上事实强调鼓励出现一个灵活透明的天然气商品市场的会得到进一步的收益。

#### 输入输出量差额 (Shrinkage)

Shrinkage 被定为一天然气管道的总输入气量和总提取（输出）量之间的差额。一般它由无解释天然气（UAG）——起因于泄漏及计量误差——以及用于压缩机燃料的自用气构成，压缩机燃料用于在压力降低驱使天然气温度低于天然气规格要求时进行加热以及进行控制性放空。大多数北美管道，UAG 气量倾向于忽略不计，而且对加热及控制性放空也极少有任何要求。结果，输入输出量差额可等同于压缩机燃料气需求量。输气公司估算压缩机燃料气需求量，并确定每一管道用户所占份额，然后要求这些用户将该份额气量加到其天然气输入量中。

在英国，输入输出量差额大约为天然气输入量的 1%。BG Transco 直接购买该气量并在其管输费中收回该成本。因为英国 NTS 是一个相对较为复杂的管道网络，因此很难将输入输出量差额气量分



配给特定管道网络用户。另外，所估算的范围包括了整个输气及配气系统的输入输出量差长距离输气管道相比，UAG 气量占输入输出量差额的份额较高。

鉴于中国境内未连接管道网络的多样性，似乎有理由建议每一个输气实体应直接购买输入输出量差额气量（与英国相同），并通过管输费从管道网络用户收回成本。监管委员会应该制定并批准一种估算输入输出量差额的方法。另外，为输入输出量差额购买的天然气也应受到监管。

## 附件 4 通用条款和条件

### 信息来源

可以在许多网站找到关于运行规则的资料或实例（或通用条款和条件），其中有些网站列在下面。本附件中的通用条款和条件实例来自于加拿大的 Alliance 管道公司（见下文网站 3）。之所以选择该公司的通用条款和条件是由于其刚颁布，并包含了通用条款和条件中的关键要求，而且使用的是清晰简明的语言。

网站 1: 加拿大国家能源委员会（联邦监管委员会）:

进入 <www.neb.gc.ca>; 选“English”; 查“Publications”（出版物，包括年度报告、规章、准则）; 进入“Energy Overview”（能源概览）; 找到“Natural Gas Market Assessments”（天然气市场评估）; 查“Other Government Agencies, Energy Associations and Related Organizations”（其他政府机构、能源协会和相关组织）——加拿大、美国、墨西哥，包括进入 FERC（联邦能源管理委员会）和墨西哥 CRE 的链接。

网站 2: TransCanada PipeLines（TransCanada 管道公司——现有大型管道）:

进入 <www.transcanada.com>; 从主页 </Transmission/index.html> 打开 Transmission Web page（“输气”网页）; 进入“Transportation Tariffs”（输气运价规则）<business/PDFTariffs/index.html>; 选择“Canadian Mainline”（加拿大干线管道）; 进入“Informational Postings”（信息记录）; 浏览菜单项——“Queuing Procedure”; “Tariff Schedules”（共 9 项，选“FT”）; “General Terms and Conditions”（通用条款和条件）“Pro Forma Contracts（样本合同）。”

网站 3: Alliance Pipeline（Alliance 管道公司——新建加拿大至美国大型输气系统）: 进入 <www.alliance-pipeline.com>; 浏览主页选

择; 查看 tariffs and tariff conditions, Canada (加拿大输气运价规则及条件) < /Shipper/Tariff/Canadian%20Tariff%202000.pdf > 或美国站点: < Shipper/Tariff/US%20Tariff.pdf >

网站 4: BG Transco (英国天然气公司 Transco):

进入 www.transco.uk.com; 从主页菜单选择 “Publications” 以获得一份 a summary of Transco’ s Network Code (Transco 管网规范概述)。

网站 5: Gaz de France (法国燃气公司):

进入 < www.gazdefrance.com >, 选择 English 并按路径进入 Press Releases (信息发布)。

网站 6: Ruhrgas (德国鲁尔公司):

进入 www.ruhrgas.de; 然后查至网站 5。

网站 7: Gasunie (荷兰国家燃气公司):

进入 www.gasunie.nl; 从主页菜单选择 “Commodity/Service”。

### 通用条款和条件实例

#### 目录

#### 第一条: 定义和解释

1.1 ..... (139)

#### 第二条: 质量

2.1 ..... (143)

2.2 ..... (144)

2.3 ..... (144)

2.4 ..... (144)

2.5 ..... (144)

2.6 ..... (145)

2.7 ..... (145)

#### 第三条: 计量

3.1 ..... (145)

3.2 ..... (145)

3.3 ..... (145)

3.4 .....	(145)
第四条：计量设备	
4.1 .....	(146)
4.2 .....	(146)
4.3 .....	(146)
第五条：不可抗力	
5.1 .....	(147)
5.2 .....	(147)
5.3 .....	(147)
第六条：接收和交付压力	
6.1 .....	(147)
6.2 .....	(148)
第七条：出具账单和支付	
7.1 .....	(148)
7.2 .....	(148)
7.3 .....	(148)
7.4 .....	(148)
7.5 .....	(149)
7.6 .....	(149)
7.7 .....	(150)
第八条：服务优先权	
8.1 .....	(150)
8.2 .....	(150)
第九条：非弃权和将来违约	
9.1 .....	(152)
第十条：要求输气服务	
10.1 .....	(152)
第十一条：气量指定	
11.1 .....	(153)
11.2 .....	(154)

11.3	(154)
11.4	(155)
11.5	(155)
<b>第十二条：时间安排</b>	
12.1	(155)
12.2	(156)
12.3	(157)
<b>第十三条：非授权气量和不平衡气量</b>	
13.1	(157)
13.2	(157)
13.3	(157)
13.4	(158)
13.5	(158)
13.6	(158)
13.7	(158)
13.8	(159)
13.9	(159)
13.10	(159)
13.11	(159)
<b>第十四条：燃料气</b>	
14.1	(159)
14.2	(160)
14.3	(160)
14.4	(160)
<b>第十五条：接收优先权</b>	
15.1	(160)
<b>第十六条：混合气的权利</b>	
16.1	(161)
<b>第十七条：运行条件改变的通知</b>	
17.1	(161)

第十八条：拥有和控制天然气	
18.1 .....	(161)
第十九条：托运人担保和赔偿	
19.1 .....	(161)
19.2 .....	(161)
19.3 .....	(161)
19.4 .....	(162)
19.5 .....	(162)
19.6 .....	(162)
第二十条：财务保证	
20.1 .....	(162)
第二十一条：可中断输气服务收入的抵减	
21.1 .....	(164)
第二十二条：运价规则明细表和合同的结合	
22.1 .....	(164)
22.2 .....	(164)
第二十三条：输气服务协议	
23.1 .....	(164)
23.2 .....	(165)
第二十四条：通知	
24.1 .....	(165)
第二十五条：操作者	
25.1 .....	(165)
第二十六条：责任和赔偿	
26.1 .....	(166)
26.2 .....	(166)
第二十七条：其他	
27.1 .....	(166)
附表 A	
附件 I	

输气服务协议格式

附件 II

可中断输气服务协议格式

## 通用条款和条件

### 第一条：定义和解释

1.1 除非在本条款和条件中另有定义，否则下列词语具有下述含义：

“ $10^3\text{m}^3$ ”指 1000 立方米天然气。

“可接受气量”的定义见第十一条。

“关联方（关联公司）”：当用该词表明与某人的关系时，指直接或间接地通过一个或更多个中间人或其他人控制该人或被该人控制或同样受制于人的另一个人。如果一家公司直接或间接地受控于另一家公司或如果它们每一家直接或间接地被同一个人控制，这家公司应视为是另一家公司的关联公司。

“授权的超限额服务”或“AOS”指固定输气托运人有权分配到管道一定比例的有时不签约的容量份额，因为依据运价规则明细表固定输气服务第 2.7 条和第 2.8 条的规定任何分配给固定托运人的 Alliance 管道公司的已签约容量以及随后的该容量分配都指该托运人的该容量份额。

“营业日”指 Alliance 管道公司在阿尔伯塔省卡尔加里的主要办公地通常开门营业的日子。

“加拿大接收气汇集点”指紧邻接收气点下游的认定供每位托运人使用的一个位置，本身即为一提气点，可以计划从该点输气或输入输出指定气量，以实现第 11.1 所定义的天然气权益转移。

“加拿大交付气汇集点”指紧邻交付气点下游的认定供每位托运人使用的一个位置，本身即为一交付气点，可以计划从该点输气或输入输出指定气量，以实现第 11.1 所定义的天然气权益转移。

“中部时钟时间”或“CCT”指采用夏时制时的中部白昼时间和夏时制取消时的中部标准时间。

“商品费”指在运价规则明细表固定输气服务附表 A 中规定的商品费。

“签约容量”指某托运人签约的每日气量，而且根据输送服务协议的条款该托运人已同意为该气量支付需求费（预约容量费）。

“立方米”或“m<sup>3</sup>”指在温度为摄氏 15℃ 以及压力为 101.325 千帕斯卡 (Pa) 时占据一立方米空间的气量。

“日需求费”指将需求费除以相关月天数得出的商数。

“每日需求费附加费”指将需求费附加费除以相关月天数得出的商数。

“日”指从中部时间 9:00 开始和结束的连续二十四 (24) 个小时的时间段，或是经运输商和托运人同意的连续二十四 (24) 个小时的时间段。

“交付点”指 Alliance 管道公司管道系统和美国 Alliance 管道公司管道系统的相互连接点。

“需求费”指在运价规则明细表固定输气服务附表 A 中规定的需求费。

“需求费抵减额”指依据运价规则明细表固定输气服务第四条确定的需求费抵减额。

“需求费附加费”指在运价规则明细表固定输气服务附表 A 中规定的需求费附加费。

“需求费附加费抵减额”指依据运价规则明细表固定输气服务第四条确定的需求费抵减额。

“固定输气服务”指根据运价规则明细表固定输气服务提供的输气服务。

“固定托运人”指签署输气服务协议的托运人，其有权接受固定输气服务。

“不可抗力”指任何天灾、战争、民众起义或叛乱、敌对行为、罢工、停工或其他行业骚乱、意外事件、战争封锁、暴动、疫病、山



崩、闪电、地震、爆炸、火灾、暴风、水灾、冲蚀、民众或军队的扣留与限制、内乱、机械或管线的断裂或意外事故、对机械或管线的必要修理或更换、管线的冻结、无法获得材料、供应品、许可或劳动力、或其他无论是否列举的原因，它们已超出了任何当事方的控制，即使其尽职尽责也无法阻止或克服。罢工、停工或其他劳工争端的解决应完全由面临困难的一方自行解决。以下事件不应作为不可抗力事件：(1) 托运人的天然气供应不足；(2) 托运人的天然气市场发育不完全或无经济效益；(3) 托运人缺乏资金或(4) 由于上游天然气接收点或下游交付点设施的无论任何原因，输气服务减少或中断；更确切地说：“上游天然气接收点”指超出 Alliance 管道公司计量站进口侧的接收点，而“下游交付点”则指超出 Alliance 管道公司交付点出口侧的交付点。

“燃料需求”其定义见第十四条。

“气体”或“天然气”指甲烷和其他碳氢化合物或是它们中的两种或更多种成分的混合物，在任何情况下都能满足运价规则中关于天然气的质量规格要求。

“总热值”指在常温常压下 1 立方米天然气与空气完全燃烧所产生的以每立方米兆焦 ( $\text{MJ}/\text{m}^3$ ) 表示的总发热量。其中天然气不含水，与空气及燃烧生成物的温度同为常温，并且燃烧反应生成的所有水全部冷凝为液态。

“不平衡”其定义见第十三条。

“可中断输气收入抵减额”指根据第十二条计算并分配给固定输气托运人的可中断输气收入抵减额。

“可中断输气服务”指根据运价规则明细表可中断输气服务提供的输气服务。

“可中断输气服务运价”指可中断输气服务收费明细表附件 A 中规定的收费。

“可中断输气托运人”指签署可中断输气服务协议的托运人，其有权接受可中断输气服务

“可中断输气服务协议”或“ITSA”指依据该协议输气公司向托

运人提供可中断输气服务的协议。

“焦耳”或“J”指相当于1牛顿的力使物体在力的方向上移动1米时所做的功。

“最大日输气量”指在可中断输气服务协议中明确规定的、输气公司同意自托运人接收并根据可中断输气服务收费明细表进行输送的最大气量，

“月”指自一公历月第一天中部时间 9:00（或由托运人和运输公司达成一致的具体时间）开始至下一公历月第一天中部时间 9:00 结束的时间段。

“月度发票金额”指根据适用的收费明细表要求托运人每月向运输公司支付的金额。

“个人”指一个人、合伙、有限合伙、合营、辛迪加、独资、拥有股本资本的公司或公司集团、非法人协会、托拉斯、托管人、受托人、管理人或其他法人代表、监管委托部门或机构、政府或政府机构以及以任何方式指定或任命的权力部门或实体。

“主接收点”指在托运人输气服务协议附表 A 中规定的由固定服务托运人指定作为天然气主接收点的接收点。

“主接收点容量”其定义见固定输气服务收费明细表第 6.1 (a) 款。

“优惠贷款利率”指任何时候由设在阿尔伯塔省卡尔加里的 Nova Scotia 银行主要分行当时指定的年度利率作为其在加拿大进行加拿大元商业贷款的参照利率，该利率被该银行宣布为其优惠贷款利率。据此应付的利率在每一次优惠利率发生变动后将在不通知任何方的情况下自动变化。本协议中到期出现的利率应采用名义利率法进行计算而且本利应每月合在一起。

“接收点”指在附表 A 中规定的 Alliance 管道公司管道系统的一个点，在此接收点托运人可根据一输气服务协议提交供输送的天然气。

“次接收点”的定义见固定输气服务收费明细表第 2.9 款

“服务协议”指输气服务协议或可中断输气服务协议，依上下文

要求而定。

“托运人”指与 Alliance 管道公司签订输气服务协议 (TSA) 的任何人, 或根据上下文, 指与 Alliance 管道公司签署可中断输气服务协议 (ITSA) 的人。

“托运人的授权气量”其定义见以下第十一条。

“托运人的签约总容量”指根据托运人作为一方的所有输气服务协议的签约容量总数。

“托运人的指定气量”其定义见以下第十一条。

“托运人修改的指定气量”其定义见以下第十一条。

“运价规则”包括不时会经修订和批准的固定输气服务收费明细表、可中断输气服务收费明细表以及通用条款和条件。

“Taylor - Aitken Creek 接收点”或“TAC 接收点”指在附表 A 指定作为 Taylor - Aitken Creek 接收点的接收点。

“输气”指根据托运人的输气服务协议在托运人可使用的接收点为托运人接收天然气, 然后输送并在交付点为托运人交付天然气。

“输气服务协议”或“TSA”指 Alliance 管道公司向托运人提供固定输气服务所依据的协议。

“输气方”指 Alliance 管道有限合伙公司 (译注: 在文中简称 Alliance 管道公司)。

“输气方的签约总容量”指根据 Alliance 管道公司作为一方的所有输气服务协议的签约容量的总数。

“美国管道公司”指在美国的 Alliance 管道有限合伙公司。

“美国段燃料气要求”其定义见第十四条。

“年”指连续 365 天的一时间段, 但有 2 月 29 日的一年除外, 该年应为连续 366 天。

## 第二条: 质量

2.1 除非 Alliance 管道公司另外授权, 则在接收点交给 Alliance 管道公司的天然气应根据第 2.2 条符合以下规格:

(1) 应具有不低于  $36 \text{ MJ/m}^3$  的总热值;

(ii) 在 Alliance 管道公司的管道中处于常温常压条件下, 从商业角度讲应不含沙、无灰尘、无胶质物、无在温度超过  $-10^{\circ}\text{C}$  和通常操作压力下可液化的碳氢化合物、无杂质、无其他可能会从天然气分离出来的讨厌物质以及将使天然气无法出售的其他固体或液体, 它们会对正常运行的管线、监管任务、天然气流过的流量计或其他设施造成损害或干扰; 天然气中不应含有任何非正常物质, 但输送和交付天然气所必需的含在天然气中的材料和化学物除外, 它们不会造成天然气达不到规定的质量标准;

(iii) 根据标准方法和测试确定, 每立方米天然气中含有的硫化氢不应超过 23 毫克, 总硫不应超过 115 毫克;

(iv) 二氧化碳含量不应超过 2%;

(v) 每立方米天然气中含有的水汽不应超过 65 毫克;

(vi) 温度不应超过  $50^{\circ}\text{C}$ ;

(vii) 尽可能不含氧, 在任何情况下氧气含量不应超过 0.4%; 以及

(viii) 在任何情况下都不应含有将造成在正常操作条件下出现任何液体的混合成分。

**2.2** 指定在位于 AB 05 边界湖、AB 06 边界湖—IOL 以及 AB 07 边界南湖的接收点交接的天然气应符合在西海岸能源有限公司相关运价规则中规定的相关质量标准, 该质量标准可能会不时修改。

**2.3** 如果由托运人或代表托运人向 Alliance 管道公司交接的天然气未能满足第 2.1 和第 2.2 条 (依适用情况定) 中的标准要求, Alliance 管道公司可以拒绝接收该天然气, 在此情况下 Alliance 管道公司将尽快通知托运人允许其立即补救质量的任何缺陷。

**2.4** 放弃: Alliance 管道公司以非歧视的方式保留放弃任何或所有天然气质量条款的权利, 但条件是: 经 Alliance 管道公司确认该同意的放弃不会以任何方式危害其管道系统的完整性或违反美国 Alliance 管道公司的任何要求。

**2.5** 如果 Alliance 管道公司确定在其系统的任何地点混合天然气气流的总热值正在接近或预计将要接近根据其系统的设计可接受的

最高水平，Alliance 管道公司将实施第 2.6 条所叙述的天然气容量分配程序。就正常操作条件下的 Alliance 管道公司系统中的大口径管道区段来说，混合天然气气流总热值的预计限度大约为 44.3 MJ/m<sup>3</sup>。

**2.6** 在需要时，Alliance 管道公司应根据第 2.5 条采取以下步骤分配其系统中的天然气容量。

Alliance 管道公司应识别其系统中受到天然气容量分配影响的部分，明确那些正在对其实行天然气容量分配程序的接收点。

Alliance 管道公司应首先根据第二条其他部分特别是第 2.4 条规定的授权采取所有行动以消除或避免已识别出的问题。

如果有必要，Alliance 管道公司将决定接收点所指定的天然气将可以接受的临时性最高总热值以确保混合天然气气流将不会超过第 2.5 条规定的总热值限度。

Alliance 管道公司将通知托运人有关情况以及受影响接收点指定天然气的临时性最高总热值。

**2.7** 不符合临时性最高总热值的指定由于不符合控制质量的要求，因此将予以拒绝。Alliance 管道公司采取的行动将反映出其有能力在拒绝（如果必要的话）对受影响的接收点进行主接收点气量指定前就拒绝次接收点的气量指定，这会作为一种减轻已识别问题影响的机制。Alliance 管道公司将根据需要随时更新临时性最高总热值，以便最大限度地增加给予托运人的灵活性。

### 第三条：计量

**3.1** 用于报告目的的天然气气量单位为 1000 立方米 (10<sup>3</sup>m<sup>3</sup>)。

**3.2** 自托运人处接收的天然气气量应根据加拿大电和气体检验法令 (Electricity and Gas Inspection Act) 及下述的规定予以确定。

**3.3** 用于气量计算的绝对大气压力应假定为是根据流量计位置的实际海拔高程通过计算确定的比压，而不考虑实际大气压力的变动。用于计算大气压力的公式应根据依据加拿大电和气体检验法令及下述规定所要求的方法。

**3.4** 对所接收或交付的天然气总热值的确定应按照加拿大电和

气体检验法令及下述规定同意的方式进行，或者如果确定总热值的方式在该法令中未规定，则根据行业公认的标准进行，但在任何情况下采用的方式都要确保所确定的总热值在接收点接收或交付点交付的天然气中有代表性。

#### **第四条：计量设备**

**4.1** 确定气量、总热值或相对密度的所有仪表和计量设备都应依据加拿大电和气体检验法令及下述规定获得批准并根据该法令和下述规定进行安装和维护。尽管前述有规定，但所有应用于或影响天然气交付的设备的安装都应按照允许精确确定交付天然气气量和随时标定计量精确度的方式进行。在安装、维护和操作压力控制设备时，Alliance 管道公司和托运人都应谨慎小心，以避免在根据输气服务协议对所交付的天然气气量进行确定时出现不准确的情况。

**4.2** Alliance 管道公司应每月一次或在双方同意的更长时间间隔里标定其计量设备的精确度。无论在任何时间只要托运人提出要求，Alliance 管道公司都将标定其计量设备的精确度，但条件是所要求的校验每月不超过一次。如果在进行了所要求的校验后，发现计量设备纪录准确（其中包括下文提到的百分之二或更低的不准确度），该所要求的校验的费用应由提出校验方支付并承担；在其他情况下所有根据要求进行的校验的费用由 Alliance 管道公司承担。如果在测试之后发现计量设备不准确但并没有超过 2%，应认定该计量设备的先前读数在计算交付量时是准确的，但是对该设备应立刻进行适当调整以便准确记录交付量。如果在测试之后发现计量设备不准确而且数量超过了 2%，则该计量设备的先前读数应校正为零误差，具体时间段为已明确知悉或双方同意的时间段；如果该时间段不完全明确或双方无法达成一致，则该读数校正的时间段应是自上一次进行测试的日子以来已过时间段的后半段。

**4.3** 在进行与其中一方在计量接收和交付中所使用的设备有关的安装、读数、清洁、改变、修理、检查、测试、标定或调整时，另一方有权在场。有关这些计量设备的纪录应仍然是纪录拥有者的财

产，但在一方提出要求后，另一方都将向该方提交其纪录和图表以及与此有关的计算结果供检查和校准之用，但须在收到这些文件后的30天内归还。每一方都应把所有测试数据、图表以及其他相似纪录保留至少2年，或保留有管辖权的负责管理机构可能所要求的更长一段时间。

## **第五条：不可抗力**

**5.1** 如果由于不可抗力或超出其合理控制的任何其他事件，Alliance 管道公司或托运人未能履行其在本运价规则或任何服务协议下的任何义务，依据该运价规则或服务协议的条款，该未履行义务不应视为违约。由于某一不可抗力事件造成的未能履行其在运价规则或服务协议下任何义务的一方应合理地尽其所能迅速消除产生不可抗力的原因，但前提是：关于解决罢工、停工或其他行业骚乱的期限应完全由提出暂停履行其义务的一方自行决定。

**5.2** 尽管有第5.1条的规定，但上文所指的任何事件都不应：  
(1) 免除任何一方履行运价规则或服务协议下的任何义务，除非该方向另一方合理地即刻发出有关该事件的通知；(2) 免除任何一方在一合理的期限终止后履行运价规则或服务协议下的任何义务，在该期限内通过尽职尽责该方本应消除或克服该不可抗力的后果；以及 (3) 免除任何一方向另一方支付需求费、需求费附加费或其他费用的义务，但在固定输气服务收费明细表第四条中明确规定的情况除外。

**5.3** 根据5.1条，如果在任何一方未能履行其在本运价规则或任何服务协议下的任何义务已视为不是违约的情况下，履行该义务的时间应延长，延长的天数应与相关事件存在的天数相等

## **第六条：接收和交付压力**

**6.1** 由托运人或代表托运人交付给 Alliance 管道公司的所有天然气都应以 Alliance 管道公司不时提出的压力在一接收点交付。不应要求托运人以超出在附表 A 中对该接收点明确规定的接收压力交付天然气。

6.2 由 Alliance 管道公司在交付点向美国 Alliance 管道公司的设施交付的所有天然气都应以 Alliance 管道公司和美国 Alliance 管道公司相互同意的压力进行交付。

### 第七条：出具账单和支付

7.1 在每个月九日当天或之前，Alliance 管道公司应通过电子或其他手段向托运人发送一份过去一个月托运人对 Alliance 管道公司的应付金额清单。Alliance 管道公司还将通过电子或其他手段向托运人发送一份根据第十三条计算的费用清单。如果实际数量还无法及时算出以制备账单，应基于估计数量进行收费，但 Alliance 管道公司应在下一个月的账单中提供基于实际数量与估计数量间差异的调节数。任何所要求的发票备份数据都应与该发票放在一起。

7.2 应 Alliance 管道公司的合理要求，托运人应及时向 Alliance 管道公司提供进行计算和校验气量、质量以及托运人向 Alliance 管道公司实际交付天然气的总热值所需要的任何信息或数据。

7.3 服务协议或收费明细表项下的所有支付都应在该月二十五日当天或之前不久和在托运人收到该月应付金额清单后第五个营业日向 Alliance 管道公司指定的存款账户以加拿大资金的方式通过电子资金转账做出。如果在支付到期日当天所指定的存款账户在正常营业期间未打开以接收托运人的付款，托运人应在支付到期日之后该存款账户在正常营业期间打开的第一天进行支付。如果托运人未能按本条款 7.3 支付在月度清单上列明的由其应支付的所有或部分金额，由此而产生的利息应以与日优惠利率再加百分之一的利率相同的利率每日增加。如果在付款日到期十天不支付的情况继续，除了采取其他补救措施外，Alliance 管道公司可以不经通知暂停为托运人输送和交付天然气。这种暂停为托运人输送和交付天然气的行为不构成 Alliance 管道公司未能履行其本运费规则或任何服务协议项下义务的违约。

7.4 除非在发现一处账单误差的六十（60）天内以及自提出账单有误差之日起二十四（24）个月内的任何情况下要求索赔，否则自接收到另一方声称发现账单误差的通知之日起三十（30）天内应对该



账单误差进行调整，具体如下：

在对托运人多开账单并且托运人已支付该账单的情况下，多付的数额将退还给托运人，其中还包括自多付款之日起到退款之日止的与优惠利率相等利率的利息再加百分之一（1%）。如果对托运人的还款是通过在另一张 Alliance 管道公司发票上抵减的方式进行，在该托运人收到该抵减发票之日起该多付款将视为已退还。如果 Alliance 管道公司对托运人少收了款，托运人将支付该欠收款但无利息，条件是在三十（30）天内支付该欠款。对在三十（30）天内未支付的欠款额，应自开出账单之日起支付按日增加的与优惠利率相等利率的利息再加百分之一（1%）。

7.5 Alliance 管道公司或托运人均有权在合理的时间审查另一方的账簿、记录和图表，但限制在为了核实任何账单的准确性或核实对少收款或多收款进行索赔所必要的范围内。

7.6 (a) 依据第 7.3 条，Alliance 管道公司无权暂停对天然气的进一步交付，条件是如果托运人有诚意地：

- (i) 对该账单的数量或部分数量提出质疑；
- (ii) 向 Alliance 管道公司提供一份书面通知包括对该质疑的原因的充分叙述，同时有数份支持性文件；以及
- (iii) 当其承认账单数额是正确时向 Alliance 管道公司支付该数额。

(b) 托运人不能以任何有争议的金额冲抵其账单中的需求费或需求费附加费部分。

(c) 在有诚意的账单争议中，Alliance 管道公司可以要求，而托运人应在接到该要求的十（10）天内提交一份充分的履约保证，保证向 Alliance 管道公司支付受到或将受到该争议影响的任何账单的所有有争议的金额。如果托运人未能向 Alliance 管道公司提交一份保证支付的履约保证，或者托运人在有该履约保证的情况下违约，Alliance 管道公司有权暂停或终止托运人的输气

服务协议。

- (d) 有诚意的账单争议应依据 7.6 (a) 款在 Alliance 管道公司收到托运人的书面通知六十 (60) 天内依照阿尔伯塔省仲裁令提交仲裁

**7.7** 如果托运人没有根据第七条向 Alliance 管道公司支付全额到期款, Alliance 管道公司在不损害其可能有的任何其他权利或赔偿的情况下, 应有权拒付或抵消其欠托运人的到期款项, 以冲抵托运人欠其的任何或所有到期款项, 而不论这些款项是与托运人的输气服务协议或是与其他协议有关。

#### 第八条: 服务优先权

**8.1** (a) 在由于不可抗力的任何时间、或在根据其独立判断容量或运营条件需要时或者在值得或有必要对其管道系统进行改造、修理或改变运行条件时, Alliance 管道公司都有权对其管道系统的所有部分或一部分全部或部分地缩减或停止输气。在这种情况下, Alliance 管道公司应向托运人提交关于合理缩减输气的通知。

(b) Alliance 管道公司拥有绝对的权利在任何时间中断可中断输气服务以便向托运人提供固定输气服务。

(c) 在根据 8.1 (a) 款缩减输气服务的情况下, 应按以下顺序缩减:

(i) 根据第十二条计划的可中断输气服务, 将首先按比例缩减可中断输气服务;

(ii) 接下来将根据托运人拥有的 AOS (授权的超限额服务) 权利按比例缩减该服务, AOS 是依据运价规则明细表固定输气服务第 2.7 条确定的, 在第十一条规定的指定气量时间之后作出的 AOS 指定在及时指定前被全部缩减;

(iii) 接下来将根据第十二条对基于固定输气服务的托运人按比例缩减固定输气服务而不是 AOS。

**8.2** 如果在某一接收点或接收点的一个局部附属设备依据 8.1

(a) 进行缩减输气，输气服务应按以下顺序进行缩减：

- (a) 将首先缩减在这些接收点的可中断输气服务，应依照第十二条根据在这些接收点计划为可中断服务的托运人提供可中断服务输气量与依照第十二条计划的可中断服务总输气量之比，按比例分配在这些接收点可供使用的可中断输气服务；
- (b) 接下来将缩减的是向固定输气托运人提供的固定输气服务（包括授权的超限额服务气量），该（或这些）接收点不是固定输气托运人的主接收点以及固定输气托运人指定的气量大于其主接收点容量。在该（或这些）接收点可供这些托运人使用的固定服务输气量将根据每个托运人在每一接收点超出主接收点容量的每一计划气量按比例在这些托运人间进行分配。如果接收点为 TAC 接收点，TAC 接收点不是向固定输气托运人提供固定输气服务（包括授权的超限额服务气量）的主接收点而且固定输气托运人的指定气量大于其主接收点容量，这样，该托运人在所有 TAC 接收点的主接收点总指定气量低于该托运人在所有 TAC 接收点的主接收点总容量，因此 TAC 接收点的固定输气服务应排除在缩减之外。
- (c) 接下来将缩减在 TAC 接收点向固定托运人提供的固定输气服务（包括授权的超限额服务气量），该 TAC 接收点不是主接收点而且固定托运人指定的气量超出这些托运人在该 TAC 接收点的主接收点容量，这样该托运人在所有 TAC 接收点的主接收点总指定气量低于该托运人在所有 TAC 接收点的主接收点总容量。可供使用的该固定输气服务依据 12.2 (b) 条款将根据在该接收点为每一位托运人计划的气量按比例在这些固定托运人之间进行分配。
- (d) 在所有接收点为主接收点向固定托运人提供的固定输

气服务（包括授权的超限额服务气量）将在最后进行缩减，可供这些托运人在该接收点使用的该固定输气服务依据 12.2 (a) 条款将根据在该接收点为每一位托运人计划的气量按比例在这些固定托运人之间进行分配。

#### **第九条：未放弃和将来违约**

**9.1** Alliance 管道公司或托运人放弃追究另一方履行服务协议任何条款时的任何一次或多次违约行为，不得作为或解释为该方放弃追究任何类似或不同的正在继续或将来的违约行为。

#### **第十条：要求输气服务**

**10.1** 要求提供收费明细表固定输气服务和收费明细表可中断输气服务项下的输气服务，应通过向 Alliance 管道公司（地址如下）书面提供以下信息而有效提出：

Alliance 管道公司地址如下：

Alliance Pipeline Limited Partnership Suite 400

605 5th Avenue S. W.

Calgary, Alberta

Canada T2P 3H5

Attention: Manager, Tariff Administration

(a) 托运人的身份：

(i) 托运人的法定姓名/名称和主要营业地

(ii) 托运人的电话号码，至少包括一个电话号码，一周 7 天每天 24 小时都可以通过此号码与托运人授权的雇员或代理进行联系。

(b) 要求的服务特点（固定输气或可中断输气服务）。

(c) 要求的固定输气服务签约容量或可中断输气服务日最大输送量，以日千立方米表示（1000m<sup>3</sup>/d）。

(d) 要求的开始服务日期。

- (e) 要求的服务期限。
- (f) 要求的主接收点，选自通用条款和条件附表 A 列出的接收点；如果依据收费明细表固定输气服务提出要求，则需列出在每一接收点要求的主接收点容量
- (g) 交易的任何一方（作为托运人、供应方或是接受服务个人）是否是 Alliance 管道公司的关联方；如果是关联方，叙述关联程度。
- (h) 如果托运人代表第三方要求服务，托运人应提交一份其与第三方签署的协议授权托运人代表第三方，以确保所要求的输气服务。托运人应提供该第三方的姓名、地址、电话号码以及身份（如：地方配气公司和生产者）。

#### 第十一条：指定

- 11.1 (a) 对于依照每份服务协议每日要求的输气服务，托运人应向 Alliance 管道公司提供一份气量指定通知，说明托运人希望接收、运输和交付的接收点、交付点、适用的收费明细表、天然气气量、总热值或总焦耳数（“托运人指定”）以及 Alliance 管道公司合理确定的其他必要信息。
- (b) 应以书面方式或 Alliance 管道公司和托运人相互同意的电子方式向 Alliance 管道公司提交指定通知，以便其根据与美国 Alliance 管道公司制定的时间表（timelines）收到这些指定通知，该时间表反映了天然气工业标准委员会（“GISB”）的标准指定周期。
- (c) 除了附表 A 列出的接收点外，作为指定的一部分，托运人还可以要求自其他托运人的加拿大接收汇集点进行气量的转入或转出。托运人也可以指定从托运人的加拿大交付汇集点转入或转出气量至其他托运人的加拿大交付汇集点。自其他方的加拿大交付汇集点转入或转出气量以及自其他方的加拿大接收

汇集点转入或转出气量统称为“天然气所有权转移”。

(d) 如果通过双方的匹配和相同量指定确认了该天然气所有权转移，所有剩余的指定、时间安排以及缩减程序将依据双方该所有权转移气量的净指定总量执行。

**11.2** (a) 如果 Alliance 管道公司接受了托运人的指定，托运人的指定气量（包括燃料气要求和美国段燃料气要求）称为“托运人的授权气量”。

(b) 如果 Alliance 管道公司决定它将不接受托运人的指定（由于不可抗力、托运人未能遵守托运人服务协议，或与运价规则一致的任何原因），Alliance 管道公司要在托运人已提出要求某日给予已减少气量的服务（如果有）的前一天告诉托运人：Alliance 管道公司已准备好依照托运人服务协议输送和交付气量（“已承诺气量”）。托运人应向 Alliance 管道公司提交一份经修改的指定（“托运人修改的指定”）；托运人修改的指定气量不能大于已承诺气量。

(c) 如果托运人不进行重新指定，将认为托运人的指定气量是已承诺气量并成为托运人的授权气量。如果托运人修改的指定气量低于已承诺气量，那么（1）托运人修改的指定气量、（2）燃料要求气量和（3）美国段燃料要求气量的总数即成为托运人的授权气量。

**11.3** Alliance 管道公司应允许托运人在制定输气计划的某天结束之前的任何时间，依据 Alliance 管道公司的收费明细表固定输气服务修改托运人气量指定，但前提是：(a) 按 Alliance 管道公司的判断，它可以执行此修改而又不会损害它对其他固定托运人提供的服务；(b) 该修改与 Alliance 管道公司的收费明细表固定输气服务或 TSA 的条款和条件仍保持一致；以及 (c) 该修改可以及时地与托运人的上

游运输操作者、连接设施与美国 Alliance 管道公司的其他操作者进行确认。对已指定和已计划的交付气量进行更改只能预期做出。尽管有第 11.2 条的规定，如果 Alliance 管道公司允许托运人依据第 11.3 条修改托运人的气量指定，那么 (1) 该修改的托运人指定气量、(2) 燃料要求气量和 (3) 美国段燃料要求气量的总数即成为托运人的授权气量。

**11.4** Alliance 管道公司可以允许（但没有义务去允许）托运人在制定输气计划的某天结束之前的任何时间，依据 Alliance 管道公司的收费明细表可中断输气服务修改托运人气量指定，但前提是：(a) 按 Alliance 管道公司的判断，它可以执行此修改而又不会损害它对其他固定或可中断托运人提供的服务；(b) 该修改与 Alliance 管道公司的收费明细表可中断输气服务或 ITSA 的条款和条件仍保持一致；以及 (c) 该修改可以及时地与托运人的上游运输操作者、连接设施与美国 Alliance 管道公司的其他操作者进行确认。对已指定和已计划的交付气量进行更改只能预期做出。尽管有第 11.2 条的规定，如果 Alliance 管道公司允许托运人依据第 11.4 条修改托运人的气量指定，那么 (1) 该修改的托运人指定气量、(2) 燃料要求气量和 (3) 美国段燃料要求气量的总数即成为托运人的授权气量。

**11.5** 所有气量指定按照第十三条须服从 Alliance 管道公司做出的调整。

## **第十二条 时间安排**

**12.1** Alliance 管道公司应在安排任何可中断输气服务的时间之前安排所有固定输气服务的时间。输气时间应按以下优先顺序安排：

- (a) 根据每个托运人的签约容量，按比例提供固定输气服务（不包括授权的超限额服务），输气量达到收费明细表固定输气服务项下的托运人的签约容量。
- (b) 提供收费明细表固定输气服务项下的授权的超限额服务，根据收费明细表固定输气服务第 2.7 条进行分配。  
AOS under Toll Schedule Firm Transportation Service,

allocated in accordance with Article 2.7 of Toll Schedule Firm Transportation Service.

- (c) 根据所有要求可中断输气服务的托运人的指定，按比例提供收费明细表可中断输气服务项下的可中断输气服务

**12.2** 在特殊的接收点进行输气时间安排应根据以下优先顺序：

- (a) 在所有接收点的固定输气服务（包括授权的超限额服务气量）的时间安排将优先考虑固定托运人，其接收点为一主接收点，输送气量达到该接收点的托运人主接收点容量；
- (b) 在一 TAC 接收点的固定输气服务（包括授权的超限额服务气量）的时间安排将优先考虑固定托运人，该 TAC 接收点不是主接收点而且固定托运人指定气量超过在该 TAC 接收点的固定托运人主接收点容量；在所有 TAC 接收点的托运人主接收点总指定气量低于所有 TAC 接收点的托运人主接收点总容量。将根据每个托运人在所有 TAC 接收点的未指定主接收点的总容量，在这些固定托运人间按比例分配该固定输气服务气量。按第 12.2 (b) 在 TAC 接收点未分配的容量将依据第 12.2 (c) 和第 12.2 (d) 进行分配；
- (c) 接收点剩余的固定输气服务气量将在固定托运人之间进行分配，该接收点不是主接收点而且固定托运人指定气量大于该接收点的托运人的主接收点容量。根据在该接收点托运人的固定输气服务指定气量超过其主接收点容量的情况，该固定输气服务将在这些固定托运人之间按比例进行分配；
- (d) 根据在该接收点由可中断输气托运人指定的可中断输气服务气量与在该接收点由所有可中断输气托运人指定的可中断输气服务总气量之比，可中断输气服务气量将在可中断托运人之间按比例分配。



**12.3** 在 Alliance 管道公司通知托运人已接受了其气量指定（无论是月、日或一天内的）后，该气量才将视为已进行了输送时间安排。

### **第十三条：非授权气量和不平衡气量**

**13.1** 托运人应尽合理努力尽量减少每一收费明细表项下已安排输送气量的差异。应承认尽管进行了努力，这些差异仍可能会出现。但是根据第十三条的规定，在某些情况下这些差异的出现，是由于托运人未能合理运行，托运人为此可能会受到罚款。Alliance 管道公司应有诚意地帮助托运人避免受到这类罚款。在任何情况下支付该类罚款都不能免除托运人采取所有必需行动的义务以处理尚未解决的气量不平衡问题。

**13.2** Alliance 管道公司应尽合理努力容忍由于其管道系统实际能力的暂时限制所造成的托运人气量差异，适当考虑其可采用的灵活性措施如变动管道储气水平和争取允许采用使用互连设施的运行平衡协议。在任何情况下 Alliance 管道公司都不会容忍对固定托运人可使用的容量具有有害和不公平性影响的托运人气量不平衡。

**13.3** 托运人应尽所有合理的努力根据尽可能得到的信息在所有时间都维持

- (a) 自每一接收点已安排接收并进入托运人账户的气量与自每一接收点接收并进入托运人账户的实际气量之间的平衡（“气量接收差异”）
- (b) 自每一接收点已安排接收并进入托运人账户的总能量与自每一接收点接收并进入托运人账户的实际总能量之间的平衡（“能量接收差异”）
- (c) 接收并进入托运人账户的总气量与在交付点由 Alliance 管道公司自托运人账户交付的总气量之间的平衡（“气量不平衡”）；以及供托运人接收的总气量与在交付点 Alliance 管道公司为托运人交付的总气量之间的平衡（“气量不平衡”）；以及

- (d) 接收并进入托运人账户的总能量与在交付点由 Alliance 管道公司自托运人账户交付的总能量之间的平衡（“能量不平衡”）。

供托运人接收的总能量与在交付点 Alliance 管道公司为托运人交付的总能量之间的平衡（“能量不平衡”）。

**13.4** 在第 13.3 条中定义的所有气量不平衡或差异（合称“气量不平衡”）都应放在托运人接收汇集点的账户中。Alliance 管道公司应提前给予时间对进入托运人账户的各种不平衡尽可能做出估计以便及时进行每日气量指定。

**13.5** 托运人不应为普遍气量不平衡而受到罚款，条件是在所有时间里：

- (a) 根据所能得到的信息，托运人的账户在不时由 Alliance 管道公司规定的可以容忍的水平范围内
- (b) 托运人采取了所有根据本条款规定所需要的合理的行动以消除任何气量不平衡，包括遵照执行 Alliance 管道公司解决普遍气量不平衡问题的所有合理指示，同时 Alliance 管道公司也要适当考虑在某些情况下确认合理的行动路线时避免对其他托运人带来潜在的影响。

**13.6** 作为指定程序的一个部分，Alliance 管道公司应向所有托运人说明对气量不平衡当前可以接受的容忍水平。Alliance 管道公司应尽所有合理的努力运营其系统以容许每一托运人出现的周期性气量不平衡（为 Alliance 管道公司授权气量的 4%），但托运人须遵守第十三条的规定。尽管如此，根据尽量增加管输量的需要或为了保护 Alliance 管道公司管道设施的完整性，Alliance 管道公司保留采取更严格的不平衡容许水平的权利。

**13.7** 只有在托运人未能采取立即行动减少在由 Alliance 管道公司规定的容许水平范围内的任何确定的不平衡气量的情况下，由 Alliance 管道接收点上游互连系统操作者（“上游操作者”）进行的日气量分配才会引起气量不平衡罚款。如果托运人不采取该行动，Al-

liance 管道公司可能会调整新的常用指定气量以便使托运人的不平衡账户维持在规定的容许水平内。

**13.8** 由上游操作者进行的月终分配调整应不会引起不平衡罚款，但条件是月终分配确认由相应日分配表现出来的气量不平衡。为了确定最终的不平衡气量并实施有关的罚款（如果有的话），月终分配量和单日分配总量之间的差额应根据上游操作者确认的日分配量分摊在该月的每一天。

**13.9** 由上游操作者通过月终分配调整确认的累计不平衡气量应由托运人通过立即实施以下其中一个行动而消除掉：

- (a) 采用天然气所有权转移方式自托运人接收汇集点输入或输出足够气量以消除不平衡（但条件是：这样做不会使另一个托运人产生气量不平衡）；或
- (b) 经 Alliance 管道公司同意，在不超过 25 天的一段时间内调整托运人的指定气量（可通过在任何天减少原累计不平衡气量至少二十五分之一）以消除不平衡气量。

**13.10** 如果托运人不以足量采取第 13.9 (a) 或 (b) 所描述的措施，Alliance 管道公司可以减少托运人的接收或交付指定气量，以便及时和有条不紊地消除尚未解决的气量不平衡。

**13.11** 如果根据第十三条（与此相关部分），在上游操作者按比例将月终分配量分配至该月每一天的基础上，气量不平衡超过了由 Alliance 管道公司对每一天规定的容忍水平（上限），而且该数据确认了在最初确定不平衡气量时所能得到的数据，但托运人并未采取行动，为此托运人应被罚款（“气量不平衡罚款”）。气量不平衡罚款采用以下方法算出：超出该月每日规定的上限水平的不平衡绝对气量 × 10 × 该月日需求费。

#### **第十四条：燃料气**

**14.1** 除了托运人打算在交付点交付的气之外，托运人还应为 Alliance 管道公司指定、向其提交或促成向其提交根据在 Alliance 管

道公司规定的月度适用燃料比基础上确定的一定气量，该气量相等于运输人合理确定的管线估计损耗和不明原因气以及在该月管道储气中所需要的运营波动气（合称“燃料气需求”）。Alliance 管道公司将在每月的 25 日前向托运人通告下个月适用的燃料气需求量，或者在不发出此项通知的情况下，托运人将采用上个月的由 Alliance 管道公司确定的燃料气需求量。

**14.2** 作为托运人打算在交付点交付的气中的一部分，托运人应为 Alliance 管道公司指定、向其提交或促成向其提交在由美国 Alliance 管道公司制定的适用月度燃料比例的基础上确定的一定气量，该气量相等于 Alliance 管道公司合理确定的管线估计损耗和不明原因气以及在该月管道储气中所需要的运营波动气（合称“美国段燃料气需求”）。不应要求托运人为运输该美国段燃料气向 Alliance 管道公司付费。

**14.3** 不要求 Alliance 管道公司接受以下情况的任何指定气量：(a) 指定气量中不包括燃料气需求量和美国段燃料气需求量，或 (b) Alliance 管道公司根据自己的独立判断，不满意根据指定气量将实际交付的燃料气需求量和美国段燃料气需求量。如果由于第 14.3 条的原因 Alliance 管道公司拒绝某指定气量，Alliance 管道公司应通告托运人对其燃料气需求和美国段燃料气需求指定气量进行修改，托运人应对该指定气量进行修改。

**14.4** 将在能量热值的基础上对燃料气需求和美国段燃料气需求量进行计算，输送气以 GJ（兆焦）/千立方米表示。

## **第十五条：接收优先权**

**15.1** 天然气应视为已从托运人的加拿大接收汇集点代表托运人按以下顺序运出：

- (i) 燃料气需求量；
- (ii) 美国段燃料气需求量；
- (iii) 达到托运人签约容量的固定输气服务（不包括 AOS）；

- (iv) AOS; 以及
- (v) 可中断输气服务。

#### **第十六条：混合气的权利**

**16.1** Alliance 管道公司在所有时间都有权在本管道内将托运人的天然气与其他天然气混合。在交付点由 Alliance 管道公司交付的天然气可以具有在本管道内输送和混合的天然气的质量。

#### **第十七条：运行条件改变的通知**

**17.1** Alliance 管道公司和托运人在必要时应相互通告关于交付或接收天然气的费率变化的情况、压力或其他运行条件变化的情况以及这些预期变化的原因，以便另一方做好准备在这些变化出现时满足变化的要求。

#### **第十八条：拥有和控制天然气**

**18.1** 在 Alliance 管道公司在交付点交付天然气之前，Alliance 管道公司应视为拥有、控制其接收的所有天然气并为此负责。

#### **第十九条：托运人担保和赔偿**

**19.1** 托运人向 Alliance 管道公司保证：托运人对由其或代表其在向 Alliance 管道公司提交时提交的一切天然气将拥有所有权或有权提交一切天然气，不存在任何留置权、抵押权和其他相反的权利，但依据输气服务协议第五条（抽取和购买液体的选择）以及可中断输气服务协议第五条（抽取和购买液体的选择）所给予的选择不应构成抵押权或相反的权利的情况除外。

**19.2** 托运人在此向 Alliance 管道公司陈述和保证：托运人拥有并将保持拥有将天然气自产气省份运出、自加拿大出口和美国进口该天然气的一切授权以及准许托运人输送其天然气所需的其他任何授权。

**19.3** Alliance 管道公司保证依据输气服务协议第五条或可中断

输气服务协议第五条（视情况而定）在交付点为托运人交付天然气时，该天然气不存在 Alliance 管道公司项下或由 Alliance 管道公司引起的任何留置权和抵押权。

**19.4** 对于因声称对托运人所提交给 Alliance 管道公司供输送的天然气拥有所有权或权益的第三方的不利索赔而发生的一切索赔、行动或损害，托运人应赔偿 Alliance 管道公司并使其免受任何损害。

**19.5** 对于因税费、许可证、费用、矿产使用费或在向另一方交付该天然气之前适用的收费的任何人的不利索赔而发生的一切诉讼、行动、欠款、损害、费用、损失和开支，Alliance 管道公司和托运人应相互赔偿并使对方免受损害。

**19.6** 对托运人向 Alliance 管道公司交付输送天然气前后在销售和交付该天然气时征收的一切税费及征税估价，托运人应赔偿 Alliance 管道公司并使其免受损害。

## 第二十条：财务保证

**20.1** 托运人在任何时候都应遵守以下资信要求：

- (i) 托运人（或担保托运人在输气服务协议或可中断输气协议项下义务的一关联公司）具有一家公认的资信评定机构对其长期优先无担保债务评定的投资信用等级。

下表列出了每个资信评定机构的可接受的最低资信等级：

### 可接受的资信评级\* (长期优先无担保债务)

穆迪氏债券和股票等级评定	Baa 3 或更好
标准普尔	BBB 或更好
Dominion 债券评级服务公司	BBB 或更好
加拿大债券评级服务公司	BBB 或更好
保险事务专员全国协会	NAIC 1 或 NAIC 2

\* 或根据 Alliance 管道公司确定的公认资信评定机构的其他相同资信等级。

按照上述资信评级类别起初获得资格的托运人，如果随后其资信

等级又降低至投资级别要求以下，将要求该托运人依据以下另一类别获得资格。

- (ii) 对其长期优先无担保债务不具有上表中列出的资信等级的托运人，如果 Alliance 管道公司及其贷方确定：尽管无可接受的资信评级，该托运人（或担保托运人在输气服务协议或可中断输气协议项下义务的一关联公司）仍然是可以接受的，该托运人将接受为具有资信。可以在任何时候进行关于接受其为具有资信的申请。除非根据 Alliance 管道公司及其贷方的想法接受其为具有资信的财务标准已有了实质性的相反变化，否则将不会撤回本类别项下对托运人资信的接受。
- (iii) 在签署并提交输气服务协议或可中断输气服务协议时或在此之后其已受该协议的约束时，根据上述 (i) 或 (ii) 款不符合条件的托运人必须采用以下一种方式提供其债务担保：
  - (a) 寄出一信用证或抵押一笔金额等于该信用证的现金存款，见如下规定；或
  - (b) 提供 Alliance 管道公司可接受的其他担保。
    - (a) 项下的信用证或现金存款应为以下金额：(i) 对于签署输气服务协议的托运人，担保金额等于 12 个月的估计需求费和需求费附加费（如适用）；该担保金额每年进行调整以反映随后十二个月估计需求费和需求费附加费（如适用）的任何变化；(ii) 对于签署可中断输气服务协议的托运人，该担保金额等于托运人可中断输气服务协议中的日最大输气量乘以可中断输气服务收费再乘以 30；并不时调整以反映出托运人日最大输气量和可中断输气服务收费的变化。
- (iv) Alliance 管道公司保留要求任何依照上述 (i) 款没有获得资格和根据上述 (ii) 款没有接受其具有资信的托运人提供上述 (iii) 款要求的债务担保的权利。任

何依照上述 (i) 或 (ii) 款通过一家关联公司担保其债务而获得资信资格的托运人应提供一份来自该关联公司的无条件不可撤销担保书（以 Alliance 管道公司通常使用的格式）并应在签署输气服务协议或可中断输气服务协议的同时提供该担保书。

## **第二十一条：可中断输气服务收入的抵减**

**21.1** 每个月 Alliance 管道公司都应计算并自每一固定托运人的月账单中抵减一份按以下方式确定并分配的一定比例的可中断输气总收益：

(a) 可中断输气总收益（抵减额）等于 (1) Alliance 管道公司上一个月在可中断输气服务项下为所有托运人输送的天然气总量乘以 (2) 可中断输气服务收费。

(b) 通过扣减已确定可中断输气总收益（抵减额）的月份下一个月托运人本应支付的月账单，应按比例分配给每一固定输气托运人一份根据签约容量确定的可中断输气总收益（抵减额），该签约容量是根据已确定可中断输气总收益（抵减额）的月份第一天的签约容量确定的。

## **第二十二条：运价规则明细表和合同的结合**

**22.1** 本通用条款和条件与所有收费明细表和服务合同合为一体并为它们之一部分。

**22.2** 本通用条款和条件、收费明细表以及所有服务合同遵守所有现在和将来有效的法律、法规的各项规定以及任何立法机构或目前或今后对本事项拥有管辖权的合法管理机构的各项法令。

## **第二十三条：输气服务协议**

**23.1** 托运人应与 Alliance 管道公司采用该公司合适的输气服务协议和可中断输气服务协议格式（附件 I 和附件 II 已分别列出）签署输气服务协议和可中断输气服务协议。



23.2 托运人与 Alliance 管道公司应在签署可中断输气服务协议时对该协议的期限达成一致。

#### **第二十四条：通知**

24.1 除非另有规定，任何一方希望给另一方提出的任何请求、要求、陈述或提交的账单或任何通知（统称“通知”）都必须为书面形式并通过专人或速递或传真等有效的联络通信方式送达另一方的收信人；向下文列出的地址给另一方发出的上述通知，于下述时间将视为送达：专人递送时，于递送之时；以传真发送时，于正常的营业时间内；以速递发送时，于发送的第二天（但如果正常的速递服务或传真服务由于超出各方控制的原因而中断，发送通知的一方应利用任何没有中断的服务或由专人递送该通知）。每一方都应通告另一方任何地址改变的情况。

● 操作者：待告知

● Alliance 管道公司：

Alliance Pipeline Limited Partnership

c/o Alliance Pipeline Ltd.

Ste 400, 605 - 5 Avenue S.W.

Calgary, AB, Canada T2P.3H5

Attention: Manager, Tariff Administration

Fax: (403) 266 - 4495

(iii) 托运人：见服务协议中列出的地址。

通过挂号或普通邮件进行日常联络通信（包括月报表），于发送之时将视为已正式发送。

#### **第二十五条：操作者**

25.1 Alliance 管道公司有权指定任何人作为其管道系统的“操作者”，进行（但并不限于）设施的管理、指定气量的接收和安排、接收和交付的时间安排、服务协议以及会计的管理。如果 Alliance 管道公司指定一位操作者，在服务协议、收费明细表或本通用条款和条

件中凡提及 Alliance 管道公司（视情况而定）应看作也包括了代表 Alliance 管道公司的操作者。

## **第二十六条：责任和赔偿**

**26.1** 在任何情况下，对于任何间接、特殊、后果性损失、损害、费用或开支，包括但不限于利润或收入损失、资本费用、未交付气损失或损害，损失、已购买或替代气的费用、许可或证书的取消以及合同的终止，Alliance 管道公司对托运人或托运人对 Alliance 管道公司没有任何违约责任、过失责任、严格责任或任何其他理由而产生的任何责任。

**26.2** 除了在固定输气服务收费明细表第四条中规定的以外，Alliance 管道公司对由于无论任何原因造成的 Alliance 管道公司未能根据其于托运人之间的任何服务协议接受提交或交付天然气，对托运人没有任何责任，也没有义务去赔偿托运人并使其免受损害。

## **第二十七条：其他**

**27.1** Alliance 管道公司和托运人对其各自财产的安装、维护和运行承担责任和义务，一方应赔偿另一方由于赔偿方财产和设备的安装、存在、维护和运行造成的任何行动或事故而出现的任何和所有损失、损害、索赔或行动（包括人员的伤亡），并使另一方免除任何责任 and 费用的损害。

# **附件 5 容量分配**

## **分配方法**

### **“先到先服务”**

在市场发展的早期阶段，“先到先服务”可能会区别优先对待那些其市场占有率和知识使其有更强能力一开始即占据排队前列的人。然

而，在参与者已愈来愈多样化并且已出现具有竞争力的结构以后，没有理由期待任何一组参与者能从“先到先服务”中受益。当然，“先到先服务”潜在的歧视性影响没有由于诸如“优先取舍权”的区别性条款而不注意地扩大化，这一点也很重要。

#### **“选美比赛”（挑选）法**

“选美比赛”（挑选）法（在可用容量分配是根据采用各种主客观标准确定的情况下）存在着区别风险或者说外观区别（以貌取人）的风险，因为在设定标准和实施评价的过程中需要有高度的判断力。这种方法也很可能是耗费时间、官僚式、不透明以及易受到政治影响的方法，从而引起不适当的市场扭曲。随着市场的发展，这些缺陷似乎并没有减少。

#### **抽彩法**

通过抽彩分配剩余容量权是非歧视性的方法，如果有流动二级市场存在，这种方法会导致有效分配。而且很可能会促进这些市场的发展，这完全是因为初期分配中可能出现的无效率。但是，这种方法具有潜在的缺点即以武断的方式分配租金，并变成人为的准入激励措施。

#### **拍卖式**

在一定的条件下，与所讨论的其他方法相比较而言，拍卖式能够更好地实现剩余容量的有效初始分配。可以预期拍卖中的高出价会对应于竞标人的高估价，因此，竞标成功者通常是给容量权出价最高的人。

然而，在拍卖制下以及没有监管规定的情况下，输气企业将由于紧缺的容量而获取租金，所以，它们可能会对有效扩容起妨碍作用。更常见的是，即使在扩容还不是问题的情况下，从拍卖容量中所获得的总收入巨大，会为输气企业产生额外的利润，这一点是非常可能的。因此，需要一种矫正机制既可以确保有效扩容又可以防止输气企业获得超额利润。一个解决方法就是要求输气企业将拍卖容量产生的超额利润留存放入一个单独的基金。该基金的收益将应用于未来扩容

的成本<sup>①</sup>。

### 拍卖及纵向一体化企业

当由纵向一体化企业来进行容量拍卖时，这种拍卖活动存在着歧视的内在可能性。如果允许输气企业单位其关联的供气企业参加拍卖，则一体化企业在竞价过程中将具有内在优势。由于担心提交的标书是多余的，其他市场参与者将不敢进行报价。而对于该一体化企业而言，该报价标书将只是从一个关联公司转至另一个关联公司的一笔转拨款项，并没有纯粹的经济影响。高报价的唯一风险是存在着放弃第二高的竞价人可能报出的收入的可能性。如果对容量拍卖的第二高报价来自于外部企业（在竞争性市场中可预期到这一点），一体化企业的供气企业单位将由于有价格高限而不需要冒提交一份过高报价的风险从而极大获益。但其他市场参与者面临的局面是：对其高报价的风险没有内在的最高限。

因此，将有必要设计一种容量拍卖方式，以防止供气企业单位利用这一优势。

### 流动二级市场

抽彩法以及先来先服务程序可能符合非歧视的目标，但是，单凭这两种方法无法确保容量权的有效初始分配。效率目标会促成建立一个容量权的二级市场。潜在的天然气托运人的容量权价值会随着时间的变化而自然地发生变化。采用流动二级市场，在任何特定时段里将容量权估价最高者将购买该容量权。另外，二级市场的存在通过减少购买容量权风险也能刺激初级市场的活动。市场参与者将知悉，如果其业务前景无法按预期发展，则他们会很容易地处理掉其容量权。最后，二级市场也能够促进对等的双边“交换”而无须买卖双方相互接触并逐个谈判分别的合同。

因此，有效的容量权二级市场可以对剩余容量权进行初始分配，

---

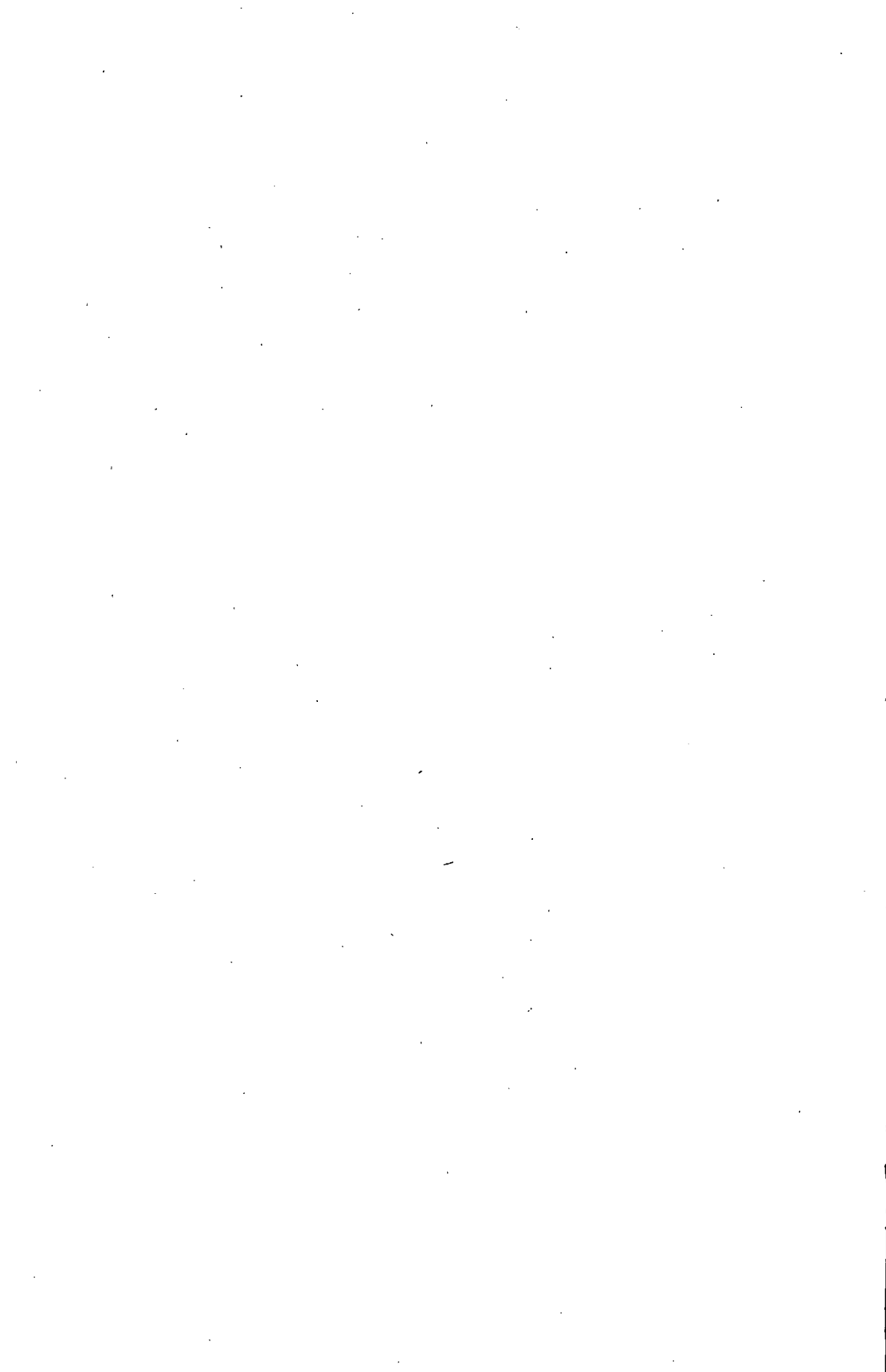
<sup>①</sup> 如果来自容量拍卖的收入不足以收回固定成本，拍卖也可能会产生“搁置成本”的相反影响。在有些情况下这可能是与低初始使用率有关的临时现象。但在另一些情况下可以有理由推断，如果没有一种辅助机制，固定成本回收将是不可能的。在回收搁置成本是一个合法目标的情况下，通过尽量减少竞争过程扭曲的透明和非歧视性机制，这个目标应该可以实现。其中一个机制将是给容量拍卖增加最低价格。

分配从效率角度来看相对不是很重要的先期合同权，从而消除抽彩法以及“先来先服务”策略的主要缺陷。按照这些政策，容量权的出售受限于最高限价，以防止管道拥有者获得超额利润。如果最高限价受到制约，为此该价格低于市场脱售价，那么需求将超过供给，而该容量权则通过分配机制予以分配。因此，这些政策将取决于二级市场来有效分配容量并为有效的管道扩容提供激励作用。二级市场中容量的高价发出容量短缺的信号，暗示新的容量将得到较高的使用效率。所以，输气企业将很自然地选择在容量缺乏的地方扩容这些管道。而且，最高限价去除了对输气企业的任何潜在激励作用即通过限制管道扩容以从事垄断经营，因为在无歧视方式下，任何容量短缺租金都到不了输气公司手中，而是到了其他市场参与者手中。

同样，固定输气容量权应该是可交易的，必要的协议应该简化并予以协调，以便使二级市场的流动性最大化。容量权流动二级市场的存在是竞争性天然气市场的一个特点，同时也将鼓励竞争及交易。

对于容量交易，不应要求进行事先通知或是获得输气公司的批准。这些要求是进行交易的主要障碍。同时也会产生不必要的程序负担，使输气公司获得商业上的敏感信息，而这些信息可能会被其关联供气公司所滥用。特别是，一个希望为以前与输气公司的供气单位签定合同的客户提供服务的市场新进入者，应该能够获得必要的容量，而又不必让该输气公司知悉存在失去一位客户的可能。

确保二级市场的正确行使其职能也是很重要的。特别是，初始分配应该培育二级市场的流动性并避免市场操纵的潜在可能性。通过对任何单独一方所允许掌握的剩余容量数量规定一个最高限量可以避免对二级市场的操纵。在美国许多监管机构已试图对二级市场采用最高价格限制，但是，这种做法并不令人满意，因为该做法会产生三级“灰色市场”，在这种“灰色市场”中使用合同策略来规避最高限价。这些策略会造成较高的交易成本并导致市场的非流动性。在美国已经采用了并且当前正在考虑使用其他各种不同的方法。



## EXECUTIVE SUMMARY

This Report approaches the Transmission Tariff Design in the context of the development of China's gas industry and related policies and regulation proposed in the various reports prepared jointly by the Institute of Economic System Management of the ex - State Council Office for Restructuring of the Economic Sector (SCORES), the World Bank and the Public Private Infrastructure Advisory Facility (PPIAF) <sup>①</sup> for the of the Joint Working Group (JWG) .

On the one hand, there is the perceived commercial need for an integrated structure incorporating exclusive rights to supply, at least for a period of time, principally to give investors a degree of control (and the consequent certainties) from the gas field to the plant - and city - gates of the final wholesale buyers.

On the other hand, the preservation of the policy objectives of:

(1) separating transmission and storage activities to clearly identify their costs, even when gas and transmission are sold as a "bundled" service, thereby allowing proper regulation of the natural monopoly elements and preparing the way for unbundling and progressive market opening and

(2) building - in the principle of no unjust discrimination, so that as competition unfolds new market entrants can count on having equal access to pipeline services with the pipeline's own supply and marketing arms.

In regard to the tariffs for use of the pipeline, there are again con-

---

① See Footnote 1 on Page v.

flicting objectives to be resolved:

(1) The charges must be sufficiently high to properly recover efficiently – incurred costs, including the costs of the equity invested, but

(2) They should also be at a level low enough to both enable gas to be competitively marketed to UGDCs and large industrial users and to provide producers with a revenue stream that encourages further exploration and development.

(3) The structure of tariffs should provide strong incentives for high utilization that will hold down unit costs of transmission. As a result, this will reduce project risk, enabling the pipeline to be financed with a higher proportion of debt and cutting the amount of equity that investors have at risk and reducing unit tariffs.

(4) At the same time, the transfer of risk by purchase contracts providing for a high percentage of take or pay should not be such as to impair the financial strength of industrial gas users and UGDCs.

In the context of these objectives the purpose of this report is to present the basis for three eventual deliverables:

(1) A Transmission Tariff Code that would establish the principles and objectives governing tariff design;

(2) A Report detailing the methodology required to apply the principles and objectives set out in the Tariff Code. This could also be described as a Tariff Design Manual; and

### **1. *Basis of Transmission Tariff Design***

Many transmission businesses have a tendency to begin with the design of transmission tariffs because tariffs impact on the “bottom – line” in terms of revenue and profits. However, transmission tariff design cannot be tackled effectively without clear guidance on the legal and regulatory framework in which it will be applied.

The License – based approach to the application of regulation recommended in earlier reports provides an effective and appropriate means of



establishing the regulatory and commercial arrangements in China that are specified in the detailed and prescriptive Tariff Codes or Codes of Regulation in North America.

The sequence of

(1) primary legislation establishing a regulatory body and a licensing regime,

(2) the definition of license conditions and the issue of licenses and

(3) the development of commercial arrangements governing

▷ the separation of the transmission and supply businesses

and

▷ the code of operation or the general terms and conditions of the transmission service offer

progressively channels the focus of analysis onto the design of transmission tariffs.

## **2. Principles and Objectives**

The principles and objectives of tariff design should focus on achieving key aspects of economic efficiency while ensuring that the revenue generated is sufficient to recover costs that are prudently and efficiently incurred. Tariffs that achieve these objectives will, by definition, be cost – reflective and non – discriminatory. However, the benefits of achieving these objectives completely needs to be weighed against the costs of reducing “user – friendly” characteristics such as ease of understanding and application, transparency, predictability and adaptability. Finally, the design and tariffing of transmission services should facilitate access to the system and the emergence of competition in supply.

## **3. Tariff Design Methodology**

Within the framework of the tariff design methodology various options and techniques may be chosen. However, a consensus is beginning to emerge in relation to the key steps to be followed and the choice of options that will lead to the most appropriate outcomes.

## (1) Derivation of the Cost Base for an Unbundled Transmission Business

The principal components of the cost base comprise:

- (1) Return on capital employed (on a pre-tax basis);
- (2) Depreciation; and
- (3) Operating and Maintenance Expenditure

The first two components require an assessment of the initial net asset value (equivalent to the capital employed), how this will change over time and the cost of capital.

### 1) Net Asset Value

There are two issues that need to be resolved when selecting the approach to determining the net asset value for regulatory purposes. The first is setting the initial value and the second is determining how this initial value should be changed over time. In a sense, the second issue is of less concern at this stage. If an initial net asset value is established the application of each option to determine the change over time will generate its own stream of capital charges [depreciation and return on net asset value (RoNA)] and each stream will have a different profile. If consistent estimates of the cost of capital are employed and a common investment recovery period is used, the Present Value of each stream will be identical to the initial net asset value.

It is frequently contended that the asset valuation used for regulatory purposes should not deviate from the technique employed by the business for financial reporting. It may be convenient if both methods are the same, but there is no reason why the basis for a separate set of regulatory accounts should be the same as that for financial reporting. Once there is a transparent audit trail between both sets, it should not pose a problem. Even in North America, where both the regulators and the regulated businesses use historic costs, respectively, for regulatory purposes and for financial reporting, the treatment of costs and expenditures varies and, in

most cases, requires the maintenance of a separate set of regulatory accounts.

For the WEP setting the initial net asset value should be straightforward as it will be the cost of construction that is transferred from work-in-progress once the pipeline is commissioned and begins operation. For existing pipeline systems, the task will not be as simple and will require detailed analysis, based on the information and data available, on a case-by-case basis. However, the overriding objective must be to ensure that the valuation selected generates capital charges that reflect the economic cost of providing transmission service. It will also be important to ensure that consistency in the treatment of valuation is maintained. When differences in the application of the valuation method arise, they should be transparent and defensible.

## 2) Depreciation

In relation to depreciation two questions need answers: Over what period should the initial investment be recovered? And what method should be used to calculate the annual depreciation charge?

Where there is a very small probability that a pipeline will become economically redundant prior to the expiry of its technical life it is generally accepted that the technical lifetime should be used as the appropriate investment recovery period.

Various depreciation methods may be applied each of which will generate different investment recovery profiles. However, the profile of depreciation should not be considered in isolation. The focus should be on the profile of annual capital charges, which includes depreciation and the return on investment.

## 3) Cost of Capital

Most regulatory commissions are required to allow the businesses subject to regulation a "reasonable rate of return" on their assets. For natural gas, a reasonable rate of return can be defined as the risk-adjust-

ed return that suppliers of funds require the business to provide, given the risks imposed by both the inherent nature of the transmission sector and the regulatory commission process itself. This allowed rate of return is more commonly called the weighted average cost of capital (WACC). It is weighted by the proportions of debt and equity used to finance the investment. The WACC is generally presented as a real pre-tax rate of return.

The Capital Asset Pricing Model (CAPM) is emerging as the preferred analytic tool to derive an estimate of the WACC and a consensus is beginning to emerge with regard to the values of the parameters that should be used in this model.

#### 4) Operating Expenditures

An objective of any regulatory regime is to provide the regulated businesses with incentives to operate efficiently. It will be necessary for transmission businesses to demonstrate that they are operating, and will operate, efficiently. In general, regulators need to examine the variances between the forecast and actual operating and maintenance expenditure for the regulated business, and develop rules on how these variances should be treated.

#### (2) Deriving the Cost Base

A constant real tariff based on the real project rate of return (assumed by PetroChina at 12%) is applied in this exercise. This is designed to recover the capital and operating expenditures over the 24-year project evaluation period set by PetroChina. Given the data provided on the debt service requirements, it is assumed that the investors will be content with the residual rate of return and profile of return. Net fixed assets and annual depreciation charges are derived using the Financial Capital Maintenance (FCM) technique<sup>①</sup> for the asset lifetimes assumed

---

① This technique takes account of technological change which reduces the replacement cost of assets.

by PetroChina. This generates a specific profile for capital charges.

This provides an initial, if not entirely adequate, basis to consider the application of regulatory control of tariffs. The CPI - X incentive form of tariff control is advanced as the most appropriate mechanism. The simple initial tariff mechanism proposed assumes that X is equal to zero and it is possible that a regulator would be content with this approach until such time as the level of capacity utilization associated with the initial investment was achieved. Thereafter, or, if the circumstances require it, prior to this, the regulator will be in a position to determine positive values for X.

### (3) Classification and Allocation of Costs

The total cost base is composed of costs that are classified to be either fixed or variable. Generally for transmission systems fixed costs tend to be in excess of 90% of total costs. Classification is the first step in matching the structure of tariffs with the structure of costs.

Costs are allocated to categories of shippers according to capacity utilization by such categories, based on economic and equity criteria. This is a critical step in the determination of the final tariff paid by shippers with varying load factor characteristics. The proportion of fixed and variable costs which are allocated to the capacity and commodity charge is a function of the tariff design.

The economically efficient Straight Fixed Variable (SFV) approach allocates all fixed costs to a capacity charge. This approach charges low load factor users throughout a year for the full cost of the capacity they use on only one or two days. The development of capacity release or capacity trading mechanisms would compensate the low load factor shippers for the off - peak use of their firm capacity. In the absence of such mechanisms it is possible to allocate a portion of fixed costs to commodity. This moves the typical SFV capacity/commodity split from 90: 10 towards a 70: 30 or a 65: 35 ratio. During a transition period it may be

appropriate to set the ratio initially at 65: 35 and move it progressively over time to a ratio that corresponds to SFV.

The classification and allocation of costs to capacity and commodity components provides the basis for designing a two – part tariff – a charge for the transmission capacity reserved and a charge for the use during the year of this capacity.

For the existing transmission systems in China, the development of these mechanisms will take some time, but it is prudent to attempt to envisage the future commercial and regulatory arrangements when designing the initial level and structure of transmission tariffs. For illustration purposes the SFV approach is applied.

#### (4) Tariff Design

A principal determinant of tariff design is the extent to which they are distance – related. At one end of a continuum are postalized (or ‘ postage stamp’) tariffs which do not vary with distance; at the other end are ‘ point – to – point’ tariffs that attempt to capture the full cost impact of distance from each input to each off – take point.

The term “zonal tariffs” is used to describe a system where tariffs differ for transactions that cross specific geographic zones, but are uniform to all transactions within a zone. It involves grouping adjacent input and off – take points into zones. In a sense this is a hybrid of distance – related tariffs between zones and postage stamp within zones. From the economic perspective, it is unlikely that a “pure” path – based system, where tariffs depend on the exact combination of entry and exit points, has any significant advantage over a zonal system that is based on a number of zones that is sufficient to capture the key cost determinants. Any reduction in cost reflectivity is more than compensated for by a degree of flexibility in input and off – take points, by the potential to facilitate the emergence of hubs and a liquid secondary market in transmission capacity and by increased simplicity and predictability.

It is recommended that zonal tariffs proposed for consideration by Chinese authorities for existing long distance systems in China. The zonal tariffs provide an effective means of charging for transmission on the system and, eventually, of supporting the emergence of these hubs.

# 1 THE BASIS OF TRANSMISSION TARIFF DESIGN

This chapter discusses the issues and options that will need to be considered in the development of a Tariff Code and a Tariff Manual. It begins by defining the scope of the Tariff Code and clarifying some terminology on gas pricing and tariffs as well as reviewing the current approach to the design of transmission tariffs (Sections 1.1 and 1.2) . Since an over-riding objective of this study is to develop a transmission tariff methodology in the context of a clear separation of policy and regulation, Section 1.3 presents the key elements of the proposed legal and regulatory framework that is recommended in earlier reports.<sup>①</sup> To facilitate the policy decision to pursue market opening and to comply with the associated legal and regulatory framework, the gas industry will need to be restructured. The implications of such a restructuring and the re-organization that the businesses can pursue in advance of the implementation of this framework are addressed in Section 1.4. Section 1.5 follows on from this by examining in more detail the definition of transmission services and Section 1.6 concludes.

## 1.1 Scope of the Tariff Code

It is possible to define the function and scope of a Tariff Code in a number of ways. This arises from the fact that a “tariff” in its broadest sense may be used to describe the terms and conditions of a service offer as well as its price. This is particularly the case in North America. In the

---

① See Footnote 1 on Preface.



US regulated “prices” for transmission services are commonly called “rates”; in Canada they are frequently described as “tolls.”

#### 1.1.1 A North American Style Tariff Code

PetroChina has advanced Part 284 of the Code of Federal Regulations issued by the US Federal Energy Regulatory Commission (FERC) as a template for a Tariff Code for WEP. These regulations govern “Certain Sales and Transportation of Natural Gas under the Natural Gas Policy Act of 1978 and Related Authorities.” A copy of these regulations is presented in Appendix 1.

These regulations set out in considerable detail the rights and obligations of transmission businesses that are subject to federal regulation in relation to the provision and pricing of transmission and storage services. The regulations extend to prescribe the nature of the business rules that govern the day – to – day operation of transmission systems.

#### 1.1.2 Rules – based and Licenses – based Regulatory Approaches

The research and analysis conducted by concerned authorities with the support of the World Bank and PPIAF<sup>①</sup> the Joint Working Group has come to the conclusion that such a detailed and prescriptive approach is not appropriate for the regulation of the downstream gas industry in China. This conclusion is based on an understanding of the current stage of development in China of both the gas industry and the legal and regulatory framework and of the challenges the industry faces. The Code of Federal Regulations has been developed over a considerable period of time and it is almost certain that the current version would be very different if the policy and regulatory authorities in the US knew 25 years ago what they know now. The conclusion is also based on the existence of an alternative regulatory approach that is being applied successfully in countries whose

---

① See Footnote 1 on Preface.

circumstances have more in common with those in China than those in North America.

For ease of discussion, the North American approach is described as “Rules – based”; the alternative as “License – based.” The application of both approaches will achieve the key policy objective of a competitive wholesale gas market; and both approaches share numerous features. The differences arise in the types of instruments used and the manner in which they are applied. The key features of the License – based approach are presented in Section 1.3 below.

### 1.1.3 Recommended Use of License – based Approach

It is proposed to use licenses to set out the rights and obligations of gas market participants (including those of gas shippers who will have access to transmission systems) . They will set out the manner in which regulation will be applied and the types of commercial arrangements and business rules that market participants will need to develop and adhere to.<sup>①</sup> An important distinguishing feature of this approach is that the market participants will develop the commercial arrangements in a consultative manner in accordance with the conditions of their licenses and subject to regulatory oversight.

This will provide more commercial discretion than is typically allowed under the more prescriptive Rules – based approach. This additional commercial discretion is necessary while both the gas market and the regulatory arrangements are being developed in China. In addition, following the decision to establish a gas regulator, the development of a comprehensive, detailed and prescriptive set of regulations will take time. Furthermore, while the regulatory arrangements are being developed, it makes sense for the businesses that will be regulated to begin the develop-

---

<sup>①</sup> Licenses will also include conditions to deal with matters addressed in other parts of the Code of Federal Regulation.

ment of appropriate business rules and commercial arrangements.

#### 1.1.4 Implications for the Scope of the Tariff Code

The application of the License – based approach provides instruments and techniques to deal with all the matters addressed in Part 284 of the Code of Federal Regulations. The key instruments and techniques will be discussed further in Section 1.3. This implies that the Tariff Code may be defined quite narrowly in terms of the principles and objectives of the methodology that will be applied to derive regulated “prices” for transmission services.

### **1.2 Prices and Tariffs for Gas Supply, Distribution and Transmission**

It is useful at this stage to clarify the terminology used in relation to gas prices and tariffs. This helps to identify the “prices” that are subject to regulatory control, those that are competitively determined and those that can be determined through competition but remain (at least for a period of time) subject to regulatory oversight. It also provides the opportunity to review the current approach to transmission tariffs.

#### 1.2.1 Prices and Tariffs

No consensus exists on the precise definition of the terms “tariff” and “price” in the context of gas price formation. For the purposes of the subsequent discussion in this report it is proposed to use the term “price” when that price is determined by the interaction of demand and supply. This may range from bilateral negotiations between a single buyer and single seller through to the interaction of many buyers and sellers in a clearly defined market with standardized products and services.

The term “tariff” is used when competition does not exist and there is no, or limited, potential to develop competitive market conditions. This occurs for activities that have natural monopoly characteristics and

where it would be economically wasteful to attempt to introduce competition. This is why tariffs are designed for monopoly activities such as gas transmission and distribution. The objective is to design “tariffs” that would be as close as possible to the “prices” that would emerge in a market context.

Regulatory control of these tariffs is required because the business conducting the monopoly activity has no incentive to design tariffs and to produce the quantity and quality of products or services that would replicate the outcome of competition. In fact, a monopolist will almost always seek to set a tariff higher (and a quantity and quality lower) than would emerge in a competitive market. In this way the monopolist will be able to maximize its profit. Since a monopolist can set either the price or the quantity (but never both simultaneously), regulatory control of the tariff should automatically set the quantity. However, the monopolist will have an incentive to lower the quality of service for a given quantity and the regulator should have the power to enforce minimum standards of quality of service.

In this sense “tariffs” may be described as “regulated prices.” Initially, during the transition from vertically integrated natural and administered monopolies, the only “price” that will be considered is the price of bulk supplies of gas. And the manner in which this “price” is arrived at may be subject to regulatory oversight, if there is evidence of the exercise of supplier market power. All other “prices” will be regulated and may, therefore, be described as “tariffs.” These include transmission tariffs which are the focus of this study and the prices charged to customers of UGDCs for a bundled distribution and supply service.

Although the scope of the analysis presented in this report ends at the city – gate of the UGDCs, it is necessary to insert some comments on:

- The efficient development of the UGDCs;

- the pricing of the bundled pipeline and commodity service provided by the UGDCs; and
- the pricing of an unbundled pipeline service as markets are opened further.

### 1.2.2 Distribution Tariffs

It has long been accepted that competition between distribution companies (involving the duplication of part, or all, of the pipeline system) in a specific geographical area is economically wasteful. As a result, distribution networks have natural monopoly characteristics and it makes sense for one business to provide service and set tariffs. In addition, the ability to categorize consumers in relation to specific features of their consumption patterns or requirements facilitates the setting of tariffs and avoids the transaction costs associated with individually negotiated contracts. Furthermore, setting a tariff structure reduces the incidence of unjustifiable discrimination between consumers.

As in many other jurisdictions throughout the world, it is envisaged that, in China, UGDCs will have an exclusive right to provide a bundled gas commodity and distribution (pipeline) service to low volume residential, commercial and institutional consumers within a geographically - defined area. This right, sometimes called a "franchise," may be granted by a national, provincial or municipal government authority. These consumers will pay a single tariff for this bundled service, but it will be subject to regulatory control. Regulation is required to deal with both the natural monopoly characteristics of the distribution system and the exclusive right to supply within a defined area. It is also envisaged that the UGDCs will be required to separate the costs of their distribution and gas supply activities to allow more effective regulation and to provide their consumers with a tariff for each service.

Over time it is proposed that larger volume industrial consumers served by the UGDCs should be granted access to competing suppliers of

gas. This will allow a phased and orderly increase in the size of the competitive gas market. It will also minimize any anomalies that may arise in access to competing suppliers. For example, most large volume consumers are supplied directly from the transmission systems and in most circumstances will be granted access to competing suppliers. However, some larger volume consumers will be supplied by UGDCs. It would be very difficult to justify preventing these consumers from gaining access to competing suppliers while similar or smaller volume consumers are allowed access by virtue of their locations close to transmission systems. This provides a further reason for the separate costing of, and tariff design for, the distribution service, since these consumers will contract directly for their gas supplies and seek a distribution (pipes only) service from the UGDCs.

It is envisaged that, eventually, all consumers will be granted access to competing suppliers, as is the case in the Britain, increasingly the case in the US, Canada and Australia and being envisaged for many European countries by 2007. But this should only be contemplated when the wholesale (or bulk supply) gas market is functioning effectively and the costs and benefits of extending access to all consumers have been assessed thoroughly.

In the context of this report it is important to note that the design of distribution system tariffs is not as urgent a task as the design of transmission tariffs. However, despite the current focus on the design of transmission tariffs, much of the discussion of the principles and techniques is equally valid for the design of distribution tariffs.

### 1.2.3 Transmission Tariffs: Requirement for Reform and Transition

Having clarified some important distinctions between gas prices and tariffs, it is now possible to examine:

- the current provision of transmission services in China;
- the pricing of gas transmission and bulk supplies of gas; and

- the nature of reform that will be required to ensure an efficient and effective opening of the market.

### *Integration of Services*

Currently in China the dominant onshore oil and gas companies, PetroChina and Sinopec, provide what may be described as a bundled integrated bulk supply service. It is a “bulk supply” service as large volumes of gas are delivered to UGDCs and large volume consumers connected to the transmission systems. It is a “bundled” service in that the supply of gas is combined (or bundled) with the transmission service. This bundling is only one aspect of the “integrated” nature of the service. The transmission activity is both vertically and horizontally integrated. The vertical integration comprises the sequential activities of gathering, purification<sup>①</sup> and transmission that are carried out by one enterprise. The horizontal integration is characterized by the performance of transmission, the operation of storage facilities and the continuous balancing of gas supply and demand within the design and safety parameters for the transmission system.

In addition, the transmission system is expanded or reinforced in anticipation of increased demand for gas and, as a result, increased demand for transmission capacity. This increased demand may not emerge and the transmission enterprise runs the risk of failing to recover an adequate return on and of this investment. There is no effective mechanism to ensure that the transmission capacity will be utilized or that the costs of pro-

---

① It is understood that purification is not always provided. Some transmission systems flow untreated gas to final consumers who are compelled to install small-scale gas treatment facilities. Although these consumers will avoid a purification fee imposed by the transmission company, they will end up paying more. The cost to them of installing and operating their own treatment facilities will be greater than any fee that would be levied to recover the costs of providing a treatment (or purification) service at the inlets to the transmission system. In addition, the flowing of untreated gas will corrode and damage the transmission system. This will increase future costs by reducing the quality and reliability of transmission service, by increasing maintenance expenditure and by bringing forward replacement expenditure.

viding it will be recovered. This also removes the incentive to incur capital and operating expenditures to maintain the physical integrity of the transmission system and to ensure the quality of the service being provided. If the transmission company has no assurance that investments already made will be recovered, there will be no incentive to incur further expenditure to maintain the system.

Finally, the industry is characterized by non - interconnected transmission systems that vary in complexity from single lines to extensive provincial or inter - provincial systems. WEP will constitute a major increase in transmission capacity, though it will operate primarily as a non - interconnected system. The complexity of a transmission system is related to the number of gas input and off - take points and the extent to which gas is delivered by displacement rather than in point - to - point flows that are easy to track. Despite the scale of investment and the long distances between input and off - take points, WEP, at least in its early stages of development, will not be a complex transmission system.

### ***Guidance Prices and Administered Fees***

The current approach to setting tariffs and prices, respectively, for transmission services and the bulk supply of gas does exhibit some aspects of unbundling and cost base separation. The Pricing Bureau of the SDPC<sup>①</sup> sets administered fees for the purification of gas and the transmission of gas from the well head to the city - gates of UGDCs and the plant - gates of large volume consumers connected to the transmission system. The price of gas is negotiated within bounds around a "guidance" well head price also set by the Pricing Bureau. The principal problem with this approach is that it is not possible to establish to what extent these

---

① The SDPC has been renamed the State Development and Reform Commission (SDRC) since the State Council Office for Reform and Economic Restructuring (SCORES) and some departments of the State Economic and Trade Commission (SETC) were merged into it. However in the report we will continue to use SDPC.



guidance prices and administered fees reflect the economic value and costs of the gas and services being supplied. When the price of gas deviates from the economic value and the administered fees deviate from the economic costs the inevitable result is inefficiencies in production, investment and consumption.

### ***The Requirement for Transition***

Inefficiencies of this nature are of great concern to economists. In terms of economic theory they result in misallocation of resources. In practical terms, they pose major problems for all market participants. For example, when the costs of transmission and distribution are added to the well head "guidance" price, it will generate a set of prices to final consumers. However, the resulting prices may be above or below the consumers' willingness to pay in relation to the prices of competing fuels. If the prices are above the willingness to pay level, gas market penetration will be very limited and the strategic, economic and environmental benefits of gas will not be achieved. Economically recoverable reserves of gas will be locked in, under - exploited, or exploited inefficiently. On the other hand, if prices are below this level, there will be wasteful and inefficient consumption and wasteful and inefficient investment attempting to satisfy this uneconomic additional demand. The additional and wasteful investment will occur in production, transmission and distribution. Both sets of circumstances are seriously damaging and should be avoided.

Under this approach it is only by chance that the optimal levels of production, investment and consumption will be achieved. In addition, there is no internal mechanism in place to ensure that, when deviations from the optimal levels occur, steps will be taken by market participants to achieve a viable and efficient equilibrium. As a result, it is necessary to develop and apply techniques that will establish accurate costs and values at each stage in the gas supply chain.

A separate report on Gas Price Formation examines various mechanisms that may be employed to establish the value of gas and its price at each stage of the gas supply chain. This is required to initiate the transition from the current administered prices to wholesale competition. Deriving from the application of well – developed theory and extensive international practice there is a broad consensus on the identification of the economic costs incurred in transmission and on how these costs may be converted into tariffs to support the transition to wholesale competition.

These techniques can only be applied successfully when they are accompanied by

- A legal and regulatory package of incentives, controls and directives;
- Internal re – organization of the existing gas businesses; and
- a revised definition of the services provided.

The next three sections discuss these matters in turn.

### **1.3 The Proposed Legal and Regulatory Framework**

This framework comprises a hierarchy of legal, regulatory and commercial instruments that are employed by the institutions either created or empowered by gas legislation.

This is illustrated in the following figure.

#### **1.3.1 Roles within the Hierarchy**

The government is responsible for drafting, ensuring the enactment of and implementing gas legislation that, together with the policy statement, is the main vehicle for restructuring. This legislation will establish the regulatory commission, which is the operational instrument for restructuring and regulating the industry. The government body allocated policy responsibility for downstream gas (the “competent authority”), in consultation with the regulatory commission, will issue the first drafts of licenses that enterprises in the downstream gas business will have to ob-

A Hierarchy of Legal, Regulatory & Commercial Instruments

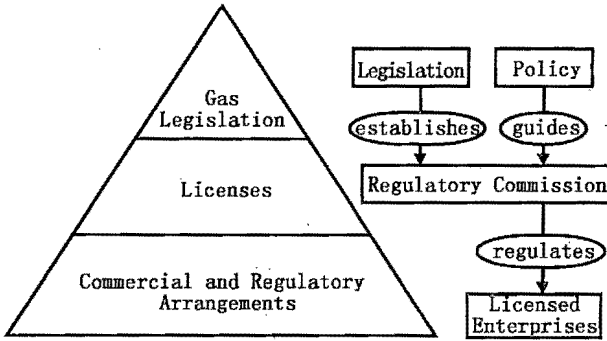


Fig.1.1 A Hierarchy of Legal, Regulatory & Commercial Instruments

tain.

These licenses will contain standard conditions regarding the rights and obligations of regulated enterprises. The regulatory commission will have the freedom to modify these conditions in response to license applications by the regulated enterprises. This freedom will be circumscribed by the application of the process and procedures set down in the gas legislation.

To comply with the specific license conditions each regulated business will need to design specific commercial arrangements that will be subject to varying combinations of regulatory oversight and control. Examples of these commercial arrangements for a transmission enterprise are a Code of Conduct (to ensure that pipeline and gas supply activities are separated effectively), a Code of Operations (the business rules governing access to and use of pipeline systems) and the schedule of pipeline services and the tariffs for these services.

The next two sections describe the essential elements of legislation and discuss the licensing system.

### 1.3.2 Essential Elements of Legislation

International experience demonstrates that the following elements are required to implement this restructuring:

- A statement of purpose;
- The identification of a competent authority for energy policy within the GOC (Government of China);
- The establishment of a regulatory commission;
- The creation of a regime defined by licenses for transmission, storage, distribution and the shipping of gas on pipeline systems;
- The empowering of the competent authority to
  - ▷ provide public policy guidance to the regulatory commission;
  - ▷ issue standard conditions of licenses;
  - ▷ define the categories of gas consumers who will be eligible to contract directly for supply (eligible consumers); and
  - ▷ change this definition from time to time;
- The granting of regulatory powers to the commission to:
  - ▷ grant, modify or revoke licenses;
  - ▷ investigate compliance by licensed entities;
  - ▷ conduct hearings; and
  - ▷ monitor the operation of the gas market and to intervene in gas supply contract negotiations when evidence of the exercise of market power exists.

### 1.3.3 The Licensing Regime

The licensing regime is the key instrument for achieving a structure for the downstream gas industry that will permit the development of a functioning gas market.

### ***License Definitions and Restrictions on Licenses***

The gas legislation will require that transmission, storage and distribution enterprises and gas shippers each hold a license. This is necessary to bring about and then maintain a “non – integrated structure” in an industry presently characterized by vertical integration from gas supply (production) through gathering, purification and long distance transmission. A licensed transmission enterprise will provide the service of transporting gas for gas shippers. It will not be permitted to buy, sell or trade gas and, therefore, cannot be a gas shipper<sup>①</sup>.

Distribution enterprises will continue to provide a bundled distribution and supply service to, at least, some consumers (non – eligible consumers) within their areas of operation and will provide an unbundled distribution service to eligible consumers (and their suppliers) . This implies that the holder of a distribution enterprise license may also hold a gas shipper’ s license to ship the supplies of gas being delivered to its bundled service consumers. If a distribution enterprise decides to supply eligible consumers within its area of operations it will need to establish a separate gas supply business which would be required to apply for its own gas shipper’ s license.

A gas shipper is anyone who buys, sells or trades gas and needs to have gas conveyed from one location to another to complete the transaction. The concepts of “gas shipping” and a “gas shipper” follow directly from the separation of transmission and distribution (natural monopolies) from wholesale and retail supply (administrative monopolies) . A licensed gas shipper will not be permitted to own or operate a transmission

---

① It will be allowed to buy gas for its own use and to deal with shrinkage and to buy or sell gas for system balancing purposes, but that is the extent of its participation in gas trading.

system on which its gas is shipped<sup>①</sup>.

### ***Licensing of Transmission Enterprises***

There is no requirement for licenses for the same activity to have identical conditions. It is possible to include additional conditions, remove conditions or alter conditions in response to specific circumstances. However, it makes sense to begin with a basic set of conditions that would typically be found in the license for a specific activity. For convenience this basic set of conditions is frequently described as the standard conditions of a license.

The standard conditions of a transmission license may be grouped into four categories. These categories include specific conditions.

#### ■ General and Administrative

- ▷ Definitions;
- ▷ Maintenance and provision of records;
- ▷ Provision of information to the regulatory commission;
- ▷ Provision of information to gas shippers;
- ▷ Powers of entry;
- ▷ Payments by license – holder to the regulatory commission;
- ▷ Assignment of license.

These conditions are similar to those that would be found in the license of any network operator (e.g., gas, water, telecom. and electricity) that provides access services. The requirement to maintain records and to provide information are important conditions for regulated businesses as there will always be a considerable imbalance between the information available to the regulator and that possessed by the regulated busi-

---

① Common ownership of separate business units that have different types of licenses is permitted, but the regulatory commission must be satisfied about the effectiveness of the separation between the two business units.

ness. Because gas pipeline systems do not fail – safe operators may be granted powers of entry onto the property of consumers that are connected to their networks if it necessary to maintain the safety and reliability of gas supply. It is in the interests of license – holders and the regulator that there are clear procedures specifying the fees owed by license – holders, how payments are to be made and how the fees will change over time. And the regulator needs to monitor the assignment of licenses to ensure that competition is not being restricted unduly or that market power is not increased.

■ Transmission Services

- ▷ Code of Operations
- ▷ Pipeline system security standards
- ▷ Standards of performance

Each license holder will be required to prepare a Code of Operations that will set out the business rules governing its transmission service offer. This may resemble the General Terms and Conditions that typically underpins the contracts for transmission service in the North American context or it may be as lengthy and complex as the Network Code in the UK<sup>①</sup>.

It will be necessary for the transmission system operator to establish objective system security standards. These are frequently defined in terms of the delivery capability of the system at times of peak gas demand or sustained levels of high demand. It is necessary to define these standards for a number of reasons. They provide a basis for both operations and investment policy. They set criteria against which the performance of the operator may be assessed. And they provide common standards to which all users of the pipeline system must subscribe. In situations where

---

① The Network Code Principal Document contains over twenty sections and several hundred pages. A summary of the Network Code may be downloaded from [www.transco.uk.com](http://www.transco.uk.com).

some shippers are reluctant to contribute fully to the cost of maintaining these standards (because they may be satisfied with a lower quality of service), it is necessary to impose these standards to ensure that there is no detrimental impact on other users of the system.

In some instances the regulator may not be satisfied that the incentives and penalties defined in transmission service contracts are sufficient to either encourage or compel the transmission enterprise to achieve high standards of performance. The obvious solution is to ensure that the contracts are sufficiently well defined to achieve high standards of performance. However, particularly during the transition period associated with industry restructuring, it may be necessary for the regulator to define and enforce standards of performance and to penalize failure to achieve them. For example, the regulator may set standards in relation to the time taken by the transmission company to respond to applications for service, to the procedures notifying construction and repair work on its system and to the duration and extent of supply outages associated with such work.

#### ■ Transmission Tariffs

- ▷ Tariffs for Gas Shippers and restriction of tariffs
- ▷ Obligations as regards tariff methodology
- ▷ Connection charges

Both the level and structure of transmission tariffs are subject to regulation. Given the typical annual accounting periods employed the level of tariffs may be expected to change on an annual basis. However, the structure of tariffs may not alter significantly over much longer periods and a broad measure of consensus exists regarding tariff structure. One of the main advantages claimed for forms of incentive price control is that, following initial regulatory approval of the tariff methodology submitted by the transmission enterprise, the regulator sets the formal regulatory control in relation to the level of tariffs for a specific period of time. In



theory this reduces the scope and intensity of regulation. During this period of time (commonly called the "control period") the transmission enterprise is obliged to keep its tariffs below the maximum defined by the regulatory cap. However, if it is more efficient (i.e., reduces its costs below the level projected by the regulator) it is allowed to profit from the cost reduction.

With this form of regulation the form of price control is specified as a license condition and much of the regulatory effort is expended prior to the end of a control period to determine the price control parameters for the next period and to modify the license condition accordingly.

It also makes sense to include a license condition dealing with the transmission enterprise's connection policy. The company may be compelled by means of a Public Service Obligation (PSO) to connect without charge prospective gas consumers situated within a specific distance of a gas pipeline. However, it would be unusual for such a PSO to be imposed on a transmission enterprise; it is quite common for a distribution enterprise. In most cases transmission enterprises will seek to recover the costs of making a connection from a new consumer. However, the true net cost of the connection is related the availability of capacity in the system to ensure gas delivery at the new connection and to the structure of tariffs. If the system has sufficient spare capacity to ensure delivery to the new connection without incurring additional capital or operating expenditure upstream of the new connection, costs will only be incurred in the construction of the connection. If, on the other hand, additional capital or operating costs are incurred upstream of the new connection, the transmission enterprise will seek to recover these costs from the new consumer in addition to the actual costs of constructing the connection.

The license condition will require the transmission enterprise to establish a policy (or procedures) to deal with connections. This policy will set out the procedures governing

- ▷ Applications for, and the construction of, new connections;
- ▷ How the requirement for additional capital or operating expenditure (if any) upstream of the new connection is established;
- ▷ How these costs are recovered; and
- ▷ How the additional tariff revenue from the new connection is taken into account in determining the net cost of the connection.

■ Pipeline System Investment

- ▷ Construction of Pipelines
- ▷ Long term development statement

In both theory and practice it is difficult to justify an exclusive transmission right being granted to a transmission enterprise for a specific geographical area, or for categories of consumers or for a specific period of time or various combinations of all of these. In fact the right to construct and operate transmission pipelines independently of the existing transmission enterprise is feasible from both an economic and an operational perspective. In addition, it is viewed by both policy makers and regulators as an effective tool to curb the exercise of market power by transmission enterprises. The threat of “by-pass” – the construction of a new pipeline bypassing the existing system – has frequently been employed to compel reluctant transmission enterprises to offer non-discriminatory access services at cost-reflective tariffs. It also provides the basis, in the longer term, to facilitate pipeline-to-pipeline competition.

An example of the standard conditions of a transmission enterprise’s license may be found in Appendix 2.

***Licensing of Gas Shippers***

Not all jurisdictions require the licensing of gas shippers, but there are two important reasons for doing so. First, licensing empowers the

regulatory commission to apply non – discriminatory and transparent criteria to determine the suitability of all gas market participants (with the exception of gas consumers who do not ship gas) . And secondly, it empowers the regulatory commission to grant gas shippers rights and to impose conditions on them. Gas shippers, for example, may have the right to participate in the development of the terms and conditions of the services offered by transmission and distribution enterprises. But license conditions will be imposed on gas shippers requiring them, for example, to:

- adhere to the terms and conditions of service offers;
- provide adequate and timely information regarding their service requirements to the transmission and distribution enterprises to allow them to operate their pipeline systems safely and efficiently; and
- not cause damage willfully to the facilities operated by these enterprises.

These conditions are especially important when commercial and contractual arrangements are being developed, as they are now in China. It may not prove possible to enforce contractual remedies either effectively or in a timely manner. Empowering the regulator to investigate alleged breaches of license conditions by a shipper and, if the allegations are substantiated, to impose heavy penalties swiftly will ensure that unreliable suppliers are discouraged from entering the market. This will ensure an orderly opening of the market.

#### 1.3.4 Requirement for Supporting Policies

In addition to the drafting, enactment and implementation of the legislation required to establish this regulatory framework, there is a requirement to formulate and implement policies to support the effective functioning of regulation and the development of a competitive gas market.

These include policies to

- facilitate increased exploration and development of indigenous gas reserves;
- allow new producers to enter the business of petroleum exploration and development;
- ensure non – discriminatory access by new entrant producers and suppliers to upstream gas gathering lines and purification facilities;
- remove any hindrances to securing additional external supplies of gas;
- ensure that the restructuring and regulation of the electricity industry does not restrict the efficient use of gas in the generation fuel mix;
- promote rational and economic pricing of fuels competing with natural gas;
- accelerate the corporatization of UGDCs; and
- streamline the laws and regulations governing health and safety, technical standards and environmental and planning matters at the UGDC level.

#### **1.4 Gas Industry Restructuring**

The establishment of the legal and regulatory framework outlined above provides the basis for the restructuring of the existing (and emerging) gas industry that is required to facilitate the transition to a competitive gas market. However, it will take some time to establish this framework, but the requirement to initiate the transition to a competitive gas market cannot be delayed. Delay will hinder the very necessary expansion of gas utilization and runs the risk of reinforcing and perpetuating existing inefficiencies in both the organization and the conduct of the gas industry. The next two sub – sections discuss the nature of industry restructuring that is required. This re – organization may be initiated by

the businesses themselves or the government and its agencies may have sufficient powers to enforce key elements of this restructuring.

#### 1.4.1 Separation of Upstream and Downstream

The first key organizational (and operational) issue is the requirement for the separation (at the outlet of the purification plant) of the upstream production, gas gathering and purification activities from the downstream transmission and distribution activities.

The principal responsibility of gas producers is to deliver pipeline quality gas to the inlets of the transmission system. The inlet to the transmission system is considered to be at the same location as the outlet of the purification plant. This separation imposes a clear demarcation between raw gas on gas gathering lines and the transmission of pipeline quality gas. It makes sense to identify locations at the inlets to the transmission system (or at locations further downstream) where gas from a number of reserves and/or producers/suppliers comes together. These will provide locations for trading and the transfer of title.

#### 1.4.2 Commercial Arrangements and their Regulation

Some of the key organizational issues and commercial arrangements that will need to be resolved and developed, such as codes of operation and transmission tariffs, have already been mentioned in Section 1.2.1 above. These commercial arrangements will be subject, eventually, to regulatory oversight and control. It is not possible to draw a precise distinction between regulatory oversight and control, but it is necessary to present some explanation of the distinction. All commercial arrangements are initially developed by regulated enterprises and, where appropriate, submitted for regulatory approval. Regulatory oversight is exercised in those situations where the regulator is not empowered or does not choose to make direct interventions, but is required to express either its approval or its concern about specific aspects. Regulatory control is exercised

when, in other situations, the regulator will make specific binding decisions regarding the commercial arrangements submitted by the regulated enterprises. This occurs most frequently in the case of the level of transmission tariffs and the nature and quality of services being offered.

The principal commercial arrangements that are subject either to regulatory oversight and or to regulatory control have been discussed previously in the Report on Economic Regulation of Downstream Gas in China<sup>①</sup>. The relevant sections of the Chapter on Regulatory Techniques are reproduced in Appendix 3. It presents a discussion of the principal commercial arrangements that

- Ensure an effective separation of transmission and supply activities;
  - ▷ In the event of separating business units that remain within common ownership this separation is frequently performed using a Code of Conduct;
- Establish the business rules and procedures that govern the terms and conditions of access for individual system users; and
  - ▷ This is often described as the Code of Operations (or in the US as the General Terms and Conditions);
- Define the transmission service offer;
  - ▷ This is usually set out in a Transmission Service Agreement.

A discussion of some issues that arise in the development of these commercial arrangements is also presented in Appendix 3.

### **1.5 Definition of Transmission Services**

Design of adequate transmission tariffs requires a clear definition of

---

① China: Economic Regulation of Long Distance Transmission and Urban Gas Distribution, The World Bank, The Institute of Economic System and Management, SCORES and Public – Private Infrastructure Advisory Facility, August 2002.

the services for which the tariffs are being designed. It is possible to enumerate numerous “principles” that should guide the definition of transmission services. However, the principle of non – discrimination, discussed in the next sub – section subsumes all the others and is applied in assessing the implications of the transition from a bundled, integrated transmission, storage and supply service to separate provision of each of these services.

### 1.5.1 The Principle of Non – Discrimination

The principle of non – discrimination governs the definition and pricing of regulated services. The term “discrimination” has been used so often in a pejorative sense and has become so tarnished by over – use that it is rapidly losing its precision and usefulness. The principle of non – discrimination has lost none of its crucial importance, but it is necessary to qualify and refine the use of the term.

In relation to regulated services two types of discrimination may be identified. These are permissible and non – permissible discrimination. Non – permissible discrimination is frequently described as undue or unjust discrimination. For obvious reasons, it attracts more attention. Non – permissible discrimination is any action or inaction on the part of a regulated business that denies access to, restricts the use of, or increases the cost of a service to a customer that is available without similar restriction to other customers. It is necessary that any variation in the quantity, quality or cost of the service is based on objective and demonstrable basis. The definitions of permissible and non – permissible discrimination are linked by this requirement. If such a basis may be demonstrated, the discrimination may be deemed to be permissible.

The principal cause of accusations of discrimination in transmission industries at an early stage of unbundling is an inadequate (or allegedly inadequate) separation of the transmission business unit and the associated (or affiliated) supply business unit. A previously integrated transmis-

sion business will have an incentive to impede the entry of gas shippers who will compete with its associated supply business and, thereby, reduce its share of the gas market. Conversely, it will seek to treat its associated supply business more favorably than other shippers. The impediments range from an outright denial of access through the provision of inadequate or over - priced service to passing confidential information on gas shippers' gas marketing intentions to the supply business.

Even when there is an objective and demonstrable basis for the variation in the quantity, quality or cost of the service, shippers will have little difficulty finding reasons to accuse the transmission business of discrimination. In many cases this has convinced transmission companies to opt for a complete separation of the transmission and supply businesses. This provides an appropriate strategic and management focus for each business and avoids being bogged down in interminable regulatory disputes. It has also encouraged transmission businesses to standardize their transmission services and to make them completely transparent.

In some countries certain desirable features of the pricing and service regime have been elevated to the level of principles, but, in most cases, these are requirements to prevent the emergence of specific aspects of non - permissible discrimination. The requirement to facilitate the interconnection and interoperability of transmission systems is an example of one such "principle." Preventing or delaying the interconnection of previously non - interconnected transmission systems is an effective means of denying or delaying shipper access. Similar a failure to agree technical and operating standards or the gas specification when transmission systems are interconnected is a means of denying or restricting access. Both are examples of non - permissible discrimination.

It is, of course, permissible for a transmission business to discriminate between shippers in terms of the charges levied when it can be shown that there is a difference in the cost of providing the service to



each shipper. Again, this can be most effectively demonstrated when there is a clear separation between the transmission and supply businesses.

### 1.5.2 Integrated Transmission and Supply

Before considering the definition of services when transmission and supply are separated (or unbundled) it is worthwhile to review the integrated provision of these services. This will help to clarify the implications of unbundling.

Figure 1.2 shows how gas supply sources and demand management would be employed to match the demand load duration curve for an integrated transmission and supply business.

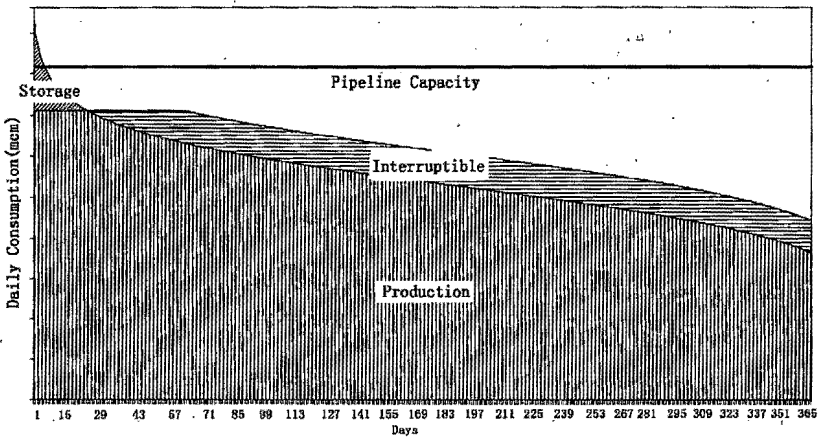


Fig.1.2 Load Duration Curve for integrated Transmission and Supply

The demand load duration curve is comprised of both firm demand for gas and demand for gas that is supplied on an interruptible basis. For system design and operational purposes the demand load duration curve is generally estimated in relation to the probability of extreme demand conditions. These extreme demand conditions are quantified in terms of the peak day demand and the duration of high demand and are typically relat-

ed to severe temperature and weather conditions. The pipeline level of capacity is set in relation to the maximum firm demand (or peak day demand) . For some systems where the demand load factor (the average daily demand divided by the peak day demand) is well above 50% the pipeline level of capacity is usually designed at or close to the peak day firm demand for gas. For other systems (as in the example illustrated) where the demand load factor is below or just above 50% , strategically located LNG tanks<sup>①</sup> may be used to back - feed the system and substitute for transmission capacity for a limited number of days (say, 5 to 10) .

The objective is to maximize the use of the transmission capacity provided. This can be achieved by minimizing the pipeline capacity provided (for example using the technique described above), but it can also be achieved by selling gas on an interruptible basis, as this uses up capacity that becomes available when the level of firm demand drops.

However, this is closely integrated with the cost of gas and the cost of storage. The cost of gas provided by producers and suppliers at the inlet to the transmission system will tend to vary directly with the swing on this supply. The swing on supply is the reciprocal of the load factor on demand. It is defined as the Maximum Daily Quantity (MDQ) divided by the average daily quantity (the Annual Contract Quantity (ACQ) divided by 365) . The higher is the swing, the greater is the unit cost. Selling gas on an interruptible basis, using storage during times of peak demand and re - filling storage from production in the off - peak period will reduce the swing on supply and, thereby, reduce the unit cost of gas.

---

① In Britain, LNG facilities, where gas is liquefied off - peak, stored and sent out at peak, are located at the extremities of the transmission system. Some storage facilities are used for a similar purpose in other countries. The difference between these and other storage facilities where shippers have discretion over injection and withdrawal is that the TSO must have control over send - out to support the transmission system. All other storage facilities will be able to offer an unbundled storage service subject only to specific physical and technical constraints on storage capacity, deliverability, injection and withdrawal.

Storage also provides balancing and operational margins throughout the year to deal with unanticipated shortfalls in supply or increases in demand. Depending on the nature and costs of the storage facilities and the terms of the interruptible supply contracts an integrated transmission and supply business may decide to employ storage to support interruptible demand. In Figure 3.2 interruptible supplies are terminated before storage is called on. However, if storage is full as the peak demand period approaches and the operator is confident that there is more than enough gas in storage to meet peak demand, it may decide to use gas in storage to continue supply to some or all interruptible consumers. In addition, storage capacity in excess of the projected operational requirements may have been constructed for security of supply purposes and this may also be used to support interruptible supplies<sup>①</sup>.

### 1.5.3 Reasons for De-integrating Activities

The brief description in Section 1.5.2 relates to a system in which the provision and maintenance of transmission and storage capacity, the operation of the transmission and storage system and the purchase and supply of gas are completely integrated. From a purely engineering or technical perspective this degree of integration makes good sense. From an economic perspective it is seriously flawed because it does not allow the volumes of gas supplied and consumed to be determined by market forces

---

① In many European countries a large amount of storage capacity has been constructed for security of supply purposes. Over time the reliance of Member States of the European Union (EU) on supplies from external suppliers, such as Algeria, Russia, Norway and Libya has been increasing and will continue to increase. This additional storage capacity is intended to compensate for a supply failure from one (or more) of these sources for a sustained period. However, in many cases, gas from this additional storage has been used to support interruptible supplies throughout the year. As a result, supply to large volume consumers who are technically interruptible has been provided effectively on a firm basis. The large volume consumers enjoy an almost firm supply at prices competitive with Heavy Fuel Oil (HFO). The transmission companies are able to maintain sales volumes, increase the demand load factor and secure a lower unit cost of gas. The price paid by large volume consumers tends to vary around the actual cost of supply as petroleum product prices change, but the prices paid by all other consumers are above the actual cost of supply.

that are created by the interaction of multiple suppliers and buyers.

As discussed in the report on Gas Price Formation in China, two principal alternative gas price formation mechanisms tend to be employed in integrated, bundled – service gas supply, transmission and marketing systems. The first is market value pricing which sets prices to final consumers as close as possible to their willingness to pay. This generates inefficiencies and surplus (unearned) profits along the gas supply chain and restricts innovation and choice in the range and quality of service provided to final consumers. The second, which bases final prices on the control of well – head prices with cost – plus regulation, causes long run distortions in consumption and investment also restricts innovation and choice. International experience clearly indicates that the detrimental impacts of these flaws outweigh any economies of scope that arise from the integration of activities.

An increasing understanding of these detrimental impacts combined with major developments in computer and information technology that reduce transaction costs has encouraged policy – makers to restructure the gas industry and, particularly, the transmission businesses to introduce competition progressively. The stage of development of the industry and the progress being made to establish an appropriate permanent legal and regulatory framework for it may affect the pace at which competition is introduced. In addition, the prudent and pragmatic allocation and management of risk for a large – scale infrastructure project, such as the WEP, may lead investors to seek, and policymakers to concede, a relatively high degree of vertical and horizontal integration along the gas supply chain during its implementation and early development stages.

The recognition that factors may exist to slow the pace at which competition is introduced does not justify the integration of activities for either new or existing transmission systems. A degree of integration initially may be viewed as necessary to allow development and expansion of

the gas industry. However, sustained integration would create “vested interests” that would hamper the emergence of competitive gas commodity markets and deny the economy the benefits of the optimization that they bring. As recommended in the JWG<sup>①</sup> reports, steps should be taken immediately to identify activities where competition can be introduced and to begin to establish the conditions for its introduction. These steps will need to be accompanied by the establishment of an appropriate legal and regulatory framework.

The next sub-section considers the various activities carried out by an integrated transmission and supply business and identifies those

- where competition can be introduced quite rapidly subject to a measure of regulatory oversight;
- which will be subject to regulatory control indefinitely; and
- which will be subject to regulatory control initially, but where, over time, competition may be introduced subject to regulatory oversight.

#### 1.5.4 De-integrated Activities and Services

Five principal activities of integrated transmission and storage businesses have been identified in the previous discussion:

- the provision and maintenance of transmission capacity;
- the provision and maintenance of storage capacity;
- the purchase of gas input to the system and the supply of gas at off-takes to ensure an on-going match between the supply of and demand for gas on the system; combined with
- the operation of the transmission system to maintain a balance between the inputs and off-takes of gas on the system while ensuring the maintenance of system security and integrity; and
- the operation of storage facilities to support the previous two ac-

---

① See Footnote 1 on Preface.

tivities.

The first key step in the process of de-integration is the separation of the purchase and supply of gas from the provision, maintenance and operation of the transmission and storage facilities. The means of achieving this are discussed above in Section 1.3.2. At this stage it is assumed that the other four activities will remain integrated.

As discussed in Section 1.4.2, detailed commercial arrangements will be required to ensure the effective and efficient functioning of the transmission system following this separation and these are typically drawn up in a Code of Operations. Such a Code of Operations will include the following key commercial features to allow a gas transmission business to offer unbundled transmission and storage services:

(a) the Transmission Provider (TP) must be allowed to define and allocate transmission rights to gas shippers (and ideally, these rights should be transferable, to ensure efficient usage);

(b) there must be agreement on the security standards to be met by all shippers and on the responsibility of the TP to achieve any common security standards by investing in transportation capacity and/or storage;

(c) gas shippers must give the Transmission System Operator (TSO) due notice of their nominated inputs and off-takes, which must be consistent with their transmission rights, and must abide by the TSO's scheduling arrangements;

(d) shippers must offer some flexibility in inputs and off-takes (or develop a mechanism in association with the TSO to ensure this flexibility), so that the TSO can ensure the maintenance of system security and integrity; and

(e) the TSO and shippers must draw up and agree a procedure for the settlement of imbalances between scheduled and actual flows of gas, as measured by the TSO.

The first two features relate to the provision, maintenance and allo-

cation of capacity; the next three relate to the utilization of capacity by gas shippers to ensure safe and efficient operation of the transmission system. These groupings of features distinguish between the functions of a Transmission Provider (TP) and a Transmission System Operator (TSO). Frequently these functions tend to remain integrated until some measure of separation of transmission and storage is achieved with both being subject to regulatory control. Typically, this constitutes the second step in the process of de-integration.

Following the initial stage of de-integration and separation of storage, storage services could be provided by a monopolistic entity. As a result, they will be subject to the same type of regulatory control as the transmission system. Over time, as the value of the storage services is more clearly defined in relation to alternative means of providing this service the degree of regulatory control will be reduced. Competing services could comprise new storage facilities, increased swing on gas production or self-interruption by large volume consumers.

The third de-integration step involving the separation of the TP and TSO may take some time, but is becoming increasingly common for well-established unbundled transmission businesses. In this case the TP will be subject to continuing regulatory control in regard to the definition, allocation and pricing of capacity, but, provided that it has an agreed and well-functioning Code of Operations in place, the TSO will be subject only to regulatory oversight.

An example of the General Terms and Conditions for a North American pipeline company (equivalent to a Code of Operations) may be found in Appendix 4.

#### 1.5.5 Firm Capacity Rights

The principal function of a transmission business (and this applies equally to existing businesses and to new projects such as the WEP) is to provide and maintain capacity to transport gas that matches shippers' re-

quirements. Experience in other markets demonstrates that firm capacity rights are a prerequisite to the development of competition. Consumers and suppliers are naturally unwilling to sign contracts without guarantees that the gas contracted will be delivered. Such guarantees are therefore necessary for all third party trades whose time frame extends beyond the very short term. How these capacity rights are defined and allocated among gas shippers will determine the range of services that will be offered and the types of tariffs that will need to be designed.

This requires consideration of four issues:

- The allocation of existing capacity;
- Access to, and the pricing of, new capacity;
- The identification and allocation of spare capacity; and
- The information disclosure requirements.

Each of these issues is considered in turn.

#### *Allocation of Existing Capacity*

For existing transmission systems, various mechanisms can be used to issue rights to available pipeline capacity, including “first come, first served” policies, lotteries and auctions of various types. The attractiveness of these options from the perspectives of efficiency, non-discrimination and fostering competition depends on prevailing market conditions<sup>①</sup>. These options are considered more fully in Appendix 5 where consideration is also given to the benefits of a liquid secondary market in transmission.

If capacity is scarce and no competing pipeline exists, then there is a

---

<sup>①</sup> Under certain circumstances the choice of mechanism is of little significance. Specifically, an efficient allocation will generally be achieved if capacity is not scarce. In these circumstances, the objective should be that pricing of capacity is competitive and non-discriminatory. However, given expected growth in natural gas consumption in China, a situation of scarce capacity is likely to be the norm. The existence of effective competition between pipelines can also ensure efficient and non-discriminatory allocation, but this is not anticipated to have an impact in China in the foreseeable future.



danger that existing allocations may be inefficient and/or discriminatory. The existence of a liquid secondary market in capacity rights, as discussed in Appendix 5, can help to make the final allocation of capacity efficient, but cannot prevent discrimination in the pricing of capacity, or solve problems of market power in the market for capacity. In these circumstances the method used to allocate capacity rights is therefore of the greatest importance.

Each of the methods has its own advantages and disadvantages, whose weights vary according to specific market conditions. The method of “first – come, first – served” has disadvantages during the early stages of market development, but these can be addressed by establishing an “open season.” The use of auctions is recommended over lotteries,<sup>1</sup> provided that rigorous safeguards are in place to prevent abuse. Once markets are fully developed, any of these methods can be considered.

The transmission business should be entitled to deny access to the system on the basis of lack of capacity. But a transmission business that denies access on the basis of lack of capacity should be required to publish the evidence supporting the existence of congestion and make the necessary investments, provided they are economical and/or the shipper is willing to pay for them. If the initial allocation of capacity rights and the associated requirement to provide additional firm capacity prove ineffective in meeting the demand for access, it may be desirable to impose “Use It Or Lose It” (UIOLI) requirements on existing capacity holders. Moreover, regulatory authorities should examine closely any recent long – term contracts that may have the purpose of preventing the creation of spare capacity.

#### ***Access to , and Pricing of , New Capacity***

To ensure an adequate investment lead – time, as the use of the initial capacity approaches the amount available, plans will be made to expand the capacity of the system. At this stage, new gas shippers should

be permitted to reserve a share of this new capacity on a firm basis under exactly the same conditions as the existing shippers. This may not prove to be straightforward.

It is generally expected that the incremental cost of this additional capacity will be lower (on a per-unit basis) than the cost of the initial capacity<sup>①</sup>. As a result, it can be argued that the tariffs for capacity rights to this additional capacity should be lower than those for the initial capacity rights. This is described as “incremental pricing” of new capacity.

However, in most cases the lower incremental cost of the new capacity is a result of the economies of scale derived from the expansion of the initial capacity. The lower incremental cost would not arise if the initial investment had not been made. It would be inequitable if the holders of the initial capacity were prevented from gaining some benefit from the expansion of the capacity they were funding. In addition, the new capacity may have a higher use value by virtue of being part of larger system (with a single system operator) and the holders of the initial capacity deserve compensation for allowing the capacity they hold to be used to enhance the value of the new capacity. It is difficult to quantify and allocate the costs and benefits of the new capacity between existing and new holders of capacity rights. As a result, it makes sense to re-balance the transmission tariffs to the advantage of the system users who paid for the initial investment. This results in an average tariff that is lower than the initial tariff, but higher than the tariff derived from the incremental cost. This is described as “rolled-in” pricing.

When a market-based system of allocating newly created capacity rights and a liquid secondary market in capacity rights are established, it

---

① This is not always the case. Economies of scale will allow the transmission business to add capacity at a lower unit cost and may allow it to do so for a considerable period of time. But eventually these economies of scale will be exhausted and incremental costs will increase to, or above, the initial level in real terms (adjusted for the impact of technical progress that occurred in the interim)

is possible to use “incremental” pricing of new capacity. Until such arrangements are well – established, “rolled – in” pricing is the only viable option<sup>①</sup>.

### ***Identification and Allocation of Spare Capacity***

The principle of non – discrimination and the ensuing obligations that will be imposed on the transmission business with regard to the allocation of existing and new firm capacity requires transmission businesses to provide access whenever capacity is available. This requirement must therefore encompass an obligation to release spare firm capacity whenever it becomes available.

The allocation of spare capacity is of the utmost importance. Spare capacity includes capacity that becomes available as contracts expire, or as consumers switch away from the incumbent supplier. Under no circumstances should existing capacity holders enjoy preferential treatment, such as automatic renewal rights or a “right of first refusal” to renew contracts.

The principal requirement is that, when a customer of the supply business related to the transmission business chooses to switch supplier, the transmission business provides the required capacity. The customer’s total consumption of gas is not expected to increase. All else being equal, “spare” capacity is created by the decision to switch away from the incumbent supply business. It is to be expected that this situation will occur frequently in the early years of market opening. Exceptions to this requirement should be allowed only under extraordinary circumstances, and requiring detailed supporting evidence by the transmission business.

An essential component of this obligation relates to the publication of information on the extent of current and future allocations of firm capaci-

---

① The cost of connections to the transmission system is separate and dealt with later in this report.

ty rights on each system.

### ***Information Disclosure Requirements***

The first requirement is that the transmission business should disclose detailed data describing historical and current utilization of transmission capacity in aggregate terms. Historical utilization provides a benchmark for estimating current and future utilization, and hence for forecasting the availability of spare capacity. Such benchmarks help third parties and regulators notice any attempt to exaggerate expected utilization. Transmission businesses should be required to provide objective justification if forecast utilization differs significantly from historical patterns. Where this may involve commercially sensitive information, it should be revealed only to the regulator or dispute settlement authority, but in other cases, or where the authorities do not accept that it is commercially sensitive, it should be made available publicly.

Information on specific current or future use of capacity may be commercially sensitive in two respects. The first example is of a situation where a new entrant supplier is negotiating with a customer of the incumbent supplier and requests firm capacity from the associated transmission business. If this information is passed to the supply business there will be an incentive to indulge in predatory pricing to discourage the customer from switching to the new supplier. The most effective means of dealing with this is to enforce a full legal separation of the transmission and supply businesses. However, short of this separation, the use of a vigorously enforced Code of Conduct may be sufficient to avoid the abuse of commercially sensitive information.

The second example is where a manufacturer that intends to increase the size of its operations at a particular plant, and therefore requests his supplier to reserve increased future capacity, may not wish to give its competitors advance warning of its expansion plans. The transmission business should therefore provide only data indicating a time period and

the amount of firm capacity currently allocated for that time period. The identity of the capacity holders need not be disclosed.

Current practice in the United Kingdom provides an example of good practice in this area. The transmission business, Transco, makes publicly available detailed information concerning capacity availability, including an annual "Ten Year Statement" giving its forecasts of capacity expansion over the next decade. It also provides third parties with a computer program that enables them to model capacity and forecast constraints.

#### 1.5.6 Interruptible or "On-Demand" Service

Utilization of booked firm capacity varies significantly over time, reflecting fluctuations in the demand and supply of gas. Some of these fluctuations are difficult to predict, and consequently, a significant part of reserved firm capacity may be unused at any particular moment. The existence of unused capacity in significant but unpredictable quantities makes it efficient to offer short-term interruptible ("on-demand") service in addition to firm capacity rights. Experience shows that such services are attractive to gas shippers, and leads to increased capacity utilization and market liquidity.

##### ***Benefits of Interruptible Service***

Short-term interruptible service promotes competition in several ways. First, it facilitates the development of a spot market in natural gas. Without interruptible service, market participants would be obliged to acquire firm capacity rights for spot transactions. Until capacity markets are well developed, it can be difficult to acquire capacity quickly on a short-run basis. Short-term interruptible service can therefore be essential for spot market development, as appears to have been the case in other gas markets.

Second, the availability of capacity on short notice reduces potential incentives to hoard spare capacity for anti-competitive purposes. In the absence of a short-term interruptible service, hoarding capacity can pre-

vent other parties from obtaining access. Interruptible service allows participants to use the system even if capacity is hoarded, motivating the release of spare capacity on secondary markets and fostering the development of liquidity.

Third, as mentioned above, the provision of interruptible service can mitigate the impact of disputes over the measurement of available firm capacity. For example, a dispute may arise when a pipeline refuses access on the grounds that all current capacity is needed to meet the peak demand of existing customers. The party seeking access may deny this, and resolving the issue is complex: the two sides will put forward different estimates of available capacity, based on different assumptions as to likely peak demand. They may also have different views as to what probability of curtailment is acceptable. The incumbent may seek to “gold – plate,” insisting that it cannot provide firm access to an entrant unless it can be 100% certain that this will not entail curtailment; while the entrant may suggest that some small but non – zero risk is acceptable. The availability of interruptible service can minimize such disputes. If the party seeking access is persuaded that there is sufficient spare capacity in the pipeline, then it will be content to purchase interruptible rather than firm capacity because it may not anticipate significant interruptions.

This form of dispute avoidance can be promoted by ensuring that the grounds for interruption are transparent, objective and easily verifiable by all parties. It may also be desirable to ensure that parties for whom interruption is a greater concern should be able to obtain priority over parties who are less concerned, by providing a number of interruptible services with different probabilities of interruption. Purchasers of the higher probability service would pay less, but would be chosen for interruption ahead of purchasers of the lower probability service. Such arrangements exist in mature gas and electricity markets.

### ***Interruptible Service in Practice***

Because of the value created by interruptible and other short – term services, it is envisaged that they would be readily provided by holders of firm capacity in a competitive market. Consequently, in fully mature gas markets, where firm capacity rights are widely available and traded on a liquid secondary market, it is not necessary to mandate the provision of interruptible service. Third parties who purchase firm capacity have natural incentives to offer short – term services that are close substitutes for interruptible service. Consequently, where there is a liquid secondary market in capacity rights, competition with such third parties means that the transmission business has no reason to withhold interruptible service, and has a natural incentive to offer it at market rates.

However, to achieve the gas sector policy objectives in China, transmission businesses should be required to provide interruptible service in the transition to fully competitive markets. Until a liquid secondary market in capacity exists, pipelines may have incentives to refuse interruptible service.

The obligation to make available short – term interruptible service during this transitional phase follows also from the requirement to provide non – discriminatory service. Short – term interruptible service is usually implicitly available to the supply business affiliated to the transmission business. In the case of WEP this is the Marketing and Sales Joint Venture (JV) . If the JV participants have an unpredicted need for capacity on a short – term basis, it is clear that the transmission business will provide it if available, subject to its other commitments. Where this is the case, and until a liquid secondary market ensures that equivalent services are available to other parties, the principle of non – discrimination requires that the transmission business provide the same interruptible service to others.

However, this requirement to offer interruptible transmission service

should only be imposed when sufficient firm capacity is reserved to ensure recovery of the cost of providing firm transmission service.

### ***Allocation and Pricing of Interruptible Service***

Since interruptible service can be provided competitively by holders of capacity rights in mature gas markets, there is no need to regulate its price. However, in the transition phase a transmission business could earn monopoly profits from unregulated tariffs for interruptible service. The tariff therefore should be fixed or capped by the regulatory authority. The optimal price for interruptible service lies somewhere between the cost of its provision, which is equal to the variable cost imposed, and the price of firm capacity. In principle the exact optimal price can be determined by applying the economic principles of "Ramsey pricing."<sup>①</sup> However, in practice this is ruled out by informational requirements. Instead, it is logical to allow the pipeline freedom to set the price, subject to two conditions: a tariff cap, and a revenue sharing mechanism that allocates the vast majority of the net revenue from selling interruptible service to the holders of firm capacity. In the United States, pipeline operators are generally required to credit 90% of revenues from interruptible service to holders of firm capacity.

The tariff cap acts as a safeguard against abusive pricing<sup>②</sup>. Since interruptible customers do not place expansion demands on the pipeline, interruptible capacity should be priced at a discount to firm capacity. The revenue crediting mechanism avoids over-collection by the pipeline, and channels the interruptible service profits to the firm capacity holders,

---

① "Ramsey pricing" is a method of determining prices in situations where marginal cost pricing is impractical due to the need to recover fixed costs (or more generally, to raise funds above marginal cost, e.g., in the theory of optimal taxation, where it was first applied). Under Ramsey pricing, fixed costs are recovered with minimal economic distortion, by setting price-cost mark-ups that are highest on those products or services for which demand is the most inelastic.

② The tariff cap should be viewed as a transitional measure until a liquid secondary market in transmission capacity is well established.



while leaving the transmission business some financial incentive to provide interruptible service. Financial incentives seem necessary because the informational asymmetry makes it difficult to determine whether or not a transmission business is actually making available all unutilized capacity. The revenue crediting mechanism has the added attraction of providing firm capacity holders with an incentive to ensure that the transmission business provides interruptible service.

The revenue crediting mechanism also prevents discrimination in the pricing of interruptible service. If the transmission business charges a tariff higher than variable cost to all shippers, including its related supply business. The cost of the service is the tariff paid for all shippers but that tariff represents merely a transfer for the related supply business. Such transfer payments frequently arise between related undertakings, and accountants may allocate fixed overhead and capital costs to such transactions, but from an economic perspective the only cost to the consolidated company of using the spare capacity is the short - run variable cost. In this situation the cost of using interruptible service is clearly lower for the company that owns the pipeline and its related undertakings than for third parties, and this results in discrimination against other shippers. However, the revenue crediting mechanism ensures that the price charged by the transmission business to its related supply business represents more than just a transfer. The revenue crediting mechanism can allocate the majority of the fixed cost recovery to firm capacity holders on a non - discriminatory basis.

An effective short - term interruptible service requires that information on available capacity be made publicly available on a regular basis. The same points made above in relation to firm capacity rights apply here. When incumbents possess the information, which is likely to be the more usual case, the obligation to disclose follows from the principle of non - discrimination. It is also consistent with the provision of informa-

tion to justify denials of access, and with provisions to provide sufficient information to transmission and distribution businesses for the secure and efficient use of transmission systems. Again, it is crucial that disclosure should take place in such a way as to avoid revealing commercially sensitive information, and this can be achieved by restricting the information to aggregate figures describing available capacity.

In conclusion, the development of an interruptible transmission service is an important element of market opening and the introduction of gas – to – gas competition. Even if the potential or requirement for interruptible transmission service does not arise immediately, it is necessary to ensure that commercial or contractual arrangements are not established to stymie the offer of this service.

Once sufficient firm capacity is reserved to ensure reasonable cost recovery (and new suppliers enter the market) the potential to offer an interruptible service will arise. Given the superior quality of information possessed by the operator of the transmission system it may make sense (as outlined above) for the transmission business to offer this service. However, shippers may be prepared to develop an informal Over – the Counter (OTC) market among themselves subject to scheduling constraints imposed by the system operator. The information and publication requirements will vary with the nature of the service that will emerge.

### **1.6 Conclusions on the Basis of Tariff Design**

The License – based approach to the application of regulation provides an effective and appropriate means of establishing the regulatory and commercial arrangements in China that are specified in the detailed and prescriptive Tariff Codes or Codes of Regulation in North America.

The sequence of

- primary legislation establishing a regulatory body and a licensing regime,

- the definition of license conditions and the issue of licenses and
- the development of commercial arrangements governing
  - ▷ the separation of the transmission and supply businesses and
  - ▷ the code of operation or the general terms and conditions of the transmission service offer

progressively channels the focus of analysis onto the design of transmission tariffs.

Transmission tariff design cannot be tackled effectively without clear guidance on the legal and regulatory framework in which it will be applied.

The proposed methodology and approach and the illustrative design of the transmission tariffs in this report are suitable within the legal and regulatory framework and the accompanying regulatory and commercial arrangements presented in earlier JWG's reports<sup>①</sup> and summarized in this chapter. This entails that the Tariff Code will focus on the principles and objectives of tariff design and the next chapter discusses these matters.

---

① See Footnote 1 on Preface.

## 2 PRINCIPLES FOR DEVELOPING THE TARIFF CODE

The Tariff Code as defined in this report will set out the principles, objectives and desirable attributes of the methodology that will be employed to design transmission and storage tariffs for the WEP. Attention will also be paid to how this Code may be extended to deal with existing transmission systems. This chapter presents a set of principles, objectives and desirable features that should be included in any Tariff Code of this nature.

### 2.1 Principles of Tariff Design

In line with the discussion in Section 1.5 above, the over-riding principle is that of non-discrimination. This implies that two shippers requiring precisely the same service should expect to pay the same tariff. If the transmission business imposes a different tariff on each shipper, this is prima facie evidence of non-permissible (or undue) discrimination. Non-permissible discrimination is most effectively avoided by ensuring that tariffs are cost reflective. In other words, the application of the principle of non-discrimination requires that the tariffs reflect the costs incurred by the transmission business in providing the services required by shippers. This principle (and the associated cost reflectivity requirement) provides the basis for elaborating the objectives of tariff design.

### 2.2 Tariff Design Objectives

Typically, gas transmission is a natural monopoly. It is therefore

regulated in the public interest to prevent abuse of the dominant position in the market of pipeline's owners<sup>①</sup>. Regulation is intended to substitute for the market competition to achieve the following:

- **First**, the level of output is efficient and this is generally achieved when the value to the consumer of the last unit consumed equals the price and when the cost of the last unit produced equals its marginal cost. Total surplus is therefore maximized. This is referred to as “allocative efficiency.”
- **Second**, the output produced is rationally used if it is allocated among only those consumers whose willingness to pay is more than the price. This phenomenon is known as “rationing efficiency.”
- **Third**, aggregate production costs are minimized: each producer minimizes the cost of producing its output and the number of producers adjusts so that each unit of output is produced at minimum average cost. This is called “cost or productive efficiency.”

### 2.2.1 Allocative Efficiency

A failure to achieve allocative efficiency is typically associated with monopoly and the exercise of market power. The monopolist can raise price above marginal cost and the willingness to pay of the consumer also exceeds marginal cost. This reduces the total surplus, but the monopolist is better off because its share of the total surplus rises.

In pipeline tariff design, the challenge is to regulate prices to approximate long run marginal cost (LRMC). North American regulatory experience indicates that when pipeline tariffs are at LRMC, the return

---

<sup>①</sup> This issue has been extensively discussed and recommendations put forward in the first chapter of the JWG's Report: China Economic Regulation of Long Distance Gas Transmission and Urban Gas Distribution. The World Bank/IESM/SCORES/PPIAF. August 2002.

on investment may be at above-market levels. However, there are some North American studies that tend to confirm that in pipeline transportation long run marginal costs and long run average costs are similar<sup>①</sup>.

To achieve allocative efficiency, tariffs for particular types of service and for different locations should to the greatest extent possible be cost-based.

### 2.2.2 Rationing Efficiency

This concerns the distribution of a fixed level of output available from the pipeline in the short run among consumers of pipeline services. Rationing efficiency occurs when the level of output is allocated among consumers such that the value to consumers is maximized.

The problem for tariff design is to reconcile the fact that different users of the pipeline will attach different values to its transportation services with the fundamental public interest principle of pipeline regulation to charge all persons equally for obtaining transportation under the same circumstances.

To achieve fairness and avoid undue discrimination, gas transmission companies should be unbundled contract carriers, providing service to users who contract to purchase capacity on a term basis, in order to efficiently match capacity to demand, that is, to achieve allocative efficiency<sup>②</sup>.

### 2.2.3 Productive Efficiency

Productive or cost efficiency requires the production of a given level of output (in the case of the WEP, the transmission of some 20 bcm of gas annually) uses the minimum amount of resources possible. It also requires that the factors of production (labor and capital) are used in the most efficient proportions to achieve that level of production. If either of

---

① See Footnote 1 on Preface.

② The report cited in Footnote 25 discusses the subject in further details.

these conditions is not met, then the output will not have been produced at minimum cost and there will be cost inefficiency.

The broad problem for tariff design is that the traditional (North American) methods of “rate of return” regulation provide little or no incentive for productive efficiency. It is based on a cost plus approach. As a result, there is much potential for cost inefficiencies in the construction and operation of regulated monopoly pipelines. Inefficiencies usually result from overstatement in assets (termed “gold plating”) and acquisition of inputs (labor, purchased goods and services) for the pipeline’s operation at higher prices.

To achieve productive efficiency, the tariff setting mechanism should be “performance based regulation” and not “rate of return” regulation<sup>①</sup>.

#### 2.2.4 Efficiency in Product Selection

If products are differentiated, this type of efficiency is important and deserves mention. Gas transmission services are differentiated on the basis of reliability, destination and, often, by season. Firm and interruptible services are clearly different types of service having different values to their users.

This type of efficiency requires that the types of service available match the types of service demanded. It may not be achieved if all firm service shippers are provided with the same level of reliability of service. There may exist shippers who would be better off with either a higher or a lower level of reliability than that provided to all shippers under a standard form of transportation service.

The solution to this problem is to tailor the services that best meet the needs of the users. This will require time, better knowledge of the demand and adequate consultation.

---

<sup>①</sup> This issue is discussed in details in the report cited in Footnote 25 discusses the subject in details.

### 2.2.5 Revenue Sufficiency

It is important that regulated transmission companies be allowed to charge tariffs that in relation to forecasted volumes, will generate sufficient gross revenues to recover all reasonable costs, including a fair return on investment. Those recoverable costs of course include the return of invested capital in the form of depreciation provisions, the cost of borrowed funds, operating and maintenance costs and the return on capital.

In traditional North American regulation, a "fair return" is taken to mean a return comparable to that earned in sectors of the economy where markets are competitive and where risks are similar to those in the pipeline business. In both the "rate of return" model and in the "incentive regulation" model, the tariff calculation starts with an assessment of the initial revenue requirement of the regulated entity.

To achieve this, transmission companies should prepare their revenue recovery requirements for an initial year and derive tariffs on that basis. In addition they should prepare capital and operating expenditure forecasts for the initial and succeeding years. These prescriptions are usually recommended in order to ensure revenue sufficiency<sup>①</sup>.

In order to encourage efficient production (section 2.2.3) beyond that initial year, the JWG proposal was that the regulatory commission should make an estimate of the rate of technical progress in the gas transmission industry in China for the number of years over which tariffs are determined. This will generate a decline in real tariffs (benefiting network users), but provide the transmission entities with an incentive to achieve efficiency improvements more rapidly than the commission's determination of the rate of technical progress, as this will increase their profits.

---

① This issue is discussed in detail in the report cited in Footnote 27.



### 2.3 Desirable Features

If the design of tariffs complies fully with these objectives, they will, by definition, be cost reflective and non – discriminatory. However, it may not make sense to expend the effort required to achieve these objectives completely. As a result, tariff design methodologies are also evaluated in terms of some additional criteria. These criteria may be described as desirable, but not absolutely essential, features. Most listings of these features would specify that tariffs should be:

- Objectively derived and easy to understand and apply;
- Transparent;
- Predictable; and
- Adaptable.

### 2.4 Conclusion

In developing the Tariff Code, the principles and objectives of tariff design should focus on achieving key aspects of economic efficiency while ensuring that the revenue generated is sufficient to recover costs that are prudently and efficiently incurred. Tariffs that achieve these objectives will, by definition, be cost – reflective and non – discriminatory. However, the benefits of achieving these objectives completely needs to be weighed against the costs of reducing “user – friendly” characteristics such as ease of understanding and application, transparency, predictability and adaptability. This approach is strongly recommended and followed in this report.

## 3 DEVELOPING THE TARIFF MANUAL

### 3.1 Overview of Methodology

The primary goals of the tariff design model are to:

1. allow the transmission company to recover operating costs and earn an adequate and reliable return on the capital invested; and
2. reflect the cost structure of the service provided.

To achieve these goals three top level must be performed. These tasks may be summarized as follows:

- **Regulatory Asset Valuation.** All networks, whether electricity, water gas or rail, comprise large - scale, long - lived, dedicated, irreversible investments. These investments generate annual capital costs (return on investment and depreciation) that account for a high proportion of the annual cost incurred by the transmission business. Appropriate valuation of these investments is a key element in establishing the cost base and the derivation of tariffs. This valuation will be subject to regulation, but the initial requirement to establish an estimate of the asset valuation will be the responsibility of the transmission business.
- **Derivation of Cost Base.** The principal components of the cost base comprise:
  - Return on capital employed (on a pre - tax basis);
  - Depreciation; and
  - Operating and Maintenance Expenditure

These components generate the revenue recovery requirement and,

when related to forecast throughputs, set the level of tariffs. This is illustrated in the Figure 3.1.

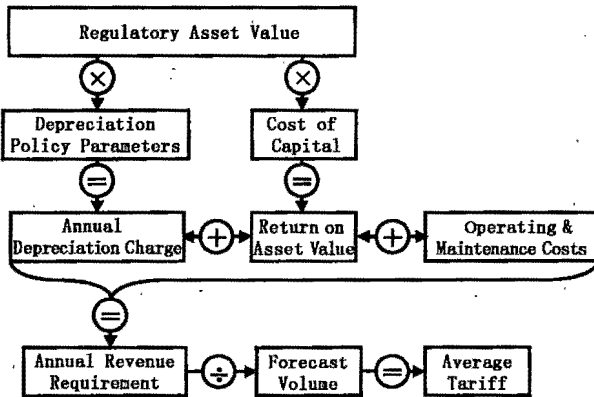


Fig.3.1 Deriving the Level of Tariffs

- Classification, Allocation and Tariff Design. These tasks deal with the structure of tariffs and are required to:
  - ▷ Classify the cost base into fixed and variable costs,
  - ▷ Allocate these classified costs between capacity and commodity charges, and
  - ▷ Distribute these classified costs to measurements of the utilization of the transmission to derive transmission tariffs.

These three top-level tasks – asset valuation, cost base derivation and tariff design – may be broken into a number of steps which are described below. It is important that the transmission provider conducts this exercise on the basis that its methodology will be subject to a mixture of policy and regulatory scrutiny prior to the establishment of a formal regulatory framework.

### 3.2 Asset Valuation

Determining the value of transmission system assets for the purposes

of tariff design and regulation has proved to be controversial in most countries. In many instances this has occurred because the separation of the integrated transmission and supply business has accompanied or followed the listing of the integrated business. In principle, it should be straightforward to set the value in the accounts or in a legal instrument. In practice, it is felt that investors participating in the listing place a higher value on an integrated monopoly business than on separated transmission and supply businesses subject, respectively, to regulation and competition.

As a result, policy – makers believe that they face a dilemma. On one hand, they wish to maximize the proceeds from the listing: on the other, they wish to introduce competition and modern regulation; and they identify a conflict between these objectives. If the business is listed on a monopoly integrated basis, they are reluctant to enforce the separation required for competition and regulatory purposes, as they fear that the listed value of the business will suffer. The perceived risk is that investors may be deterred from continuing their investment participation or from participating in future listings. Quite frequently, policy – makers (and legislators) have transferred the issue to regulators who have employed various techniques to address it.

This tends to create unnecessary regulatory uncertainty about

- the extent of unbundling required,
- the initial valuation of the transmission system assets, and
- the nature of the assurance on the recovery of, and return on, this, and subsequent, investment.

Unbundling of transmission and gas supply is essential to avoid conflicts of interest, where these conflicts reduce efficiency in the gas supply chain. Efficiency gains from competition in the bulk supply of gas and from the provision of transmission – only services have been demonstrated in several countries. But they need, in all cases, to be compared against

the loss of economies of scope due to unbundling and any increase in transactions costs. Unbundling may also be viewed as an infringement of the property rights of the original investors over their transmission systems, in which they invested for their own exclusive use. The principal problem is that the efficiency gains may take some time to materialize, while the costs associated with restructuring will be experienced almost immediately. It is this disjunction in the realization of benefits and costs and unease about the infringement of property rights that frequently discourages policy-makers from establishing the extent of unbundling that is required and the initial asset valuation of the unbundled transmission business.

The optimal solution is for the previously integrated transmission and supply businesses to recognize that it is ultimately in the interests of both businesses to effect a complete separation.<sup>①</sup> This will permit the strategic and management focus for each business to operate efficiently and profitably. Regulators may encourage an early recognition of the benefits of a complete separation by devising specific incentives and controls.

However, regulators should not be empowered to impose major expense on transmission systems (or other existing market participants) to facilitate consumers to switch suppliers. This is sometimes described as “introducing competition for the sake of competition.”<sup>②</sup>

These extreme cases should not cloud the fact that existence of higher than justified profits in the gas supply chain frequently provides a mo-

---

① In 1997 British Gas decided voluntarily to establish the partially unbundled British Gas Trading business unit as a separate public limited company (plc), Centrica, with its own Stock Exchange listing. The remainder of the business, which included the pipeline business, Transco, was also established as a separate plc. There are numerous examples of similar voluntary separations of pipeline and affiliated trading businesses in North America.

② This can be taken to extremes. The incumbent supplier can be compelled to maintain prices to final consumers higher than they would otherwise be so as to provide a margin for new entrants, but which results in lower final prices than those offered by the incumbent. See for example, Alfred E. Kahn “Bribing Customers to Leave and Calling it ‘Competition’,” *The Electricity Journal*, May, 1999, pages 88 - 90.

tive for regulatory intervention. This intervention is justifiable, if the elimination of these higher than justified profits is translated into genuine efficiency gains. But it should be noted that high profits may provide an efficient incentive to entry.<sup>①</sup> While an industry is being restructured the location and extent of higher than justified profits in the gas supply chain will move and change between the monopoly and competitive segments of the industry. Regulators should, especially during the transition, focus on efficient incentives to new entry.

In China, the issue of asset valuation is likely to prove more difficult to resolve for existing transmission systems than for the WEP, although establishing the extent of the separation of transmission and supply may require the same degree of attention. The initial requirement to establish an opening asset valuation for the WEP will fall on the JV group and this will be subject to subsequent review and, possibly, modification by the policy and regulatory authorities. Two broad approaches to asset valuation are used. The first is based on the original asset acquisition costs; the second is based on various measures of the current costs of these assets.

### 3.2.1 Historic Cost Valuation

In general practice, the “original cost” (or net investment) standard for capital valuation measures the asset base by summing the original acquisition cost of all capital assets, minus the provision for accumulated depreciation. Because the value of assets defined in this manner is equal to their relatively unambiguous “book value” (or the value as measured in the balance sheet of the company in question), original cost is viewed as a non-contentious capital cost valuation from which to determine tariffs.

The original cost standard (also called Historical Cost Accounting)

---

① In the China’s power sector, the “new plant/new policy” allowed high returns and provided incentives for new generators to enter the markets in the mid-1980s and 1990s. This alleviated power shortages. This policy has been changed in 2002 by the introduction of competition at the generation level.

for measuring the value of the capital stock makes no attempt to determine the “optimality” of the assets or their current economic value. It recognizes, instead, that there are certain expenses associated with the capital stock (depreciation, if only in an accounting sense) and that the undepreciated capital stock balance represents an outstanding liability of the company, owed to the providers of capital,<sup>①</sup> on which a return is due. Thus both depreciation (the return of capital) and the return on capital form the basis of the capital cost component of tariffs.

### 3.2.2 Current Cost Valuations

Current cost valuations fall into three categories that are distinguished by the weightings assigned to a combination of economic, accounting and regulatory objectives.

- Reproduction (or Replacement) Cost is the cost of rebuilding (or replacing) existing plant with new plant that is substantially identical;
- Optimized Replacement Cost is the cost of replacing the present output of services using a plant of modern configuration;
- Cost based on Financial Capital Maintenance (FCM) . FCM means that the financial or monetary amount of net assets at the end of a financial period is maintained if it is equal to, or exceeds, net assets at the beginning of the period, excluding any distributions to, or contributions from, the owners. This generally implies that the amount of net assets should be inflation – proofed.

#### ***Reproduction (or Replacement) Cost***

This cost is estimated by establishing the current replacement cost of

---

① Of course, if long term debt is fully repaid and the business relies completely on shareholders funds (unlikely for low risk capital intensive businesses) there will be no outstanding liability to providers of debt finance.

each asset in the register of assets. This is a time and resource – consuming exercise. In practice it tends to be carried out periodically, say, once every five years. In the intervening years specific price indices are applied to the various cost components (steel, materials and equipment, labor and project management, way – leaves, etc.) to generate estimates of the replacement costs. This exercise provides an estimate of the gross current cost replacement value of the assets and similar adjustments are made to the accumulated depreciation to generate an estimate of the net current cost replacement value. This approach to asset valuation is often described as Operational Capability Maintenance (OCM) . It revalues the assets on a replacement, “as new” basis and allocates replacement and refurbishment expenditure to maintain this “as new” operational capability.

From an accounting, perspective proponents of original cost standard view current cost replacement valuation as expensive in relation to the benefits it may generate in terms of presenting a “true and fair” value for the system. In addition, the estimates are inherently subjective and it is difficult to establish a basis for revaluation that will remain unchanged over time.

The economic case for replacement cost is that it is a better reflection of the current cost of providing transmission service. This case contends that the original cost rate base may be very much lower than its replacement cost, and, therefore, that payment of this lower cost to use existing assets would not cover the current costs of efficient production. This could lead to economic inefficiencies of two types:

- wasteful consumption arising from the failure of consumers to pay the current costs of consumption; and
- disproportionate new investment in the service resulting from this upward pressure on consumption

#### ***Optimized Replacement Cost***

The objective of this exercise is to generate an estimate of the Mod-



ern Equivalent Asset (MEA) value of the transmission system. Given that transmission systems expand over time in response to varying patterns of gas supply and demand, it is extremely unlikely that the configuration of the system will end up as it would if future patterns of supply and demand were known with certainty while it was being developed. In addition, on-going technical progress will exert downward pressure on real cost over time.

From an economic and regulatory perspective, the optimized replacement cost provides an estimate of the "contestable" value of the transmission system. This means that the value of the asset base should be equal to the investment that would be incurred by a hypothetical new entrant who would be required to produce the same level and mix of output as the incumbent.

From the accounting and, to an extent, from the economic perspective proponents of the original cost standard contend that, in addition to the problems with replacement cost valuation, optimized replacement cost frequently will require very detailed engineering analysis of the cost of re-configuring the transmission company's pipeline system. In addition, it will result in a significant supplementary risk to investors.

#### ***Cost based on FCM***

The FCM approach focuses on the market capitalization of the business if it is listed. The price that shareholders are prepared to pay for shares in the business times the number of issued shares plus the amount of funding that lenders are prepared to advance is equal to the market value of the business. This is treated as a reasonable initial estimate of the net asset value. The initial net asset value is revalued over time using a general inflation index. A general inflation index, such as the Consumer Price Index (CPI), is chosen as it is the deflator most commonly used by investors to determine the real value of their investments.

Another advantage of this approach when it is compared to the re-

replacement cost is that it reveals the “holding losses” that arise from technical progress. When technical progress occurs it reduces the real cost of replacement and this is reflected in the revaluation of shareholders’ funds under the replacement cost (or optimized replacement cost) approach. The extent of these “holding losses” is revealed when the net asset valuation under FCM is compared to the replacement cost valuation. From a regulatory perspective, exposing the shareholders to these losses reduces the incentive on the regulated company to reduce unit costs. Using FCM to value the asset base gives the regulated company the option of protecting its shareholders from the full impact of these holding losses.

Although this approach is theoretically appealing (and is employed by the gas and electricity regulatory body, Ofgem, in the UK and other regulators), it is not without its problems. If the business is not listed, one of the previous methods will need to be applied to generate the initial value of the assets. If the business is listed but as an integrated part of a much larger gas or gas and oil business (as PetroChina’s transmission activities are), it may be difficult to assign an appropriate portion of the total market capitalization to the transmission business. It is also difficult to decide when (and at what share price) the market capitalization should be quantified to generate the initial asset value for regulatory purposes.

### 3.2.3 Selection of Valuation Option

There are two issues that need to be resolved when selecting the approach to determining the net asset value for regulatory purposes. The first is setting the initial value and the second is determining how this initial value should be changed over time. In a sense, the second issue is of less concern at this stage. If an initial net asset value is established the application of each option to determine the change over time will generate its own stream of capital charges (depreciation and return on net asset value (RoNA)) and each stream will have a different profile. If consistent estimates of the cost of capital are employed and a common invest-

ment recovery period is used, the Present Value of each stream will be identical to the initial net asset value. The change in value and the profile of capital charges are discussed further below in relation to depreciation and the cost of capital.

It is frequently contended that the asset valuation used for regulatory purposes should not deviate from the technique employed by the business for financial reporting. It may be convenient if both methods are the same, but there is no reason why the basis for a separate set of regulatory accounts should be the same as that for financial reporting. Once there is a transparent audit trail between both sets, it should not pose a problem. Even in North America, where both the regulators and the regulated businesses use historic costs, respectively, for regulatory purposes and for financial reporting, the treatment of costs and expenditures varies and, in most cases, requires the maintenance of a separate set of regulatory accounts.

For the WEP setting the initial net asset value should be straightforward as it will be the cost of construction that is transferred from work-in-progress once the pipeline is commissioned and begins operation. For existing pipeline systems, the task will not be as simple and will require detailed analysis, based on the information and data available, on a case-by-case basis. However, the over-riding objective must be to ensure that the valuation selected generates capital charges that reflect the economic cost of providing transmission service. It will also be important to ensure that consistency in the treatment of valuation is maintained. When differences in the application of the valuation method arise, they should be transparent and defensible.

### **3.3 Derivation of the Cost Base**

#### **3.3.1 Depreciation Policy**

Depreciation is variously treated as the charge against profit that re-

covers the cost of investment over time, as a measure of the wear and tear of a capital asset and as a means of accumulating funds internally to refurbish or replace assets. It should be viewed only in terms of investment recovery. The wear and tear of a capital asset is a technical and engineering matter and is only related to the decision to invest or to continue investing by the expected technical lifetime. The decision to refurbish or replace assets should ultimately be made by the owners of the business.

In relation to depreciation two questions need answers: Over what period should the initial investment be recovered? And what method should be used to calculate the annual depreciation charge?

### ***Depreciation Period***

For specific assets the technical or physical asset life sets the upper bound on the investment recovery period. The economic life may be shorter as this is the period over which the services provided by the asset will continue to generate the full economic value. However, different investors and providers of finance will have their own views on what the investment recovery period should be. For example, banks will seek to minimize their exposure by recovering their funds as quickly as possible. Shareholders may be prepared to postpone investment recovery provided they can manage the risk of under-recovery and be rewarded appropriately for the risk they cannot transfer to others.

Since the WEP will be the spine of a transmission that has significant potential for development, there is strong case for setting the investment recovery period in relation to its technical lifetime. This may be or the order of 40 years or more, depending on the design tests that are conducted. Of course, the different types of assets that comprise a pipeline system will have different technical lifetimes. For example, plant with moving parts, such as compressors, will have shorter lifetimes than pipelines. Each asset will be depreciated at its own rate and the average depreciation period may be calculated ex post.

### ***Depreciation Method***

Straight – line depreciation has emerged as the most common method for depreciating long life assets, regardless of whether original or current cost valuation standards are used. Once the depreciation period for an asset has been decided, the annual depreciation charge is equal to the initial value divided by the depreciation period. When a current cost valuation method is used, the initial asset value, the annual depreciation charge and the accumulated depreciation are revalued continuously using the chosen price indices. At the end of the period, the total accumulated depreciation will equal the inflated (or re – valued) initial asset value.

The calculation of depreciation allowances for taxation purposes may differ from the application of this method. This will impact the preparation of accounts for financial reporting purposes, but it does not prevent the application of straight – line depreciation in the regulatory accounts. It does, however, require a specific calculation to estimate the actual marginal tax rate for the regulated business when an estimate is made of the pre – tax cost of capital.

The principal alternative to straight – line depreciation is “ economic depreciation.” The objective of this method is to reproduce the price pattern that would prevail in equilibrium in a competitive market, i.e., prices would stay constant in real terms. The depreciation allowed under the “economic depreciation” methodology is derived implicitly. A constant real stream of capital charges that will recover the investment and generate the required return on investment is first derived. The annual return on investment is then subtracted from the desired total annual capital charges to derive the annual depreciation charge.

Economic depreciation has a number of advantages that include the following:

- If the methodology is designed to track inflation in pipeline construction costs over time, then it has the merit of producing

charges that should not vary significantly between old and new pipelines; and

- It can be designed to produce stable charges even as throughput changes over time. For example, if low volume is anticipated in the first few years of a pipeline's life, then the economic depreciation method can be designed to ensure that those volumes do not pay higher tariffs. Rather, the method can ensure that charges per unit volume remain steady in inflation – adjusted terms over time, by postponing a portion of capital recovery until higher volumes materialize. Prices in competitive markets behave similarly.

However, the profile of depreciation should not be considered in isolation. The focus should be on the profile of annual capital charges which includes depreciation and the return on investment. This leads to consideration of the cost of capital which provides the basis for determining the appropriate return on investment.

### 3.3.2 Cost of Capital

Most regulatory commissions are required to allow the businesses subject to regulation a “reasonable rate of return” on their assets. For natural gas, a reasonable rate of return can be defined as the risk – adjusted return that suppliers of funds require the business to provide, given the risks imposed by both the inherent nature of the transmission sector and the regulatory commission process itself. This allowed rate of return is more commonly called the cost of capital.

Generally speaking, the riskier the business, the higher the cost of capital, because suppliers of funds will require a higher return to compensate them for bearing greater risk. Maintaining an expected allowed return on capital in line with the cost of capital is the primary determinant of the business' financial viability.

Since most businesses are financed with a combination of debt and

equity, the relevant measure of the cost of capital is the weighted average of the cost of debt and the cost of equity, where the weights reflect the business's level of gearing.

### ***The Cost of Debt***

The cost of debt to a regulated business can generally be thought of as the sum of the following:

- The real pretax return required by investors in risk free investments, such as government bonds plus
- A margin over the risk – free rate at which debt can be obtained by the business in question, which will reflect the credit rating of the business.

The main contentious issue here is the maturity of the risk – free asset. On one hand, it is possible to contend that the maturity should reflect the useful life of the assets in the business, which in transmission could be of the order of 40 years or more. It can be argued that it is appropriate to match the cost of investing in the asset with its productive life to determine an appropriate revenue stream that will service this cost in a manner consistent with the revenue generated by the asset.

On the other hand, it is equally possible to argue that it should be short (typically 3 – 5 years) so as to be consistent with the likely length of period between re – determinations of the control of the level of tariff by the regulator.

### ***The Cost of Equity***

A number of alternative approaches to estimating the pretax cost of equity, more or less in order of increasing sophistication, can be used:

- Comparative returns in “equal risk” industries, nationally or internationally. One difficulty in using comparative returns is allowing for differences in the cost of capital as a result of different risk factors, such as regulatory commission environments. Longer – term trends in the returns to industry generally, at

the national or international level, may be useful as an indication of the magnitude of the real cost of capital, even if the adjustment for the specific industry risk factors is more judgmental.

- The Dividend Growth Model (DGM) based on expectations for future dividends. The method is popular among regulatory commissions in the United States, but it suffers from the lack of a dividend payment history in recently listed firms. It is also ruled out where subsidiaries of the parent company are also customers of the regulated business.
- The Capital Asset Pricing Model (CAPM) calculates the required rate of return, given the opportunity cost of investing in the equity market, the volatility of the market itself, and the systematic risk of holding equity in the particular company. This is the current “conventional wisdom” approach to estimating the cost of capital in Australia and the United Kingdom, where regulatory commissions have tended to favor the CAPM methodology, at least as a conceptual framework. Even if the methodology can be agreed in principle, approaches to estimating key parameters can be contentious. The relationship between past evidence and the future is debatable: the cost of capital is the expected return required to attract capital in future. Historic values of key parameters may not reflect future values if the nature of risks is changing. Aspects of risk, such as regulatory commission risk, can also be hard to incorporate in CAPM framework for the cost of capital, except in a tautological manner.

Although determining the cost of equity is quantitatively one of the most significant decisions affecting transmission tariffs in the longer term, it is also one of the most difficult areas for objective quantification.



### ***Taxation***

The post-tax weighted average cost of capital (WACC) is the return necessary for investors to have sufficient incentive to invest in the business. To finance the post-tax WACC and tax liabilities, a business must earn a pretax rate of return. The difference between the two is the tax wedge. The size of the tax wedge is a function of the rules governing the taxation of business profits and the specific tax position of each business. It is a relatively simple matter to estimate the tax wedge from a description of the tax system in the law (the statutory tax wedge). A business' actual tax payments liabilities (the effective tax wedge), however, will reflect a number of other factors, such as the availability of capital allowances.

Regulators tend to favor an estimation of actual tax payments based on financial modeling of the expected cash flows of the business and this may be most appropriate approach for the WEP.

### ***Gearing***

The ratio of debt to equity will determine the weights attributed to the return on equity and the cost of debt when deriving the WACC. Regulators focus on the return to allow on the assets in the regulatory asset base, rather than the returns to individual stakeholders in that business. As a result, they have a limited role to play in deciding the allocation of the allowed return between equity holders and debt holders or the structure of the business' balance sheet.

Nevertheless, regulators must aim to allow the regulated business only the required cost of finance. If the structure of financing is non-optimal, so that the cost of capital is raised, the extra cost might be disregarded. Consequently, regulators seek to estimate the cost of capital on the assumption of an efficient or "optimal" level of gearing. Regulated businesses have an incentive to reduce the debt-to-equity ratio prior to the regulator's determination of the WACC. This gives them the oppor-

tunity to raise the ratio subsequently and increase the return to shareholders. Regulators can counter this by requiring the regulated business to maintain a specific investment grade credit - rating.

### 3.3.3 Operating Expenditures

An objective of any regulatory regime is to provide the regulated businesses with incentives to operate efficiently. It will be necessary for the WEP and allow transmission businesses to demonstrate that they are operating, and will operate, efficiently. In general, regulators need to examine the variances between the forecast and actual operating and maintenance expenditure for the regulated business, and develop rules on how these variances should be treated.

These variances could result from the following:

- Price effects, which may be caused by unanticipated movements in the price index used in forecasting investment or efficiency gains (that is, the business purchasing more cheaply than the price index would imply).
- Volume differences, to the extent that, say, demand has not grown as anticipated, such that investment has been higher or lower than forecast.
- Failure to meet agreed quality standards, which may invoke penalties. For example, actual investment may be lower than forecast, but at the expense of a deterioration in the quality of service.
- Efficiency gains, which may be rewarded, from a lower volume of investment to achieve the same quality and output as forecast.

The analysis of cost relationships, however, in particular the relationship between operating and maintenance expenditure and quality, is a difficult and relatively novel area of regulatory practice. Few regulators have attempted to distinguish between the different causes of variances of

actual from forecast operating expenditure. Regulators have instead either set operating expenditure allowances at actual levels when making a determination (thereby eliminating the variances at a stroke), or they have phased out the whole variance over a period.

In deciding how far to pursue this analysis, most regulators tend to weigh up the possible benefits, and the probability that useful results will be gained, against the likely costs. One approach is to base the allowance for operating costs on a level of efficient costs, rather than on the businesses' actual or forecast level of costs (which may include inefficient expenditure) . This raises the question of what level of operating costs could an efficient business achieve. There are at least two ways in which this could be resolved.

The first is to make comparisons with similar regulated businesses in similar countries and to set a target path for the business that envisages it moving toward that target at a demanding, but achievable, rate. Using benchmarking to set allowable revenues would give the business a powerful incentive to become efficient, but determining benchmarks of the type required for setting the operating cost element of transmission and distribution businesses is not without its problems. In many countries, there are a number of gas transmission entities against which to compare a particular operator. If that is not the case, international comparisons may need to be developed. This may not be straightforward, however, because it will be difficult to make appropriate allowances in any such exercise for all the factors affecting the level of the business' s controllable operating costs. These factors include population density, size of network, age of network, weather, nature of terrain, and differences in quality of service.

In addition, benchmarking compels the regulated business to operate along an efficient cost frontier which may be based on questionable and subjective assessments of comparators' costs. Regulated businesses will

have an incentive to improve efficiency if they can retain any efficiency gains in excess of those determined by the regulator. The total efficiency gains are shared between the transmission business and its customers. If the regulator sets these efficiency gains at its view of the maximum efficiency gains that can be achieved, the incentive property is lost and efficient businesses may not be able to recover their costs.

An alternative to benchmarking that is considered by some regulators is to project future operating costs using objective and stable measures of efficiency trends, such as industry – or economy – wide measures of annual gains in labor and capital productivity, as a means of setting the future trend of the businesses' operating costs. This has the potential advantage of being less contentious than attempting to use suitably adjusted information on comparators' efficiency levels. It would be inappropriate, however, for businesses that are currently performing particularly badly, since the target path for operating costs would by definition include existing (large) inefficiencies.

### **3.4 Projecting the Cost Base (or Revenue Requirement)**

The gas transmission businesses in China will need to develop cost base projections for a number of years. This will allow for a degree of stability in the tariffs and assurance of cost recovery. It is to be expected that there will be some form of regulatory intervention in the future investments and operating expenditures that will be allowed. One of the principal factors impacting on the projection of the cost base will be the profile of annual capital charges allowed by the regulator. Figure 3.2 presents selected profiles in nominal or Money – of – the – Day terms for an asset whose cost is recovered over 40 years.

Four profiles are presented:

- Constant Real – based on an “economic depreciation” profile;
- Current Cost – based on Financial Capital Maintenance;

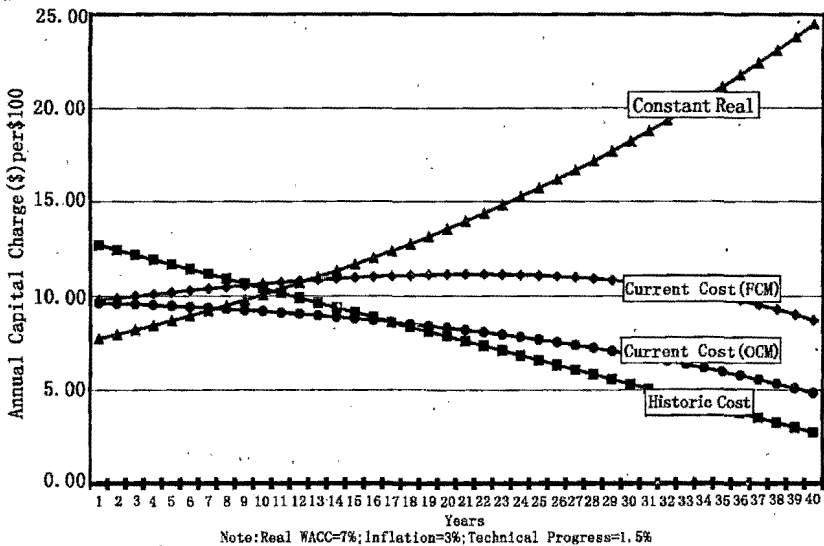


Fig.3.2 Selected Profiles of Annual Capital Charges

- Current Cost – based on Operating Capability Maintenance; and
- Historic Cost.

These profiles are presented for a single asset where there is agreement on the initial valuation. For the purposes of comparison it is assumed that the real pre-tax Weighted Average Cost of Capital is 7% and that general inflation (measured, for example by percentage changes in the Consumer Price Index (CPI)) is 3% a year. The Historic Cost profile starts at the highest level of all the profiles compared and falls linearly; the Current Cost FCM profile remains relatively stable. It increases initially and then slowly declines, averaging a little over 10% of the initial investment. The Constant Real profile starts at the lowest level and increases continuously in step with the assumed inflation rate. All three of these profiles, when discounted by the nominal pre-tax

WACC, generate identical Present Values (PVs) . The Current Cost OCM profile progresses over time below the Current Cost FCM profile with an ever – widening gap. This profile assumes technical progress at the rate of 1.5% a year and this is factored into the revaluation of the asset. The result shows the “holding losses” that will be incurred by investors as the gap between the FCM and OCM profiles. As a result, the profile does not recover these holding losses and its PV is below that of the other three profiles.

When these profiles are derived for a number of assets commissioned at different points in time, the aggregated profiles will not demonstrate the stark differences seen in Fig. 5.2 and, on occasion, the aggregated profiles will be quite close. The idea of aggregated profiles is a reasonable representation of a transmission business where investments are made sequentially to maintain and expand the provision of transmission services. This implies that, in a similar manner to the choice of the method for the initial asset valuation, the selection of the appropriate profile for capital charges will require detailed analysis of the data and information available.

For the purposes of this analysis, it is proposed to apply a constant real tariff based on the real project rate of return (assumed by PetroChina) . This is designed to recover the capital and operating expenditures over the 24 – year project evaluation period set by PetroChina. Given the data provided on the debt service requirements, it is assumed that the investors will be content with the residual rate of return and profile of return.<sup>①</sup> Net fixed assets and annual depreciation charges are derived using FCM for the asset lifetimes assumed by PetroChina. This generates a specific profile for capital charges.

---

① The potential inadequacy of this approach is recognized and its use at this stage is justified by the lack of key data and parameters. In using this methodology, limited access to transmission providers in China need to take into account investors' justified requirements.

This provides an initial, if not entirely adequate, basis to consider the application of regulatory control of tariffs even if the CPI - X incentive form of tariff control is recommended. The simple initial tariff mechanism proposed assumes that X is equal to zero and it is possible that a regulator would be content with this approach until such time as the level of capacity utilization associated with the initial investment was achieved. <sup>①</sup> Thereafter, or, if the circumstances require it, prior to this, the regulator will be in a position to determine positive values for X.

#### 3.4.1 Connections Costs

Connection charges are levied on new consumers and provide an additional source of revenue to transmission businesses. This needs to be taken into account when deriving the revenue recovery requirement. While connection to the transmission system is a monopoly activity, it will be subject to regulation <sup>②</sup> and the costs recovered through connection charges must be netted off the asset base for the purposes of setting gas transmission tariffs.

An important issue is determining which costs are to be recovered through the connection charges:

- charging on a 'shallow' basis recovers just the direct and local costs (the costs of the service pipe, meter etc.) of connecting a new consumer
- charging on a 'deep' basis would also recover the additional costs imposed elsewhere on the system in terms of system reinforcement etc.

Transmission businesses tend to prefer deep charging (or the option of imposing a deep charge) since it reduces their risk by ensuring that the

---

<sup>①</sup> This approach is being considered by the CRE, the energy regulator in Mexico.

<sup>②</sup> However connections can be a competitive activity and when this is established regulation may not be required.

actual costs incurred can be recovered. It can additionally be used as a barrier to new access that will result in a reduced market share for its-associated supply business. However, except for very large consumers, the costs associated with identifying the additional investment requirements imposed on the system as a whole by a new connection, and the negligible impact of most small consumers, means that the use of deep charging is not cost-effective. The identification of applicable costs is also difficult since the deeper into the network, the more likely the costs are to be joint and common costs between many consumers. With deep charging there is a lack of transparency and risk of unfair cost allocation. For these reasons, it is proposed to use shallow charging and to recover any system reinforcement costs from all users of the transmission system.<sup>①</sup> This approach is applied in all countries which require the provision of an unbundled transmission service.

#### 3.4.2 Total Cost Base

It is important to note that separate cost bases will need to be developed for transmission and storage, even if the activities are integrated.

### 3.5 Classification and Allocation of Costs

Establishing the cost base sets the level of tariffs. Determining the structure of tariffs begins with two related steps – classifying and allocating the cost base.

#### 3.5.1 Cost Classification

The total cost base for each function is composed of costs that are determined to be either fixed or variable. Fixed costs are defined as costs and expenses that remain constant regardless of volume or throughput. Fixed costs remain essentially constant over the relatively short term.

---

<sup>①</sup> This approach may need to be reviewed in relation to very large users such as power stations.



These costs include labor expenses, overheads and capital – related costs such as plant investment, depreciation, accruals, return on investment and associated income taxes. These latter three elements (depreciation, return and corporate taxes) make up the preponderance of fixed costs. These costs are typically referred to as “capacity related” costs because of their obvious direct relation with a transmission company’ s capacity to provide service. Variable costs change essentially in direct proportion to facilities use or capacity utilization. These costs are basically related to compression or compressor station activity.

Classification is the source of good tariff design. Separating costs in the process of classification allows the design of tariffs that are both more economically efficient and safer financially than tariffs that contain no such distinction. Prices with more than one component – particularly with an “up – front” component – are common in competitive markets as a way of better matching the cost of providing certain services with the price. Classification is a formal way of doing the same thing with transmission tariffs – matching the structure of tariffs with the structure of costs.

### 3.5.2 Allocating Costs

The next step involves the allocation of fixed and variable costs to the capacity and commodity charges.

Costs are allocated to categories of shippers according to capacity utilization by such categories, based on economic and equity criteria. This is a critical step in the determination of the final tariff paid by shippers with varying load factor characteristics. The proportion of fixed and variable costs which are allocated to the capacity and commodity charge is a function of the tariff design.

Allocation is the process whereby an attempt is made to match the characteristics of shipper use of the transportation systems with the types of costs that must be incurred to serve them. Allocation directs costs to

users who should pay them. It is, in other words, the central core of the effort to present shippers with the cost consequences of their capacity utilization decisions.

### 3.5.3 Equitability v. Efficiency in Classification and Allocation

The classification and allocation of costs has been the subject of ongoing controversy and modification in North America for almost 50 years from the early 1940s to the 1990s. The cost of service basis of tariff design and regulation ensured that this remained a focus of concern for gas market participants and regulators both when transmission and supply were bundled and later, in the mid 1980s, when transmission and supply were beginning to be unbundled.

The debate has often been couched in terms of equitability versus efficiency. To illustrate this terminology two of the important concerns of gas market participants are presented in Figure 3.3.

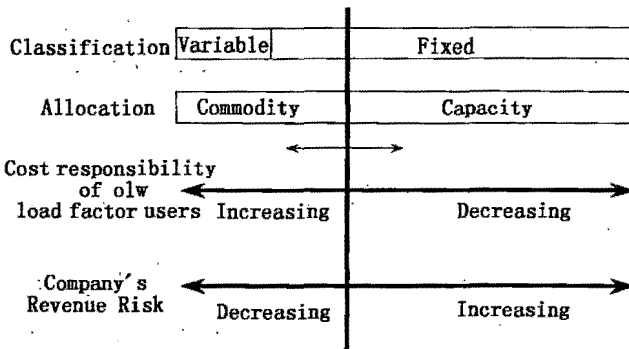


Fig.3.3 Classification & Allocation of Costs

The first horizontal bar presents a typical classification of costs for a transmission system. In general, the variable portion of total costs is of the order of 5 – 10%. On some systems it may be even lower. The second horizontal bar presents the allocation of these costs between commod-

ity and capacity costs. This is the essence of a two – part tariff where commodity costs are recovered in a usage (or volumetric or energy) tariff expressed, for example, in RMB/cubic meter or in RMB/GigaJoule. Capacity costs are recovered in a reservation (or capacity or demand) tariff expressed in RMB/peak day (or peak hour) cubic meter/month or RMB/peak day (or peak hour) GigaJoule/month.

The vertical line indicates the allocation between commodity and capacity costs. Its initial position shows that, in addition to the variable costs, a portion of fixed costs is being allocated to the commodity costs. The vertical line may be moved to the left or to the right. If it is moved completely to the right, the result will be a one – part usage tariff. This, in general, is the current approach in China where prices and fees are expressed in RMB/cubic meter. This is at the “equitability” extreme where there is no difference in the amount paid per cubic meter by gas shippers regardless of the timing of gas deliveries at the off – takes of the transmission system or the costs incurred to ensure delivery at that time.

The “efficiency” extreme occurs when the vertical line is moved to the left until the capacity/commodity allocation coincides with the fixed/variable classification. This generates the Straight Fixed Variable (SFV) approach to tariff design. This approach was mandated in Order 636 of 1992 by the US FERC (except in circumstances where it could be demonstrated that its application distorted tariffs) . The term SFV describes the method precisely. Fixed costs are allocated “straight” to capacity; variable costs are allocated “straight” to commodity.

The efficiency argument is that transmission capacity is provided to meet peak demand. Low load factor shippers (such as UGDCs or their suppliers) contribute proportionately more to this peak demand than other shippers such as large volume industrial consumers and power generators (or their suppliers) . Fixed costs are incurred to provide (and to maintain the provision of) transmission capacity. Consequently, low load

factor shippers should contribute proportionately more to the recovery of these fixed costs than other (higher load factor) shippers. The SFV method seeks to allocate the fixed and variable costs to ensure that the cost responsibility of shippers is proportional to the costs they cause the transmission company to incur in providing them service. This is efficient in that discourages wasteful consumption by low load factor consumers and the resulting increased demand for transmission capacity. It also promotes allocative efficiency in that UGDCs who offer an almost guarantee of supply to their customers should value transmission capacity at times of peak demand more highly than other shippers.

This is also illustrated in Figure 3.3. When the vertical line is moved to the left the cost responsibility of low load factor shippers increases. When it is moved to the right it decreases and higher load factor shippers subsidize the low load factor shippers. The transmission company is also exposed to greater revenue risk when the vertical line is moved to the right. The lower the proportion of costs that is recovered in a fixed capacity or reservation charge the greater is the company's exposure to variations in volume. This issue varies in importance with the form of tariff or regulatory control applied by the regulator and this is discussed further in the next chapter.

#### 3.5.4 Resolving the Equitability v. Efficiency Debate

Two approaches have been applied to resolve this debate. The first emerged during the transition to market opening in the developed market economies; the second has emerged during the process of consolidating market opening.

##### *Transition to Market Opening*

Any resolution of the "equitability v. efficiency" debate during the transition tended to be reduce to a consideration of the cost responsibility that should be allocated to low lead factor shippers. Allocating the cost responsibility using the SFV method meets efficiency criteria, but it is

not completely equitable. If fixed costs are allocated to capacity and these fixed costs are related to the peak availability of transmission capacity, low load factor shippers will contribute to fixed cost recovery broadly in proportion to the share of available transmission capacity they use at peak. However, the transmission company will have the opportunity to use this capacity off – peak (when the low factor shippers do not require it) to enhance or extend its transmission service to other shippers or to offer an interruptible transmission service. See Section 1.5.4 above.

In the absence of a formal capacity release or similar arrangement that would compensate the low load factor shippers for the off – peak use of their firm capacity it is possible to allocate a portion of fixed costs to commodity. This moves the typical SFV capacity/commodity split from 90: 10 towards a 70: 30 or a 65: 35 ratio.<sup>①</sup> There is a strong case in favor of not applying SFV immediately and, thereby, including some measure of compensation for low load factor shippers. However, it is not easy to identify the appropriate split. During the transition period it may be appropriate to set the ratio initially at 65: 35 and move it progressively over time to a ratio that corresponds to SFV.

### ***Consolidation of Market Opening***

Once firm transmission capacity rights have been allocated to shippers and these rights can be traded in a liquid secondary market, the equitability v. efficiency debate evaporates. Low load factor shippers can trade their firm rights in the secondary market and receive an appropriate market – based compensation for the use of these rights. In addition,

---

① The cost allocation debate has also taken place in Britain and the rest of Europe, but not with the same degree of intensity. British Gas' Transportation & Storage business unit (BGT&S) ignored classification and opted for a compromise 50: 50 capacity/commodity split in the early 1990s. For transmission this is being progressively moved through 65: 35 to an eventual 90: 10 ratio. Ireland has opted for a 90: 10 ratio, while France, Belgium, Luxembourg, the Netherlands and Germany have decided to recover all costs (both fixed and variable) in a 100% capacity charge.

shippers, over time, will attempt to diversify their portfolios of customers to achieve the demand load factor they wish to manage. This implies that the SFV method can be applied as any concerns about the use of firm capacity reserved by low load factor shippers in off – peak periods will not arise.

The use of the SFV method provides the basis for a further development of the role of the transmission business. Section 1.5 above outlined a further unbundling of the transmission business into a Transmission Provider (TP) and a Transmission System Operator (TSO) . The TP would provide and maintain transmission capacity and recover the regulated fixed costs of these activities in 100% capacity tariffs. The TSO would operate the transmission system and recover the variable costs of operation under incentive – based regulation.

For the existing transmission systems in China, these developments will take some time, but it is prudent to attempt to envisage the future commercial and regulatory arrangements when designing the initial level and structure of transmission tariffs.

### **3.6 Tariff Design**

The classification and allocation of costs to capacity and commodity components provides the basis for designing a two – part tariff – a charge for the transmission capacity reserved and a charge for the use during the year of this capacity.

Numerous tariff design options may be considered but four specific systems are commonly used:

- Postage – stamp;
- Path – based;
- Zonal; and
- Entry – Exit.

Each of these systems is considered in relation to the transmission

pricing in China. Some comments are made about their applicability to existing transmission systems.

### 3.6.1 Postage Stamp

Under a pure postage – stamp system all transactions would be levied the same transmission tariff, regardless of the points of input and off – take. The postage stamp charge is designed to recover the average costs of using the transmission system. For natural gas transmission, a common variant on the “pure” postage – stamp system would involve a fixed capacity charge that is independent of the points of input and off – take, plus a commodity charge that covers the variable costs of transmission. The commodity charge, by definition, is not independent of the points of input and off – take. For complex, meshed systems where the distance traveled by gas is either not significant or difficult to establish with any degree of certainty, the postage stamp approach may be appropriate. However, for long – line systems such as WEP, where distance traveled is reasonably expected to be a significant determinant of cost, it is difficult to argue convincingly in favor of a postage – stamp system.

### 3.6.2 Path – Based

By “path – based” is meant a system that involves different tariffs for different contract paths. This approach generates a matrix of different tariffs depending on both the input and off – take points of the gas, as shown in Figure 3.4.

One obvious example of a path – based system is the use of distance – based tariffs. This approach is illustrated in Figs. 3.5, 3.6 and 3.7.

For a transmission system with multiple input and off – take points, it is assumed that a proportion (up to 100%) of the allocated capacity costs may be recovered in distance – related capacity tariffs. Since capacity may be related gas flows at peak, a peak volume flow matrix is constructed (Figure 3.5) .

		Inputs ( $\times 10^6 \text{ m}^3$ )			
		$I_1$	$I_2$	...	$I_n$
Offtakes ( $\times 10^6 \text{ m}^3$ )	$O_1$	$T_{11}$	$T_{12}$	...	$T_{1n}$
	$O_2$	$T_{21}$	$T_{22}$	...	$T_{2n}$
	.	.	.	$T_{ij}$	.
	.	.	.		.
	$O_n$	$T_{n1}$	$T_{n2}$	...	$T_{nn}$

Note: Some of the  $T_{ij}$  will be zero, if gas does not flow between the specific input and off-take points

Fig. 3.4 Path-based Tariff Matrix

		Inputs ( $\times 10^6 \text{ m}^3$ )			
		$I_1$	$I_2$	...	$I_n$
Offtakes ( $\times 10^6 \text{ m}^3$ )	$O_1$	$PV_{11}$	$PV_{12}$	...	$PV_{1n}$
	$O_2$	$PV_{21}$	$PV_{22}$	...	$PV_{2n}$
	.	.	.	$PV_{ij}$	.
	.	.	.		.
	$O_n$	$PV_{n1}$	$PV_{n2}$	...	$PV_{nn}$

Note: Some of the  $PV_{ij}$  will be zero, if gas does not flow between the specific input and off-take points

Fig. 3.5 Peak Volume Flow Matrix

A corresponding peak distance matrix is constructed (Figure 3.6). Multiplying the corresponding elements in each of these matrices yields the volume-distance matrix (Figure 3.7).

Dividing the distance-related capacity cost by generates an estimate of the distance-related capacity tariff in RMB/Peak Day Cubic Meter/km/year. When this is applied to the peak distance matrix it will gener-



		Inputs Points			
km		I <sub>1</sub>	I <sub>2</sub>	...	I <sub>n</sub>
Offtakes	O <sub>1</sub>	DPV <sub>11</sub>	DPV <sub>12</sub>	...	DPV <sub>1n</sub>
	O <sub>2</sub>	DPV <sub>21</sub>	DPV <sub>22</sub>	...	DPV <sub>2n</sub>
	.	.	.		.
	.	.	.	DPV <sub>ij</sub>	.
	O <sub>n</sub>	DPV <sub>n1</sub>	DPV <sub>n2</sub>	...	DPV <sub>nn</sub>

Note: Some of the DPV<sub>ij</sub> will be zero, if gas does not flow between the specific input and off-take points

Fig.3.6 Distance Travelled by Peak Volumes

		Inputs Points			
km		I <sub>1</sub>	I <sub>2</sub>	...	I <sub>n</sub>
Offtakes	O <sub>1</sub>	DPV <sub>11</sub> xPV <sub>11</sub>	DPV <sub>12</sub> xPV <sub>12</sub>	...	DPV <sub>1n</sub> xPV <sub>1n</sub>
	O <sub>2</sub>	DPV <sub>21</sub> xPV <sub>21</sub>	DPV <sub>22</sub> xPV <sub>22</sub>	...	DPV <sub>2n</sub> xPV <sub>2n</sub>
	.	.	.		.
	.	.	.	DPV <sub>ij</sub> xPV <sub>ij</sub>	.
	O <sub>n</sub>	DPV <sub>n1</sub> xPV <sub>n1</sub>	DPV <sub>n2</sub> xPV <sub>n2</sub>	...	DPV <sub>nn</sub> xPV <sub>nn</sub>

Fig.3.7 Distance - Peak Volume Matrix

ate a matrix of capacity tariffs for each path in RMB/ Peak Day Cubic Meter/Year similar to the matrix presented in Figure 3.4.

A similar exercise may be conducted with the annual volumes to distribute the portion of distance - related commodity costs into distance - related commodity tariffs for each path between input and off - take points (expressed in RMB/Cubic Meter) .

This approach may be applied on a forward - looking basis to generate tariffs for a number of years ahead. This will enhance its inherent cost

– reflective nature. It also has the advantage of automatically promoting efficient physical flows without the need for “swaps.” Although a path – based system has desirable theoretical properties, it may not always be practical to implement. The fundamental trade – off between a path – based system and other types is one between theoretical economic efficiency and the demands of simplicity and flexibility.

For example, a pure path – based system requires intensive calculation, is vulnerable to unanticipated changes in the pattern of inputs or off – takes and may lead to complicated tariffs. In addition, the focus on specific paths restricts flexibility between input and off – take points. This is a feature much desired by shippers. Furthermore, it may reduce the ability to trade capacity thereby reducing the potential liquidity of a secondary market in transmission capacity. Finally, and related to this, its superiority in terms of cost – reflectivity is not absolute as congestion costs are not adequately accounted for. A liquid secondary market is the most effective means of revealing these costs and of dealing with them.

As a result, less complicated systems are advanced that attempt to strike a different trade – off between theoretical efficiency and practical concerns. One example is the system of zonal tariffs.

### 3.6.3 Zonal Tariffs

The term “zonal tariffs” is used to describe a system where tariffs differ for transactions that cross specific geographic zones, but are uniform to all transactions within a zone. In relation to Figs. 3.4 to 3.7 above, it involves grouping adjacent input and off – take points into zones. In a sense this is a hybrid of distance – related tariffs between zones and postage stamp within zones. From the economic perspective, it is unlikely that a “pure” path – based system, where tariffs depend on the exact combination of entry and exit points, has any significant advantage over a zonal system with enough zones defined to capture the key cost determinants. Any reduction in cost reflectivity is more than com-

compensated for by a degree of flexibility in input and off – take points, by the potential to develop a liquid secondary market in transmission capacity and by increased simplicity and predictability.

#### 3.6.4 Entry/Exit Pricing

An “entry/exit” charging system imposes discrete tariffs for the use of each location where gas can be injected or withdrawn from the network. For a given entry (or input) point, the entry capacity tariff is a single number (expressed, for example, in RMB/Peak Day Cubic Meter . Year) that is independent of the intended or actual off – take point of the gas being injected. However, each entry point can have a different entry tariff. The same comment applies to exit capacity tariffs.

Entry – exit tariffs are derived from an approach that begins by estimating the cost of transporting gas from each input point to each off – take point in turn. These costs may be derived by examining the actual costs incurred during the most recent gas contract year or they may be derived on a forward – looking basis by estimating the Long Run Marginal Cost of transmission between each entry and exit point. <sup>①</sup>Unlike the path – based matrices described above, where zeroes appear when there are no direct flows of gas between specific input and off – take points, a transmission cost is estimated for all combinations of entry and exit points. This implies that delivery by displacement is taken into account.

Using a least squares regression techniques m entry tariffs and n exit tariffs are estimated that, when added, generate an estimate of the  $n \times m$  transmission cost matrix. However, in order to derive unique estimates, either one entry or exit charge must be determined in advance or an initial assumption must be made regarding the allocation between entry and exit costs.

---

① BG Transco employs the latter approach.

The pattern of entry and exit tariffs is determined by the initial assumption made to estimate a unique set of tariffs. This reduces its objectivity. The method, particularly as it is applied in Britain where it is combined with LRMC estimates, consumes a considerable amount of time and resources. By favoring flexibility of entry and exit and simplicity it loses a considerable degree of cost – reflectivity. In addition, it has been developed, in the UK,<sup>①</sup> in conjunction with the concept of a notional National Balancing Point (NBP) . On the day, day ahead and futures markets have been developed at this notional location. This has hindered the development of liquid spot gas markets at physical locations and the integration of the UK gas market with the emerging single European market.

In relation to the WEP and to the existing transmission systems in China this approach has little if anything to contribute. It is also unlikely that it would provide a valid method to design tariffs for existing systems.

### 3.6.5 Selection of Design Option

Of the four systems considered, the zonal tariff system emerges as the most appropriate for the WEP and for China. It is no surprise that this is the system most widely used for long distance transmission in North America. It strikes a sustainable trade – off between cost – reflectivity, on one hand, and simplicity, flexibility and predictability, on the other. It provides a realistic basis for designing interruptible transmission tariffs. More importantly, it may be developed to support the emergence of gas markets at specific locations on the transmission system and of a

---

① Similar ideas are being developed in the Netherlands and Italy which have adopted a variant of Entry – Exit.

secondary market in transmission capacity<sup>1</sup>.

## APPENDIX 1: PART 284 OF THE CODE OF FEDERAL REGULATIONS

### Subpart A – General Provisions and Conditions

#### § 284.1 Definitions.

(a) Transportation includes storage, exchange, backhaul, displacement, or other methods of transportation.

(b) Appropriate state regulatory agency means a state agency which regulates intrastate pipelines and local distribution companies within such state. When used in reference to rates and charges, the term includes only those agencies which set rates and charges on a cost – of – service basis.

(c) Market center means an area where gas purchases and sales occur at the intersection of different pipelines.

[44 FR 52184, Sept. 7, 1989, as amended by Order 636, 57 FR 13315, Apr. 16, 1992]

#### § 284.2 Refunds and interest.

(a) Refunds. Any rate or charge collected for any sale, transportation, or assignment conducted pursuant to this part which exceeds the rates or charges authorized by this part shall be re – funded.

(b) Interest. All refunds made pursuant to this section must include

---

<sup>1</sup> The requirement to design interruptible transmission tariffs will emerge when there is a reasonable assurance that sufficient firm capacity is reserved to ensure recovery of the costs of providing this firm transmission service.

interest at an amount determined in accordance with § 154.501. (d) of this chapter.

[44 FR 52184, Sept. 7, 1979, as amended at 44 FR 53505, Sept. 14, 1979; Order 273, 48 FR 1288; Jan. 12, 1983; Order 581, 60 FR 53072, Oct. 11, 1995]

### **§ 284.3 Jurisdiction under the Natural Gas Act.**

(a) For purposes of section 1 (b) of the Natural Gas Act, the provisions of such Act and the jurisdiction of the Commission under such Act shall not apply to any transportation or sale in interstate commerce of natural gas if such a transaction is authorized pursuant to section 311 or 312 of the NGPA.

(b) For purposes of the Natural Gas Act, the term "natural gas company" (as defined by section 2 (6) of such Act) shall not include any person by reason of, or with respect to, any transaction involving natural gas if the provisions of the Natural Gas Act do not apply to such transaction by reason of paragraph (a) of this section.

(c) The Natural Gas Act shall not apply to facilities utilized solely for transportation authorized by section 311 (a) of the NGPA.

[44 FR 52184, Sept. 7, 1979, as amended by Order 581, 60 FR 53072, Oct. 11, 1995]

### **§ 284.4 Reporting.**

(a) Reports in MMBtu. All reports filed pursuant to this part must indicate quantities of natural gas in MMBtu's. An MMBtu means a million British thermal units. A British thermal unit or Btu means the quantity of heat required to raise the temperature of one pound avoirdupois of pure water from 58.5 degrees to 59.5 degrees Fahrenheit, determined in accordance with paragraphs (b) and (c) of this section.

(b) Measurement. The Btu content of one cubic foot of natural gas under the standard conditions specified in paragraph (c) of this section is the number of Btu's produced by the complete combustion of such cubic

foot of gas, at constant pressure with air of the same temperature and pressure as the gas, when the products of combustion are cooled to the initial temperature of the gas and air and when the water formed by such combustion is condensed to a liquid state.

(c) Standard conditions. The standard conditions for purposes of paragraph (b) of this section are as follows: The gas is saturated with water vapor at 60 degrees Fahrenheit under a pressure equivalent to that of 30.00 inches of mercury at 32 degrees Fahrenheit, under standard gravitational force (980.665 centimeters per second squared).

[Order 581, 60 FR 53072, Oct. 11, 1995]

**§ 284.5 Further terms and conditions.**

The Commission may prospectively, by rule or order, impose such further terms and conditions as it deems appropriate on transactions authorized by this part.

**§ 284.6 Rate interpretations.**

(a) Procedure. A pipeline may obtain an interpretation pursuant to subpart L of part 385 of this chapter concerning whether particular rates and charges comply with the requirements of this part.

(b) Address. Requests for interpretations should be addressed to: FERC Part 284 Interpretations, Office of General

Counsel, Federal Energy Regulatory Commission, Washington, DC 20426.

[44 FR 66791, Nov. 21, 1979; 44 FR 75383, Dec. 20, 1979, as amended by Order 225, 47 FR 19058, May 3, 1982; Order 581, 60 FR 53072, Oct. 11, 1995]

**§ 284.7 Firm transportation service.**

(a) Firm transportation availability.

(1) An interstate pipeline that provides transportation service under subpart B

or G or this part must offer such transportation service on a firm ba-

sis and separately from any sales service.

(2) An intrastate pipeline that provides transportation service under Sub - part C may offer such transportation service on a firm basis.

(3) Service on a firm basis means that the service is not subject to a prior claim by another customer or another class of service and receives the same priority as any other class of firm service.

(4) An interstate pipeline that provided a firm sales service on May 18, 1992, and that offers transportation service on a firm basis under subpart B or G of this part, must offer a firm transportation service under which firm shippers may receive delivery up to their firm entitlements on a daily basis without penalty.

(b) Non - discriminatory access.

(1) An interstate pipeline or intrastate pipe - line that offers transportation service on a firm basis under subpart B, C or G must provide such service without undue discrimination, or preference, including undue discrimination or preference in the quality of service provided, the duration of service, the categories, prices, or volumes of natural gas to be transported, customer classification, or undue discrimination or preference of any kind.

(2) An interstate pipeline that offers transportation service on a firm basis under subpart B or G of this part must provide each service on a basis that is equal in quality for all gas supplies transported under that service, whether purchased from the pipeline or an - other seller.

(3) An interstate pipeline that offers transportation service on a firm basis under subpart B or G of this part may not include in its tariff any provision that inhibits the development of market centers.

(c) Reasonable operational conditions.

Consistent with paragraph (b) of this section, a pipeline may impose reasonable operational conditions on any service provided under this part.



Such conditions must be filed by the pipeline as part of its transportation tariff.

(d) Segmentation. An interstate pipe - line that offers transportation service under subpart B or G of this part must permit a shipper to make use of the firm capacity for which it has contracted by segmenting that capacity into separate parts for its own use or for the purpose of releasing that capacity to replacement shippers to the extent such segmentation is operationally feasible.

(e) Reservation fee. Where the customer purchases firm service, a pipe - line may impose a reservation fee or charge on a shipper as a condition for providing such service. Except for pipe - lines subject to subpart C of this part, if a reservation fee is charged, it must recover all fixed costs attributable to the firm transportation service, unless the Commission permits the pipeline to recover some of the fixed costs in the volumetric portion of a two - part rate. A reservation fee may not recover any variable costs or fixed costs not attributable to the firm transportation service. Except as provided in this paragraph, the pipeline may not include in a rate for any transportation provided under subpart B, C or G of this part any minimum bill or minimum take provision, or any other provision that has the effect of guaranteeing revenue.

(f) Limitation. A person providing service under Subpart B, C or G of this part is not required to provide any requested transportation service for which capacity is not available or that would require the construction or acquisition of any new facilities.

**Federal Energy Regulatory Commission § 284.8**

[Order 436, 50 FR 42493, Oct. 18, 1985]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 284.8, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

**§ 284.8 Release of firm capacity on interstate pipelines.**

(a) An interstate pipeline that offers transportation service on a firm basis under subpart B or G of this part must include in its tariff a mechanism for firm shippers to release firm capacity to the pipeline for resale by the pipeline on a firm basis under this section.

(b) Firm shippers must be permitted to release their capacity, in whole or in part, on a permanent or short-term basis, without restriction on the terms or conditions of the release. A firm shipper may arrange for a replacement shipper to obtain its released capacity from the pipeline. A replacement shipper is any shipper that obtains released capacity.

(c) Except as provided in paragraph (h) of this section, a firm shipper that wants to release any or all of its firm capacity must notify the pipeline of the terms and conditions under which the shipper will release its capacity. The firm shipper must also notify the pipeline of any replacement shipper designated to obtain the released capacity under the terms and conditions specified by the firm shipper.

(d) The pipeline must provide notice of offers to release or to purchase capacity, the terms and conditions of such offers, and the name of any replacement shipper designated in paragraph (b) of this section, on an Internet web site, for a reasonable period.

(e) The pipeline must allocate released capacity to the person offering the highest rate (not over the maximum rate) and offering to meet any other terms and conditions of the release. If more than one person offers the highest rate and meets the terms and conditions of the release, the released capacity may be allocated on a basis provided in the pipeline's tariff, provided however, if the replacement shipper designated in paragraph (b) of this section offers the highest rate, the capacity must be allocated to the designated replacement shipper.

(f) Unless otherwise agreed by the pipeline, the contract of the shipper releasing capacity will remain in full force and effect, with the net proceeds from any resale to a replacement shipper credited to the re-

leasing shipper's reservation charge.

(g) To the extent necessary, a firm shipper on an interstate pipeline that offers transportation service on a firm basis under subpart B or G of this part is granted a limited - jurisdiction blanket certificate of public convenience and necessity pursuant to section 7 of the Natural Gas Act solely for the purpose of releasing firm capacity pursuant to this section.

(h) (1) A release of capacity by a firm shipper to a replacement shipper for any period of 31 days or less, or for any term at the maximum tariff rate applicable to the release, need not comply with the notification and bidding requirements of paragraphs (c) through (e) of this section. A release under this paragraph may not exceed the maximum rate. Notice of a firm release under this paragraph must be provided on the pipeline's electronic bulletin board as soon as possible, but not later than forty - eight hours, after the release transaction commences.

(2) When a release under paragraph (h) (1) of this section is at less than the maximum tariff rate, a firm shipper may not roll - over, extend, or in any way continue the release at less than the maximum tariff rate without complying with the requirements of paragraphs (c) through (e) of this section, and may not re - release to the same replacement shipper under this paragraph at less than the maximum tariff rate until twenty - eight days after the first release period has ended.

(i) Waiver of maximum rate ceiling.

Until September 30, 2002, the maximum rate ceiling does not apply to capacity release transactions of less than one year. The provision of paragraph (h) (1) of this section providing an exemption from the posting and bidding requirements for transactions at the applicable maximum tariff rate for pipeline services will not apply as long as the waiver of the rate ceiling is in effect. With respect to releases of 31 days or less under paragraph (h) of this section, the requirements of paragraph (h) (2) of this section will apply to all such re - leases regardless of the rate

charged.

[Order 636, 57 FR 13318, Apr. 16, 1992, as amended by Order 636 – A, 57 FR 36217, Aug. 12, 1992; Order 577, 60 FR 16983, Apr. 4, 1995; Order 577 – A, 60 FR 30187, June 8, 1995. Redesignated and amended by Order 637, 65 FR 10220, Feb. 25, 2000; Order 637 – A, 65 FR 35765, June 5, 2000]

**§ 284.9 Interruptible transportation service.**

(a) Interruptible transportation availability.

(1) An interstate pipeline that provides firm transportation service under subpart B or G of this part must also offer transportation service on an interruptible basis under that subpart or subparts and separately from any sales service.

(2) An intrastate pipeline that provides transportation service under Sub – part C may offer such transportation service on an interruptible basis.

(3) Service on an interruptible basis means that the capacity used to provide the service is subject to a prior claim by another customer or another class of service and receives a lower priority than such other classes of service.

(b) The provisions regarding non – discriminatory access, reasonable operational conditions, and limitations contained in § 284.7 (b), (c), and (f) apply to pipelines providing interruptible service under this section.

(c) Reservation fee. No reservation fee may be imposed for interruptible service. A pipeline's rate for any transportation service provided under this section may not include any minimum bill provision, minimum take provision, or any other provision that has the effect of guaranteeing revenue.

[Order 436, 50 FR 42494, Oct. 18, 1985]

EDITORIAL NOTE: For FEDERAL REGISTER citations affect-

ing § 284.9, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

**§ 284.10 Rates.**

(a) Applicability. Any rate charged for transportation service under subparts B and G of this part must be established under a rate schedule that is filed with the Commission prior to commencement of such service and that conforms to the requirements of this section.

(b) Rate objectives. Maximum rates for both peak and off – peak periods must be designed to achieve the following three objectives:

- (1) Rates for service during peak periods should ration capacity;
- (2) Rates for firm service during off – peak periods and for interruptible service during all periods should maximize throughput; and
- (3) The pipeline’s revenue requirement allocated to firm and interruptible services should be attained by providing the projected units of service in peak and off – peak periods at the maximum rate for each service.

(c) Rate design –

- (1) Volumetric rates.

Except as provided in § 284.7 (e), any rate filed for service subject to this section must be a one – part rate that re – covers the costs allocated to the service to the extent that the projected units of that service are actually purchased and may not include a demand charge, a minimum bill or minimum take provision or any other provision that has the effect of guaranteeing revenue. Such rate must separately identify cost components attributable to transportation, storage, and gathering costs.

- (2) Based on projected units of service.

Any rate filed for service subject to this section must be designed to re – cover costs on the basis of projected units of service. The fixed costs allocated to capacity reservations, as determined in accordance with § 284.7 (e), should be used along with the projected nominations accept-

ed by the pipeline to compute the unit reservation fee. The remaining fixed costs and all variable costs should be used to determine the volumetric rate computed on the basis of projected volumes to be transported. The units projected for the service in rates filed under this section may be changed only in a subsequent rate filing under section 4 of the Natural Gas Act.

(3) Differentiation due to time and distance.

Any rate filed for service subject to this section must reasonably reflect any material variation in the cost of providing the service due to:

(i) Whether the service is provided during a peak or an off-peak period; and

(ii) The distance over which the transportation is provided.

(4) Cost basis for rates. (i) Any maximum rate filed under this section must be designed to recover on a unit basis, solely those costs which are properly allocated to the service to which the rate applies.

(ii) Any minimum rate filed under this section must be based on the average variable costs which are properly allocated to the service to which the rate applies.

(5) Rate flexibility.

(i) Any rate schedule filed under this section must state a maximum rate and a minimum rate.

(ii) (A) Except as provided in paragraph (d) (5) (ii) (B) of this section the pipeline may charge an individual customer any rate that is neither greater than the maximum rate nor less than the minimum rate on file for that service.

(B) If a pipeline does not hold a blanket certificate under Subpart G of this part, it may not charge, in a transaction involving its marketing affiliate, a rate that is lower than the highest rate it charges in any transaction not involving its marketing affiliate.

(iii) The pipeline may not file a revised or new rate designed to re-

cover costs not recovered under rates previously in effect.

[Order 436, 50 FR 42493, Oct. 18, 1985, as amended at 50 FR 52274, Dec. 23, 1985; 53 FR 22163, June 14, 1988; Order 522, 55 FR 12169, Apr. 2, 1990; Order 581, 60 FR 53072, Oct. 11, 1995. Redesignated and amended by Order 637, 65 FR 10220, Feb. 25, 2000]

**§ 284.11 Environmental compliance.**

(a) Any activity involving the construction of, or the abandonment with removal of, facilities that is authorized pursuant to § 284.3 (c) and subpart B or C of this part is subject to the terms and conditions of § 157.206 (b) of this chapter.

(b) Advance notification –

(1) General rule. Except as provided in paragraph (b) (2) of this section, at least 30 days prior to commencing construction a company must file notification with the Commission of any activity described in paragraph (a) of this section.

(2) Exception. The advance notification described in paragraph (b) (1) of this section is not required if the cost of the project does not exceed the cost limit specified in Column 1 of Table I of § 157.208 (d) of this chapter.

(c) Contents of advance notification.

The advance notification described in paragraph (b) (1) of this section must include the following information:

(1) A brief description of the facilities to be constructed or abandoned with removal of facilities (including pipeline size and length, compression horse – power, design capacity, and cost of construction);

(2) Evidence of having complied with each provision of § 157.206 (b) of this chapter;

(3) Current U.S. Geological Survey 7.5 – minute series topograph-

ical maps showing the location of the facilities; and

(4) A description of the procedures to be used for erosion control, re-vegetation and maintenance, and stream and wetland crossings.

(d) Reporting requirements. On or before May 1 of each year, a company must file (on electronic media pursuant to § 385.2011 of this chapter, accompanied by 7 paper copies) an annual report that lists for the previous calendar year each activity that is described in paragraph (a) of this section, and which was completed during the previous calendar year and exempt from the advance notification requirement pursuant to paragraph (b) (2) of this section. For each such activity, the company must include all of the information described in paragraph (c) of this section.

[Order 544, 57 FR 46495, Oct. 9, 1992, as amended by Order 581, 60 FR 53072, Oct. 11, 1995; Order 603-A, 64 FR 54537, Oct. 7, 1999]

**§ 284.12 Standards for pipeline business operations and communications.**

(a) Electronic Bulletin Boards. An interstate pipeline that is required by this chapter or by its tariff to display information on an Electronic Bulletin Board must provide for the following features on its board:

- (1) Downloading by users;
- (2) Daily back-up of information displayed on the board, which must be available for user review for at least three years;
- (3) Purging of information on completed transactions from current files;
- (4) Display of most recent entries ahead of information posted earlier; and

(5) On-line help, a search function that permits users to locate all information concerning a specific transaction, and a menu that permits users to separately access the notices of available capacity, the marketing



affiliate discount information, the marketing affiliate capacity allocation log, and the standards of conduct information.

(6) A pipeline's obligation to provide information pursuant to this paragraph will terminate when all relevant information is provided pursuant to paragraph (c) (3) (i) of this section.

(b) Incorporation by reference of GISB standards. (1) An interstate pipeline that transports gas under subparts B or G of this part must comply with the following business practice and electronic communication standards promulgated by the Gas Industry Standards Board, which are incorporated herein by reference:

(i) Nominations Related Standards (Version 1.4, August 31, 1999);

(ii) Flowing Gas Related Standards (Version 1.4, August 31, 1999) with the exception of Standards 2.3.29 and 2.3.30;

(iii) Invoicing Related Standards (Version 1.4, August 31, 1999);

(iv) Electronic Delivery Mechanism Related Standards (Version 1.4, November 15, 1999) with the exception of Standard 4.3.4; and

(v) Capacity Release Related Standards (Version 1.4, August 31, 1999).

(2) This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552 (a) and 1 CFR part 51. Copies of these standards may be obtained from the Gas Industry Standards Board, 1100 Louisiana, Suite 3625, Houston, TX 77002. Copies may be inspected at the Federal Energy Regulatory Commission, Public Reference and Files Maintenance Branch, 888 First Street, NE., Washington, DC 20426 and at the Office of the Federal Register, 800 North Capitol St., NW., Suite 700, Washington, DC.

(c) Business practices and electronic communication requirements. An inter-state pipeline that transports gas under subparts B or G of this part must comply with the following requirements. The regulations in

this paragraph adopt the abbreviations and definitions contained in the Gas Industry Standards Board standards incorporated by reference in paragraph (b) (1) of this section.

(1) Nominations.

(i) Intra – day nominations.

(A) A pipeline must give scheduling priority to an intra – day nomination submitted by a firm shipper over nominated and scheduled volumes for interruptible shippers. When an interruptible shipper's scheduled volumes are to be reduced as a result of an intra – day nomination by a firm shipper, the interruptible shipper must be provided with advance notice of such reduction and must be notified whether penalties will apply on the day its volumes are reduced.

(B) An intra – day nomination submitted on the day prior to gas flow will take effect at the start of the gas day at 9 a.m. CCT.

(ii) Capacity release nominations. Pipelines must permit shippers acquiring released capacity to submit a nomination at the earliest available nomination opportunity after the acquisition of capacity. If the pipeline requires the replacement shipper to enter into a contract, the contract must be issued within one hour after the pipeline has been notified of the release, but the requirement for contracting must not inhibit the ability of the replacement shipper to submit a nomination at the earliest available nomination opportunity.

(2) Flowing gas.

(i) Operational balancing agreements.

A pipeline must enter into Operational Balancing Agreements at all points of interconnection between its system and the system of another interstate or intrastate pipeline.

(ii) Netting and trading of imbalances.

A pipeline must establish provisions permitting shippers and their agents to offset imbalances accruing on different contracts held by the

shipper with the pipeline and to trade imbalances with other shippers where such imbalances have similar operational impact on the pipeline's system.

(iii) Imbalance management. A pipeline with imbalance penalty provisions in its tariff must provide, to the extent operationally practicable, parking and lending or other services that facilitate the ability of its shippers to manage transportation imbalances. A pipeline also must provide its shippers the opportunity to obtain similar imbalance management services from other providers and shall provide those shippers using other providers access to transportation and other pipeline services without undue discrimination or preference.

(iv) Operational flow orders. A pipeline must take all reasonable actions to minimize the issuance and adverse impacts

of operational flow orders (OFOs) or other measures taken to respond to adverse operational events on its system. A pipeline must set forth in its tariff clear standards for when such measures will begin and end and must provide timely information that will enable shippers to minimize the adverse impacts of these measures.

(v) Penalties. A pipeline may include in its tariff transportation penalties only to the extent necessary to prevent the impairment of reliable service. Pipelines may not retain net penalty revenues, but must credit them to shippers in a manner to be prescribed in the pipeline's tariff. A pipeline with penalty provisions in its tariff must provide to shippers, on a timely basis, as much information as possible about the imbalance and overrun status of each shipper and the imbalance of the pipeline's system.

### (3) Communication protocols.

(i) (A) All electronic information provided and electronic transactions conducted by a pipeline must be provided on the public Internet. A pipeline must provide, upon request, private network connections us-

ing internet tools, internet directory services, and internet communication protocols and must provide these networks with non-discriminatory access to all electronic information. A pipeline may charge a reasonable fee to recover the costs of providing such an interconnection.

(B) A pipeline must implement this requirement no later than June 1, 2000.

(ii) A pipeline must comply with the following requirements for documents constituting public information posted on the pipeline web site:

(A) The documents must be accessible to the public over the public Internet using commercially available web browsers, without imposition of a password or other access requirement;

(B) Users must be able to search an entire document online for selected words, and must be able to copy selected portions of the documents; and

(C) Documents on the web site should be directly downloadable without the need for users to first view the documents on the web site.

(iii) If a pipeline uses a numeric or other designation to represent information, an electronic cross-reference table between the numeric or other designation and the information represented must be available to users, at a cost not to exceed reasonable shipping and handling.

(iv) A pipeline must provide the same content for all information regardless of the electronic format in which it is provided.

(v) A pipeline must maintain, for a period of three years, all information displayed and transactions conducted electronically under this section and be able to recover and regenerate all such electronic information and documents. The pipeline must make this archived information available in electronic form for a reasonable fee.

(vi) A pipeline must post notices of operational flow orders, critical periods, and other critical notices on its Internet web site and must notify

affected parties of such notices in either of the following ways to be chosen by the affected party: Internet E – Mail or direct notification to the party's Internet URL address.

[Order 587, 61 FR 39068, July 26, 1996, as amended by Order 587 – B, 62 FR 5525, Feb. 6, 1997; Order 587 – C, 62 FR 10690, Mar. 10, 1997; Order 587 – G, 63 FR 20095, Apr. 23, 1998; Order 587 – H, 63 FR 39514, July 23, 1998; Order 587 – I, 63 FR 53576, Oct. 6, 1998; Order 587 – K, 64 FR 17278, Apr. 9, 1999. Redesignated and amended by Order 637, 65 FR 10220, Feb. 25, 2000; Order 637 – A, 65 FR 35765, June 5, 2000; Order 587 – M, 65 FR 77290, Dec. 11, 2000]

**§ 284.13 Reporting requirements for interstate pipelines.**

An interstate pipeline that provides transportation service under subparts B or G of this part must comply with the following reporting requirements.

(a) Cross references. The pipeline must comply with the requirements in Part 161, Part 250, and Part 260 of this chapter, where applicable.

(b) Reports on firm and interruptible services. An interstate pipeline must post the following information on its Internet web site, and provide the information in downloadable file formats, in conformity with § 284.12 of this part, and must maintain access to that information for a period not less than 90 days from the date of posting.

(1) For pipeline firm service and for release transactions under § 284.8, the pipeline must post with respect to each contract, or revision of a contract for service, the following information no later than the first nomination under a transaction:

(i) The full legal name of the shipper, and identification number, of the shipper receiving service under the contract, and the full legal name, and identification number, of the releasing shipper if a capacity re-

lease is involved or an indication that the pipeline is the seller of transportation capacity;

(ii) The contract number for the shipper receiving service under the contract, and, in addition, for released transactions, the contract number of the releasing shipper's contract;

(iii) The rate charged under each contract;

(iv) The maximum rate, and for capacity release transactions not subject to a maximum rate, the maximum rate that would be applicable to a comparable sale of pipeline services;

(v) The duration of the contract;

(vi) The receipt and delivery points and zones or segments covered by the contract, including the industry common code for each point, zone, or segment;

(vii) The contract quantity or the volumetric quantity under a volumetric release;

(viii) Special terms and conditions applicable to a capacity release transaction, including all aspects in which the contract deviates from the pipeline's tariff, and special details pertaining to a pipeline transportation contract, including whether the contract is a negotiated rate contract, conditions applicable to a discounted transportation contract, and all aspects in which the contract deviates from the pipeline's tariff.

(ix) Whether there is an affiliate relationship between the pipeline and the shipper or between the releasing and replacement shipper.

(2) For pipeline interruptible service, the pipeline must post on a daily basis no later than the first nomination for service under an interruptible agreement, the following information:

(i) The full legal name, and identification number, of the shipper receiving service;

(ii) The rate charged;

(iii) The maximum rate;

(iv) The receipt and delivery points covered between which the shipper is entitled to transport gas at the rate charged, including the industry common code for each point, zone, or segment;

(v) The quantity of gas the shipper is entitled to transport;

(vi) Special details pertaining to the agreement, including conditions applicable to a discounted transportation contract and all aspects in which the agreement deviates from the pipeline's tariff.

(vii) Whether the shipper is affiliated with the pipeline.

(c) Index of customers. (1) On the first business day of each calendar quarter, an interstate pipeline must file with the Commission an index of all its firm transportation and storage customers under contract as of the first day of the calendar quarter that complies with the requirements set forth by the Commission. The Commission will establish the requirements and format for such filing. The index of customers must also be posted on the pipeline's Internet web, in accordance with standards adopted in § 284.12 of this part, and made available from the Internet web site in a downloadable format complying with the specifications established by the Commission. The information posted on the pipeline's Internet web site must be made available until the next quarterly index is posted.

(2) For each shipper receiving firm transportation or storage service, the index must include the following information:

(i) The full legal name, and identification number, of the shipper;

(ii) The applicable rate schedule number under which the service is being provided;

(iii) The contract number;

(iv) The effective and expiration dates of the contract;

(v) For transportation service, the maximum daily contract quantity (specify unit of measurement), and for storage service, the maximum storage quantity (specify unit of measurement);

(vi) The receipt and delivery points and the zones or segments covered by the contract in which the capacity is held, including the industry common code for each point, zone, or segment;

(vii) An indication as to whether the contract includes negotiated rates;

(viii) The name of any agent or asset manager managing a shipper's transportation service; and

(ix) Any affiliate relationship between the pipeline and a shipper or between the pipeline and a shipper's asset manager or agent.

(3) The requirements of this section do not apply to contracts which relate solely to the release of capacity under § 284.8, unless the release is permanent.

(4) Pipelines that are not required to comply with the index of customers posting and filing requirements of this section must comply with the index of customer requirements applicable to transportation and sales under Part 157 as set forth under § 154.111 (b) and (c) of this chapter.

(5) The requirements for the electronic index can be obtained from the Federal Energy Regulatory Commission, Division of Information Services, Public Reference and Files Maintenance Branch, Washington, DC 20426.

(d) Available capacity. (1) An inter - state pipeline must provide on its Internet web site and in downloadable file formats, in conformity with § 284.12 of this part, equal and timely access to information relevant to the availability of all transportation services whenever capacity is scheduled, including, but not limited to, the availability of capacity at receipt points, on the mainline, at delivery points, and in storage fields, whether the capacity is available directly from the pipeline or through capacity release, the total design capacity of each point or segment on the system, the amount scheduled at each point or segment whenever capaci-



ty is scheduled, and all planned and actual service outages or reductions in service capacity.

(2) An interstate pipeline must make an annual filing by March 1 of each year showing the estimated peak day capacity of the pipeline's system, and the estimated storage capacity and maximum daily delivery capability of storage facilities under reasonably representative operating assumptions and the respective assignments of that capacity to the various firm services provided by the pipeline.

(e) Semi-annual storage report. Within 30 days of the end of each complete storage injection and withdrawal season, the interstate pipeline must file with the Commission a report of storage activity. The report must be signed under oath by a senior official, consist of an original and five conformed copies, and contain a summary of storage injection and withdrawal activities to include the following:

(1) The identity of each customer injecting gas into storage and/or withdrawing gas from storage, identifying any affiliation with the interstate pipe-line;

(2) The rate schedule under which the storage injection or withdrawal service was performed;

(3) The maximum storage quantity and maximum daily withdrawal quantity applicable to each storage customer;

(4) For each storage customer, the volume of gas (in dekatherms) injected into and/or withdrawn from storage during the period; and

(5) The unit charge and total revenues received during the injection/withdrawal period from each storage customer, noting the extent of any discounts permitted during the period.

(f) Notice of bypass. An interstate pipeline that provides transportation (except storage) to a customer that is located in the service area of a local distribution company and will not be delivering the customer's gas to that local distribution company, must file with the Commission,

within thirty days after commencing such transportation, a statement that the interstate pipeline has notified the local distribution company and the local distribution company's appropriate regulatory agency in writing of the proposed transportation prior to commencement. [Order 637, 65 FR 10221, Feb. 25, 2000, as amended by Order 637 - A, 65 FR 35765, June 5, 2000]

§ 284.14 [Reserved]

## Subpart B - Certain Transportation by Interstate Pipelines

### § 284.101 Applicability.

This subpart implements section 311 (a) (1) of the NGPA and applies to the transportation of natural gas by any interstate pipeline on behalf of:

- (a) Any intrastate pipeline; or
- (b) Any local distribution company.

### § 284.102 Transportation by interstate pipelines.

(a) Subject to paragraphs (d) and (e) of this section, other provisions of this subpart, and the conditions of subpart A of this part, any interstate pipeline is authorized without prior Commission approval, to transport natural gas on behalf of:

- (1) Any intrastate pipeline; or
- (2) Any local distribution company.

(b) Any rates charged for transportation under this subpart may not exceed the just and reasonable rates established under subpart A of this part.

(c) An interstate pipeline that engages in transportation arrangements under this subpart must file reports in accordance with § 284.13 and § 284.106 of this chapter.

(d) Transportation of natural gas is not on behalf of an intrastate pipeline or local distribution company or authorized under this section unless:

(1) The intrastate pipeline or local distribution company has physical custody of and transports the natural gas at some point; or

(2) The intrastate pipeline or local distribution company holds title to the natural gas at some point, which may occur prior to, during, or after the time that the gas is being transported by the interstate pipeline, for a purpose related to its status and functions as an intrastate pipeline or its status and functions as a local distribution company; or

(3) The gas is delivered at some point to a customer that either is located in a local distribution company's service area or is physically able to receive direct deliveries of gas from an intra - state pipeline, and that local distribution company or intrastate pipeline certifies that it is on its behalf that the interstate pipeline is providing transportation service.

(e) An interstate pipeline must obtain from its shippers certifications including sufficient information to verify that their services qualify under this section. Prior to commencing transportation service described in paragraph (d) (3) of this section, an interstate pipeline must receive the certification required from a local distribution company or an intrastate pipeline pursuant to paragraph (d) (3) of this section.

[Order 436, 50 FR 42495, Oct. 18, 1985, as amended by Order 526, 55 FR 33011, Aug. 13, 1990; Order 537, 56 FR 50245, Oct. 4, 1991; Order 581, 60 FR 53072, Oct. 11, 1995; Order 637, 65 FR 10222, Feb. 25, 2000]

§ § 284.103 - 284.106 [Reserved]

## Subpart C – Certain Transportation by Intrastate Pipelines

### § 284.121 Applicability.

This subpart implements section 311 (a) (2) of the NGPA and applies to the transportation of natural gas by any intrastate pipeline on behalf of:

- (a) Any interstate pipeline, or
- (b) Any local distribution company served by any interstate pipeline.

### § 284.122 Transportation by intrastate pipelines.

(a) Subject to paragraphs (d) and (e) of this section, other provisions of this subpart, and the applicable conditions of Subpart A of this part, any intra-state pipeline may, without prior Commission approval, transport natural gas on behalf of:

- (1) Any interstate pipeline; or
- (2) Any local distribution company served by an interstate pipeline.

(b) No rate charged for transportation authorized under this subpart may exceed a fair and equitable rate under § 284.123. (c) Any intrastate pipeline engaged in transportation arrangements authorized under this section must file reports as required by § 284.126.

(d) Transportation of natural gas is not on behalf of an interstate pipeline or local distribution company served by an interstate pipeline or authorized under this section unless:

- (1) The interstate pipeline or local distribution company has physical custody of and transports the natural gas at some point; or
- (2) The interstate pipeline or local distribution company holds title to the natural gas at some point, which may occur prior to, during, or after the time that the gas is being transported by the intrastate pipeline,

for a purpose related to its status and functions as an interstate pipeline or its status and functions as a local distribution company.

[Order 436, 50 FR 42495, Oct. 18, 1985, as amended by Order 537, 56 FR 50245, Oct. 4, 1991; Order 537 - A, 57 FR 46501, Oct. 9, 1992; Order 581, 60 FR 53073, Oct. 11, 1995]

**§ 284.123 Rates and charges.**

(a) General rule. Rates and charges for transportation of natural gas authorized under § 284.122 (a) shall be fair and equitable as determined in accordance with paragraph (b) of this section.

(b) Election of rates. (1) Subject to the conditions in §§ 284.7 and 284.9 of this chapter, an intrastate pipeline may elect to:

(i) Base its rates upon the methodology used:

(A) In designing rates to recover the cost of gathering, treatment, processing, transportation, delivery or similar service (including storage service) included in one of its then effective firm sales rate schedules for city - gate service on file with the appropriate state regulatory agency; or

(B) In determining the allowance permitted by the appropriate state regulatory agency to be included in a natural gas distributor's rates for city - gate natural gas service; or

(ii) To use the rates contained in one of its then effective transportation rate schedules for intrastate service on file with the appropriate state regulatory agency which the intrastate pipeline determines covers service comparable to service under this subpart.

(2) (i) If an intrastate pipeline does not choose to make any election under paragraph (b) (1) of this section, it shall apply for Commission approval, by order, of the proposed rates and charges by filing with the Commission the proposed rates and charges, and information showing the proposed rates and charges are fair and equitable. Each petition for approval filed under this paragraph must be accompanied by the fee set forth in § 381.403 or by a petition for waiver pursuant to §

384.106 of this chapter. Upon filing the petition for approval, the intrastate pipeline may commence the transportation service and charge and collect the proposed rate, subject to refund. (ii) 150 days after the date on which the Commission received an application filed pursuant to paragraph (b) (2) (i) of this section, the rate proposed in the application will be deemed to be fair and equitable and not in excess of an amount which interstate pipelines would be permitted to charge for providing similar transportation service, unless within the 150 day period, the Commission either extends the time for action, or institutes a proceeding in which all interested parties will be afforded an opportunity for written comments and for the oral presentation of views, data and arguments. In such proceeding, the Commission either will approve the rate or disapprove the rate and order refund, with interest, of any amount which has been determined to be in excess of those shown to be fair and equitable or in excess of the rates and charges which interstate pipelines would be permitted to charge for providing similar transportation service.

(iii) A Commission order approving or disapproving a transportation rate under this paragraph supersedes a rate determined in accordance with paragraph (b) (1) of this section.

(c) Treatment of revenues. The Commission presumes that all revenues received by an intrastate pipeline in connection with transportation authorized under § 284.122 (a) and computed in accordance with paragraph (b) (1) of this section have been or will be taken into account by the appropriate state regulatory agency for purposes of establishing transportation charges by the intrastate pipeline for service to intra-state customers.

(d) Presumptions. If the intrastate pipeline is charging a rate computed pursuant to § 284.123 (b) (1), the rate charged is presumed to be:

(1) Fair and equitable; and

(2) Not in excess of the rates and charges which interstate pipelines would be permitted to charge for providing similar transportation service.

(e) Filing requirements. Within 30 days of commencement of new service, any intrastate pipeline that engages in transportation arrangements under this subpart must file with the Commission a statement that describes how the pipeline will engage in these transportation arrangements, including operating conditions, such as, quality standards and financial viability of the shipper. The statement must also include the rate election made by the intrastate pipeline pursuant to paragraph (b) of this section. If the pipeline changes its operations or rate election under this subpart, it must amend the statement and file such amendments not later than 30 days after commencement of the change in operations or the change in rate election.

[44 FR 52184, Sept. 7, 1979, as amended at 44 FR 66791, Nov. 21, 1979; Order 394, 49 FR 35364, Sept. 7, 1984; Order 436, 50 FR 42496, Oct. 18, 1985; 50 FR 52276, Dec. 23, 1985; Order 581, 60 FR 53073, Oct. 11, 1995]

**§ 284.124 Terms and conditions.**

Contracts for the transportation of natural gas authorized under this subpart shall provide that the transportation arrangement is subject to the provisions of this subpart.

**§ 284.125 [Reserved]**

**§ 284.126 Reporting requirements.**

(a) Notice of bypass. An intrastate pipeline that provides transportation (except storage) under § 284.122 to a customer that is located in the service area of a local distribution company and will not be delivering the customer's gas to that local distribution company, must file with the Commission within thirty days after commencing such transportation, a statement that the interstate pipeline has notified the local distribution and the local distribution company's appropriate state regulatory

agency in writing of the proposed transportation prior to commencement.

(b) Annual report. Not later than March 31 of each year, each intrastate pipeline must file an annual report with the Commission and the appropriate state regulatory agency that contains, for each transportation service (except storage) provided during the preceding calendar year under § 284.122, the following information:

- (1) The name of the shipper receiving the transportation service;
- (2) The type of service performed (i.e., firm or interruptible);
- (3) Total volumes transported for the shipper. If it is firm service, the report should separately state reservation and usage quantities; and
- (4) Total revenues received for the shipper. If it is firm service, the report should separately state reservation and usage revenues.

(c) Semi-annual storage report. Within 30 days of the end of each complete storage injection and withdrawal season, the intrastate pipeline shall file with the Commission a report of storage activity provided under the authority of § 284.122. The report must be signed under oath by a senior official, consist of an original and five confirmed copies, and contain a summary of storage injection and withdrawal activities to include the following:

- (1) The identity of each customer injecting gas into storage and/or with-drawing gas from storage;
- (2) The docket where the storage injection or withdrawal rates were approved;
- (3) The maximum storage quantity and maximum daily withdrawal quantity applicable to each storage customer;
- (4) For each storage customer, the volume of gas (in dekatherms) injected into and/or withdrawn from storage during the period;
- (5) The unit charge and total revenues received during the injection/withdrawal period from each storage customer; and



(6) The related docket numbers in which the intrastate pipeline reported storage related injection/withdrawal transportation services.

(d) Notification of termination. Not later than thirty days after the termination of any transportation arrangement (except storage) authorized under § 284.122, the intrastate pipeline must file with the Commission and with the appropriate state regulatory agency a statement, consisting of an original and five conformed copies to the Commission, including the following information:

(1) The docket number assigned to the transaction and the date the transaction was terminated;

(2) The total volumes transported under the arrangement;

(3) The total revenues received; and

(4) A statement certifying that the service was provided under the terms and conditions previously reported in that docket.

[Order 436, 50 FR 42496, Oct. 18, 1985, as amended at 50 FR 52276, Dec. 23, 1985; Order 636, 57 FR 13317, Apr. 16, 1992; Order 581, 60 FR 53073, Oct. 11, 1995]

## Subpart D— Certain Sales by Intrastate Pipelines

SOURCE: 44 FR 12409, Mar. 7, 1979, unless otherwise noted. Redesignated at 44 FR 52184, Sept. 7, 1979.

### § 284.141 Applicability.

This subpart implements section 311 (b) of the NGPA and applies to certain sales of natural gas by intrastate pipelines to:

(a) Interstate pipelines; and

(b) Local distribution companies served by interstate pipelines.

### § 284.142 Sales by intrastate pipelines.

Any intrastate pipeline may, without prior Commission approval,

sell natural gas to any interstate pipeline or any local distribution company served by an interstate pipeline. The rates charged by an intrastate pipeline pursuant to this subpart may not exceed the price for gas as negotiated in the contract, plus a fair and equitable transportation rate as determined in accordance with § 284.123. [Order 581, 60 FR 53073, Oct. 11, 1995]

§ § 284.143 – 284.148 [Reserved]

## Subparts E – F [Reserved]

### Subpart G – Blanket Certificates

#### **Authorizing Certain Transportation by Interstate Pipelines on Behalf of Others and Services by Local Distribution Companies**

#### **§ 284.221 General rule; transportation by interstate pipelines on behalf of others.**

(a) Blanket certificate. Any interstate pipeline may apply under this section for a single blanket certificate authorizing the transportation of natural gas on behalf of others in accordance with this subpart. A certificate of public convenience and necessity under this section is granted pursuant to section 7 of the Natural Gas Act.

(b) Application procedure. (1) An application for a blanket certificate under this section must be filed electronically. The format for the electronic application filing can be obtained at the Federal Energy Regulatory Commission, Division of Information Services, Public Reference and Files Maintenance Branch, Washington, DC 20426, and must include:

(i) The name of the interstate pipe – line; and

(ii) A statement by the interstate pipeline that it will comply with the conditions in paragraph (c) of this section.

(2) Upon receipt of an application under this section, the Commission will conduct a hearing pursuant to section 7 (c) of the Natural Gas Act and § 157.11 of this chapter and, if required by the public convenience and necessity, will issue to the interstate pipe – line a blanket certificate authorizing such pipeline company to transport natural gas, as provided under this sub – part.

(c) General conditions. Any blanket certificate under this subpart is

subject to the conditions of subpart A of this part.

(d) Pre - grant of abandonment. (1) Except as provided in paragraph (d) (2) of this section, abandonment of transportation services is authorized pursuant to section 7 (b) of the Natural Gas Act upon the expiration of the contractual term or upon termination of each individual transportation arrangement authorized under a certificate granted under this section.

(2) Paragraph (d) (1) of this section does not apply if the individual transportation arrangement is for firm transportation under a contract with a term of one year or more, and the firm shipper:

(i) Exercises any contractual right to continue such service; or

(ii) Gives notice that it wants to continue its transportation arrangement and will match the longest term and highest rate for its firm service, up to the applicable maximum rate under § 284.10, offered to the pipeline during the period established in the pipeline's tariff for receiving such offers by any other person desiring firm capacity, and executes a contract matching the terms of any such offer. To be eligible to exercise this right of first refusal, the firm shipper's contract must be for service for twelve consecutive months or more at the applicable maximum rate for that service, except that a contract for more than one year, for a service which is not available for 12 consecutive months, would be subject to the right of first refusal.

(e) Availability of regular certificates.

This subpart does not preclude an interstate pipeline from applying for an individual certificate of public convenience and necessity for any particular transportation service.

(f) Cross references. (1) Any local distribution company served by an inter - state pipeline may apply for a blanket certificate to perform certain services under § 284.224 of this chapter.

(2) Any interstate pipeline may apply under subpart F of part 157 of

this chapter for a blanket certificate to construct or acquire and operate certain natural gas facilities that are necessary to provide transportation under § 284.223.

(3) Section 157.208 of this chapter provides automatic authorization for the construction; acquisition, operation, replacement, and miscellaneous rearrangement of certain eligible facilities, as defined in § 157.202 of this chapter, subject to limits specified in § 157.208 (d) of this chapter and § 284.11.

(4) Authorization for delivery points is subject to the automatic authorization under § 157.211 (a) (1) and the prior notice procedures under § 157.211 (a) (2) and § 157.205.

(g) Flexible receipt point authority – (1) An interstate pipeline authorized to transport gas under a certificate granted under this section may, at the request of the shipper and without prior notice:

(i) Reduce or discontinue receipts of natural gas at a particular receipt point from a supplier; and

(ii) Commence or increase receipts at a particular receipt point from that supplier or any other supplier.

(2) The total natural gas volumes received by the interstate pipeline following any such reassignment under this paragraph must not exceed the total volume of natural gas that the interstate pipeline may transport on behalf of the shipper under a certificate granted under this section.

(3) The receipt points to which natural gas volumes may be reassigned under this paragraph include eligible facilities under § 157.208 which are authorized to be constructed and operated pursuant to a certificate issued under subpart F of part 157 of this chapter.

(h) Flexible delivery point authority – (1) An interstate pipeline authorized to transport gas under a certificate issued pursuant to this section may at the request of the shipper and without prior notice:

(i) Reduce or discontinue deliveries of natural gas to a particular de-

livery point; and

(ii) Commence or increase deliveries at a particular delivery point.

(2) The total natural gas volumes delivered by the interstate pipeline following any such reassignment must not exceed the total amount of natural gas that the interstate pipeline is authorized under a certificate issued pursuant to this section to transport on behalf of the shipper.

(3) The delivery points to which natural gas volumes may be reassigned under this paragraph include facilities authorized to be constructed and operated only under § 157.211 and the prior notice conditions of § 157.205 of this chapter. [Order 436, 50 FR 42496, Oct. 18, 1985, as amended by Order 433 - A, 51 FR 43607, Dec. 3, 1986; Order 636, 57 FR 13317, Apr. 16, 1992; Order 636 - A, 57 FR 36217, Aug. 12, 1992; Order 581, 60 FR 53073, Oct. 11, 1995; Order 603, 64 FR 26610, May 14, 1999; Order 637, 65 FR 10222, Feb. 25, 2000; Order 637 - A, 65 FR 35765, June 5, 2000]

**§ 284.222 [Reserved]**

**§ 284.223 Transportation by interstate pipelines on behalf of shippers.**

Subject to the provisions of this sub - part and the conditions of Subpart A of this part, any interstate pipeline issued a certificate under § 284.221 is authorized, without prior notice to or approval by the Commission, to transport natural gas for any duration for any shipper for any end - use by that shipper or any other person.

[Order 436, 50 FR 42497, Oct. 18, 1985; 50 FR 45908, Nov. 5, 1985, as amended at 50 FR 52276, Dec. 23, 1985; Order 537, 56 FR 50245, Oct. 4, 1991; Order 581, 60 FR 53074, Oct. 11, 1995; Order 637, 65 FR 10222, Feb. 25, 2000]

**§ 284.224 Certain transportation and sales by local distribution companies.**

(a) Applicability. This section applies to local distribution compa-

nies served by interstate pipelines, including persons who are not subject to the jurisdiction of the Commission, by reason of section 1 (c) of the Natural Gas Act.

(b) Blanket certificate — (1) Any local distribution company served by an interstate pipeline or any Hinshaw pipeline may apply for a blanket certificate under this section.

(2) Upon application for a certificate under this section, a hearing will be conducted under section 7 (c) of the Natural Gas Act, § 157.11 of this chapter, and subpart H of part 385 of this chapter.

(3) The Commission will grant a blanket certificate to such local distribution company or Hinshaw pipeline under this section, if required by the present or future public convenience and necessity. Such certificate will authorize the local distribution company to engage in the sale or transportation of natural gas that is subject to the Commission's jurisdiction under the Natural Gas Act, to the same extent that and in the same manner that intrastate pipelines are authorized to engage in such activities by subparts C and D of this part, except as otherwise provided in paragraph (e) (2) of this section.

(c) Application procedure. Applications for blanket certificates must be accompanied by the fee prescribed in § 381.207 of this chapter or a petition for waiver pursuant to § 381.106 of this chapter, and shall state:

(1) The exact legal name of applicant; its principal place of business; whether an individual, partnership, corporation or otherwise; the state under the laws of which it is organized or authorized; the agency having jurisdiction over rates and tariffs; and the name, title, and mailing address of the person or persons to whom communications concerning the application are to be addressed;

(2) The volumes of natural gas which:

(i) Were received during the most recent 12-month period by the

applicant within or at the boundary of a state, and

(ii) Were exempt from the Natural Gas Act jurisdiction of the Commission by reason of section 1 (c) of the Natural Gas Act, if any;

(3) The total volume of natural gas received by the applicant from all sources during the same time period;

(4) Citation to all currently valid declarations of exemption issued by the Commission under section 1 (c) of the Natural Gas Act if any;

(5) A statement that the applicant will comply with the conditions in paragraph (e) of this section;

(6) A form of notice suitable for publication in the FEDERAL REGISTER, as contemplated by § 157.9 of this chapter, which will briefly summarize the facts contained in the application in such way as to acquaint the public with its scope and purpose; and

(7) A statement of the methodology to be used in calculating rates for services to be rendered, setting forth any elections under § 284.123 or paragraph (e) (2) of this section and a sample calculation employing the methodology using current data. If a rate election is made under paragraph (e) (2) of this section, this statement shall contain the following items (reflecting the 12 - month period used to justify costs in the most recently approved rate case conducted by an appropriate state regulatory agency):

(i) Total operating revenues,

(ii) Purchase gas costs,

(iii) Distribution costs (which include that portion of the common costs allocated to the distribution function),

(iv) The volume throughput of the system categorized by sales, transportation and exchange service, and

(v) A study which determines transportation costs on a unit revenue basis in accordance with paragraph (e) (2) of this section, including any supporting work papers.



(d) Effect of certificate. (1) Any certificate granted under this section will authorize the certificate holder to engage in transactions of the type authorized by subparts C and D of this part.

(2) Acceptance of a certificate or conduct of an activity authorized thereunder will:

(i) Not impair the continued validity of any exclusion under section 1 (c) of the Natural Gas Act which may be applicable to the certificate holder, and

(ii) Not subject the certificate holder to the Natural Gas Act jurisdiction to the Commission except to the extent necessary to enforce the terms and conditions of the certificate.

(e) General conditions. (1) Except as provided in paragraph (e) (2) of this section, any transaction authorized under a blanket certificate is subject to the same rates and charges, terms and conditions, and reporting requirements that apply to a transaction authorized for an intrastate pipeline under subparts C and D of this part.

(2) Rate election. If the certificate holder does not have any existing rates on file with the appropriate state regulatory agency for city-gate service, the certificate holder may make the rate election specified in § 284.123 (b) (1) only if:

(i) The certificate holder's existing rates are approved by an appropriate state regulatory agency,

(ii) The rates and charges for any transportation are computed by using the portion of the certificate holder weighted average annual unit revenue (per MMBtu) generated by existing rates which is attributable to the cost of gathering, treatment, processing, transportation, delivery or similar service (including storage service), and

(iii) The Commission has approved the method for computing rates and charges specified in paragraph (e) (2) (ii) of this section.

(3) Volumetric test. The volumes of natural gas sold or assigned

under the blanket certificate may not exceed the volumes obtained from sources other than interstate supplies.

(4) Filings. Any filings made with the Commission that report individual transactions shall reference the docket number of the proceeding in which the blanket certificate was granted.

(5) Tariff filings. The tariff filing requirements of part 154 of this chapter shall not apply to transactions authorized by the blanket certificate.

(f) Pregrant of abandonment. Abandonment of transportation services or sales, pursuant to section 7 (b) of the Natural Gas Act, is authorized upon the expiration of the contractual term of each individual arrangement authorized by a blanket certificate under this section.

(g) Hinshaw pipeline without blanket certificate. A Hinshaw pipeline that does not obtain a blanket certificate under this section is not authorized to sell or transport natural gas as an intrastate pipeline under subparts C and D of this part.

(h) Definitions. For the purposes of this section:

(1) A Hinshaw pipeline means any person engaged in the transportation of natural gas which is not subject to the jurisdiction of the Commission under the Natural Gas Act solely by reason of section 1 (c) of the Natural Gas Act.

(2) Interstate supplies means any natural gas obtained, either directly or indirectly, from:

(i) The system supplies of an inter-state pipeline, or

(ii) Natural gas reserves which were committed or dedicated to interstate commerce on November 8, 1978.

[45 FR 1875, Jan. 9, 1980, as amended by Order 319, 48 FR 34891, Aug. 1, 1983; 48 FR 35635, Aug. 5, 1983; Order 433, 50 FR 40346, Oct. 3, 1985; Redesignated and amended by Order 436, 50 FR 42497, 42498, Oct. 18, 1985; Order 478, 52 FR 28467, July 30,

1987; Order 581, 60 FR 53074, Oct. 11, 1995]

§ 284.225 - 284.226 [Reserved]

**§ 284.227 Certain transportation by intrastate pipelines.**

(a) Blanket certificate. A blanket certificate shall issue under this section to any intrastate pipeline that receives natural gas produced in adjacent Federal waters or onshore or offshore in an adjacent state, provided that:

(1) The gas must be received by the intrastate pipeline from a gatherer or other intrastate pipeline;

(2) The intrastate pipeline delivers the gas in the intrastate pipeline's state of operation to an end user or another intrastate pipeline; and

(3) The gas ultimately used by an end user in the same state.

(b) Effective date. If an intrastate pipeline is providing a transportation service described in paragraph (a) of this section as of February 1, 1992, and the service is not a qualifying service under § 284.122 of subpart C of this part, a blanket certificate shall issue under paragraph (a) of this section and become effective as of February 1, 1992. If an intrastate pipeline is not providing a transportation service described in paragraph (a) of this section as of February 1, 1992 the blanket certificate shall issue and become effective on the date that the intrastate pipeline commences such a service that is not a qualifying service under § 284.122 of sub - part C of this part.

(c) Acceptance of certificate. An intra - state pipeline shall be deemed to have accepted a blanket certificate under this section if it continues after February 1, 1992, a service described in paragraph (a) of this section that is not a qualifying service under § 284.122 of subpart C or commences such a service after November 4, 1991.

(d) Terms and conditions. An intra - state pipeline's blanket certificate transportation authority under this section is subject to its compliance with all terms and conditions of sub - part C of this part, except

that service under this section does not have to be on behalf of an interstate pipeline or local distribution company served by an interstate pipeline.

(e) Prerogative of abandonment. Abandonment of transportation services, pursuant to section 7 (b) of the Natural Gas Act, is authorized upon the expiration of the contractual term of each individual arrangement authorized by a blanket certificate under this section.

(f) Effect of certificate. Acceptance of a certificate issued under this section or conduct of activity authorized under this section will not subject the certificate holder to the Natural Gas Act jurisdiction of the Commission except to the extent necessary to enforce the terms and conditions of the certificate.

[Order 537, 56 FR 50246, Oct. 4, 1991, as amended by Order 544, 57 FR 46501, Oct. 9, 1992; Order 581, 60 FR 53074, Oct. 11, 1995]

## Subpart H— Assignment of Capacity on Interstate Pipelines

SOURCE: Order 636, 57 FR 13318, Apr. 16, 1992, unless otherwise noted.

### **§ 284.241 Applicability.**

This subpart applies to any interstate pipeline that offers transportation service under subpart B or G of this part.

### **§ 284.242 Assignment of firm capacity on upstream pipelines.**

An interstate pipeline that offers transportation service on a firm basis under subpart B or G of this part must offer without undue discrimination to assign to its firm shippers its firm transportation capacity, including contract storage, on all upstream pipelines, whether the firm capacity is authorized under part 284 or part 157. An upstream pipeline is autho-

rized and required to permit a downstream pipeline to assign its firm capacity to the down-stream pipeline's firm shippers.

[Order 636, 57 FR 13318, Apr. 16, 1992, as amended by Order 636-A, 57 FR 36217, Aug. 12, 1992]

## APPENDIX 2: SOME EXAMPLES OF LICENSE CONDITIONS

The outline of conditions set out below outlines some examples of Standard Conditions for a Transmission Enterprise's License (that is, the licensing of entities responsible for the transmission of gas) . These conditions would be similar for a Storage or Distributions Enterprise's license. The wording presented is adapted from the conditions developed in the UK. The Standard License Conditions published in the UK may be found on Ofgem's web - site at [www.ofgem.gov.uk](http://www.ofgem.gov.uk).

### ***Conditions governing Access to Transmission Systems***

#### **Separate Accounts for Transmission Business**

1. The license - holder shall keep proper accounting and other records and they shall be in such a form that the revenues and costs, assets and liabilities of, or reasonably attributable to, its pipeline services business are separately identifiable from those of any other business of the license - holder.
2. Without prejudice to the generality of paragraph (1), the licensee shall, so far as is reasonably practicable, prepare in respect of its transportation business on a consistent basis from its accounting records -
  - (a) in respect of the initial period and of each succeeding financial year of the licensee, accounting statements comprising -
    - (b) profit and loss account
      - (i) a statement of assets and liabilities with the details reasonably necessary to reconcile the net assets shown in

that statement at the beginning and end of the period to which it relates; and

- (ii) a cash flow statement for that period with a reconciliation to the accounting statements specified in subparagraphs (i) and (ii), and in respect of the first 6 months of each financial year of the licensee commencing on or after the first day of the initial period, an interim profit and loss account

3. The accounting statements prepared under paragraph (2) (a) shall –

- (a) set out and fairly present the costs (including depreciation), revenues, assets employed and liabilities of, or as may be reasonably attributable to, the pipeline services business and show separately and in appropriate detail the amount of any revenue, cost, asset or liability which has been either –
  - (i) charged from or to any other business of the licensee – holder; or
  - (ii) determined by apportionment between the transportation business of the licensee and any other business of the licensee, together with a description of the basis of the charge or apportionment;
- (b) so far as is reasonably practicable (if the licensee is a company required to prepare annual accounts) –
  - (i) have the same content in respect of the business to which they relate as the annual accounts of the licensee prepared in accordance with the [SPECIFY THE RELEVANT LAW IN CHINA GOVERNING FINANCIAL ACCOUNTS OR THE RELEVANT INTERNATIONAL PRINCIPLES AND STANDARDS THAT ARE GENERALLY APPLIED]

4. Except in so far as the Regulatory Commission accepts otherwise, the licensee shall not change any basis of charge or apportionment used in the accounting statements in respect of its transmission business for any financial year of the licensee subsequent to the initial period from the basis used in the accounting statements in respect of that business for the initial period or, as the case may be, the preceding financial year.
5. The licensee shall procure, in respect of each set of accounting statements prepared under paragraph (2) (a), a report by an appropriate auditor which is addressed to the Gas Regulatory Commission and states whether in his opinion that set of accounting statements –
  - (a) adequately shows the financial affairs of the transportation business of the licensee and is in compliance with this condition, and
  - (b) represents a true and fair view of the revenues, costs, assets and liabilities of, or reasonably attributable to, that business.
6. The licensee shall furnish the Regulatory Commission with a copy of each set of accounting statements and the auditors, report relating thereto required by paragraphs (2) (a) and (5) and of each interim profit and loss account required by paragraph (2) (b) as soon as is reasonably practicable and in any event not later than –
  - (a) in the case of each set of accounting statements and the auditor's report relating thereto, 6 months after the end of the period in respect of which the statements are prepared, or
  - (b) in respect of each interim profit and loss account, 2 months after the end of the period in respect of which it is prepared.
7. The licensee shall publish each accounting statement required by



paragraph (2) (a) in such a manner as, in the reasonable opinion of the licensee, will secure adequate publicity for it and so publish it not later than —

- (a) The time of publication of the annual accounts of the licensee for the financial year of the licensee to which the statements relate, or
- (b) 6 months (or such longer period as the Regulatory Commission may accept) after the end of that financial year, whichever is the earlier;

Provided that this paragraph shall not require the publication of the amount or basis of any charge or apportionment to be shown separately under paragraph (3) (a), where publication would or might seriously and prejudicially affect the interests of the licensee

8. Any question arising under the proviso to paragraph (7) as to whether such publication as is there mentioned would or might seriously and prejudicially affect the interests of the licensee shall be determined by the Regulatory Commission

9. In this condition “appropriate auditor”, means, in the case of a licensee which is a company within the meaning of [SPECIFY REFERENCE TO RELEVANT COMPANY LAW IN CHINA], a person appointed as auditor; “financial year” has the same meaning as in the [SPECIFY REFERENCE TO RELEVANT COMPANY LAW IN CHINA], except that where that Law is not applicable it means a year ending with [DATE] or such other date as may be specified by the licensee in a notice given to the Regulatory Commission; “the initial period” means the period beginning on the appointed day or (if later) the coming into force of the license and ending immediately before the beginning of the succeeding financial year of the licensee; references to

costs or liabilities of, or reasonably attributable to, a business shall be construed as excluding taxation, capital liabilities not related solely to that business and interest thereon; and references to a profit and loss account or cash flow statement shall be construed accordingly.

**Conduct of transportation business**

1. The licensee shall conduct its transportation business in the manner best calculated to secure that neither —

(a) The licensee or any such person as is mentioned in paragraph (7), nor

(b) Any gas shipper or gas supplier, obtains any unfair commercial advantage including, in particular, any such advantage from a preferential or discriminatory arrangement, being, in the case of such an advantage accruing to the licensee, one in connection with a business other than its transportation business.

2. Subject to paragraph (3), the licensee shall use its best endeavors to secure that —

(a) No information relating to, or derived from, its transportation business is disclosed for the benefit of any trading business conducted by the licensee or any such person as is mentioned in paragraph (7), and

(b) No information derived from its transportation business is used for the purposes of any trading business conducted by the licensee or (so far as the licensee has powers in that behalf) of a trading business conducted by any such person as is mentioned in paragraph (7) .

3. Paragraph (2) shall not apply in so far as —

(a) The Regulatory Commission so consents;

(b) A gas shipper or gas supplier has, for the purposes hereof,

consented in writing to the use or disclosure of information relating to that shipper or supplier;

(c) It is necessary or expedient that the information be used or disclosed to enable such a person as is mentioned in paragraph (7) to enter into transportation arrangements with the licensee or to give effect to such arrangements;

(d) The information has been published or is required to be disclosed as mentioned in paragraph (2) (a) in pursuance of any other condition of this license, or

(e) The information (otherwise than in consequence of a contravention of any condition of this license) is in the public domain.

4. In this condition "trading business" means activities connected with the acquisition and disposal of gas in China or connected with arranging with a gas transmission enterprise for gas to be introduced into, conveyed by means of or taken out of a pipe-line system operated by that enterprise, other than —

(a) such activities relating to gas intended for consumption outside China as are designated for the purposes of this condition by the Regulatory Commission, or

(b) in the case of the licensee, such activities in connection with either the efficient operation of its pipe-line system or the replacement of gas lost from that system

#### **Code of Operations**

1. The licensee shall establish transportation arrangements in respect of matters other than those to which standard conditions 3 and 4 relate which are calculated to facilitate the achievement of the following objectives —

(a) the efficient and economic operation by the licensee of its pipe-line system;

- (b) so far as is consistent with sub-paragraph (a), the efficient discharge of its obligations under this license;
  - (c) so far as is consistent with sub-paragraphs (a) and (b), the securing of effective competition between relevant shippers and between relevant suppliers,
  - (d) hereinafter referred to as "the relevant objectives."
2. The licensee shall -
- (a) prepare a document (in this license referred to as the "Code of Operations") setting out (together with the terms of any other arrangements which the licensee considers it appropriate to set out in the document) the terms of the arrangements made in pursuance of paragraph (1) save in so far as they relate to matters regulated by standard condition 5 or 6 or are contained in such an agreement, or an agreement of such a class or description, as may be designated by the Regulatory Commission for the purposes of this condition, and
  - (b) furnish the Regulatory Commission with a copy thereof.
3. Except in a case in which the Regulatory Commission accepts otherwise, the licensee shall only enter into transportation arrangements which are in conformity with any relevant provisions of the code of operations.
4. Where a provision of the code of operations requires that, in circumstances specified in the provision, a determination by the licensee in pursuance of that provision in a particular case should be such as is calculated to facilitate the achievement of the relevant objectives, any question arising thereunder as to whether the licensee has complied with that requirement shall be determined by the Regulatory Commission.
5. The licensee shall establish and operate such procedures as are mentioned in paragraph (6) for the modification of the code of

- operations so as to better facilitate the achievement of the relevant objectives.
6. The procedures referred to in paragraph (5) shall be such as provide for —
    - (a) the reviewing of the code of operations;
    - (b) the making of proposals for its modification either by the licensee or by a relevant shipper;
    - (c) the giving of adequate publicity to any such proposal including, in particular, drawing it to the attention of all relevant shippers and sending a copy of the proposal to any gas shipper or other person who asks for one;
    - (d) the seeking of the views of the Regulatory Commission on any matter connected with any such proposal;
    - (e) the consideration of any representations relating to such a proposal made (and not withdrawn) by a relevant shipper or by any gas shipper or other person likely to be materially affected were the proposal to be implemented, and
    - (f) where the Regulatory Commission accepts that the code of operations may require modification as a matter of urgency, the exclusion, acceleration or other variation, subject to his approval, of any particular procedural steps which would otherwise be applicable.
  7. The licensee shall —
    - (a) prepare a document ( “the modification rules”) setting out the procedures established in pursuance of paragraph (5), and shall furnish the Regulatory Commission with a copy thereof;
    - (b) not make any change in the modification rules except —
      - (i) after consulting all relevant shippers and considering any representations made by such a shipper;

- (ii) after furnishing the Regulatory Commission with a report on such consultation and its consideration of any such representations, and
- (iii) with the consent of the Regulatory Commission, and
- (c) furnish the Regulatory Commission with a copy of any change which is made.

8. The licensee shall not make any modification to the code of operations except —

- (a) to comply with paragraph (10) (b) or (11), or
- (b) with the consent of the Regulatory Commission, and shall furnish the Regulatory Commission with a copy of any modification made.

9. Where the [ STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY ] has given a notice to the licensee in pursuance of this paragraph referring to a matter relating to the protection of the public from dangers arising from the conveyance of gas through its pipe — line system and a modification to the code of operations could, consistently with the relevant objectives, appropriately deal with the matter, the licensee shall propose such a modification in accordance with the modification rules, and any requirement that a modification be such as to better facilitate the achievement of the relevant objectives shall be treated as met if the modification is consistent with those objectives.

10. Where a proposal is made in accordance with the modification rules to modify the code of operations, the licensee shall —

- (a) as soon as is reasonably practicable, give notice to the Regulatory Commission —

- (i) giving particulars of the proposal;
- (ii) where the proposal is made by a relevant shipper,

drawing attention to any alternative proposal to modify the code of operations in respect of the same matter which has been made by the licensee;

- (iii) giving particulars of any representations by a gas shipper or other person with respect to those proposals;
- (iv) stating whether, in its opinion, any proposed modification should or should not be made;
- (v) stating the factors which, in its opinion, justify the making or not making of a proposed modification, and
- (vi) giving such further information as may be required to be given to the Regulatory Commission by the modification rules, and

- (b) comply with any direction given by the Regulatory Commission to make a modification to the code of operations in accordance with a proposal described in a notice given to the Regulatory Commission under sub – paragraph (a) which, in the opinion of the Regulatory Commission, will, as compared to the existing provisions of the code of operations or any alternative proposal, better facilitate, as mentioned in paragraph (5), the achievement of the relevant objectives.

11. The licensee shall –

- (a) prepare and publish a summary of the code of operations and of the modification rules as modified or changed from time to time in such form and manner as the Regulatory Commission may from time to time direct, and
- (b) send a copy of the code of operations as modified from time to time, or of the modification rules as so changed, to any person who asks for one and makes such payment to the licensee in respect of the cost thereof as it may require not

exceeding such amount as the Regulatory Commission may from time to time approve for the purposes hereof.

12. Any question arising under the modification rules as to –
  - (a) whether a gas shipper or other person is likely to be materially affected by a proposal to modify the code of operations were it to be implemented, or
  - (b) whether representations relating to such a proposal and made in pursuance of the rules have been properly considered by the licensee, shall be determined by the Regulatory Commission.

### **Conditions governing Tariffs**

#### **Tariffs for Gas Shippers**

1. The licensee shall furnish the Regulatory Commission with a statement of
  - (a) the charges to be made in pursuance of transportation arrangements with specified descriptions of gas shippers in different specified cases or descriptions of cases, and
  - (b) the methods by which, and the principles on which, those charges are determined in accordance with the methodology referred to in paragraph (5) or, as the case may be, in paragraph (6), and, without prejudice to paragraph (2), if any change is made in the charges to be so made, or in the methods by which, or the principles on which, those charges are to be so determined, the licensee shall, before the change takes effect or, if that is not reasonably practicable, as soon as is reasonably practicable thereafter, furnish the Regulatory Commission with a revision of the statement or, if he so accepts, with amendments to its previous statement, which reflect the change.

2. The licensee



- (a) shall give the Regulatory Commission notice of any proposals which it is considering to change the charges mentioned in paragraph (1), together with a reasonable estimate of the effect of the proposals (if implemented) on those charges, and shall use all reasonable endeavours to do so at least 150 days before the proposed date of their implementation, and
  - (b) where it has decided to implement any proposals to change the charges mentioned in paragraph (1), give him notice of its decision and the date on which the proposals will be implemented which shall not, unless he otherwise consents, be less than a month after that on which the notice required by this sub-paragraph was given to him.
3. The licensee shall -
- (a) publish any statement, or revision or amendment of a statement, furnished, or notice given, under paragraph (1) or (2) in such manner as will, in its reasonable opinion, secure adequate publicity for it, and
  - (b) send a copy of any such statement, revision, amendment or notice so published to any person who asks for one.
4. Except in a case in which the Regulatory Commission accepts otherwise, the licensee shall only enter into transportation arrangements which secure that the charges in pursuance thereof will be in conformity with the statement last published under paragraph (3) either -
- (a) before it enters into the arrangements, or
  - (b) before the charges in question from time to time fall to be made, and, for the purposes of this paragraph, the reference to the statement last published under paragraph (3) shall be construed, where that statement is subject to amendments so published before the relevant time, as a reference to that

statement as so amended.

5. Subject to paragraph (6), the licensee shall –

- (a) establish a methodology showing the methods by which, and the principles on which (except in a case in which the Regulatory Commission accepts otherwise) such charges as are mentioned in paragraph (1) (a) are to be determined, and
- (b) conform to the methodology so established as from time to time modified in accordance with standard condition 4.

6. If, before the appointed day, the holder of this license had established a methodology showing the methods by which and the principles on which, charges corresponding to ones mentioned in paragraph (1) (a) were to be determined and that methodology had been approved by the Regulatory Commission ( “the old methodology”) then, so long as it continues to apply that methodology (subject to any necessary modifications) –

- (a) paragraph (5) shall not apply, and
- (b) in any case to which the old methodology (subject to any such modifications) is applicable, the licensee shall conform to that methodology, as from time to time modified in accordance with standard condition 4.

7. In any case in which the licensee is willing to enter into storage arrangements in respect of such facilities as are mentioned in paragraph (10) –

- (a) if the charges in pursuance of those arrangements are not governed by the methodology established under paragraph (5) or, as the case may be, by the old methodology, the licensee shall avoid any undue preference or undue discrimination in the terms on which it enters into such arrangements, and
- (b) if either those charges or any charges made in pursuance of

transportation arrangements other than storage arrangements are not governed as aforesaid, the licensee shall ensure so far as is reasonably practicable, that no unjustified cross-subsidy is involved between the terms on which it enters into the storage arrangements and those on which it enters into other transportation arrangements.

8. Any question which arises under paragraph (7) as to whether a cross-subsidy is unjustified, shall be determined by the Regulatory Commission.

9. References in paragraphs (1) to (5) to charges do not include references to -

(a) charges related to the acquisition or disposal of gas for purposes connected with the balancing of the licensee's pipeline system, or

(b) to the extent (if any) to which the Regulatory Commission has accepted that they should, as respects certain matters, be so determined, to charges determined by reference to provisions in that behalf set out in the code of operations, and, subject as aforesaid, references in this condition and in standard condition 4 to charges - include references to the means whereby charges may be ascertained, and exclude references to supplemental charges within the meaning of standard condition 6

#### **Tariff Methodology Obligations**

1. Except in so far as the Regulatory Commission consents to the licensee not doing so, the licensee shall, subject to paragraphs (2) and (3), from time to time make such modifications of the methodology established in pursuance of paragraph (5) of standard condition 3 or, as the case may be, the old methodology mentioned in paragraph (6) thereof ("the methodology") as may

- be requisite for the purpose of achieving the relevant objectives.
2. Except in so far as the Regulatory Commission otherwise approves, the licensee shall not make a modification of the methodology unless it has
    - (a) consulted the relevant shippers on the proposed modification and allowed them a period of not less than 28 days within which to make written representations, and
    - (b) furnished the Regulatory Commission with a report setting out –
      - (i) the terms originally proposed for the modification,
      - (ii) the representations (if any) made by relevant shippers, and
      - (iii) any change in the terms of the modification intended in consequence of such representations, and unless 28 days have elapsed since the said report was furnished without the Regulatory Commission having given the licensee a direction requiring that the modification be not made.
  3. Subject to paragraph (4), the licensee shall in each calendar year furnish the Regulatory Commission with a report on the application of the methodology during the 12 months preceding 1st October in that year including a statement as to –
    - (a) the extent to which, in the licensee's opinion, the relevant objectives have been achieved during the period to which it relates;
    - (b) whether those objectives could more closely be achieved by modification of the methodology, and
    - (c) if so, the modifications which should be made for that purpose.
  4. As respects the calendar year in which this license came into force

- (a) if it came into force on or after 1st October in that year, paragraph (3) shall not apply, or
  - (b) if it came into force before that date, paragraph (3) shall have effect as if for the reference to the 12 months preceding that date there were substituted a reference to the period preceding that date beginning with the date on which the license came into force.
5. In paragraphs (1) and (3) "the relevant objectives" means, subject to paragraph (6), the following objectives –
- (a) that compliance with the methodology results in charges which reflect the costs incurred by the licensee in its transportation business;
  - (b) that, so far as is consistent with sub – paragraph (a), the methodology properly takes account of developments in the transportation business;
  - (c) that, so far as is so consistent, compliance with the methodology facilitates effective competition between gas shippers and between gas suppliers.
6. Where –
- (a) the methodology results in charges which, or the revenue derived from which, are, in the main, not controlled or limited in pursuance of any condition of this license other than standard condition 3, and
  - (b) the Regulatory Commission has not accepted that, for a specified period, this paragraph should not apply or has so accepted subject to conditions which are not satisfied, "the relevant objectives" shall include the following objective, namely, that the methodology results in charges which, taking one charge with another and one year with another,

1

permit the licensee to make a reasonable profit, and no more, from its transportation business so, however, that, for the purposes of this paragraph, there shall be disregarded —

- (i) costs incurred for the purposes of that business in connection with the construction of pipe — lines for the benefit of an area for the time being designated for the purposes of standard condition 6;
- (ii) revenue derived from that business by way of charges (within the meaning of standard condition 5) to which any provisions of that condition have effect and which are in respect of premises within an area for the time being so designated;
- (iii) revenue derived from that business by way of supplemental charges (within the meaning of standard condition 6), and
- (iv) any payments made by the licensee in connection with the proposed development of an area for the time being not so designated to a person who has an interest in land in that area, other than by way of reasonable consideration for an interest in land or for goods or services with which the licensee is provided, and, for the purposes of this paragraph, “costs” and “revenue” mean costs and revenue determined on an accruals basis.

7. The licensee shall comply with any direction given from time to time by the Regulatory Commission requiring the licensee —

- (a) subject to paragraphs (8) and (9) to publish such information as may be specified or described in the direction — as to any of the costs incurred by the licensee in its transportation

- business, or relating to the methodology as modified from time to time in accordance with paragraph (1), and
- (b) to do so in such form and manner and with such frequency as may be so specified.
8. The licensee shall not be required by paragraph (7) to publish any information or any document –
- (a) which it could not be compelled to give in evidence or produce in civil proceedings before the court, or
- (b) so far as it comprises information relating to costs incurred in connection with the construction of pipe – lines for the benefit of an area for the time being designated for the purposes of standard condition 6 or so incurred in preparation for the area becoming so designated.
9. In publishing any information in pursuance of paragraph (7) (the licensee shall have regard to the need for excluding, so far as is practicable, any matter which relates to the affairs of any person where the publication of that matter would or might seriously and prejudicially affect his interests.
10. Any question arising under paragraph (9), as to whether the publication of some matter which relate to the affairs of a person would or might seriously and prejudicially affect his interests, shall be determined by the Regulatory Commission.

**Restriction of prices for transportation services**

1. The Licensee shall in setting its prices for the use made of its Transportation System having effect on or after [start date of Tariff Year] take all reasonable steps to secure that in each Formula Year commencing on or after [start date of Formula Year] its Average Transportation Price per energy unit shall not exceed the Maximum Average Transportation Price per energy unit [or per GigaJoule] calculated in accordance with the following formula –

$$M_t = (1 + \frac{CPI - X}{100})K_t$$

provided that in respect of the Formula Year commencing on [start date of Formula Year],  $M_{t-1}$  shall have the value of [ ] RMB

where

$M_t$  = Maximum Average Transportation Price per energy unit in Formula Year t

$K_t$  = the correction factor per energy unit (whether of a positive or negative value) to be made in relation to Formula Year t which is derived from the following formula:

$$K_t = (\frac{T_{t-1} - Q_{t-1}M_{t-1}}{Q_t})(1 + \frac{I_t}{100})$$

where

$M_{t-1}$  = Maximum Average Transportation Price per energy unit in Formula Year t-1

$Q_t$  = Deemed Transportation Quantity in Formula Year t

$Q_{t-1}$  = Deemed Transportation Quantity in Formula Year t-1

$T_{t-1}$  = Transportation Revenue for Formula Year t-1

In the formulae in this Condition -

$CPI_t$  = the percentage change (whether of a positive or negative value) in the Consumer Price Index between that published or determined with respect to [month name] in Formula Year t and that published or determined with respect to the immediately preceding [month name];

$I_t$  = the percentage interest rate in Formula Year t which is equal to, where  $K_t$  (taking no account of  $I_t$  for this purpose) has a positive value, the average Specified Rate plus three or, where  $K_t$  (taking no account of  $I_t$  for this purpose) has a negative value, the average Specified Rate;



2. In this Condition:

“Average Transportation Price per energy unit” means in respect of any Formula Year the Transportation Revenue for that Formula Year divided by the Deemed Transportation Quantity for that Formula Year;

“Retail Price Index” means the Index of Consumer Prices published by the [APPROPRIATE BODY RESPONSIBLE FOR THE PUBLICATION OF NATIONAL STATISTICS] each month in respect of all items or –

(a) if the Index for the month of [month name] in any year shall not have been published on or before the last day of [month + 3 month] next following, such index for such month or months as the Regulatory Commission may after consultation with the Licensee determine to be appropriate in the circumstances; or

(b) if there is a material change in the basis of the Index, such other index as the Regulatory Commission may after consultation with the Licensee determine to be appropriate in the circumstances;

“Shipper” means any gas shipper who has arranged with the Licensee for gas to be introduced into, conveyed by means of, or taken out of the Transportation System;

“Specified Rate” means the base rate of [NAME OF ESTABLISHED REGULATED COMMERCIAL BANK] current from time to time during the period in respect of which the calculation falls to be made;

“Supply of Transportation Services” means the undertaking and performance for gain or reward of engagements:

(a) in connection with the conveyance of gas through the Transportation System, and

(b) for the prevention of the escape of gas which has been taken off

the Transportation System by the Licensee for other persons except engagements relating to the acquisition or disposal of gas otherwise than for the efficient operation of the Transportation System or for replacing gas lost from that system;

“Transportation Quantity” means the aggregate quantity of gas, in energy units, taken off

“Transportation Revenue” means the turnover (measured on an accruals basis) derived from Supply of Transportation Services for Shippers but excluding turnover which

(a) relates to the execution of works in connection with the provision of, or the carrying out of modifications to, points at which gas may be introduced into or taken off the Transportation System;

(b) relates to the acquisition or disposal of gas for the efficient operation of the Transportation System;

(c) derives from the Supply of Transportation Services which otherwise are not ordinarily required by Shippers;

(d) to the extent not excluded by sub – paragraph (b) above, derives from charges made by or payments made to the Licensee pursuant to provisions of the Licensee’ s Code of Operations;

(e) derives from supplemental charges within the meaning of Standard Condition 6;

(f) represents revenue equal to any allowance made or charges (in respect of gas treated as not having been taken out of its pipeline system) required to be foregone for the purpose of paragraphs (4) and (5) of Standard Condition 24; or

(g) derives from charges in respect of the provision of emergency services under contracts entered into pursuant to Special Condition 19;

Provided that for the purposes of measuring Transportation Quantity or Large User Quantity in respect of any Formula Year where gas is taken off the Transportation System directly into a facility used wholly or

mainly for the purpose of storage of gas, account shall be taken only of the quantity of gas (which may have a negative value) equal to the difference between

(a) the quantity of gas taken off the Transportation System directly into such a facility in that Formula Year; and

(b) the quantity of gas introduced into the Transportation System from such a facility in that Formula Year.

3. Except in so far as the Regulatory Commission consents to the Licensee not doing so the Licensee shall refer for determination by the Regulatory Commission any question whether, for the purpose of the definition of "Transportation Revenue" in paragraph (2) above, the undertaking and performance for gain or reward of an engagement is or is not of a kind ordinarily required by Shippers or the supply of any Transportation Service is or is not ordinarily required by Shippers.

4. If in respect of any Formula Year the Average Transportation Price per energy unit exceeds the Maximum Average Transportation Price per energy unit by more than 4 per cent of the latter, the Licensee shall furnish an explanation to the Regulatory Commission and, in the next following Formula Year, the Licensee shall not effect any increase in prices unless either

(a) it has demonstrated to the reasonable satisfaction of the Regulatory Commission that the Average Transportation Price per energy unit would not be likely to exceed the Maximum Average Transportation Price per energy unit in that next following Formula Year; or

(b) the Regulatory Commission has, on the application of the Licensee, consented to such an increase in prices.

5. If, in respect of any two successive Formula Years, the sum of the amounts by which the Average Transportation Price per ener-

gy unit has exceeded the Maximum Average Transportation Price per energy unit is more than 5 per cent of the Maximum Average Transportation Price per energy unit for the second of those years, then in the next following Formula Year the Licensee shall, if required by the Regulatory Commission, adjust its prices such that the Average Transportation Price per energy unit would not be likely, in the judgment of the Regulatory Commission, to exceed the Maximum Average Transportation Price per energy unit in that next following Formula Year.

6. Where the Licensee publishes any statement or revised or amended statement as to its transportation charges under Standard Condition 3, the Licensee shall not later than twenty – eight days prior to the time of such publication provide the Regulatory Commission with –
  - (a) a written forecast of Maximum Average Transportation Price per energy unit, together with its components, in respect of the Formula Year in which the change in such charges is to take effect and also in respect of the next following Formula Year; and
  - (b) a written estimate of the Maximum Average Transportation Price per energy unit, together with its components, in respect of the Formula Year immediately preceding the Formula Year in which the change in such charges is to take effect unless a statement complying with paragraph 10 below in respect of that first mentioned Formula Year had been furnished to the Regulatory Commission before the publication of the proposed change in such charges.
7. If, within three months of the commencement of any Formula Year, the Licensee has not published or effected any such change in its charges, the Licensee shall provide the Regulatory Commis-

sion with a written forecast of the Maximum Average Transportation Price per energy unit, together with its components, in respect of that Formula Year.

8. Any forecasts as aforesaid shall be accompanied by such information as may be necessary to enable the Regulatory Commission to be reasonably satisfied that the forecasts have been properly prepared on a consistent basis.
9. Not later than six weeks after the end of a Formula Year, the Licensee shall send to the Regulatory Commission a statement as to whether or not, in its opinion, paragraphs 4 or 5 above applies in respect of that Formula Year and its best estimate of what K is likely to be in the following Formula Year.
10. The Licensee shall send to the Regulatory Commission, not later than three months after the end of each Formula Year, a statement showing the Transportation Revenue and the Transportation Quantity in respect of that Formula Year.
11. The statement referred to in sub - paragraph (5) above shall be accompanied by a report from the Auditor that, in his opinion, that statement fairly presents Transportation Revenue and the Transportation Quantity in accordance with the requirements of this Condition.

***Conditions governing Investment***

**Long term Development Statement**

1. The licensee shall comply with a direction given by the Regulatory Commission to prepare a statement in such form as may be specified in the direction giving, with respect to each of the 10 succeeding years beginning with 1st October, such information by way of forecasts of
  - (a) the use likely to be made of any individual pipe - line system which includes high pressure pipe - lines operated by the li-

censee and of any such facilities as are mentioned in paragraph (6), and

(b) the likely developments of that system and those facilities which the licensee expects from time to time to be taken into account in determining the charges for making connections to that system and in pursuance of transportation arrangements, as will assist a person who contemplates seeking the connection of a pipe - line of his to the licensee's pipe - line system; entering into transportation arrangements with the licensee, or seeking the connection of the licensee's pipe - line system to premises which would reasonably be expected to be supplied with gas at a rate exceeding [ ] Gigajoules a year, in identifying and evaluating the opportunities for doing so.

2. Except in so far as the Regulatory Commission consents to the licensee not doing so, the licensee shall on an annual basis prepare a revision of any statement prepared under paragraph (1) so as to ensure that, so far as is reasonably practicable, the information in the revised statement is up to date.

3. The licensee shall, subject to any requirement to comply with paragraph (4) below -

(a) furnish the Regulatory Commission with a copy of the statement prepared under paragraph (1) and of each revision of the statement prepared under paragraph (2);

(b) in such form and manner as the Regulatory Commission may direct, publish such a summary of the statement or, as the case may be, of a revision of the statement as will assist a person in deciding whether to ask for a copy of the version mentioned in sub - paragraph (c), and

(c) prepare a version of the statement or revision which ex-

cludes, so far as is practicable, any such matter as is mentioned in paragraph (4) and send a copy thereof to any person who asks for one and makes such payment to the licensee in respect of the cost thereof as it may require not exceeding such amount as the Regulatory Commission may from time to time approve for the purposes hereof.

4. In complying with the requirements of paragraph (3) (b), the licensee shall have regard to the need for excluding, so far as is practicable, any matter which relates to the affairs of a person where the publication of that matter would or might seriously and prejudicially affect his interests.
5. Any question arising under paragraph (4) as to whether the publication of some matter which relates to the affairs of a person would or might seriously and prejudicially affect his interests shall be determined by the Regulatory Commission.

**Construction of high pressure pipe – lines**

1. The licensee shall not at any time execute any works for the construction of a high pressure pipe – line unless, not less than one year (or such shorter period as the Competent Authority may allow) before that time, it has given notice to the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] –
  - (a) stating that it intends to execute the works;
  - (b) also containing, so far as they are not required by sub – paragraph (b) – the address of the licensee; the address (if known) of the office from which the pipe – line, if constructed, would be operated; particulars of both the normal and maximum permissible operating pressure of the proposed pipe – line, and such particulars, if any, as may from time to time be designated for purposes of this paragraph in the routing guidelines, and has sent a copy of that notice to any

local planning authority through whose area the pipe – line is intended to run.

2. If after a notice under paragraph (1) has been given, the execution of the works to which the notice relates has not substantially begun at the expiration of three years from the date on which it was given or at the expiration of any extension of that period given by the Competent Authority, the notice shall cease to have effect for the purposes of that paragraph except in relation to such works (if any) as have already been executed.
3. Where the proposed routing of the pipe – line is not in accordance with the routing guidelines –
  - (a) the licensee shall so notify the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY];
  - (b) the licensee shall consult the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] on the proposed routing; and
  - (c) if, within the period of 3 months beginning with the day on which the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] was notified in pursuance of sub – paragraph (a) (or such longer period as may be agreed in writing between the licensee and the Executive), the Executive gives written notice to the licensee that it does not agree to the proposed routing (with or without modifications acceptable to the licensee), the licensee shall (unless it decides not to proceed with the proposed works) send to the Competent Authority a copy of the notice referred to in paragraph (1);
  - (d) if within the said period, the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] –
  - (e) has agreed to the proposed routing (with or without modifi-



- cations acceptable to the licensee), or
- (f) has not given the licensee such a notice as is referred to in sub - paragraph (c), the licensee may, subject to paragraphs (4) and (5), proceed with the proposed works.
4. Where a local planning authority who have received a copy of the notice referred to in paragraph (1), within 2 months of receiving that copy, for reasons relating to safety (having regard to the routing guidelines and the risk criteria or, in the absence of such criteria, any advice given by the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY]) or otherwise, notify the licensee in writing that the proposed pipe - line would be likely to prejudice implementation of a material aspect of their development plan -
- (a) the licensee shall consult the authority on its proposals;
- (b) if, within the period of 3 months beginning with the day on which the authority notified the licensee as aforesaid (or such longer period as may be agreed in writing between the licensee and the authority), the authority give written notice to the licensee that they do not agree to its proposals (with or without modifications acceptable to the licensee), the licensee shall (unless it decides not to proceed with the proposed works) send to the Competent Authority a copy of the notice referred to in paragraph (1);
- (c) if, within the said period, the local planning authority - have agreed to the licensee's proposals (with or without modifications acceptable to it), or have not given the licensee such a notice as is referred to in sub - paragraph (b), the licensee may, subject to paragraphs (3) and (5), proceed with the proposed works.
5. If, within 6 months beginning with the day on which he received

a copy of the notice referred to in paragraph (1), in pursuance of paragraph (3) (c) or (4) (b), the Competent Authority (having regard, as respects matters relating to safety, to the risk criteria or, in the absence of such criteria, any criteria as to risk formulated by the licensee and any representations made by the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] in relation to the proposal) gives a direction to the licensee –

- (a) that it shall not proceed with the construction of the pipe – line, or
- (b) that, if it wishes to proceed with the construction of the pipe – line, it shall satisfy such requirements as are specified in the direction including, in particular requirements as respects the routing of the pipe – line, the licensee shall comply with the direction.

6. In this condition – the “routing guidelines” means the guidelines designated as such by the Competent Authority after consultation with the [ STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY ] and the persons who hold licenses at the time of such designation or any revision of such guidelines so designated, and the “risk criteria” means the risk based criteria, if any, which have –

- (a) been formulated and adopted by the [STATUTORY BODY RESPONSIBLE FOR HEALTH AND SAFETY] after consultation with the persons who hold licenses at the time of such adoption, and
- (b) been designated for the purposes of this condition by the Competent Authority, or any revision of such criteria so formulated and adopted and so

## APPENDIX 3: TRANSMISSION REGULATORY TECHNIQUES

The regulatory techniques for transmission fall into three broad categories that correspond to the principles considered in the previous report:

- The establishment of the business rules and procedures that will govern the terms and conditions of access to the transmission system.
- The derivation and regulation of tariffs for the transmission system.
- The authorization of pipelines and pipeline expansions.

This section addresses these categories and discusses the regulatory techniques in each of them. Currently the transmission system in China comprises unconnected networks of pipeline segments. These networks vary from relatively complex ones in Sichuan and in the Northeast to single pipelines from basins to market centers. Each of these networks (from the single pipeline to the most complex) constitutes a separate transmission entity for regulatory purposes.

The principal initial focus of regulatory effort will be on the existing transmission networks regardless of whether or not there is a demand for access by third parties. Even on networks where there is no immediate potential for the customers gaining access to an alternative supplier of gas, the separation (or unbundling) of transmission and supply activities generates benefits by revealing the underlying cost drivers and the potential for increased efficiency. In addition, as the interconnection of the currently isolated networks occurs over time, the development of appropriate terms and conditions of access will expedite the application of the

appropriate regulatory arrangements to the transmission system in China. This will confer more rapidly the benefits of increased competition in gas commodity markets through the increased access of network users to new sources of gas supply.

The establishment of appropriate terms and conditions of access requires the application of three sets of regulatory techniques. These comprise techniques to

- Ensure the separation of transmission and gas supply activities;
- Establish the business rules and procedures that govern the terms and conditions of access for individual network users; and
- Evaluate and, if acceptable, approve the transmission service offer

#### ***Separation of Transmission and Supply Activities***

The first set of regulatory techniques relate to the application of the principle that requires an effective separation of transmission and gas supply activities.

Three options define a broad range of options that may be chosen to achieve varying degrees of separation:

- Option 1: Separation of accounts and management accompanied by a Code of Conduct to police this separation.
- Option 2: Separate business units for transmission and supply at different locations.
- Option 3: Divestment of either transmission or supply.

These three options vary from the minimum separation requirement (Option 1), to the radical option of divesting (or selling off) either the transmission or supply business. Option 2 may be viewed as a "half-way house," but it is one of a number of variants that may be defined between the extremes defined by Option 1 and Option 3. These options successively broadly describe the experience of gas transmission businesses

throughout the world as they attempt to adapt to the changes involved when they are required to provide access to their pipeline networks. Most transmission businesses initially resisted regulatory demands to separate their transmission and supply mainly to protect their share of the gas market (more common in Europe), but also to avoid the costs of restructuring their businesses and the development of new administrative arrangements (more common in North America). As a result, they were prepared to concede only a minimum degree of separation.

Over time regulatory commissions sought more effective separation, which was motivated, in many cases, by complaints from shippers that the transmission businesses were discriminating against them and in favor of their own associated (or affiliated) supply businesses. Eventually many transmission businesses saw a benefit in placing their supply activities in a completely separate company. This provided a strategic and managerial focus and reduced the incidence of disputes with both the regulatory commission and gas shippers. This is true of gas transmission businesses in both North America and the United Kingdom. Movements in this direction are beginning to emerge in Australia and New Zealand, which began their gas industry reforms later than those in North America and the United Kingdom. Most gas transmission businesses in Western Europe (such as Gaz de France (France), Distrigaz (Belgium), Gasunie (the Netherlands), Gas Natural (Spain) and Ruhrgas (Germany)) are only beginning to address this issue of separation and, in most cases, are contemplating some variant of Option 1.

In the Chinese context, it makes sense to begin with Option 1 and, during the transitional phase, to assess its ability to satisfy regulatory commission and shipper requirements. The implementation of Option 1 is frequently (and most effectively) achieved by means of a Code of Conduct.

The purpose of this exercise is to provide the basis for the offer and

regulation of an unbundled transmission service. For each transmission business, the regulatory commission will set out the issues that will need to be addressed in each document. It is envisaged that these documents and procedures will be developed by means of discussion and consultation between the transmission business and the eligible pipeline system users under the guidance and oversight of the regulatory commission.

### **Code of Conduct**

The Code of Conduct is the document that describes the procedures put in place by a transmission business to implement and enforce the separation of its transmission and supply activities. Each transmission entity that is subject to regulation will be required to prepare such a code. It is envisaged that these codes will be prepared as part of a process of consultation between the regulatory commission and the regulated transmission entity with provision for the participation of other interested parties (for example, producers, eligible consumers, and UGDCs) in the consultation process.

A typical Code of Conduct document will include the following elements:

**An Explanatory Note:** This will set out the requirement for the document with reference to the specific transmission entity.

**Definitions:** This will set out precise descriptions of the relevant parties and activities that will be referred to in the code.

**Objectives and Principles:** This section includes the transmission entity's commitment to provide nondiscriminatory access to all eligible and suitably qualified applicants. A key feature of this commitment will comprise the principles governing the management of information flows and the access to information. The transmission entity will receive commercially confidential information from applicants for a transmission – only service. The transmission activity has an incentive to pass this information on to its affiliated supply activity. For example, it will find out

who, among its customers currently receiving a bundled service, is planning to contract for a gas supply from another supplier. This will allow its affiliated supply activity to target these customers and entice them to remain as customers. This would provide the affiliated supply activity with an unfair advantage relative to other suppliers.

### **Implementation of Code of Conduct**

This section addresses the implementation of the Code of Conduct and includes the following:

The obligations of the transmission business. These obligations include the reorganization of procedures, policies, departmental structures, and job responsibilities to ensure compliance with the Code of Conduct. This section also includes commitments to establish employee communications and training programs to ensure that employees are informed and resourced to comply. A Complaints Procedure will also be established.

The nature of the functional separation. This subsection deals with the following:

- Sharing of facilities and resources
- Keeping of books and records
- Prohibitions on engaging in restricted activities
- Provision of business support services

The conduct of business. This subsection addresses the application of tariffs, charges, and discounts and the notification that will be required to ensure nondiscriminatory service.

Procedure for dealing with system emergencies. This subsection addresses the procedures for dealing with responses to system emergencies that violated the Code of Conduct.

The maintenance of accounts and records. This addresses accounting Code and statutory requirements.

The role of the Compliance Officer. This subsection presents the powers, duties, and responsibilities of the Compliance Officer who is re-

sponsible for monitoring and enforcing compliance with the Code of Operation, and outlines provisions for external audit.

A draft Code of Conduct is presented in Appendix 5.

### ***Code of Operations and Transmission Service Agreement***

#### **Code of Operations**

The second and third sets of regulatory techniques that set out the “business rules” and the offer of transmission service may now be addressed. The code of operations sets out the duties and obligations of the regulated transmission business (as the transmission service provider) and transmission system users. The transmission service agreement will be defined in terms of the code of operations and will detail the contract for transmission service between the transmission entity and an eligible network user.

A typical code of operations would comprise the following elements:

- Definitions and interpretation.
- Common network security Code and network planning.
- Transfer of custody and title.
- Specification, pressure and quality.
- Measurement and testing.
- Shrinkage.
- Entry (input or receipt) point requirements.
- Exit (off – take or delivery) requirements.
- Capacity available and offered.
- Nominations, re – nominations, and scheduling.
- Balancing and settlement of imbalances.
- Maintenance.
- Emergencies and throughput curtailments (force majeure) .
- Billing and Payment.
- Taxes and duties.
- Dispute resolution.



Appendix 6 contains the General Terms and Conditions for a North American pipeline. This corresponds to a Code of Operations.

### **Transmission Service Agreement**

Generally a standard transmission service agreement is comprised of separate firm and interruptible services. A typical firm service offer will be defined in terms of the Code of Operations and will include specific contractual terms such as the following:

Nature and definition of service.

- Receipt and delivery points.
- Charges for service.
- Financial assurances.
- Invoicing and payment.
- Allocation and assignment (release) of capacity.

The General Terms and Conditions presented in Appendix 6 contain the form of firm and interruptible transmission service agreements as appendixes. Appendix 6 also contains Web site addresses for the Terms and Conditions of Access being offered by a selection of North American and European gas transmission companies.

The Articles in the General Terms and Conditions do not precisely match the key components of a Code of Operations as set out above. There are two reasons for this. First, the General Terms and Conditions relate to a specific pipeline and to a specific pipeline in North America. Second, and related to this, the components of the Code of Operations are intended to provide an overview of the issues that will need to be addressed in the Chinese context.

### ***Some Important Issues***

Six issues are worthy of further consideration in the Chinese context:

- The definition and allocation of transmission capacity.
- The nature of the right to capacity.

- Network planning and common network security standard.
- Gas quality.
- Balancing and settlement.
- Shrinkage.

The first three issues are closely related and may be discussed together.

### **Transmission capacity, capacity rights, and security**

In North America transmission pipelines have traditionally been “built to order.” This means that existing or new customers placed an order for capacity and backed up this request with a commitment to enter into a long – term contract for this capacity. When pipelines agreed, and were subsequently mandated, to offer an unbundled transmission service (separate from the supply of gas), in most cases it did not prove difficult to convert the Maximum Daily Quantity (MDQ) in their contracts to a capacity reservation. This, in effect, created a long – term property right to transmission capacity. In addition, this property right could be reasonably accurately defined and priced, particularly on long – distance transmission pipelines, because transmission charges were primarily determined by the capacity reserved and the distance over which this capacity was reserved.

By way of contrast, it has proved more difficult to define and allocate capacity on the more complex European national transmission networks. With the exception of BG Transco in the United Kingdom and the major German transmission companies, most European transmission companies are either fully within state ownership or are gradually being listed. All European transmission companies established and developed their networks to comply with a Public Service Obligation (PSO) to construct sufficient gas supply infrastructure to ensure secure and reliable supplies of gas and to comply with public policy objectives regarding the

penetration of natural gas.<sup>①</sup> As a result, European transmission companies constructed capacity in anticipation of demand and without any long-term contractual commitment by their customers to pay for this capacity.

In addition, the infrastructure in place in Europe would very likely be configured differently, if it had been constructed in response to long-term contractual commitments by customers. The development of integrated gas supply and transmission systems in step with increasing reliance on external supplies has involved an amount of investment in transmission and storage facilities that may only be justified by an extremely pessimistic assessment of the supply risk to which Europe is exposed.

The introduction of open access provides network users with the opportunity to place a value on the services provided by the network. And network users will invariably attempt to maximize their access to service at minimum cost. This has the potential to generate “stranded” or “above market” costs. Full cost recovery includes the investment recovery, investment return, and associated operating and maintenance costs of the existing transmission and storage facilities. If network users are unwilling to contract and pay for all the services of these facilities, actual revenue recovery will fall short of full revenue recovery. This shortfall is equivalent to “stranded” or “above market” costs. It may be the case in China that the transmission (and distribution) businesses will have to accept a write-down in the value of some of their assets before they are included in the asset base for the purposes of tariff design.

All these factors have contributed to the limited – indeed, almost negligible – progress in Europe toward the definition and allocation of transmission capacity and the offer of longer-term transmission con-

---

<sup>①</sup> In many instances, this PSO was not explicit, but it could be inferred from the legislation governing the establishment and operation of the transmission company.

tracts based on this definition. As a result, transmission contracts are typically offered for one year, usually in parallel to the gas contract year beginning on October 1. The relationship between the capacity reserved in these contracts and the capacity physically available on the network tends, at best, to be tenuous. The transmission tariffs are on an annual basis and may not be related in any meaningful way to the revenue recovery requirement of the transmission company.

The extent to which these factors affect China is not clear, but what is clear is that the Chinese transmission business has more in common with that in Europe than in North America. As discussed in Chapter 3, however, a strong case may be made for developing the transmission service agreement as a longer-term contract based on an objective definition and allocation of the physical transmission capacity<sup>①</sup>.

In China, as in Europe, the gas industry is moving from a situation where capacity is provided in anticipation of demand without firm long-term contractual commitments to a situation where network users decide how much capacity they require to ship their gas. Invariably network users will tend to understate their capacity requirements so as to minimize their costs. The transmission company will have an equally strong incentive to ensure that network users reserve as fully as possible the capacity that is available so as to minimize the incidence of stranded costs. With some justification, the transmission company will be able to assert that it is entitled to recover the full costs of investments prudently made under the previous legislative and commercial arrangements. However, regulatory commissions are reluctant to allow the full recovery of investment

---

① In the United Kingdom the failure to relate capacity reservations by network users to the physical capacity available at the entry points on the U.K. National Transmission System (NTS) resulted in overbooking by network users (shippers) and frequent curtailments of gas inputs. BG Transco has recently begun to auction entry capacity as the most effective means of allocating capacity to the network users who value it most highly. Consideration is also being given to a "contractualization" of system exit capacity.

costs when there is evidence that some of these costs are above market.

In most jurisdictions where the stranded cost issue has arisen, regulatory commissions have been compelled to arrive at a compromise. This compromise may take many forms, but it generally is composed of a number of common features. The first feature is the establishment of a common standard of network security that is included in the Code of Operations and with which all network users are required to comply.<sup>①</sup> This will result in a requirement that network users reserve a higher level of capacity than they would if they had complete discretion as to their capacity reservations. On the other hand, the level of capacity reserved is usually less than the total available, so some stranded costs result.

The second feature relates to the recovery of these stranded costs. In general, regulatory commissions tend to allow recovery of a portion of these stranded costs, which may be achieved in a number of ways. For example, the transmission company may be required to write off a portion of the stranded investments either immediately or over a short period. The company may be allowed to continue to recover the cost of a further portion of investment in accordance with the established depreciation policy, but without recovering a return on this portion of the investment. Finally, the company may be allowed full recovery of a portion of the investment, but allowed to earn a reduced rate of return.

In China, this will require detailed analysis of the availability of, and demand for, transmission in each of the identified transmission entities. This task should be relatively straightforward for single pipelines and for new pipeline projects. It may prove more time and resource consuming for the more complex systems. The exercise is very important, however, because uncertainty about the level of cost recovery and the lev-

---

① These Codes can vary quite considerably in terms of definition, but generally coincide in practice. In most cases, they attempt to identify the level of transmission capacity that is required to meet demand on a particularly cold day.

el of capacity available will diminish any possibility of developing contracts for capacity.

### **Gas Quality**

Although the gas transmission system in China currently consists of a number of separate pipelines and networks, it is vitally important that a common gas specification is defined and applied to all networks. This is primarily a mandatory technical regulation, but it has major implications for the current operation and future development of transmission networks in China.

Maintaining a tight specification for all gas entering the networks – in effect, enforcing a standard of pipeline marketable gas – will reduce corrosion and maintain the integrity of the networks. It will also facilitate the interoperability of these networks when interconnects are constructed.

An example of a typical specification for pipeline marketable gas may be found in Appendix 4 (Article 2) .

### **Balancing and Settlement**

Typically for long – distance pipelines in North America (as illustrated in Appendix 4), receipts and deliveries are balanced over a 30 – day period with a cash – out settlement at the end of the period. Penalties are imposed to encourage network users to minimize imbalances. It makes economic sense to keep these lines as full of gas as possible. These pipelines therefore operate at a high load factor. The fluctuations in daily and seasonal demand are then dealt with by supply from storage facilities located close to delivery points and adjacent to demand centers. As a result, relatively little daily variation will be likely in throughput on transmission lines. This tends to be true internationally for long – distance pipelines both in and between countries whose population density may be relatively low by international standards or where areas of population density may be few and concentrated.

By way of contrast, transmission networks in countries with higher population densities (which is particularly true of Europe) tend to experience much greater daily and seasonal variation in throughput. In addition, this variation varies directly with the extent of market penetration. The higher the proportion of residential and commercial (R&C) demand, the greater will be the daily variation. And it varies inversely with the availability of storage services close to demand centers. The greater the availability of storage services to modulate supply, the less will be the daily variation in throughput on the transmission network. For example, daily balancing is required in the United Kingdom. Italy and Spain are considering a similar arrangement. Belgium, France, and the Netherlands are seeking to establish an hourly balancing regime<sup>①</sup>.

The period over which balancing should take place is a function of the technical and operational characteristics of the transmission network. It is also related to the costs of the information and control systems that would need to be put in place to support the nomination, scheduling, and settlement arrangements associated with a specific balancing period.

In the Chinese context, this is an issue that will require detailed study. It should be noted that in addition to monthly and daily balancing, considering weekly balancing is possible. The choice of balancing period will determine the procedures that will be required to ensure efficient nomination, scheduling, balancing, and settlement.

Imbalance penalties should be related to the costs incurred by the transmission entity to maintain network balance. Typically this involves the costs of either acquiring or disposing of gas at short notice. It is difficult to devise a regime that provides an effective incentive to minimize these costs, which are recovered from network users.

---

① This is widely viewed as unrealistic, and some commentators view it as a tactic to discourage applications for access to these networks.

Increasingly in the United States, the availability of gas at short notice on spot markets is reducing the requirement for imbalance penalties. Transmission companies and network users are using these markets to deal with imbalances directly. Similarly, in the United Kingdom, an On – the – day Commodity Market (OCM) has been developed, which allows BG Transco and network users to buy and sell gas at short notice to maintain a daily balance.

This emphasizes an additional benefit of encouraging the emergence of a liquid and transparent gas commodity market.

### **Shrinkage**

Shrinkage is defined as the difference between the total inputs to a gas network and the total volume taken off. Typically it is comprised of Unaccounted for Gas (UAG) – arising from leakage and measurement error – and Own Use gas used as compressor fuel, for heating where the drop in pressure drives gas temperature below the gas specification and for controlled venting. On most North American pipelines, the UAG volume tends to be negligible, and there is rarely any requirement for heating and controlled venting. As a result, shrinkage may be equated to the compressor fuel requirement. The transmission company estimates the compressor fuel requirement and determines the share of this for each network user who is then required to add this volume to his gas input.

In the United Kingdom shrinkage comprises approximately 1 percent of gas inputs. BG Transco purchases this gas directly and recovers the cost in its transmission tariffs. Because the U.K. NTS is a relatively complex network, it is difficult to assign shrinkage volumes to specific network users. In addition, shrinkage is estimated for the entire transmission and distribution system, and UAG comprises a higher share of shrinkage than would be the case for long – distance transmission lines.

Given the variety of the unconnected networks in China, it appears reasonable to suggest that each transmission entity should purchase



shrinkage volumes directly (as in the United Kingdom) and recover the cost from networks users via transmission tariffs. A method to estimate the shrinkage volume should be developed and be approved by the regulatory commission. In addition, the purchase of gas for shrinkage should be subject to regulatory oversight.

## APPENDIX 4: GENERAL TERMS AND CONDITIONS

### *Information Sources*

Information on, or examples of, the Code of Operations (or General Terms and Conditions) may be found on numerous Web sites – some are listed below. The example of General Terms and Conditions presented in this Appendix is that the Alliance Pipeline Partnership in Canada (see Web site 3 below) . It was chosen because it has just been issued, it contains the key requirements for a statement of General Terms and Conditions and it is presented in clear, concise language.

**Web site 1:** Canadian National Energy Board (federal regulatory commission): go to < [www.neb.gc.ca](http://www.neb.gc.ca) >; select “English”; check “Publications” for Annual Reports, Act, Regulations, Guidelines; go to “Energy Overview”; review “Natural Gas Market Assessments”; check “Other Government Agencies, Energy Associations and Related Organizations” – Canada, United States, Mexico, including links to FERC and Mexican CRE.

**Web site 2:** TransCanada PipeLines (large existing pipeline): go to < [www.transcanada.com](http://www.transcanada.com) >; open Transmission Web page from Home Page < [/Transmission/index.html](http://www.transcanada.com/Transmission/index.html) >; go to “Transportation Tariffs” < [business/PDFTariffs/index.html](http://www.transcanada.com/business/PDFTariffs/index.html) >; choose “Canadian Mainline”; go to “Informational Postings”; review menu items – “Queuing Procedure”; “Tariff Schedules” (there are nine, try “FT”); “General Terms and Conditions” “Pro Forma Contracts.”

**Web site 3:** Alliance Pipeline (large new Canada – U.S. system): go to < [www.alliance – pipeline.com](http://www.alliance-pipeline.com) >; review Home Page choices;

check tariffs and tariff conditions, Canada </Shipper/Tariff/Canadian%20Tariff%202000.pdf> or United States: <Shipper/Tariff/US%20Tariff.pdf>

**Web site 4:** BG Transco (United Kingdom): go to <www.transco.uk.com> and select “Publications” from the home menu for a copy of a summary of Transco’s Network Code.

**Web site 5:** Gaz de France (France): go to <www.gazdefrance.com>; switch to English and follow path to Press Releases.

**Web site 6:** Ruhrgas (Germany): go to <www.ruhrgas.de> and proceed as for Web site 5.

**Web site 7:** Gasunie (Netherlands): go to <www.gasunie.nl> and select “Commodity/Service” from the home menu.

***Example of General Terms and Conditions***

**TABLE OF CONTENTS**

**ARTICLE 1: DEFINITIONS AND INTERPRETATION**

1.1 ..... (356)

**ARTICLE 2: QUALITY**

2.1 ..... (362)

2.2 ..... (363)

2.3 ..... (363)

2.4 ..... (364)

2.5 ..... (364)

2.6 ..... (364)

2.7 ..... (365)

**ARTICLE 3: MEASUREMENT**

3.1 ..... (365)

3.2 ..... (365)

3.3 ..... (365)

3.4 ..... (365)

ARTICLE 4: MEASURING EQUIPMENT

4.1 ..... (366)  
4.2 ..... (366)  
4.3 ..... (367)

ARTICLE 5: FORCE MAJEURE

5.1 ..... (367)  
5.2 ..... (367)  
5.3 ..... (368)

ARTICLE 6: RECEIPT AND DELIVERY PRESSURE

6.1 ..... (368)  
6.2 ..... (368)

ARTICLE 7: BILLING AND PAYMENT

7.1 ..... (368)  
7.2 ..... (369)  
7.3 ..... (369)  
7.4 ..... (370)  
7.5 ..... (370)  
7.6 ..... (370)  
7.7 ..... (371)

ARTICLE 8: PRIORITY OF SERVICE

8.1 ..... (371)  
8.2 ..... (372)

ARTICLE 9: NONWAIVER AND FUTURE DEFAULT

9.1 ..... (374)

ARTICLE 10: REQUESTS FOR TRANSPORTATION SERVICE

10.1 ..... (374)

ARTICLE 11: NOMINATIONS

11.1 ..... (376)  
11.2 ..... (377)  
11.3 ..... (377)

11.4	.....	(378)
11.5	.....	(379)
ARTICLE 12: SCHEDULING		
12.1	.....	(379)
12.2	.....	(379)
12.3	.....	(380)
ARTICLE 13: UNAUTHORIZED VOLUMES AND IMBALANCES		
13.1	.....	(381)
13.2	.....	(381)
13.3	.....	(381)
13.4	.....	(382)
13.5	.....	(382)
13.6	.....	(382)
13.7	.....	(383)
13.8	.....	(383)
13.9	.....	(383)
13.10	.....	(384)
13.11	.....	(384)
ARTICLE 14: FUEL		
14.1	.....	(384)
14.2	.....	(384)
14.3	.....	(385)
14.4	.....	(385)
ARTICLE 15: PRIORITY OF RECEIPTS		
15.1	.....	(385)
ARTICLE 16: RIGHT TO COMMINGLE		
16.1	.....	(386)
ARTICLE 17: NOTICES OF CHANGES IN OPERATING CONDI- TIONS		
17.1	.....	(386)

ARTICLE 18: POSSESSION AND CONTROL OF GAS	
18.1 .....	(386)
ARTICLE 19: SHIPPER WARRANTY AND INDEMNITY	
19.1 .....	(386)
19.2 .....	(386)
19.3 .....	(387)
19.4 .....	(387)
19.5 .....	(387)
19.6 .....	(387)
ARTICLE 20: FINANCIAL ASSURANCES	
20.1 .....	(387)
ARTICLE 21: CREDITING OF REVENUE FROM INTERRUPT- IBLE TRANSPORTATION	
21.1 .....	(390)
ARTICLE 22: INCORPORATION IN TARIFF SCHEDULES AND CONTRACTS	
22.1 .....	(390)
22.2 .....	(391)
ARTICLE 23: TRANSPORTATION SERVICE AGREEMENTS	
23.1 .....	(391)
23.2 .....	(391)
ARTICLE 24: NOTICES	
24.1 .....	(391)
ARTICLE 25: OPERATOR	
25.1 .....	(392)
ARTICLE 26: LIABILITY AND INDEMNITY	
26.1 .....	(392)
26.2 .....	(393)
ARTICLE 27: MISCELLANEOUS	
27.1 .....	(393)

SCHEDULE A 33

APPENDIX I

Form of Transportation Service Agreement

APPENDIX II

Form of Interruptible Transportation Service Agreement

## GENERAL TERMS AND CONDITIONS

### ARTICLE 1: DEFINITIONS AND INTERPRETATION

1.1 Except where expressly stated otherwise, the following terms, when used in these General Terms and Conditions shall have the following meaning:

**"10<sup>3</sup> and m<sup>3</sup>"** means 1000 cubic meters of Gas.

**"Accepted Volume"** has the meaning ascribed to it in Article 11 hereof.

**"Affiliate"** when used to indicate a relationship with a specific Person, means another Person that directly, or indirectly through one or more intermediaries or otherwise, controls, or is controlled by, or is under common control with such specific Person. A corporation shall be deemed to be an Affiliate of another corporation if one of them is directly or indirectly controlled by the other or if each of them is directly or indirectly controlled by the same Person.

**"Authorized Overrun Service"** or **"AOS"** means the right of Firm Shippers to be allocated a pro rata share of capacity on the pipeline that is not, from time to time, contracted for as Transporter's Contracted Capacity with any allocation to Firm Shippers to be made pursuant to Article 2.7 and Article 2.8 of the Tariff Schedule Firm Transportation Service and subsequent to such allocation means the Shipper's share of such capacity.

**"Business Day"** means any day on which Transporter's main office in Calgary, Alberta, is customarily open for business.

**"Canadian Receipt Pool"** is a deemed location immediately downstream of the Receipt Points, maintained for each Shipper, forming itself a Receipt Point from which volumes may be scheduled for Transportation or nominated to or from for purposes of effecting Title Transfers, as defined in Article 11.1.



**“Canadian Delivery Pool”** is a deemed location immediately upstream of the Delivery Point, maintained for each Shipper, forming itself a Delivery Point from which volumes may be scheduled for Transportation or nominated to or from for purposes of effecting Title Transfers, as defined in Article 11.1.

**“Central Clock Time”** or **“CCT”** means Central Daylight time when Daylight Savings time is in effect and Central Standard time when Daylight Savings time is not in effect.

**“Commodity Charge”** means the Commodity Charge set out in “Schedule A” to the Tariff Schedule Firm Transportation Service.

**“Contracted Capacity”** means the daily volume of Gas contracted for by a Shipper and for which the Shipper has agreed to pay the Demand Charge in accordance with the terms of a Transportation Service Agreement.

**“Cubic Meter”** or **“m<sup>3</sup>”** means the volume of Gas occupying one cubic meter at a temperature of fifteen degrees Celsius (15°C), and at a pressure of 101.325 kilopascals absolute.

**“Daily Demand Charge”** means the quotient obtained by dividing the Demand Charge by the number of days in the relevant Month.

**“Daily Demand Charge Surcharge”** means the quotient obtained by dividing the Demand Charge Surcharge by the number of days in the relevant Month.

**“Day”** means a period of twenty – four (24) consecutive hours beginning and ending at 9: 00 CCT or such other period of twenty – four (24) consecutive hours agreed to by Transporter and Shipper.

**“Delivery Point”** means the point of interconnection between Transporter’s pipeline system and the pipeline system of U.S. Pipeline.

**“Demand Charge”** means the Demand Charge set out in Schedule “A” to the Tariff Schedule Firm Transportation Service.

**“Demand Charge Credit”** means a Demand Charge Credit deter-

mined pursuant to Article 4 of the Tariff Schedule Firm Transportation Service.

**“Demand Charge Surcharge”** means the Demand Charge Surcharge set out in Schedule “A” to the Tariff Schedule Firm Transportation Service.

**“Demand Charge Surcharge Credit”** means a Demand Charge Surcharge Credit determined pursuant to Article 4 of the Tariff Schedule Firm Transportation Service

**“Firm Service”** means Transportation provided pursuant to Tariff Schedule Firm Transportation Service.

**“Firm Shipper”** means a shipper that enters into a Transportation Service Agreement and is eligible to receive Firm Service.

**“Force Majeure”** means any act of God, war, civil insurrection or disobedience, acts of public enemy, strikes, lockouts or other industrial disturbances, accidents, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, explosions, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, breakage or accidents to machinery or lines of pipe, the necessity for making repairs to or alterations of machinery or lines of pipe, freezing of lines of pipe, inability to obtain materials, supplies, permits or labor, or other cause whether of the kind enumerated or otherwise, which is beyond the control of any applicable party and which by the exercise of due diligence such party is unable to prevent or overcome. The settlement of strikes, lockouts or other labor disputes shall be entirely within the discretion of the party having the difficulty. The following shall not be events of Force Majeure: (i) insufficiency of Shipper’s Gas supplies, (ii) inadequate or uneconomic markets for Shipper’s Gas, (iii) Shipper’s lack of funds, or (iv) curtailment or disruption of service, for any reason whatsoever, on facilities upstream of Receipt Points or downstream of the Delivery Point; for greater certainty, “upstream of Receipt

Points" shall mean beyond the inlet side of Transporter's measuring stations, and "downstream of the Delivery Point" shall mean beyond the outlet side of Transporter's Delivery Point.

**"Fuel Requirement"** has the meaning ascribed to it in Article 14 hereof.

**"Gas"** or **"Natural Gas"** means methane, and such other hydrocarbon constituents, or a mixture of two or more of them which, in any case, meets the quality specifications of the Tariff.

**"Gross Heating Value"** means the total Joules expressed in megajoules per cubic meter ( $\text{MJ}/\text{m}^3$ ) produced by the complete combustion at constant pressure of one (1) cubic meter of Gas with air, with the Gas free of water vapor and the temperature of the Gas, air and products of combustion to be at standard temperature and all water formed by combustion reaction to be condensed to the liquid state.

**"Imbalance"** has the meaning ascribed to it in Article 13 hereof.

**"Interruptible Revenue Credit"** means an Interruptible Revenue Credit to be calculated and allocated to Firm Shippers in accordance with Article 21 hereto.

**"Interruptible Service"** means Transportation provided pursuant to Tariff Schedule Interruptible Transportation Service.

**"Interruptible Service Tariff"** means the toll set out in Schedule "A" to the Toll Schedule Interruptible Transportation Service.

**"Interruptible Shipper"** means a Shipper that enters into an Interruptible Transportation Service Agreement and is eligible to receive Interruptible Service.

**"Interruptible Transportation Service Agreement"** or **"ITSA"** means an agreement pursuant to which Transporter provides Interruptible Service to a Shipper.

**"Joule"** or **"J"** shall mean the work done when the point of application of a force of one (1) Newton is displaced a distance of one (1) meter

in the direction of the force.

**“Maximum Daily Transportation Quantity”** means the maximum volume of Gas as specified in an Interruptible Transportation Service Agreement that Transporter agrees to receive from Shipper for Transportation under Toll Schedule Interruptible Transportation Service.

**“Month”** means a period extending from 9: 00 am CCT on the first Day in a calendar Month and ending at 9: 00 am CCT on the first Day of the next succeeding calendar Month, or at such hour as Shipper and Transporter agree upon.

**“Monthly Bill”** means the amount that Shipper is required to pay to Transporter for each Month in accordance with the terms of the applicable Toll Schedule.

**“Person”** means an individual, partnership, limited partnership, joint venture, syndicate, sole proprietorship, company or corporation with or without share capital, unincorporated association, trust, trustee, executor, administrator or other legal personal representative, regulatory commission body or agency, government or governmental agency, authority or entity however designated or constituted.

**“Primary Receipt Point”** means a Receipt Point that is designated by a Firm Shipper as a Primary Receipt Point as set out in Schedule “A” to the Shipper’s Transportation Service Agreement.

**“Primary Receipt Point Capacity”** has the meaning ascribed to it in Article 6.1 (a) of the Toll Schedule Firm Transportation Service and **“Primary Receipt Point Capacities”** means each of them.

**“Prime Rate”** means, at any time, the per annum rate of interest then designated by the main branch of The Bank of Nova Scotia in Calgary, Alberta as its reference rate of interest for Canadian dollar commercial loans in Canada and which is announced by such Bank as its Prime Rate. A rate of interest payable pursuant hereto shall change automatically without notice to any party on each occasion upon which the Prime

Rate is varied. Interest accruing due hereunder shall be calculated using the nominal rate method and shall be compounded monthly.

**"Receipt Point"** means a point on Transporter's pipeline system as set out in Schedule "A" hereto at which a shipper may in accordance with a Service Agreement tender Gas for Transportation.

**"Secondary Receipt Point"** has the meaning ascribed to it in Article 2:9 of the Toll

Schedule Firm Transportation Service.

**"Service Agreement"** means, as the context requires, a Transportation Service Agreement or an Interruptible Transportation Service Agreement.

**"Shipper"** means any Person who enters into a TSA with Transporter, or, if the context so requires, a person who enters into an ITSA with Transporter.

**"Shipper's Authorized Volume"** has the meaning ascribed to it in Article 11 hereof.

**"Shipper's Contracted Capacities"** means the aggregate of the Contracted Capacities under all Transportation Service Agreements to which Shipper is a party.

**"Shipper's Nomination"** has the meaning ascribed to it in Article 11 hereof.

**"Shipper's Revised Nomination"** has the meaning ascribed to it in Article 11 hereof.

**"Tariff"** includes the Toll Schedule Firm Transportation Service, the Toll Schedule Interruptible Transportation Service, and the General Terms and Conditions, as amended and approved from time to time.

## GENERAL TERMS AND CONDITIONS

**“Taylor – Aitken Creek Receipt Point”** or **“TAC Receipt Point”** means a Receipt Point designated as a Taylor – Aitken Creek Receipt Point on Schedule “A” hereto.

**“Transportation”** means the receipt of Gas for Shipper’s account at Receipt Points that are available to Shipper pursuant to Shipper’s Service Agreements and the transport and delivery of Gas for Shipper’s account at the Delivery Point.

**“Transportation Service Agreement”** or **“TSA”** means an agreement pursuant to which Transporter provides Firm Service to a Shipper.

**“Transporter”** means Alliance Pipeline Limited Partnership.

**“Transporter’s Contracted Capacities”** means the aggregate of the Contract Capacities under all Transportation Service Agreements to which Transporter is a party.

**“U.S. Pipeline”** means Alliance Pipeline L.P.

**“U.S. Fuel Requirement”** has the meaning ascribed to it in Article 14.

**“Year”** means a period of three hundred sixty – five (365) consecutive days except where the year contains the date 29 February, in which case it shall consist of three hundred sixty – six (366) consecutive days.

## ARTICLE 2: QUALITY

2.1 Unless otherwise authorized by Transporter, Gas tendered to Transporter at Receipt Points shall, subject to Article 2.2, conform to the following specifications:

- shall have a Gross Heating Value of no less than thirty – six (36) MJ/m<sup>3</sup>;
- shall be commercially free at prevailing pressure and temperature in Transporter’s pipeline from sand, dust, gums, hydrocarbons liquefiable at temperature in excess of minus ten de-

- degrees Celsius ( $-10^{\circ}\text{C}$ ) and at the prevailing operating pressure; impurities, other objectionable substances that may become separated from the Gas, and other solids or liquids that will render it unmerchantable or cause injury to or interference with proper operation of the lines, regulatory commissions, meters or other facilities through which it flows; and shall not contain any substance not normally contained in Gas, other than traces of those materials and chemicals necessary for the transportation and delivery of the Gas and which do not cause it to fail to meet any of the quality specifications herein set forth;
- shall contain no more than 23 milligrams of hydrogen sulphide per cubic meter, no more than 115 milligrams of total sulfur per cubic meter of Gas determined by standard methods and testing;
  - shall contain no more than two percent (2%) by volume of carbon dioxide;
  - shall contain no more than sixty-five (65) milligrams of water vapor per cubic meter of Gas;
  - shall not exceed a temperature of fifty degrees Celsius ( $50^{\circ}\text{C}$ );
  - shall be as free of oxygen as practicable and shall in any event contain no more than four tenths of one percent (0.4%) by volume of oxygen; and
  - shall in no event, contain any mix of components that will cause the presence of any liquids in the pipeline under normal operating conditions.

2.2 Gas tendered at Receipt Points designated as AB 05 Boundary Lake, AB 06 Boundary Lake - IOL, and AB 07 Boundary Lake South shall conform to the relevant specifications set out in the relevant tariff of Westcoast Energy Inc. as such tariff may be amended from time to time.

2.3 In the event gas tendered to Transporter by or on behalf of

Shipper fails to meet the specifications in Article 2.1 or Article 2.2 as applicable, Transporter may refuse to receive the gas, in which case, Transporter will as soon as possible inform the Shipper to allow Shipper to promptly remedy any deficiency in quality.

2.4 Waiver: Transporter reserves the right to waive any or all such gas quality provisions, in a not unduly discriminatory manner, if it is determined by Transporter that such waiver can be granted without, in any way, jeopardizing the integrity of its system or violating any requirement of U.S. Pipeline.

2.5 In the event that Transporter determines that the projected Gross Heating Value of the commingled gas stream at any location on Transporter's system is approaching or is expected to approach the maximum acceptable level, based on the design of Transporter's system, Transporter will implement the energy capacity allocation procedure described in Article 2.6. For large diameter pipeline segments of Transporter's system, under normal operating conditions, the anticipated limit for the Gross Heating Value of the commingled gas stream is approximately 44.3 MJ/m<sup>3</sup>.

2.6 Transporter shall take the following steps to allocate energy capacity on Transporter's system when required pursuant to Article 2.5.

Transporter shall identify the affected part of its system, and specifically those Receipt Points for which these energy capacity allocation procedures are being invoked.

Transporter will first take all actions authorized under other portions of this Article 2, and specifically Article 2.4, to eliminate or avoid the identified problem.

If necessary, Transporter will determine the temporary maximum Gross Heating Value that will be acceptable for Gas nominated at Receipt Points to ensure that the commingled gas stream will not exceed the limit determined pursuant to Article 2.5.



Transporter will notify Shippers of the situation and the temporary maximum Gross Heating Value for Gas nominated at affected Receipt Points.

2.7 Nominations not in compliance with the temporary maximum Gross Heating Value will be rejected as not complying with the governing quality requirements. Transporter's actions will reflect Transporter's ability to reject Secondary Receipt Point nominations prior to rejecting, if necessary, Primary Receipt Point nominations for the affected Receipt Points, as a mechanism to alleviate the identified circumstance. Transporter will update the temporary maximum Gross Heating Value as required, with the objective of maximizing the flexibility afforded to Shippers.

### **ARTICLE 3: MEASUREMENT**

3.1 A unit of volume for purposes of reporting shall be one thousand (1000) cubic meters ( $10^3\text{m}^3$ ) of Gas.

3.2 The volume of the Gas received from Shipper shall be determined in accordance with the Electricity and Gas Inspection Act (Canada) and the Regulations thereunder.

3.3 The absolute atmospheric pressure used for volume calculations shall be assumed to be a specific pressure determined by calculations based on the actual elevation above sea level at the site of the meter, regardless of variations in actual barometric pressure. The formula used to calculate the atmospheric pressure shall be in accordance with the methodology prescribed pursuant to the Electricity and Gas Inspection Act (Canada) and the Regulations thereunder.

3.4 The determination of Gross Heating Value of Gas received or delivered shall be performed in a manner approved under the Electricity and Gas Inspection Act (Canada) and the Regulations thereunder or, if a manner for such determination is not set out in that Act, in accordance

with industry accepted standards, and, in any event, in a manner to ensure that the Gross Heating Value so determined is representative of the Gas received or delivered at the Receipt or Delivery Point.

#### **ARTICLE 4: MEASURING EQUIPMENT**

4.1 All meters and measuring equipment for the determination of volume, Gross Heating Value or relative density shall be approved pursuant to, and installed and maintained in accordance with, the Electricity and Gas Inspection Act (Canada) and the Regulations thereunder. Notwithstanding the foregoing, all installation of equipment applying to or effecting deliveries of Gas shall be made in a manner permitting accurate determination of the quantity of Gas delivered and ready verification of the accuracy of measurement. Care shall be exercised by Transporter and by Shipper in the installation, maintenance and operation of pressure regulating equipment so as to prevent any inaccuracy in the determination of the volume of Gas delivered under the Service Agreement.

4.2 Transporter shall verify the accuracy of its measuring equipment once each month or at such longer intervals as agreed to by the parties. Transporter will verify the accuracy of measuring equipment whenever requested by Shipper, provided requests do not require verification more than once in any month. If upon a requested verification, the measuring equipment is found to be registering correctly (which shall include any inaccuracy of two percent (2%) or less as mentioned below), the cost of such requested verification shall be charged to and borne by the requesting party; otherwise the cost of all requested verifications shall be borne by Transporter. If, upon any test, measuring equipment is found to be inaccurate but not by more than two percent (2%), previous readings of the equipment shall be considered correct in computing deliveries, but the equipment shall be adjusted properly at once to record accurately. If, upon any tests, any measuring equipment is found to be inaccurate by

an amount exceeding two percent (2%) then the previous readings of the equipment shall be corrected to zero error for any period that is known definitely or can be agreed upon, but if the period is not known definitely or cannot be agreed upon, such corrections shall be for a period covering the last half of the time elapsed since the date of the last test.

4.3 Each party shall have the right to be present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating or adjusting done in connection with the other's equipment used in measuring receipts and deliveries hereunder. The records from such measurement equipment shall remain the property of their owner, but, upon request, each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within thirty (30) days after receipt thereof. Each party shall preserve for a period of at least two (2) years all test data, charts, and other similar records or such longer period as may be required by a responsible authority having jurisdiction.

#### **ARTICLE 5: FORCE MAJEURE**

5.1 If either Transporter or Shipper fails to perform any obligations under the Tariff or any Service Agreement due to an event of Force Majeure or any other event beyond its reasonable control then, subject to the provisions of the Tariff or such Service Agreement, such failure shall be deemed not to be a breach of such obligations. A party that fails to perform any obligation under the Tariff or Service Agreement where such failure is caused by such an event shall promptly remedy the cause thereof so far as it is reasonably able to do so, provided that the terms of the settlement of any strike, lockout or other industrial disturbance shall be wholly in the discretion of the party claiming suspension of its obligations hereunder by reason thereof.

5.2 Notwithstanding the provisions of Article 5.1, no event re-

ferred to therein shall: (i) relieve any party from any obligation or obligations pursuant to the Tariff or Service Agreement unless such party gives notice with reasonable promptness of such event to the other party, or (ii) relieve any party from any obligation or obligations pursuant to the Tariff or Service Agreement after the expiration of a reasonable period within which, by the use of due diligence, such party could have remedied or overcome the consequences of such event or (iii) except as expressly provided in Article 4 of the Toll Schedule Firm Transportation Service relieve any party from its obligations to make any Demand Charge, Demand Charge Surcharge or other payments to the other.

5.3 Where the failure by either party to perform any obligation under the Tariff or Service Agreement is, by virtue of the provisions of Article 5.1, deemed not to be a breach of such obligation, then the time for the performance of such obligation shall be extended by a number of days equal to the number of days during which the relevant event existed.

#### **ARTICLE 6: RECEIPT AND DELIVERY PRESSURE**

6.1 All gas tendered by or on behalf of Shipper to Transporter shall be tendered at a Receipt Point at the pressure requested by Transporter from time to time. Shipper shall not be required to tender gas at a receipt pressure in excess of that specified for the specific Receipt Point in Schedule "A" .

6.2 All Gas delivered by Transporter to the facilities of U.S. Pipeline at the Delivery Point shall be delivered at the pressure agreed to by Transporter and U.S. Pipeline.

#### **ARTICLE 7: BILLING AND PAYMENT**

7.1 On or before the ninth (9th) day of each Month, Transporter shall deliver to Shipper by electronic or other means a statement of the

amount payable by Shipper to Transporter for the preceding Month. Transporter will also deliver to Shipper by electronic or other means a statement of any charges calculated in accordance with Article 13. If actual quantities are unavailable in time to prepare the billing, such charges shall be based on estimated quantities and Transporter shall provide, in the succeeding Month's billing, an adjustment based on any differences between actual quantities and estimated quantities. Any required invoice backup data will accompany the invoice.

7.2 At the reasonable request of Transporter, Shipper shall provide to Transporter in a timely manner any information or data required by Transporter to calculate and verify the volume, quality and Gross Heating Value of Shipper's actual deliveries to Transporter.

7.3 All payments under a Service Agreement or a Toll Schedule shall be made in Canadian funds to a depository designated by Transporter via electronic funds transfer on or before the later of the twenty-fifth (25th) day of the Month and the fifth (5th) Business Day following receipt by Shipper of the monthly statement. If the payment due date falls on a day that the designated depository is not open in the normal course of business to receive Shipper's payment, then Shipper's payment shall be made on the first day after the payment due date that such depository is open in the normal course of business. If Shipper fails to pay in accordance with this Article 7.3 all or any portion of the amount shown as payable by Shipper on a monthly statement, interest thereon shall accrue daily at a rate equal to the daily equivalent of the Prime Rate plus one percent (1%) . If the failure to pay continues for ten (10) days after payment is due, Transporter, in addition to any other remedy it may have, may suspend further transport and delivery of Gas for Shipper without further notice. Such suspension of transport and delivery of gas shall not constitute a failure by Transporter to perform any of its obligations under this Tariff or any Service Agreement.

7.4 Provided that a claim is made within sixty (60) days of discovery of a billing error, and in any event within twenty - four (24) months from the date on the statement claimed to be in error, a billing error shall be adjusted within thirty (30) days from the date of receipt by the other party of a notice claiming discovery of the billing error, as follows:

Where Shipper has been overcharged and has paid the statement, the amount of the overpayment will be refunded to Shipper with interest at a rate equal to the sum of the Prime Rate and one percentage point (1%) from the date of the overpayment to the date of the refund. Where the refund is provided to Shipper by way of credit on another Transporter invoice, the overpayment will be deemed to have been refunded on the date the credited invoice is received by the Shipper.

Where Shipper has been undercharged by Transporter, Shipper will pay the amount of the undercharge without interest provided the undercharge is paid within thirty (30) days. Interest shall accrue daily on undercharge amounts not paid within thirty (30) days at a rate equal to the daily equivalent of the Prime Rate plus one percent (1%) from the date of the statement.

7.5 Transporter or Shipper shall have the right at reasonable times to examine the books, records and charts of the other party, to the extent necessary to verify the accuracy of any statement or any claim for underpayment or overpayment.

7.6 (a) Transporter shall not be entitled to suspend further delivery of Gas pursuant to Article 7.3 if Shipper in good faith:

- (i) disputes the amount of any such bill or part thereof;
- (ii) provides Transporter with a written notice including a full description of the reasons for the dispute, together with copies of supporting documents; and

- (iii) pays to Transporter such amounts as it concedes to be correct.
- (b) Shipper shall not off – set any disputed amounts against the Demand Charge, or Demand Charge Surcharge portion of its bill.
- (c) In the event of a good faith billing dispute, Transporter may demand, and Shipper, within ten (10) days of such demand, shall furnish a good and sufficient surety bond guaranteeing payment to Transporter of all disputed amounts for any bills that are or will be affected by such dispute. If Shipper fails to provide a bond to Transporter guaranteeing payment, or if Shipper defaults in the conditions of such bond, then Transporter shall have the right to suspend or terminate Shipper's Service Agreement.
- (d) Any good faith billing dispute shall be submitted to arbitration pursuant to the Arbitration Act of Alberta within sixty (60) days of Transporter's receipt of Shipper's written notice under Article 7.6 (a) .

7.7 In the event that Shipper does not pay the full amount due Transporter in accordance with this Article 7, Transporter, without prejudice to any other rights or remedies it may have, shall have the right to withhold or set off payment or credit of any amounts of monies due or owing by Transporter to Shipper, whether in connection with Shipper's Service Agreement or otherwise, against any and all amounts of monies due or owing by Shipper to Transporter.

**ARTICLE 8: PRIORITY OF SERVICE**

- 8.1 (a) Transporter shall have the right to curtail or discontinue Transportation, in whole or in part, on all or a portion of its

system at any time for reasons of Force Majeure or when, in Transporter's sole judgment, capacity or operating conditions so require, or it is desirable or necessary to make modifications, repairs or operating changes to its system. Transporter shall provide Shipper such notice of curtailment as is reasonable in the circumstances.

(b) Transporter shall have the unqualified right to interrupt Interruptible Service at any time to provide Firm Service to any Shipper.

(c) In the event of curtailment pursuant to Article 8.1 (a), Transportation shall be curtailed in the following order:

(i) Interruptible Service will be curtailed first, pro rata, based on the Interruptible Service scheduled in accordance with Article 12;

(ii) AOS will be curtailed next, pro rata, based on Shipper's relative rights to AOS as determined pursuant to Article 2.7 of the Toll Schedule Firm Transportation Service with nominations for AOS made after the time for nominations set out in Article 11 being curtailed fully before timely nominations; and

(iii) Firm Service other than AOS will be curtailed next, pro rata, based on the Firm Service scheduled for each Shipper in accordance with Article 12.

8.2 In the event of curtailment pursuant to Article 8.1 (a) at a specific Receipt Point, or a localized subset of Receipt Points, Transportation at such Receipt Point (s) shall be curtailed in the following order:

(a) Interruptible Service at the Receipt Point (s) will be curtailed first and such Interruptible Service that is available at the Receipt Point (s) shall be allocated, pro rata,



based on the ratio of the Interruptible Service scheduled for the Interruptible Shipper at the Receipt Point (s) in accordance with Article 12 to the aggregate Interruptible Service scheduled at the Receipt Point (s) in accordance with Article 12;

- (b) Firm Service (including AOS quantities) to Firm Shippers for which the Receipt Point (s) is not a Primary Receipt Point and Firm Shippers nominating quantities greater than the Shipper's Primary Receipt Point Capacity at the Receipt Point (s) will be curtailed next. Such Firm Service that is available to such Shippers at the Receipt Point (s) shall be allocated among such Shippers, pro rata, based on and up to each Shipper's scheduled quantity above Primary Receipt Point Capacity at each Receipt Point. If the Receipt Point (s) is a TAC Receipt Point, Firm Service (including AOS quantities) to Firm Shippers for which the TAC Receipt Point is not a Primary Receipt Point and Firm Shippers nominating volumes above their Primary Receipt Point Capacity at that TAC Receipt Point, to the extent that such Shipper's aggregate Primary Receipt Point nominations at all TAC Receipt Points are less than the Shipper's aggregate Primary Receipt Point Capacity at all TAC Receipt Points, shall be excluded from this curtailment;
- (c) Firm Service (including AOS quantities) at TAC Receipt Points to Firm Shippers for which the TAC Receipt Point is not a Primary Receipt Point and Firm Shippers nominating volumes above their Primary Receipt Point Capacity at that TAC Receipt Point, to the extent that such Shipper's aggregate Primary Receipt Point nominations

at all TAC Receipt Points are less than the Shipper's aggregate Primary Receipt Point Capacity at all TAC Receipt Points, will be curtailed next. Such Firm Service that is available shall be allocated among such Firm Shippers, pro rata, based on and up to the volume of Gas scheduled for each shipper pursuant to Article 12.2 (b) at the Receipt Point; and

- (d) Firm Service (including AOS quantities) at all Receipt Points to Firm Shippers to the extent the Receipt Point (s) is a Primary Receipt Point will be curtailed last and such Firm Service that is available to such Shippers at the Receipt Point shall be allocated among such Shippers, pro rata, based on and up to the volume of Gas scheduled for each Shipper pursuant to Article 12.2 (a) at the Receipt Point.

## **ARTICLE 9: NONWAIVER AND FUTURE DEFAULT**

9.1 No waiver by either Transporter or Shipper of any one or more defaults by the other in the performance of any provisions of the Service Agreement shall operate or be construed as a waiver of any continuing or future default or defaults, whether of a like or different character.

## **ARTICLE 10: REQUESTS FOR TRANSPORTATION SERVICE**

10.1 Valid requests for Transportation under Toll Schedule Firm Transportation Service and Toll Schedule Interruptible Transportation Service shall be made by providing the following information in writing to Transporter at the following address:

Alliance Pipeline Limited Partnership Suite 400  
605 5th Avenue S.W.  
Calgary, Alberta

Canada T2P 3H5

Attention: Manager, Tariff Administration

- (a) Identification of Shipper:
  - (i) Shipper's legal name and principal place of business.
  - (ii) Shipper's business address for notices and billing.
  - (iii) Shipper's telephone number, including at least one telephone number at which an authorized employee or agent of Shipper can be contacted on a 24 hour, 7 day a week basis.
- (b) Character of service requested (Firm or Interruptible) .
- (c) Requested Contracted Capacity for Firm Service or Maximum Daily Transportation Quantity for Interruptible Service, stated in  $10^3 \text{ m}^3$  per day.
- (d) Requested date of commencement of service.
- (e) Requested term of service.
- (f) Requested Primary Receipt Point (s) from the Receipt Points listed in Schedule A to the General Terms and Conditions and requested Primary Receipt Point Capacities at each receipt point if request is pursuant to toll Schedule Firm Transportation Service.
- (g) Whether any party to the transaction is an Affiliate of Transporter, either as shipper, supplier, or as the person for whom service is provided and, if so, the extent of that affiliation.
- (h) If Shipper requests service on behalf of a third party, Shipper shall submit a copy of an executed agreement between Shipper and the third party that authorized Shipper to act on behalf of the third party to secure the Transportation requested. Shipper shall provide the name, address, telephone number and status (for exam-

ple, Local Distribution Company and producer) of the third party.

## ARTICLE 11: NOMINATIONS

11.1 (a) For service required on any day under each Service Agreement, Shipper shall provide Transporter with a nomination indicating the Receipt Points, Delivery Points, the applicable Toll Schedule, the volume of Gas, Gross Heating Value or total number of Joules ("Shipper Nomination") that Shipper desires to be received, transported and delivered, and such other information as Transporter reasonably determines as necessary.

(b) Nominations are to be provided to Transporter in writing or by electronic means agreed to between Transporter and the Shipper so as to be received by Transporter in accordance with the timelines established in conjunction with U.S. Pipeline, which reflect the Gas Industry Standards Board ("GISB") standard nomination cycles.

(c) In addition to the Receipt Points listed in Schedule "A", Shippers may, as part of a Nomination, request transfers to and from the Canadian Receipt Pools of other Shippers. Shippers may also nominate for transfer to or from Shipper's Canadian Delivery Pool to the Canadian Delivery Pool of other Shippers. Transfers to and from the Canadian Delivery Pools of other parties and transfers to and from the Canadian Receipt Pools of other parties are collectively referred to as "Title Transfers."

(d) If such Title Transfers are confirmed through

matching and equal nominations by both parties, all remaining nominations, scheduling, and curtailment procedures will be implemented based on the parties aggregate Nominations net of such Title Transfers.

- 11.2 (a) If Transporter accepts Shipper's Nominations, Shipper's Nomination including Fuel Requirement and U.S. Fuel Requirement, shall be "Shipper's Authorized Volume."
- (b) If Transporter determines that it will not accept Shipper's Nomination (for reasons of Force Majeure, failure of Shipper to comply with Shipper's Service Agreements, or any reason whatsoever consistent with the Tariff) Transporter shall advise Shipper on the day immediately preceding the day for which service was requested of the reduced volume (if any) that Transporter is prepared to transport and deliver under Shipper's Service Agreements (the "Accepted Volume"). Shipper shall provide a revised nomination ("Shipper's Revised Nomination") to Transporter Shipper's Revised Nomination shall be no greater than the Accepted Volume.
- (c) If Shipper does not renominate, Shipper's Nomination will be assumed to be the Accepted Volume and shall become Shipper's Authorized Volume. If Shipper's Revised Nomination is less than the Accepted Volume, then the sum of (1) Shipper's Revised Nomination, (2) Fuel Requirement, and (3) U.S. Fuel Requirement shall become Shipper's Authorized Volume.

11.3 Transporter shall permit Shipper to revise Shipper's Nomi-

nation under Transporter's Toll Schedule Firm Transportation Service at any time prior to the end of a Day being scheduled, provided: (a) such revision may be implemented, in Transporter's reasonable judgment, by Transporter without detriment to Transporter's service to any other Firm Shipper; (b) such revision is not inconsistent with any term or condition of Transporter's Toll Schedule Firm Transportation Service or TSA; and (c) such revision can be confirmed in a timely manner with Shipper's upstream transportation operators and other operators of connecting facilities and U.S. Pipeline. Such change in nominated and scheduled deliveries shall be made prospectively only. Notwithstanding Article 11.2, if Transporter permits Shipper to revise Shipper's Nomination under this Article 11.3 then the sum of (1) such revised Shipper's Nomination, (2) Fuel Requirement, and (3) U.S. Fuel Requirement shall become Shipper's Authorized Volume.

11.4 Transporter may allow, but shall not be obligated to allow, Shipper to revise its nominations under Transporter's Toll Schedule Interruptible Transportation Service at any time prior to the end of the Day being scheduled, provided: (a) such revision may be implemented, in Transporter's reasonable judgment, by Transporter without detriment to Transporter's service to any other Firm or Interruptible Shipper; (b) such revision is not inconsistent with any term or condition of Transporter's Toll Schedule Interruptible Transportation Service and the IT-SA; and (c) such revision can be confirmed in a timely manner with Shipper's upstream transportation operators and other operators of connecting facilities and U.S. Pipeline. Such change in nominated and scheduled deliveries shall be made prospectively only. Notwithstanding Article 11.2, if Transporter permits Shipper to revise Shipper's Nomination under this Article 11.4 then the sum of (1) such revised Shipper's Nomination, (2) Fuel Requirement, and (3) U.S. Fuel Requirement shall become Shipper's Authorized Volume.

11.5 All Nominations are subject to adjustment by Transporter in accordance with Article 13 hereof.

## **ARTICLE 12: SCHEDULING**

12.1 Transporter shall schedule all Firm Service for each Shipper prior to the scheduling of any Interruptible Service. Transportation shall be scheduled in accordance with the following order of declining priority:

- (a) Firm Service (excluding AOS) up to Shipper's Contracted Capacities under the Toll Schedule Firm Transportation Service, pro rata, based on each Shipper's Contracted Capacities.
- (b) AOS under Toll Schedule Firm Transportation Service, allocated in accordance with Article 2.7 of Toll Schedule Firm Transportation Service.
- (c) Interruptible Service under Toll Schedule Interruptible Transportation Service, pro rata, based on the nominations of all shippers seeking Interruptible Service.

12.2 Scheduling at specific Receipt Points shall be in accordance with the following order of declining priority:

- (a) Scheduling of Firm Service (including AOS quantities) at all Receipt Points will accord priority to Firm Shippers for which the Receipt Point is a Primary Receipt Point, to the extent of the Shipper's Primary Receipt Point Capacity for such Receipt Point;
- (b) Scheduling of Firm Service (including AOS quantities) at a TAC Receipt Point will afford priority to Firm Shippers for which the TAC Receipt Point is not a Primary Receipt Point and Firm Shippers nominating volumes above their Primary Receipt Point Capacity at that

TAC Receipt Point, to the extent that such Shipper's aggregate Primary Receipt Point nominations at all TAC Receipt Points are less than the Shipper's aggregate Primary Receipt Point Capacity at all TAC Receipt Points. Such Firm Service shall be allocated among such Firm Shippers, pro rata, based on and up to each Shipper's unominated aggregate Primary Receipt Point Capacity for all TAC Receipt Points. Capacity at TAC Receipt Points that is not allocated in accordance with this Article 12.2 (b) shall be allocated in accordance with Articles 12.2 (c) and 12.2 (d);

- (c) Remaining Firm Service (including AOS quantities) at Receipt Points shall be allocated among Firm Shippers for which the Receipt Point is not a Primary Receipt Point and Firm Shippers nominating quantities greater than Shipper's Primary Receipt Point Capacity at the Receipt Point. Such Firm Service shall be allocated among such Firm Shippers, pro rata, based on and up to each such Shipper's Firm Service nomination above their Primary Receipt Point Capacity at that Receipt Point; and
- (d) Interruptible Service shall be allocated among Interruptible Shippers, pro rata, based on the ratio of the volume of Interruptible Service nominated at the Receipt Point by the Interruptible Shipper to the aggregate volume of Interruptible Service nominated at the Receipt Point by all Interruptible Shippers.

12.3 Until Transporter has informed Shipper that Shipper's Nomination, whether monthly, daily or intraday, is accepted, such volumes will not be deemed scheduled.



## ARTICLE 13: UNAUTHORIZED VOLUMES AND IMBALANCES

13.1 Shipper shall use reasonable efforts to minimize variances from scheduled quantities under each Toll Schedule. Notwithstanding such efforts, it is acknowledged that such variances are likely to occur. However, under certain circumstances, pursuant to the provisions of this Article, Shipper may be subject to penalties for failure to operate reasonably in this regard. Transporter shall, in good faith, assist Shipper in avoiding such penalties. Under no circumstances shall the payment of such penalties relieve Shipper from the obligation to take all required actions to resolve outstanding Imbalances.

13.2 Transporter shall use all reasonable efforts to tolerate Shipper variances because of temporary limitations of the physical capability of Transporter's system, giving due consideration to flexibility available to Transporter by fluctuating line pack levels and exploitation of permissible use of any operational balancing agreements with interconnecting facilities. Under no circumstance shall Transporter tolerate Shipper Imbalances that have a deleterious and discriminatory effect upon the capacity available to Firm Shippers.

13.3 Shipper shall use all reasonable efforts to at all times maintain balance, based on the best available information, between:

- (a) volume of gas scheduled for receipt to Shipper's account from each Receipt Point and actual volume received to Shipper's account from each Receipt Point ("Volume Receipt Variance");
- (b) total energy scheduled for receipt to Shipper's account from each Receipt Point and actual energy received to Shipper's account from each Receipt Point ("Energy Receipt Variance");
- (c) aggregate volume received to Shipper's account and ag-

gregate volume of gas delivered by Transporter from Shipper's account at the Delivery Point ( "Volume Imbalance" ); and

- (d) aggregate energy received to Shipper's account and aggregate energy delivered by Transporter from Shipper's account at the Delivery Point ( "Energy Imbalance" ) .

13.4 All imbalances or variances defined in Article 13.3 (collectively "Imbalances") shall be held in the Shipper's account in the Shipper's Receipt Pool. Transporter shall make available in advance of the time for timely nominations each Day the best available estimate of the various Imbalances to Shipper's account.

13.5 Shipper shall not be subject to any penalty for prevailing Imbalances, provided at all times:

- (a) Shipper's account is within acceptable tolerance levels, as specified by Transporter from time to time, based on the best available information; and
- (b) Shipper takes all reasonable actions to eliminate any Imbalances, as required by the provisions of this Article, including complying with all reasonable directions of Transporter to address prevailing Imbalances, with Transporter giving due consideration to avoiding potential impacts on other Shippers in identifying reasonable courses of action in specific circumstances.

13.6 Transporter shall communicate to all Shippers, as part of the nomination procedures, the current acceptable level of tolerance for Imbalances. Transporter shall use all reasonable efforts to operate its system so as to permit tolerance of periodic Imbalances by each Shipper, subject to compliance with the requirements of this Article 13, up to 4% of the volume authorized by Transporter. However, Transporter reserves the right to impose more stringent Imbalance tolerance levels, based on the

need to maximize throughput or to protect the integrity of Transporter's facilities.

13.7 Daily allocations by operators of interconnecting systems upstream of the Alliance Receipt Points ("Upstream Operators") shall only give rise to Imbalance penalties, if Shipper fails to take immediate action to reduce any identified Imbalances within tolerance levels specified by Transporter at that time. In the event such actions are not taken, Transporter may adjust new or standing nominations so as to bring Shipper's account within specified tolerance levels.

13.8 Any month-end allocation adjustments by Upstream Operators shall not give rise to Imbalance penalties, except to the extent the month-end allocations confirm Imbalances indicated by the corresponding daily allocations. For the purpose of establishing final Imbalances and imposing associated penalties, if any, differences between the month-end allocation and the aggregate of the individual daily allocations shall be prorated across each Day in the Month based upon the daily allocations confirmed by the Upstream Operators.

13.9 Any cumulative Imbalance confirmed by month-end allocation adjustments by Upstream Operators, if applicable, shall be eliminated by Shipper by immediately implementing one of the following courses of action:

- (a) Effecting Title Transfer (s) to or from Shipper's Receipt Pool sufficient to eliminate any such Imbalance (provided this does not create an Imbalance for the account of another Shipper); or
- (b) Adjusting Shipper's nomination over a period no greater than 25 Days, as agreed to by Transporter (accomplished by reductions of no less than one twenty-fifth of the original cumulative Imbalance on any Day), to eliminate any such Imbalance.

13.10 In the event Shipper does not take either of the actions in Article 13.9 (a) and (b) in sufficient quantity, Transporter may decrease Shipper's Receipt or delivery nomination to eliminate the outstanding Imbalance in a timely and an orderly fashion.

13.11 If, based on month – end allocations of Upstream Operators prorated across each Day in the Month in accordance with this Article 13 (where relevant), the Volume Imbalance exceeds the Imbalance tolerance level specified by Transporter on any Day, and such data confirms the best available data available at the time the Imbalance was originally identified, and Shipper failed to take action, Shipper shall be subject to a charge (“Volume Imbalance Penalty”). The Volume Imbalance Penalty shall be the product obtained by multiplying the absolute amount of the Imbalances in excess of the stated tolerance level on each Day in the Month, by ten times the Daily Demand Charge for the Month.

#### **ARTICLE 14: FUEL**

14.1 Shipper shall nominate for and tender or cause to be tendered to Transporter, in addition to the Gas that Shipper desires to be delivered for Shipper's account at the Delivery Point, a volume of Gas determined on the basis of the applicable monthly fuel ratio established by Transporter, a volume of gas equal to Transporter's reasonable determination of estimated line losses and unaccounted for Gas, and the required operational variance in linepack for the month, (collectively the “Fuel Requirement”). Transporter will advise Shipper of the applicable Fuel Requirement by no later than the twenty – fifth (25th) day of the Month for the following Month, or, in the absence of such notification, Shipper shall use the last monthly Fuel Requirement established by Transporter.

14.2 Shipper shall nominate for and tender or cause to be tendered to Transporter as part of the Gas that Shipper desires to be delivered for Shipper's account at the Delivery Point a volume of Gas determined on

the basis of the applicable monthly fuel ratio established by U.S. Pipeline, a volume of gas equal to U.S. Pipeline's reasonable determination of estimated line losses and unaccounted for Gas, and the required operational variance in linepack (collectively the "U.S. Fuel Requirement") . Shippers shall not be required to pay Transporter any toll for Transportation of the U.S. Fuel Requirement.

14.3 Transporter is not required to accept any nomination; (a) that does not include a nomination for the Fuel Requirement and the U.S. Fuel Requirement, or (b) if Transporter is not satisfied, in its sole discretion, that the Fuel Requirement and U.S. Fuel Requirement will actually be tendered to Transporter in accordance with the nomination. In the event Transporter refuses the nomination for the reasons set out in this Article 14.3, Transporter shall advise Shipper to revise its nomination for the Fuel Requirement and U.S. Fuel Requirement and Shipper shall revise its Fuel Requirement and U.S. Fuel Requirement nomination.

14.4 The Fuel Requirement and U.S. Fuel Requirement will be calculated on an energy basis and expressed in GJ per 10<sup>3</sup> m<sup>3</sup> of Gas to be transported.

#### **ARTICLE 15: PRIORITY OF RECEIPTS**

- 15.1 Gas shall be deemed to be transported from Shipper's Canadian Receipt Pool on Shipper's behalf in the following order:
- (i) Fuel Requirement;
  - (ii) U.S. Fuel Requirement;
  - (iii) Firm Service (excluding AOS) up to Shipper's Contracted Capacities;
  - (iv) AOS; and
  - (v) Interruptible Service.

**ARTICLE 16: RIGHT TO COMMINGLE**

16.1 Transporter shall have the right at all times to commingle Shipper's Gas with other Gas in the pipeline. Gas delivered by Transporter at the Delivery Point shall have the quality that results from Gas having been transported and commingled in the pipeline.

**ARTICLE 17: NOTICES OF CHANGES**

**IN OPERATING CONDITIONS**

17.1 Transporter and Shipper shall notify each other from time to time as necessary of expected changes in the rates of delivery or receipt of Gas, or in the pressures or other operating conditions, and the reason for such expected changes, to the end that the other party may be prepared to meet them when they occur.

**ARTICLE 18: POSSESSION AND CONTROL OF GAS**

18.1 Transporter shall be deemed to be in possession of, in control of and responsible for all Gas received by it until the Gas is delivered by it at the Delivery Point.

**ARTICLE 19: SHIPPER WARRANTY AND INDEMNITY**

19.1 Shipper warrants to Transporter that it will at the time of tendering have title to or right to tender all Gas tendered by it or on its behalf to Transporter for Transportation free and clear of liens and encumbrances and adverse claims of every kind, except that the option granted pursuant to Article 5 (Option to Extract and Purchase Liquids) of a TSA or Article 5 (Option to Extract and Purchase Liquids) of an IT-SA shall not constitute an encumbrance or adverse claim hereunder.

19.2 Shipper represents and warrants to Transporter that it has and will maintain all authorizations for the removal of Gas from the

province of production, export of Gas from Canada and import of Gas into the United States and any other authorization required to permit its Gas to be transported hereunder.

19.3 Transporter warrants that, subject to Article 5 of the TSA or Article 5 of the ITSA, as applicable, at the time of delivery of Gas for Shipper's account at the Delivery Point such Gas will be free and clear of all liens and encumbrances arising under or by virtue of Transporter.

19.4 Shipper shall indemnify Transporter and save it harmless against all claims, actions or damages arising from any adverse claims by third parties claiming ownership or an interest in the Gas tendered to Transporter for Transportation.

19.5 Transporter and Shipper shall each indemnify the other and save it harmless from all suits, actions, debts, accounts, damages, costs, losses, and expenses arising out of the adverse claim of any person or persons for any taxes, licenses, fees, royalties or charges that are applicable prior to the time of delivery of such Gas to such other party.

19.6 Shipper shall indemnify Transporter and save it harmless from all taxes and assessments levied and assessed upon the sale and delivery of such Gas prior to and upon delivery of such Gas to Transporter for Transportation.

## **ARTICLE 20: FINANCIAL ASSURANCES**

20.1 Shipper shall at all times comply with one of the following creditworthiness requirements:

- (i) Shipper (or an Affiliate that guarantees Shipper's obligations under the Transportation Service Agreement or Interruptible Transportation Service Agreement) has an investment grade rating for its long-term senior unsecured debt from a recognized rating agent.

The schedule below sets out the minimum acceptable rating from each of

the indicated rating agencies:

Acceptable Credit Ratings \*

(Long – term Senior Unsecured Debt)

Moody' sBaa 3 or betterStandard & Poor' sBBB or betterDominion Bond Rating ServiceBBB or betterCanadian Bond Rating ServiceBBB or betterNational Association of Insurance CommissionersNAIC 1 or NAIC 2 \* Or other equivalent ratings from recognized rating agencies, as determined by Transporter. A Shipper who qualifies under this category initially but is later downgraded below investment grade will be required to qualify under another category below.

(ii) A Shipper whose long – term senior unsecured debt does not have an acceptable rating as outlined in the schedule above will be accepted as creditworthy if Transporter and its lenders determine that, notwithstanding the absence of an acceptable rating, the financial position of the Shipper (or an Affiliate that guarantees the Shipper' s obligations under the Transportation Service Agreement or Interruptible Transportation Service Agreement) is acceptable to Transporter and the lenders. Application for acceptance as creditworthy may be made at any time. Shipper will not be subject to having its acceptance under this category revoked unless there has been a material adverse change in the financial criteria relied on at the time of acceptance in the sole opinion of Transporter and its lenders.

(iii) A Shipper who, at the time of execution and delivery of its Transportation Service Agreement or Interruptible Transportation Service Agreement or at any time thereafter while it is bound thereby, is not eligible under (i) or (ii) above, must provide security for its obligation by



either:

- (a) posting a letter of credit or pledging a cash deposit, in an amount equal to the amount of the letter of credit, as set forth below; or (b) by providing other security acceptable to Transporter. A letter of credit or cash deposit under (a) above shall be in the following amounts: (i) with respect to a Shipper under a Transportation Service Agreement, an amount equal to 12 months of estimated Demand Charges and Demand Charge Surcharges if applicable, such security to be adjusted annually to reflect any change in the estimated Demand Charges and Demand Charge Surcharge if applicable, for the succeeding 12 months; (ii) with respect to a Shipper under an Interruptible Transportation Service Agreement, such security shall be equal to the product obtained by multiplying the Maximum Daily Transportation Quantity in Shipper's Interruptible Transportation Service Agreement by the Interruptible Service Toll and that product multiplied by thirty (30); and shall be adjusted from time to time to reflect any changes to Shipper's Maximum Daily Transportation Quantity and the Interruptible Service Toll.
- (iv) Transporter reserves the right to require any Shipper who does not qualify under paragraph (i) above and who has not been accepted pursuant to paragraph (ii) above to provide the security required by paragraph (iii) above. Any Shipper who qualifies under paragraphs (i) or (ii) above by virtue of an Affiliate guaranteeing the

obligations of the Shipper shall provide an unconditional and irrevocable guarantee from the Affiliate, in Transporter's usual form, and shall provide the guarantee concurrently with the execution of the Transportation Service Agreement or Interruptible Transportation Service Agreement.

#### **ARTICLE 21: CREDITING OF REVENUE FROM INTERRUPTIBLE TRANSPORTATION**

21.1 For each Month Transporter shall calculate and credit to each Firm Shipper a share of an aggregate Interruptible Revenue Credit determined and allocated as follows:

- (a) The aggregate Interruptible Revenue Credit shall be equal to the product obtained by multiplying (1) the total volume of Gas transported by Transporter under Interruptible Service for all Shippers in the preceding Month by (2) the Interruptible Service Toll.
- (b) Each Firm Shipper shall be allocated, by way of deduction from the Monthly Bill otherwise payable by such Shipper for the Month following the Month for which the aggregate Interruptible Revenue Credit has been determined, a pro rata share of the aggregate Interruptible Revenue Credit determined based on Contracted Capacities as at the first day of the Month for which the aggregate Interruptible Revenue Credit has been determined.

#### **ARTICLE 22: INCORPORATION IN TOLL SCHEDULES**

##### **AND CONTRACTS**

22.1 These General Terms and Conditions are incorporated in and are part of all Toll Schedules and Service Agreements.

22.2 These General Terms and Conditions, the Toll Schedules and all Service Agreements are subject to the provisions of all valid present and future laws, rules, regulations and orders of any legislative body or duly constituted authority now or hereafter having jurisdiction over the subject matter thereof.

#### **ARTICLE 23: TRANSPORTATION SERVICE AGREEMENTS**

23.1 Shipper shall enter into a Transportation Service Agreement or Interruptible, Transportation Service Agreement with Transporter under Transporter's appropriate standard form of Transportation Service Agreement or Interruptible Transportation Service Agreement, as presented in Appendix I and Appendix II hereto respectively.

23.2 The term of an Interruptible Transportation Service Agreement shall be agreed upon between Shipper and Transporter at the time of the execution thereof.

#### **ARTICLE 24: NOTICES**

24.1 Except as otherwise provided, any request, demand, statement, or bill, or any notice (collectively "a notice") that either party desires to give to the other, must be in writing and shall be validly communicated by the delivery thereof to its addressee, either personally or by courier or by telecopier, and will be considered duly delivered to the party to whom it is sent at the time of its delivery if personally delivered or if sent by telecopier during normal business hours, or on the day following transmittal thereof if sent by courier (provided that in the event normal courier service, or telecopier service shall be interrupted by a cause beyond the control of the parties hereto, then the party sending the notice shall utilize any service that has not been so interrupted or shall personally deliver such notice) to the other party at the address set forth below.

Each party shall provide notice to the other of any change of address

for the purposes hereof.

(i) Operator: To be advised

(ii) Transporter:

Alliance Pipeline Limited Partnership

c/o Alliance Pipeline Ltd.

Ste 400, 605 - 5 Avenue S.W.

Calgary, AB, Canada T2P 3H5

Attention: Manager, Tariff Administration

Fax: (403) 266 - 4495

(iii) Shipper: At the address set out in a Service Agreement.

Routine communications, including monthly statements, will be considered duly delivered when mailed by either registered, certified, or ordinary mail.

## **ARTICLE 25: OPERATOR**

25.1 Transporter shall have the right to designate any Person or Persons to function as "Operator" of its pipeline system with respect to, but not limited to, the management of facilities, receipt and disposition of nominations, scheduling of receipts and deliveries, administration of Service Agreements and accounting. If Transporter designates an Operator, references to Transporter in a Service Agreement, Toll Schedule or these General Terms and Conditions shall be read to include Operator acting on behalf of Transporter, to the extent applicable.

## **ARTICLE 26: LIABILITY AND INDEMNITY**

26.1 In no event will either Transporter or Shipper be liable to the other for any indirect, special or consequential loss, damage, cost or expense whatsoever based on breach of contract, negligence, strict liability or otherwise including, without limitation, loss of profits or revenues, cost of capital, loss or damages for failure to deliver Gas, cost of lost,

purchased or replacement Gas, cancellation of permits or certificates and the termination of contracts.

26.2 Except as set out in Article 4 of the Toll Schedule Firm Transportation Service, Transporter shall have no liability to Shipper, nor obligation to indemnify and save harmless Shipper, in respect of Transporter's failure for any reason whatsoever to accept receipt of, or deliver Gas pursuant to any Service Agreement between Transporter and Shipper.

#### **ARTICLE 27: MISCELLANEOUS**

27.1 Transporter and Shipper each assume responsibility and liability for the installation, maintenance and operation of its respective properties and shall indemnify and save harmless the other party from all liability and expense on account of any and all losses, damages, claims or actions, including injury to or death of persons, arising from any act or accident resulting from the installation, presence, maintenance and operation of the property and equipment of the indemnifying party.

## APPENDIX 5: CAPACITY ALLOCATION

### *Allocation Methods*

#### **“First – come, first – served”**

In the early stages of market development, “first – come, first – served” is likely to discriminate in favor of incumbents, whose market presence and knowledge give them superior abilities to occupy the head of the queue initially. However, after the diversity of players has increased and a competitive structure has been realized, there is no reason to expect that any one group of participants would benefit from “first – come, first – served”. Of course, it is critical that the potentially discriminatory impact of “first – come, first – served” is not extended inadvertently by discriminatory provisions such as “right of first refusal” provisions.

#### **“Beauty contest”**

A “beauty contest” (where the allocation of available capacity is determined by the application of various subjective and objective criteria) risks discrimination, or the appearance of discrimination, because of the high degree of discretion involved in setting criteria and evaluating applications. It is also likely to be time – consuming, bureaucratic, non – transparent and subject to political influence that could give rise to improper market distortions. These flaws would not seem to decrease as markets develop.

#### **Lotteries**

The allocation of spare capacity rights by lottery is non – discriminatory, and leads to an efficient allocation provided that liquid secondary markets exist. Moreover, it is likely to promote the development of such markets, precisely because of the likely inefficiency of the initial alloca-

tion. However, it has the potential disadvantage of distributing rents in an arbitrary fashion, and creates an artificial incentive for entry.

### **Auctions**

Under certain circumstances, auctions can better achieve an efficient initial allocation of spare capacity than the other mechanisms discussed. High bids in auctions can be expected to correspond to high valuations by the bidders, so that the winners tend to be those parties who value the capacity rights most highly.

However, under an auction system, and in the absence of supplementary regulatory provision, the transmission business would receive the rents arising from scarce capacity, and might therefore have a disincentive for efficient capacity expansion. More generally, even where capacity expansion is not at issue, it is quite possible for the total revenue from the auction to be so great as to create excess profits for the transmission business. A corrective mechanism is therefore needed both to ensure efficient expansion and to prevent excess profits. One solution is to require the transmission business to set aside any excess profits arising from the auction into a separate fund. Proceeds in the fund would be applied to the costs of future capacity expansion. <sup>①</sup>

### ***Auctions and vertically – integrated undertakings***

Auctions have an inherent potential for discrimination when conducted by vertically – integrated undertakings. If a transmission business unit's associated supply business is allowed to participate in the auction, then the integrated business will have an inherent advantage in the bid-

---

<sup>①</sup> Auctions may also have the opposite effect of creating "stranded costs," if the revenues arising from the auction are insufficient to allow fixed cost recovery. In some cases this may be a temporary phenomenon related to low initial utilisation. However, in other cases it may be reasonable to infer that fixed cost recovery will not be possible without some supplementary mechanism. Where stranded cost recovery is a legitimate goal, it should be achieved through transparent and non-discriminatory mechanisms that minimise distortions to the competitive process. One such mechanism would be the addition of a floor price to the auction

ding. Other market participants will be deterred in their bids by the fear of submitting an excessive bid. For the integrated business, the bid will constitute simply a transfer payment from one affiliate to another, and have no net economic impact. The only risk of a high bid is the possibility of foregoing the revenues that the second – highest bidder might offer. If the second – highest bid is exogenous to the auction, as one might expect in competitive markets, then the incumbent’s supply business unit will effectively benefit from a cap on its exposure from submitting an excessive bid. Other market participants face no inherent ceiling on their exposure from high bids.

It will be necessary to design the auction in such a way so as to prevent the supply business unit from exploiting this advantage.

#### ***Liquid Secondary Markets***

Lotteries and first – come, first – served procedures may comply with the goal of non – discrimination, but alone they do not ensure an efficient initial allocation of capacity rights. The goal of efficiency favors the establishment of a secondary market in capacity rights. The value of capacity rights to potential gas shippers naturally varies over time. With a liquid secondary market, the parties who value capacity rights the most at any particular time period will purchase them. In addition, the existence of a secondary market can stimulate activity in the primary market by reducing the risk of purchasing capacity rights. Market participants will know that they can easily dispose of capacity rights if their business prospects do not develop as hoped. Finally, the secondary market can facilitate the equivalent of bilateral “swaps” without the need for buyers and sellers to contact each other and negotiate separate contracts on a case – by – case basis.

An effective secondary market for capacity rights therefore renders the initial allocation of rights to spare capacity and the distribution of prior contractual rights relatively unimportant from an efficiency perspec-



tive, eliminating the key disadvantage of lotteries and “first – come, first served” policies. Under any such policies, capacity rights are sold subject to a price cap that prevents the pipeline owner from earning excess profits. If the cap binds, so that the price is below the market – clearing price, then demand will exceed supply and the rights are distributed by the allocation mechanism. Such policies therefore rely on secondary markets to allocate capacity efficiently and to provide incentives for efficient pipeline expansion. High prices for capacity in secondary markets signal scarcity, implying that new capacity will enjoy high utilization. Transmission businesses will therefore naturally choose to expand those pipes where capacity is most scarce. Moreover the price cap removes any potential incentive of the transmission business to engage in monopolistic behavior by restricting expansion, since any scarcity rents go not to the transmission business but to other market participants in non – discriminatory fashion.

It follows that firm capacity rights should be tradable, and the necessary protocols should be simplified and harmonized so as to maximize liquidity in secondary markets. The existence of a liquid secondary market in capacity rights is a feature of competitive natural gas markets, and will foster competition and trade.

There should be no requirement to pre – notify or obtain approval from the transmission business for capacity trades. Such requirements are a significant disincentive to trade. As well as creating an unnecessary procedural burden, they allow the transmission business to obtain commercially sensitive information that may be abused by its associated supply business unit. In particular, an entrant who wishes to serve a customer previously contracted to the transmission business’ s supply unit should be able to obtain the necessary capacity without the transmission business learning of the potential loss of a customer.

Ensuring the proper functioning of the secondary market is not triv-

ial. Specifically, the initial allocation should foster liquidity in the secondary market and avoid the potential for market dominance. Dominance of the secondary market can be avoided by putting a suitable cap on the amount of spare capacity that any single party is allowed to hold. A number of regulators in the United States have attempted to impose price caps in the secondary market, but this is unsatisfactory as it gives rise to a tertiary "grey market" where contractual devices are used to circumvent the price caps. Such devices impose high transactions costs and lead to illiquidity in the market. Various other approaches have been used and are currently under consideration in the United States.



责任编辑：闫熙照 鲁海汝

封面设计：大 卫

责任校对：陈 丽

ISBN 7-5021-4528-1



9 787502 145286 >

ISBN 7-5021-4528-1/TE · 3169

定价：40.00 元