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Financing Jamaica's Rockfort Independent Power Project

A Review of Experience for Future Projects

Basil Sutherland

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Resource Mobilization and Cofinancing Vice Presidency
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Foreword

Power generation projects have traditionally been funded by the public sector. However, as the resources available to governments have diminished, governments have begun to allow the private sector to enter such projects. The Rockfort power project in Jamaica is one of the first cases in which financing from multilateral financial institutions has been successfully used to mobilize private sector financing for a limited recourse project.

The Rockfort power project evolved in line with the international market for private sector infrastructure. By demonstrating the viability of private finance for a major infrastructure project in a developing country, the project has set an important precedent, particularly in the energy sector. A novel approach was required to attract private investment in the power sector in Jamaica because of the perceived country risk and the relative lack of established regulatory arrangements. The project was successful in mobilizing funds through the use of Caribbean Basin Projects Financing Authority (CARIFA) 936 bonds sold in the Puerto Rican market. The bonds were retired through takeout financing provided by a World Bank–Inter-American Development Bank loan facility. The government used a competitive bidding process to select the sponsors, which resulted in a very attractive tariff.

Several of the project’s features merit close examination for lessons that can be applied elsewhere, both with respect to government policy and to the role of multilateral agencies in supporting private sector development. These include competitive bidding for the right to develop the independent power project and risk-sharing among the government, its agencies, and private investors, as well as innovative use of multilateral funding for limited recourse financing structures.

This study examines the structure of the project, identifies lessons, and suggests ways to improve future transactions based on this experience. It reviews the project development and the bidding process as it evolved and the role of various parties, including the government, its agencies, the multilateral development banks, and potential bidders. It also provides an integrated discussion of the risk-sharing provisions outlined in the contractual agreements. The review also examines whether early expectations were realistic and makes recommendations for improving the process. These findings have implications both for policymakers considering private power projects and for private investors seeking to finance such projects.

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Preface

Power generation projects have traditionally been funded by the public sector. But, with the financial performance of most public sector institutions deteriorating and resources available to governments for such investments diminishing because of macroeconomic adjustment strategies, new approaches that involve the private sector in such enterprises are being explored. The financial closure of the Rockfort power project in Jamaica is the first case in which financing from multilateral financial institutions has been used to successfully mobilize private financing for an independent power project.

The government's strategy for reforming the power sector called for the provision of urgently required power generation capacity through a public sector component; the establishment of an environment suitable for attracting private investment in the power sector; and the support of government's deregulation and privatization program in the energy sector.

A novel approach was required to attract private investment in the power sector in Jamaica because of the perceived country risk and the relative lack of transparency in the utility regulatory arrangements. Therefore the Rockfort project established a loan facility in Jamaica that would provide a large portion of the debt capital required for project development. Further, to keep prices for power as low as possible, the government used a competitive bidding process to select the sponsors.

It was originally expected that debt financing for the project, including construction financing, would be provided by the loan facility. The developer proposed, however, that the financing for the construction period, as well as for the first three operating years, be provided from the proceeds of "936" bonds sold in the Puerto Rican market, and that the bonds be retired by take-out financing provided by the loan facility. The resulting arrangements turned out to be complex, but they provided insights into how the private sector and the state could cooperate in risk sharing. In concluding them, several innovations were successfully implemented:

- The use of competitive bidding to select the project developer (as a proxy for direct competition in the procurement of goods and services).
- The approval of expenditures during construction by the multilateral financial institutions. These "pre-approvals" were then used as the basis of a take-out commitment to disburse funding at the end of a five-year period so as to provide the project with access to cheaper bond financing.
- The use of cheaper bond financing backed by equity investors' commitments to finance equity commitments for the first two years.

These innovations required the cooperation of the Jamaican government, the multilateral financial institutions, the project developers, and the commercial financial institutions.

The Rockfort project was conceived in the last quarter of 1991. It took about four years from that time and 22 months from the selection of the developers to achieve financial close (in October 1994). The plant began commercial operations in the third quarter of 1996.

Because of the project's complexity and the additional time taken for completion, primarily to ensure the use of cheap 936 funds, the transaction costs associated with the project were higher than originally anticipated. One of the purposes of this review is to identify the reasons for the delays and suggest mitigating measures. The review also examines whether early expectations were indeed realistic, makes recommendations for improving the process, and offers suggestions for reducing the time required to close similar private sector transactions. It maintains the incentives for the developer and many of the negotiated protections for the government and the utility that are contained in the transaction agreements.

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Abbreviations

CARIFA	Caribbean Basin Projects Financing Authority
CBI	Caribbean Basin Initiative
CDC	Commonwealth Development Corporation
CIDA	Canadian International Development Agency
EIB	European Investment Bank
ESDPP	Energy Sector Development and Privatization Project
ESI	Energy Systems International
ESMAP	Energy Sector Management Assessment Program
ESSIPS	Energy Sector Strategy and Investment Planning Study
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank
IFC	International Finance Corporation
JPPC	Jamaica Private Power Company Limited
JPS	Jamaica Public Service Company Limited
MIGA	Multilateral Investment Guarantee Agency
OPIC	Overseas Private Insurance Corporation
NIBJ	National Investment Bank of Jamaica
NRCA	Natural Resource Conservation Authority
PSEF	Private Sector Energy Fund
TIEA	Tax Information Exchange Agreement
USAID	United States Agency for International Development

Background

The Jamaica Public Service Company Limited (JPS) was incorporated as a private company in 1923. In 1971 the government of Jamaica acquired a controlling interest in JPS, and by 1975 held 99 percent of the issued ordinary capital. JPS has the sole right to distribute and supply electricity and currently has an installed generating capacity of approximately 497 megawatts. It also has about 116 megawatts of capacity available to it from independent power producers, making for a total installed capacity of about 613 megawatts.¹ In addition, Jamaica has captive installed capacity of approximately 265 megawatts, of which bauxite companies own and operate about 168 megawatts. About half of this capacity is connected to the JPS grid. Although JPS has purchased electricity from this source regularly over the past 10 years, the volume of purchases has been insignificant.

During 1988–90 power shortages and costly disruptions in supply hampered production in critical sectors of the Jamaican economy, constraining the country's growth prospects. Even though efforts were already underway to rehabilitate the generation capacity, the transmission and distribution system of JPS, as well as to implement demand-side management and energy conservation programs, significant capacity was still needed to meet future demand. The demand for electricity was then forecast to increase by an average of 4 percent a year over the next 20 years.

One of the critical components of the government's macroeconomic adjustment program is the reduction of the fiscal deficit, which limits its ability to borrow in order to finance investments. External financing is also constrained, as Jamaica's per capita external debt burden is one of the highest in the world. The country also has very limited ability to access long-term commercial financing, as evidenced by the fact that during 1988–90 commercial sources provided no debt without government guarantees. Disbursements of public and publicly guaranteed debt from commercial sources ranged from \$30–130 million during those years.² Of this amount, the commercial banks pro-

vided a maximum of \$30 million in 1988. Moreover, no part of the commercial debt had been used for investments in the power sector, primarily because of the non-tradable nature of the output. In view of these constraints, the government decided to make arrangements that would provide comfort to lenders and investors, and establish a framework for soliciting, appraising, and supervising private sector projects, particularly power projects. The government also decided that in order to attract private investment in power projects, the barriers inhibiting private capital inflows would have to be eliminated. And a clearly delineated framework to ensure efficient resource allocation and economic pricing of energy products would have to be established.

The rationale behind the government's policy to encourage private financing for the electricity supply system was to relieve itself of the burden imposed by the sector's financing needs. It therefore began investigating the possible participation of private sector investors, in 1990, and held a seminar on "Private Sector Participation in the Energy and Power Sector" on September 10–12. The seminar highlighted specific constraints to private sector participation, including lack of adequate regulatory framework, lack of long-term financing for private power sector investments, insufficient security provisions to safeguard the interests of private investors and lenders, and limited size and scope of local capital markets to mobilize financing.

The Energy Sector Deregulation and Privatization Project

The government subsequently decided that private sector participation in the energy sector should be guided by a proposed Energy Sector Strategy and Investment Planning Study (ESSIPS). The study was undertaken by the World Bank's Energy Sector Management Assistance Program (ESMAP) with financial and technical assistance from the Canadian International Developmental Agency (CIDA).

The study was completed in August 1992, and the government accepted its recommendations. With assistance from the Bank and the United States Agency for International Development (USAID), the government subsequently established a framework for private sector participation in the energy and power sectors and for the solicitation of investors. It also developed the Energy Sector Deregulation and Privatization Project, which included provisions for:

- Installation of about 120 megawatts of power-generating capacity consisting of a 60-megawatt build-own-operate (BOO) low-speed diesel facility in the private sector and 60 megawatts of combustion turbine plant.
- The installation of associated transmission and substation facilities.
- The establishment of the Private Sector Energy Fund (PSEF) to finance approved projects. This Fund enables the government to use borrowings from international financial institutions to provide limited-recourse financing for project sponsors who wish to develop projects in the energy sector.

The Private Sector Energy Fund

The National Investment Bank of Jamaica (NIBJ) is the administrator and executing agency of the PSEF on behalf of the government. A private power unit has been established within NIBJ to administer the PSEF under an administration agreement between the government and NIBJ. The Fund will finance projects if they are found to be technically, economically, and financially viable, as well as environmentally acceptable.

The private power unit, supported by short-term consultants needed to assist with legal, technical, and financial aspects, is responsible for loan documentation and negotiation, supervision and monitoring, and the fulfillment of

reporting and auditing requirements. NIBJ's finance department handles loan disbursement and collection.

PSEF loans to subprojects are denominated in U.S. dollars, but will be repaid in equivalent Jamaican dollars. The Fund's on lending interest rate is variable and determined annually in accordance with a benchmark rate—the yield on long-term maturity U.S. Treasury bonds.

The arrangements give borrowers an incentive to refinance PSEF debt by borrowing on better terms from private foreign (or domestic) sources. Project companies that borrow from the Fund and subsequently refinance their debt by tapping cheaper commercial sources will be allowed to retain 50 percent of the savings in debt service. It is this potential savings that is expected to prompt companies to refinance.

The Rockfort Subproject

The Rockfort project is the first subproject to be financed by the PSEF and is the first independent power project to be financed in Jamaica. It is also the first project financed from World Bank resources to have achieved financial closure. The project involves construction of a 60-megawatt low-speed diesel power station, which will be owned and operated by the Jamaica Private Power Company (JPPC), a company incorporated in Jamaica. It will sell the plant's output to the JPS system under a power purchase agreement over a 20-year period. The power station will comprise two diesel engines and will provide the capacity to JPS on a dispatchable basis at an availability of approximately 90 percent. The annual net energy delivery is expected to be approximately 420,000 megawatt-hours. Equipment of similar design and manufacture is used in successful commercial operations throughout the world. A detailed description of the technical aspects of the project is given in Annex 1.

Selection of Project Developer

The selection of the project and approval and finalization of the security package involved extensive interministerial coordination. The government entrusted the responsibility for coordinating the project, including the preparation of the requests for proposals (RFPs) and the approval of loans from the Energy Fund, to the Ministers' Steering Committee, which the minister responsible for energy established to guide privatization of the energy sector. The committee includes representatives from all of the government ministries and agencies that were concerned with the project.³ It functions through small working groups responsible for specific areas. The Steering Committee has played an important role in the pushing of the various phases of the project through the government bureaucracy and in establishing the framework for private participation in the sector. The core team for evaluating and negotiating bids was derived from the Committee.

A Framework for Private Sector Projects

At the start of this initiative the government decided that proposals from private investors would need to fulfill the following criteria in order to ensure that they would be consistent with Jamaica's national priorities:

- *Least-cost alternative.* Public and private sector investments should form an integral part of the least-cost development plan for the power subsector.
- *Competitiveness.* Competitiveness should be ensured by considering proposals that offer electricity prices that are lower than the unit cost of generation that JPS would have incurred, adjusted for financing available to the private sector.
- *Use of proven technologies.* The technologies proposed by private investors should have a successful track record in countries at a similar level of technological development and support infrastructure.
- *Viability.* Sponsors should be creditworthy to make the needed investments and possess the capability

to develop the project. To ensure commitment to sub-projects, minimum equity contributions should be required as part of the financial plan. These contributions would ensure a viable capital structure and an acceptable debt-service-coverage ratio.

- *Limited recourse financing.* Private investors and lenders should not require direct sovereign guarantees. Institutions providing these funds should be prepared to assume project-specific risks. If these risks are recognized, the recourse of lenders should be limited to the provisions outlined in the project's security package.

Least-Cost Planning and Technology Choice

Some have argued that central least-cost planning by the utility is inappropriate if private sector participation in the sector is desired. Rather, the market should decide technology and prices. The selection of projects should then be based solely on the price at which capacity and energy are offered for sale.

The government and JPS rejected these arguments,⁴ selecting low-speed diesels for the project for the following reasons:⁵

- A recent least-cost expansion-planning exercise carried out by the utility had indicated that low-speed diesels installed in three increments of 20 megawatts each would satisfy the immediate expansion needs of the system at the lowest economic cost.⁶
- The government was primarily interested in improving the reliability of the overall system, and low-speed diesel technology had proven to be the most reliable technology so far employed by the utility.
- The government was anxious to expand as quickly as possible. It felt that, given the reliability requirement, the complexity of evaluating bids that involved differing technologies would add considerably to the lead time for implementation.

Although, theoretically, much more flexibility can be allowed (than was during the preparation of the RFP) by giving developers the freedom to choose the technology, it may still be appropriate for the utility to limit the choice of technology for the following additional reasons:

- Given the small and isolated nature of the Jamaican power system and the consequent inability to wheel in power from adjacent systems, reliability is of the utmost importance. Such reliability would not be assured if the wrong technology is chosen.
- Experience gained during negotiations showed that there is little possibility of imposing penalties on a developer that are sufficiently large to compensate the utility for the harm caused by nonperformance. This is because the private power market, which follows U.S. experience, is not accustomed to facing penalties that are enough to fully compensate for the harm caused. The same is probably true of the expectations of project financiers. To insist on large penalties would probably render projects unfinanceable. In the absence of restricting the choice of technologies to those that have a real chance of achieving the required reliability and capacity factor, a developer is likely to choose a cheaper technology with a marginal capability to perform reliably because of the smaller capital outlays required. The developer would then take a chance of incurring penalties, which, in any event, are lower than the incremental cost of upgrading to a more reliable technology.
- It is advantageous for Jamaica to purchase fuel from Venezuela and Mexico under the San Jose Accord.⁷ Such fuels are, however, high in vanadium content. And if equipment used to burn this fuel is unsuitable, maintenance costs will increase. Allowing a developer to choose equipment that is unsuitable for use with this fuel will therefore deny the government the benefit of the accord.
- Fuel diversification may be important for national strategic reasons. Allowing developers to have a completely free choice of technology may lead them to gravitate to only one type of fuel, defeating any diversification objectives.
- There are a very limited number of sites that are environmentally and technically suitable for locating power stations in Jamaica. For example, it would be undesirable from an environmental standpoint to have the

best site suitable for locating a coal plant pre-empted by a developer who, because of the absence of restrictions on choice of technology, decided to install a plant burning relatively clean fuel, which could easily have been located elsewhere.

- Manufacturers of equipment may consider it to be worth their while, as part of their research and development efforts, to use BOO projects as a testing ground for new technologies, with possible disastrous consequences for system reliability.

Supply-constrained countries with small isolated systems and no future possibilities of connection with other systems must approach private sector involvement in the sector somewhat differently than do countries in which interconnection is possible. A pure market approach could have significant disadvantages. It therefore must be properly assessed so as to balance the benefits derived from widening the market segment in which competitive bidding will take place against the potential for such an approach to lower system reliability by allowing the introduction of untested technologies or incremental additions that are too large a percentage of total system capacity.

The Competitive Bidding Process

The government initiated an international competitive bid to attract private investors to develop the 60-megawatt low-speed diesel-power station on a BOO basis. Investors were advised that they would be required to put up a minimum of 30 percent of project costs in the form of an equity investment, and that the remaining 70 percent of the project costs could be funded from the PSEF. But because the government agreed to accept a lower percentage of project equity in such cases, the prospective developer was offered an incentive to mobilize non-Fund debt, which required no direct government guarantees.

Prequalification

The process of selecting the developer involved an internationally advertised prequalification, which solicited expressions of interest from private developers to construct, own, and operate the 60-megawatt low-speed diesel-power station and all support facilities. The prequalification documentation included the evaluation criteria, which were based on the developer's ability to mobilize financing and its experience with BOO projects.

Preliminary interest in the project was strong, as demonstrated by the large number of firms responding to the advertisement. JPS did not expect this widespread interest. Because of the anticipated difficulty of evaluating a large number of bids, it was decided to limit the number of prequalified bidders to seven, which was considered a manageable number. After ranking the prequalification submissions, the best seven firms were notified and advised to await issue of the RFP.

Requests for proposals

JPS prepared the RFPs with the assistance of consultants funded by USAID and the World Bank. The preparation and a prefeasibility study commenced in July 1991, but the final version of the RFP was not completed and issued to the prequalified bidders until March 12, 1992.

The RFP gave prospective developers a general description of the project and the prefeasibility study, as well as drafts of the key contracts making up the security package. Being developed for the first time in Jamaica, these documents were required to undergo a complex and lengthy review and approval process. The main features of the RFP were:

- A formal invitation to the prequalified applicants.
- Instructions to the applicants.
- General information for applicants, including background information on Jamaica and the project, as well as any special requirements and circumstances that were relevant.
- A description of the proposed security package, which included the principles of the implementation agreement, power purchase agreement, and fuel supply agreement. It also provided information on required insurance coverage; the requirements for government approvals; the principles of an appropriate construction contract; the proposed arrangements for leasing the site at Rockfort; the principles of the operations and maintenance agreement, which the developer was expected to enter into; and the arrangements that would permit use of the PSEF. Also included were a pro-forma of the applicant's proposal and pro-forma sheets for providing the supporting technical data and guaranteed performance levels.

The RFP provided the method of calculating the average discounted price, pro-forma sheets for the cost data to support the average discount price and tariff calculations,

the basis and arrangements for procurement, technical data on the Rockfort site, and the required performance specifications for equipment.

Several questions arose among the bidders during the preparation of their bids, necessitating a prebid meeting in April 1992 and the preparing and issuing of several clarifications to the RFP. The bidders, in turn, sought additional time to evaluate and factor the clarifications into their prices, and JPS agreed to extend the due date from May 8, 1992 to July 22, 1992.

Submission of proposals

JPS received proposals from two firms: FPL Group Incorporated, through its subsidiary Energy Systems International (ESI), and JPPC, which is a special purpose project company established by Hydra-Co Enterprises, Inc., U.S. Energy Corporation, and International Energy Finance Ltd. The bids were opened in public.

Both bidders submitted base proposals that were technically identical. In addition, they both submitted alternative proposals that included alternative financing arrangements for the same equipment in one case, and in the other, alternative equipment with similar financing. Only the base proposals were evaluated.

In the base proposals JPPC bid an average discounted price of \$0.0691 per kilowatt-hour and FPL bid \$0.0759 per kilowatt-hour.

Evaluation criteria

The prequalification process had already determined that each of the invited bidders was qualified to undertake the project. The main criteria used to select the best bidder was therefore the price offered per unit of electricity supplied. The average discounted price of the capacity and energy offered for sale by each bidder was compared.⁸ In addition, the responsiveness of each bid was also tested to ensure that the specification of equipment proposed was in accordance with the minimum functional specification and the financing arrangements were credible.

No adjustment to the average discount price would be allowed, except to accommodate differences in costs of financing between assumptions made when preparing the bid and what was realizable in practice.

Among the main technical characteristics of the proposal that were taken into account in the evaluation was the

requirement that the proposed equipment must have been used in successful commercial operations for at least 8,000 hours under base load conditions. Also, the equipment must have been designed to operate continuously on No. 6 heavy fuel. The evaluation of the financial proposals considered mainly the credibility of the financing arrangements proposed and the extent of the commitment that had been offered by the participants.

Bid evaluation

To evaluate the bids, the government appointed an evaluation team, comprising representatives from the utility and a number of other government agencies. It was supported by technical experts drawn mainly from the utility. After seeking several clarifications from the bidders and legal opinions as to the responsiveness of the bids, the evaluation team determined that JPPC's bid was the winning bid. JPPC offered to supply power for a lower average discount price and presented a financing plan showing stronger commitment and lower financing risk than the FPL.

The financing plans proposed by each of the bidders were innovative and therefore conditional on lenders' evaluations—presenting the evaluators with a number of issues. The most significant issue was that JPPC proposed to finance its equity participation in the project for the first two years by issuing bonds, the repayment of which would be guaranteed by letters of credit opened by the equity holders. During the evaluation questions arose as to whether or not JPPC's bid met the requirement that the project developer finance at least 30 percent of the project costs with equity—the evaluators' initial perception was that bond financing would not provide the same degree of commitment to the project as would cash financing. JPPC chose to use bond financing because the coupon rate on bonds is lower than the rate of return that equity holders expect. Therefore, the cost of funds would be lower. And this

lower cost was one of the factors that allowed JPPC to offer a lower average discount price. Although the drafters of the RFP did not expect that equity would be financed in the manner proposed, the evaluation team felt that the effect of the equity financing proposal was similar to what was intended in the RFP. The proposal was therefore accepted.

The lesson to be learned, then, is that in drafting an RFP, it is desirable to allow some degree of flexibility with respect to financing proposals:

- It will often be impossible to mobilize foreign financing if there is no willingness to negotiate the financing conditions with lenders, since financial markets perceive risks in a country in ways that cannot be anticipated by the drafters of the RFP.
- Allowing flexibility will permit bidders to be innovative in preparing financing plans and, consequently, to offer lower tariffs without misallocating project risks.

Procurement issues

Although all of the principles of the World Bank's guidelines for procurement remained intact, the procurement for this project departed significantly from the usual practice of public sector projects. The process used substituted competition for the position of project developer for the normal competitive bidding for goods and services.

The World Bank and the Inter-American Development Bank both accepted that this procedure would not violate their guidelines because it was agreed that competition for the position of developer that was based on an average discount price in which the base capital cost component of the project was fixed would serve as a good proxy for direct competition for goods and services—the fixed average discount price would have to be based on competitively procured goods and services in order to be itself competitive.

Financing Arrangements

The project's financial closing occurred on October 14, 1994; the sponsoring JPPC consortium estimated total project costs at \$138.97 million. On October 14 contracts were signed that made \$144 million—including standby funds—available for this limited-recourse financing project. In addition to the principal contracts, nearly 350 different legal documents had to be negotiated and signed at closing to secure the required financing. This complexity was largely due to the novel concepts contained in the financial package.

In order to be competitive bidders had to keep interest costs on the project's debt as low as possible. Also, in line with the government's policy to try to avoid any further increase in its external debt burden, PSEF resources were intended to be used as a last resort. Developers would reap financial rewards if they refinanced borrowings from the PSEF in the commercial debt market.

Project Costs

The largest component in the average discount price is the capacity purchase price. Because of this, the successful bidder had to minimize the project's total capital cost. The sponsors knew that there was very little room to gain an advantage on the technical aspects of the project because of the very detailed technical specifications established in the RFP and because only a few specialized producers were capable of supplying the equipment. The sponsor's competitive advantage would come from its ability to achieve lower financial and developmental costs. JPPC was able to out-bid its competitor by offering a lower average discount price, made possible by a capacity purchase price of roughly 70 percent of that proposed by the FPL.

For the other component of the average discount price, JPPC quoted a price that was higher than that of FPL. Construction and start-up costs represented about 75 percent of the \$117.6 million in total project costs. In addition to offering the lowest average discount price, JPPC's

financing plan showed the strongest commitment and the lowest risk.

Project costs were not allowed to vary during the bid validity period. The only adjustments in costs that were allowed to be reflected in the tariff during this period were those related to financing. After the one-year bid validity period, however, changes in these costs due to inflation up to the date of financial closing were allowed to be passed through to the tariff in the proportion of the currency basket that was originally bid. After this date project costs were fixed.

Final selection of JPPC was made in December 1992. It took about 20 months to close the financial package, during which time financial conditions in the international market had changed significantly. Higher interest rates in the United States, as well as, *inter alia*, the requirement of the government and the commercial banks that higher debt-service reserves be maintained also resulted in higher project costs. Thus the tariff model costs in table 1 represent the project costs that form the basis of the tariff. The project model project costs represent costs that JPPC budgeted and include additional contingency costs.⁹

The Financing Package

The limited-recourse financial package that JPPC put together in July 1992 included several interesting features. A principal feature was the arrangement for credit enhancement to facilitate the use of low-cost Caribbean Basin Projects Financing Authority (CARIFA) 936 bond financing available from profits deposited in Puerto Rican banks by subsidiaries of U.S. corporations operating there.¹⁰ The bonds were issued in three series. Series A bonds, amounting to \$81 million, are the "debt bonds" and carry a fixed annual interest rate of 6.2 percent over their face value and a bullet maturity at year five (due on October 13, 1999). Series B and C bonds are the two "equity bonds." Both have a two-year bullet maturity and are due on October 13, 1997. Their fixed annual rates differ—5.57 percent for

TABLE 1

Project costs at financial closing, October 14, 1994

(millions of U.S. dollars)

Cost categories	Base costs	Tariff model costs	Project model costs
<i>Construction and start-up</i>			
Power plant construction—EPC	85.57	90.90	86.02
Security for EPC termination	0.00	0.30	0.00
EPC interest on retained payments	0.35	0.00	0.00
Taxes and duties	0.00	0.04	0.08
Operating equipment	0.32	0.34	0.34
Project management	1.68	1.77	2.07
Start-up costs	0.56	0.61	0.70
Lease payments	0.00	0.13	0.12
Subtotal	88.48	94.08	89.33
<i>Financial costs</i>			
Equity finance costs	1.56	1.78	0.68
Bond finance costs	3.37	4.94	4.38
Energy loan fund finance fees	1.15	1.53	1.49
CDC financing fees	0.00	0.66	0.86
Net construction interest	6.23	11.92	11.96
Insurance	1.39	0.64	1.97
Miscellaneous financing costs	0.06	0.26	0.58
Subtotal	13.74	21.73	21.91
<i>Development costs</i>			
Professional fees	1.03	1.08	4.70
Development costs	1.82	2.07	5.26
Subtotal	2.85	3.15	9.96
<i>Reserves</i>			
Working capital	2.25	2.44	2.43
Security deposits	3.00	3.00	2.00
Debt-service reserve	3.00	7.00	7.00
Base contingency	4.23	4.45	4.16
Subtotal	12.47	16.89	15.58
<i>Base capital costs</i>			
Contingent development and legal costs	0.00	0.00	2.19
<i>Total project costs</i>			
Remaining standby funds	7.11	3.15	5.03
Total available funds	124.65	139.00	144.00

Source: JPPC's Project Model.

the \$20 million Series B bonds and 6.875 percent for the \$21 million taxable Series C bonds.

CARIFA bond financing amounted to \$122 million or 84.7 percent of the total funding secured for the project (table 2). These bonds were used to cover base capital costs, Series A bonds, financing \$81 million of the project's debt and Series B and C bonds financing \$41 million of its equity. The other main source of funding came from the Commonwealth Development Corporation (CDC), which added flexibility to the financial package by providing \$19.8 million in base and standby credits, in addition to contributing equity funded by the CARIFA equity bonds through its Jamaican subsidiary, West Indies Development Corporation Ltd.¹¹ The financial package was completed with \$2.2 million in base and standby

equity pledged by JPPC shareholders (in addition to their equity contribution financed by CARIFA bonds).

The Project Sponsors

The original sponsors of the project were a group of U.S. companies that specialize in developing independent power projects in the United States. The consortium they formed to bid for the Rockfort project in Jamaica was composed of:

- Hydra-Co Enterprises, Inc., at that time a wholly-owned subsidiary of Niagara Mohawk Power Corporation, a large utility operating in New York State, later purchased (October 1994) by CMS Generation Company, an independent power production unit of CMS Energy

TABLE 2

Sources of funding

(millions of U.S. dollars)

Source	Base funding	Allocated standby	Remaining standby	Total funds available
Debt bonds—Series A	81.00	0.00	0.00	81.00
Equity bonds—Series B	20.00	0.00	0.00	20.00
Equity bonds—Series C	21.00	0.00	0.00	21.00
CDC base debt	14.00	0.00	0.00	14.00
CDC standby debt	0.00	1.53	4.27	5.80
JPPC base equity	0.78	0.00	0.00	0.78
JPPC standby equity	0.00	0.66	0.76	1.42
Total	136.78	2.19	5.03	144.00

Source: JPPC's Project Model.

Corporation, one of the top five independent power producers in the United States.

- U.S. Energy Corporation, a small independent power developer located in Bethesda, Maryland.
- International Energy Finance, Ltd., a small, specialized investment advisory institution located in Bethesda, Maryland.
- Precursor Systems, an independent power developer located in Reno, Nevada.

This consortium created JPPC under Jamaican law as a special-purpose company to bid for and implement the project.

HCE's portfolio included interests in 25 projects in the United States, most of them hydroelectric facilities, some cogeneration and biomass plants, and two windpower facilities. The assets under its management added up to nearly to \$1 billion. HCE was formed in 1981 as a wholly-owned, nonregulated subsidiary of Niagara Mohawk. By law, HCE has to work at arm's length from its parent company, and it cannot receive any financial comfort from it. All parent-company contributions are in the form of equity.

As the industry supplying the dynamic U.S. market for independent power development matured over the years, HCE witnessed the gradual disappearance of new investment opportunities and the growth of more fierce, experienced competition. These changes forced all participants in the industry to seek out new opportunities abroad, particularly in the developing world, where there was a strong demand for new power generation capacity and an increasing trend toward privatization.

The equity structure designed by the sponsors was driven mainly by taxation issues and voting rights considerations. For income tax reasons independent power generation projects in the United States are structured as partnerships, in which the general partners are in charge of running the business and the limited partners behave as minority share-

holders or portfolio investors. Jamaican law, however, does not lend itself to this legal partnership structure. Instead, the sponsors decided to give JPPC a corporate structure with two classes of shareholders: holders of Class A shares represented the general partners and holders of Class B shares represented the limited partners. This feature allowed JPPC shareholders to treat the future repatriation of dividends to the United States as income derived from a partnership, which has some tax advantages for U.S. investors. The balance in voting rights is such that at least two shareholders are needed to gather a majority of the voting power (table 3).

The Funding of Equity

With the exception of \$780,000 contributed in cash, most of the equity in the project is being funded through the Series B or C bonds.¹² At closing, shareholders that retained a small portion of the shares issued signed an equity purchase agreement that enabled the issuing of additional Class A shares to HCE and a new class, Class B, shares for the passive investors. In the agreement all investors committing additional equity (all of them except for the three small sponsors) committed to back the equity bonds issued by CARIFA with a guarantee. The investors also arranged to obtain the credit enhancement from Banco Santander S.A. New York Branch. Its AA-rating satisfied the credit quality that CARIFA demanded. Banco Santander does not have any project exposure and gets its own security from other commercial banks, which have a client relationship with the equity contributors, except for CDC, which supports its Jamaican subsidiary directly.

In addition to HCE and the Commonwealth Development Corporation, the other Class B shareholders are Utilco Group Inc., a subsidiary of UtiliCorp United

TABLE 3

The Jamaica Private Power Company's equity structure at closing

Stockholder	Amount of equity committed (millions of U.S. dollars)	Shareholder interest (percent)	Voting interest (percent)
Class A	8.835	36.8	46.5
HCE-Rockfort Diesel, Inc.	8.815	30.1	38.1
IEP Jamaica Investments I, L.L.C.	0.013	4.5	5.6
USEC-Precursor, Inc.	0.007	2.2	2.8
Class B	33.009	63.2	53.5
HCE-Rockfort Diesel, Inc.	7.208	13.8	11.7
West Indies Development Corp. Ltd.	7.251	13.9	11.8
EIF Jamaica, L.L.C.	7.330	14.0	11.9
Rockfort Power Associates, Inc.	11.221	21.5	18.1
Total	41.844	100.0	100.0

Source: JPPC's Project Model.

Inc., a U.S. investor-owned gas and electric utility, and Energy Investors Fund, a Boston-based investment fund specializing in equity participations in the power sector.

Debt Financing and the Role of the Private Sector Energy Fund

During the project's first five years, its debt financing was mobilized from private commercial sources. These consisted mainly of interim debt guaranteed by letters of credit issued by well-known banks—the letter of credit banks—and underwritten in Puerto Rico in the 936 CARIFA bond market by First Boston Corporation, a subsidiary of Credit Suisse and one of the leading participants in the 936 market.¹³ Some taxable bond financing was also used. Although the plant was scheduled to be completed in year two of the project, the loan will be disbursed by PSEF in year five at the maturity date of the 936 bonds, thereby facilitating access to the low-cost bonds for an additional three years after completion of the plant.

This financing plan effectively provided an irrevocable “take-out” commitment to retire the 936 bonds at the bond maturity date in year five. But the project agreements also provided for the loan to be disbursed earlier under certain circumstances (collectively described as “take-out events”), these included the failure of JPPC to maintain an amount of about six months of interest payments on deposit in the U.S. Dollar Debt Service Reserve Account, or any acceleration or redemption of the debt bonds, such as resulting from the bankruptcy or liquidation of JPPC.

The multilateral banks were expected to be major catalysts in mobilizing private financing for the power sector in Jamaica. Although there was no similar project in Jamaica

from which to draw lessons, several lessons were drawn from the World Bank's experience with a similar operation.

The World Bank and IDB each provided a \$40.5 million, 17-year loan to the Jamaican government, which was earmarked to be used by PSEF for long-term debt financing of construction. The interest rate charged on funds disbursed was the 30-year United States Treasury Bond as a risk-free, long-term benchmark. A three percentage-point premium is intended to cover:

- Cross-currency risks faced by the Jamaican government on the loans from the multilateral banks.
- A guarantee fee to cover credit risk.
- The NIBJ's costs of managing and administering the PSEF.

The on-lending rate for the PSEF was initially set at 11 percent a year, but the current rate is now 9.16 percent. The money will be on-lent to the project for the redemption of the Series A bonds (debt bonds).

The NIBJ loan made to JPPC from the Fund was denominated in U.S. dollars, but the debt servicing will be in Jamaican currency. This leaves the U.S. dollar-Jamaican dollar exchange rate risk with JPPC, which hedges that risk through U.S. dollar indexing of the price of the energy it sells, as agreed in the power purchase agreement.¹⁴ The cross-currency risk originating from parity variations within the hard currency baskets that the multilateral banks use to denominate their loans will remain with the government, which has included a fee as part of the spread PSEF charges JPPC to cover this eventuality.

The take-out by the PSEF is scheduled to take place in October 1999. When the Series A bonds mature (or earlier, at the occurrence of a take-out event), the two multilateral banks will disburse directly to the letter of credit banks

amounts corresponding to the purchases of goods and services that have been reviewed and certified beforehand by NIBJ and approved by the two multilateral banks for payment out of their loan proceeds. Prior to take-out, interest on the bonds will be paid in U.S. dollars, after the conversion of project revenues from Jamaican dollars. To ensure this payment, JPPC has established an Interim Period Standby Facility, funded by CDC, which will provide approximately six months of debt bond interest and letter of credit fees.

From the perspective of the multilateral banks, perhaps the most interesting aspect of their involvement may be exercising their capacity to mobilize private resources. If the project is constructed as expected and no takeout events occur, their resources will not be disbursed until year five. And if private markets still remain available for JPPC at that time, there may never be a need to disburse multilateral credits.

The Caribbean Basin Projects Financing Authority Bonds

The final decision to package the CARIFA bonds into three series was determined by tax considerations, the need to satisfy market conditions, the peculiarities of 936 funding, and the constraints of the project itself. Thus funds from Series A and Series B bonds were targeted to cover “eligible project expenditures” so that interest from these bonds could be given favorable tax treatment.¹⁵ This lower tax-free rate means savings of \$5.47 million over the five-year life of the Series A bonds compared with the initial 11 percent annual rate for funds available from the PSEF. The savings, in turn, translates into a lower electricity tariff.

The main items among the eligible expenditures are:

- The EPC contract.
- Project management costs.
- CARIFA fees.
- Issuer placement fee.
- Development costs (after August 1992).
- Professional fees.
- Success fee.
- Start-up costs.
- Working capital.

It was decided that in order to keep the financing within the agreed debt-equity ratio, the Series A bonds would take the form of senior debt.¹⁶ Other eligible expenditures were targeted for financing under the Series B bonds, which, because of their full backing by the project developers

with an irrevocable letter of credit issued by Banco Santander, became part of the project’s equity.

The Series C bonds, which are being used to fund equity, have the full backing of the investors under a similar letter of credit issued by Banco Santander. These proceeds, however, were aimed at covering “noneligible” project expenditures and thus their interest was taxable under U.S. federal tax regulations. Since these expenditures could not qualify for 936 funding, alternative buyers had to be found for the bonds to cover them. In the end, the whole Series C issue was purchased by the Government Development Bank of Puerto Rico, the state institution in charge of managing the day-to-day affairs of CARIFA. The principal items in the list of expenditures to be financed by the Series C bonds are:

- Interest accrued during construction.
- Legal and financial fees.
- Security deposits.
- Debt service reserve.
- Base contingencies.

Initially, the bond pricing was expected to have been set on a LIBOR basis so as to take advantage of a steep yield curve and low-level short-term interest rates. In the end, however, the pricing mechanism was changed from LIBOR-based to a fixed rate because the government’s negotiating team perceived that there would soon be a leveling of the yield curve and higher short-term interest rates. The government’s concern over higher rates was justified by the fact that JPPC’s higher financial costs are passed on to JPS (and eventually to consumers) through the application of the escalation clauses in the power purchase agreement. The need to opt for fixed-rate bonds was reinforced when the Series A letter of credit banks, also concerned about rising interest rates and the prospects of an uncovered Jamaican risk, demanded that higher coverage be included in the debt-service reserve if the bonds were to be priced at a floating rate.

The Series A Letter of Credit Banks

Originally, the financial package was expected to have been closed by July 1993 based on two assumptions:

- That the letter of credit banks backing the Series A bonds would be willing to assume the commercial risks associated with the construction and completion of the project.
- That the letter of credit banks would be able to obtain political risk insurance to cover the debt bonds against such risk.

In similar projects in the United States banks have taken the construction risk as part of their traditional project finance business. In the case of the Rockfort project the sponsors believed that because they had well-established European companies standing behind a well-structured turn-key engineering procurement and construction contract, the purely commercial risks that arose during construction were no different than those faced by commercial banks accustomed to project finance risks in industrial countries. The sponsors believed that their main efforts would have to be in trying to secure insurance coverage against noncommercial risks, such as currency transfer and expropriation risks.

But, as it turned out, commercial banks tended to regard project finance largely on a case-by-case basis, particularly for projects in smaller developing countries, where standardization is extremely difficult to achieve and commercial banks have limited long-term interests. The main problem that the letter of credit banks guaranteeing the senior debt of the project faced was how to contractually separate political risks from commercial risks for the five years during which their financial commitment was requested. The commercial risks they were being asked to take by JPPC were of two types:

- The completion risks associated with the construction of the plant during the first two years of the project.
- The operational risks starting from the commercial operations date expected to come at the end of year two, and finishing at the end of year five at the bullet maturity date of the Series A bonds.

The more familiar the letter of credit Banks became with the deal, the more difficulty they perceived in separating out commercial risks from political risks.

Given the difficulties encountered in putting together an insurance package covering the political risks faced by the letter of credit banks, the urgent need to begin building the plant, and the need to cap the increasing transaction costs associated with financial closing, the government and the World Bank and IDB agreed to amend their loan agreements. The amendments are the World Bank's and IDB's irrevocable commitments to the letter of credit banks to disburse against eligible expenditures at any time a take-out event took place, whether motivated by an acceleration of the loan to JPPC or the scheduled redemption of the Series A bonds.¹⁷ The amendments effectively eliminated any Jamaican risks, whether commercial or political, for the letter of credit banks, which thereafter faced the low

credit risk of the two multilateral banks. In addition, the intercreditor agreement established the senior status of the letter of credit Banks' credit claim against JPPC. Both CDC and NIBJ accepted that their claims against JPPC would be subordinate to those of the letter of credit banks until the letter of credit banks had been taken out. Because of this agreement, the fees charged for the issuance of the letter of credit were lowered considerably and, in fact, were lower than those for similar U.S. projects in which letter of credit banks did assume completion risk.

The Role of the Commonwealth Development Corporation

CDC often provides equity and loans to private and public companies in selected developing countries, though it prefers to act as a catalyst, bringing other investors into specific investment projects. The rationale for CDC's involvement in the project was therefore similar to that of the multilateral banks.

CDC's loans are more expensive than 936 funds, but compared with the other sources of finance, CDC has demonstrated great flexibility in its lending arrangements. When CDC was initially approached by JPPC, it had intended to contribute only equity and standby debt. But when projections showed that more money was needed to carry out the project, mainly because of debt reserve requirements, CDC offered its base debt facility (table 2). At the closing of the financial package it committed \$7.25 million in equity, \$14 million in long-term base debt, and \$5.8 million in standby debt. Part of its flexibility also resided in its willingness to finance project expenditures not eligible for financing by the multilateral banks or the CARIFA bonds.

Insurance Arrangements

The Multilateral Insurance Guarantee Agency (MIGA) is a member of the World Bank Group and provides political risk insurance cover associated with the development of investment projects in developing countries. JPPC requested coverage against the risks of currency transfer, expropriation, and war and civil disturbance. The investments to be covered were financed with the project's equity and debt, except for the contributions of CDC, which they did not wish to insure. MIGA's Board of Directors approved the request in July 1993. It agreed to issue a commitment letter for an aggregate liability for the three risks not exceed-

ing \$50 million, which is MIGA's limit for any single investment project. As a rule MIGA covers only 90 percent of the losses incurred.

MIGA proposed to guarantee, on its own account, up to \$50 million of the total investment during construction. After completion, it offered to guarantee equity contributions and long-term debt, other than the PSEF loan used to take out the CARIFA bonds. Since the project's equity and debt, even excluding CDC's contribution, were significantly higher than MIGA's limit on liabilities on its own account, they proposed to arrange a cooperative underwriting program with private insurers. Under the program, MIGA would act as the insurer-of-record for the total amount insured. The proposed scheme allowed MIGA to co-insure with private companies and increase the leverage of its limited insurance capacity. The proposal was an attempt to insure the three CARIFA bond series against Jamaican political risk, leaving only the commercial risks in the hands of the equity providers and the creditors. Thereafter, MIGA coverage would insure the equity for up to 15 years and a small portion of the long-term debt for up to 10 years.

The main difficulty with the proposed arrangements was that the Series A bonds had a life of five years, and the proposed scheme did not offer insurance coverage between year three and year five. Commercial practices today make it virtually impossible to find political insurance coverage

that extends to five years. In Jamaica private insurers indicated interest in participating in the cooperative underwriting program under MIGA's umbrella and covering the construction period. But the additional coverage of the last three years of operation required for the Series A bonds was not possible to arrange.

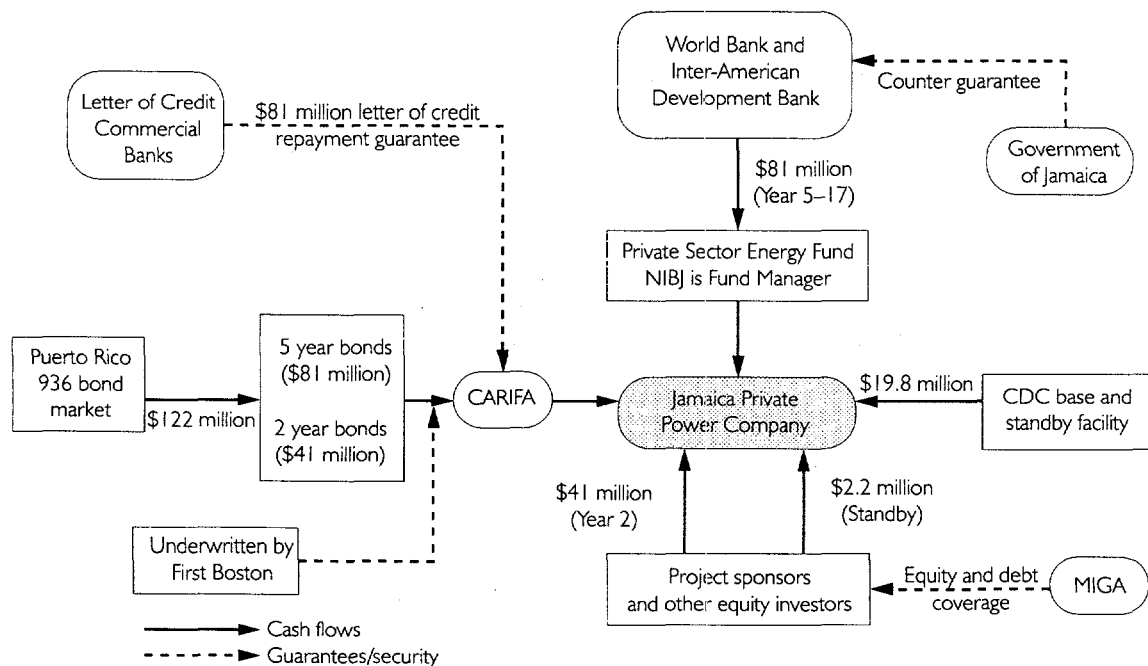
The sponsors also approached the Overseas Private Insurance Corporation (OPIC), the official U.S. agency providing political risk insurance for U.S. investments abroad. But the project did not qualify for coverage on two accounts:

- The absence of U.S. content in the equipment and other investments of the project.
- The combined benefits of 936 funding and OPIC coverage was considered "double dipping," (although recent changes in OPIC's policy toward 936 funding would allow this).

All of the foregoing reinforced the perception that political risk coverage of the Series A bonds could be effectively and timely handled only by introducing the amendments to the loan agreements between the government and the World Bank and IDB. In the end, MIGA was retained only to provide long-term political insurance for the principal invested and for future earnings of the equity holders.

A description of how the project risks are shared is shown in figure 1.

FIGURE 1
Project financing structure



Key Negotiation Issues

In the initial stages of developing the financing concept for the project, the sponsors did not anticipate that they would use bond financing. The expectation was that bringing equity to the project would have been as much risk as the international financial community would have been prepared to take so early into the liberalization of the Jamaican economy. As it turned out, however, this was a conservative estimate of what the market was prepared to do. And the innovative financing plan put forward by the winning bidder opened up new opportunities.

At the beginning of negotiations it was expected that the letter of credit banks would accept the construction risk of the project, since commercial lenders were accustomed to accepting this risk in the United States as long as the sovereign risks were taken care of. As the negotiations proceeded, however, it became clear that the letter of credit banks would not assume this risk because they regarded it as being intimately tied to country risk. The position eventually adopted thus shifted virtually all of the construction risks onto the PSEF and equity.

The Government's Perspective

Initially, there was some resistance to the idea of the government delegating its authority to make withdrawals from the World Bank and IDB loans to the letter of credit banks. The issues of whether it was proper for a sovereign state to delegate authority to a private nonresident commercial entity and whether any unwanted precedent would be set by this were considered. But in the end it was agreed that this was the only practical approach to solving the country risk problems.

The government had no hesitation in guaranteeing JPS payment obligations to the project company before the privatization of JPS. But the continuance of this guarantee after the privatization did present an issue. It was eventually resolved when the government agreed to negotiate the

inclusion of an indemnification provision in the sale agreement of JPS as a counter guarantee of these obligations.

The Jamaica Public Service Company's Perspective

During negotiations it was difficult for JPS to focus on the project from a perspective other than that of a utility undertaking its own expansion. And much effort was spent discussing the technical aspects of the project with the developer, going beyond the requirements for compatibility with the system. This was understandable, however, given JPS' preoccupation with reliability concerns. Still, this effort was often made at the expense of a detailed consideration of the commercial aspects of the project. Thus, for instance, very early into the negotiations the discussions often bogged down on the detailed specification of equipment for the plant, whereas the work on the indexation provisions for the tariff started only at a very late stage. In fact, perhaps because of JPS' lack of familiarity with the norm in independent power developments, the discussion of indexation was largely driven by the developer, with JPS reacting to proposals made by JPPC, as opposed to the more usual scenario in which the utility takes the lead and allows the developer to react.

On the issue of penalties JPS opened with very unrealistic positions because of a lack of understanding of the independent power producer market. It in effect looked to the project to pay penalties for failures to supply the required capacity, at a rate that would be equivalent to the economic cost of the loss of capacity. This position was clearly untenable for the developer because these penalties were several orders of magnitudes larger than independent power producers are subject to in the U.S. independent power producer market. This issue was further complicated by the fact that the government would be putting up a large part of the funding required for the project through the Fund and stood to bear a large part of the ultimate risk of project failure due to accumulated penalties.

The Energy Fund's Perspective

The government attempted to negotiate the fund loan agreement at arm's length. But the issue of penalties presented a conundrum. On the one hand, the government wanted to increase the developer's disincentive for nonperformance. On the other, it had to ensure that the utility did not suc-

ceed in negotiating penalties so severe that the developer could become bankrupt even for a minor failure that could be quickly corrected. This issue was made even more complex by the fact that the utility would soon be privatized. The government stood in the invidious position where the privatization would help to place the private utility in a more advantageous position than the government itself was in.

Lessons Learned

The success of the effort in Jamaica to involve the private sector in financing the energy sector has to a large extent been facilitated by the government's articulation of market economic policies. Embarking on the road toward regulatory reform, whereby an independent authority will regulate the energy sector, is one of such effort. Deregulation of the foreign exchange regime is another. But the results of these policy changes are not by themselves expected to yield, in the short term, the level of capital flows required. Because of the increasing system size and the consequential need for larger increments of plant to be installed, the level of investments required for each project will rise. In the short term it is likely that private investors will perceive somewhat more risk in financing these larger projects than those perceived in the Rockfort project.

It will therefore be important for the World Bank and other international financial institutions to continue to support the government's efforts to involve the private sector. However, this support should perhaps be in the form of providing guarantees, such as those available under the Bank's guarantee program, instead of loans to the government for on-lending to project sponsors.

Because of the much larger transaction costs incurred in negotiating financing for private sector projects compared with public sector projects, it will also be important for the multilateral financial institutions to continue their technical assistance support for these projects.

Bidding and Project Selection

The most important lesson to be learned from the Rockfort project is that the most important criteria in selecting a project sponsor are its familiarity with financial markets and its ability to negotiate project finance. A healthy balance sheet is necessary but not sufficient to ensure smooth implementation of the project's financing. Since other factors are more important, an analysis of the sponsor's balance sheet could be restricted to a determination of whether it had

sufficient strength to mobilize the required equity contribution and pay the engineering and other fees, and legal costs. Using prequalification to select potential project sponsors will result in a wider selection of experienced developers entering the competition and will not discriminate in favor of large companies with strong balance sheets but little project development experience.

Another lesson to be learned is that even experienced developers do not have unlimited patience in waiting for an RFP to be prepared. They have staff constraints and tend to focus and gear up to bid on a particular project over a relatively short period of time. The RFP should therefore be completed before advertisement and the prequalification exercise commences so that it can be issued as soon as prequalification is completed. Doing so will facilitate smoother progress from prequalification, to preparing a bid, to possible negotiations.

In order to give the evaluators more assurance that they are making the correct choice of project developer in future solicitations, the evaluation should take account of the sensitivity of the average discount price bid to changes in prices of key components of the tariff. This could be achieved by including, in the RFP, the formula for indexing the key components such as fuel prices and the cost of capital. The sensitivity of the average discount price to the escalation in each of these key variables would then be tested, and these sensitivities would then be considered as factors in the evaluation.

In retrospect, the RFP's technical specification for equipment was too detailed, going beyond what was required to satisfy reliability concerns. This level of detail was included in the hope that it would simplify evaluation. But it had the opposite effect—lengthening the time required for preparation and evaluation as compliance with each of the technical specifications was carefully checked. It also appeared to lengthen the negotiating time, as JPS tried to enforce compliance with the RFP in several areas that did not affect reliability directly.

The negotiation process may also have been lengthened significantly because of some of the positions advanced in the RFP. It is difficult to estimate how the government's and the utility's negotiating positions were furthered by some of the strong opening positions taken in the RFP. But generally, because it was prepared with the expectation that developers would be willing to take more country risk than they were eventually prepared to, the negotiating time was lengthened sharply.

It is difficult to prescribe an all-embracing solution to the problem of least-cost planning and technology selection. Each case should be judged on its own merit after an evaluation of the costs and benefits of adopting an unconstrained market approach. If a decision is made to specify a particular technology, the RFP should allow as much freedom as possible in specifying machinery and equipment, and should include a performance specification only where it is absolutely essential to ensure desired reliability.

Financing Arrangements

In retrospect, the financing arrangements for a project of this size could have been simpler and concluded with lower transaction costs. As it turned out, the Energy Fund was not used in the way in which it was envisaged at the beginning of the process. Rather, the facility was used as a par-

tial guarantee. The take-out commitment provided by NIBJ and backed by the issue of the World Bank's comfort letter to the letter of credit banks is effectively a guarantee of the government's obligations to the letter of credit banks. The letter of credit banks did not state their position clearly enough in the early stages of the negotiations, and, in retrospect, because of the firm positions that they eventually adopted, it would have been simpler to finance the project by the World Bank providing a limited guarantee backed by a sovereign counter-guarantee from the government.

Negotiation Process

The government's approach to the negotiations—appointing a negotiating team with full authority to negotiate the agreements and the approach of negotiating all the documents together provided “one stop shopping” during the negotiation process.¹⁸ The alternative would have been to negotiate the power purchase agreement with JPS, the implementation agreement with the Ministry of Public Utilities and Transport, and the various loan documents with NIBJ. This scheme would have required each of the above institutions to have its own negotiating team. These teams would have had to coordinate their efforts and even negotiate with each other to reach an agreement. This approach would probably have added several months to the negotiating time.

Project Implementation

Generally speaking, project implementation went forward without major hitches, although the first unit attained commercial operations about three months behind the original schedule. The first unit was eventually placed into commercial operations on November 13, 1996, and the second unit on December 20, 1996. However, because of teething problems, the complex only completed its final performance tests at 7:00 p.m. on January 6, 1998. This means that the project is now in full commercial operation and can be dispatched as a complex on the JPS system at a capacity of 61.3 MW.

Project costs remain within the original budget projection, despite the use of some of the contingency sums. The costs projected until final completion remain within budget. Total project costs to the end of December 1996 were \$122,319,539, compared with a budgeted amount of \$131,901,208. At the issue of Certificate No. 28, on January 6, 1997, for work carried out in December 1996, a total of \$77,282,255 had been authorized for disbursement from the Series A bonds.¹⁹

As of February 28, 1997, the energy production and capacity utilization from the project are as indicated in table 4.

TABLE 4

Performance statistics (up to end of February 1997)
(megawatt hours)

Item	1996			1997	
	October	November	December	January	February
Gross generation	9,457.99	18,264.72	29,807.06	35,300.20	31,717.40
Energy sales	9,122.22	17,096.22	28,704.43	32,960.26	30,488.86
Power purchased	305.92	44.00	80.63	49.96	28.40
Station services and losses	641.69	1,212.50	1,183.27	1,389.90	1,256.94
<i>Capacity factors (percent)</i>					
Engine No. 1	0.00	3.24	53.91	61.39	65.63
Engine No. 2	43.79	81.57	83.88	96.83	96.41
Net station	21.89	42.40	68.90	79.11	81.02

Note: Their capacity factors are at present lower than expected because of initial teething problems affecting both engines.

Source: JPPC's monthly reports.

Developmental Impact

The successful financial closing of the Rockfort project has clearly been beneficial in attracting additional investment capital to the power sector in Jamaica. This is evidenced by the implementation of two additional private sector projects, both of which are now in full commercial operations:

- A 72-megawatt medium-speed diesel barge that is operating at a site next to the Old Harbour power station by Jamaica Energy Partners Limited (JEP), a locally registered company having Wartsila Power Development Inc., as its principal initial shareholder.
- A 42-megawatt combustion turbine operated by Kenetech Energy Systems at the site of the Bogue power station in Montego Bay.

The 72-megawatt JEP project was constructed using balance-sheet financing provided by the Wartsila organization through various associated companies. Total project costs are projected to end up at approximately \$96 million, and negotiations have been concluded to refinance the project debt by senior loans of about \$22 million from International Finance Corporation, subordinated debt of \$9.6 million from McDonnell Douglas Finance Corporation, and \$45.1 million from Metra Finance OY AB, a Finnish group. Further refinancing of the Metra debt is proposed at a later date. About \$19.3 million has come from equity subscriptions (table 5).

The Bogue project is estimated to cost approximately \$30 million. It was financed by an equipment lease and balance sheet financing from Kenetech. Kenetech has already refinanced a large percentage of the original equity, selling approximately 99 percent of its investment in the project to another U.S.-based investor, Quixx Corporation.

Together with macroeconomic improvements, the successful negotiation of the financing for the Rockfort project has clearly catalyzed the re-introduction of foreign capital for large-scale projects in Jamaica. The enthusiastic response to the government's invitation for investors to pre-

qualify for negotiating the purchase of majority shares in JPS is further evidence of improvements in the investment climate. Requests for prequalification information were received from approximately 40 interested firms, and submissions were returned by 14 of the applicants. Further, a number of foreign investors continue to express interest by submitting several unsolicited proposals for investing in the power and energy sectors. JPS has received proposals for the development of independent power projects, and the government has received proposals to expand the Petrojam oil refinery into a petrochemical complex involving the co-generation of electrical power.

The project also furthered institution building. The experience gained in negotiating the Rockfort project has been a significant factor in the development of the negotiating capabilities of a number of key government institutions. These institutions can now claim to have on their staff a core group of professionals with useful skills and experience in negotiating private power contracts. Further, as a result of the involvement of the Natural Resources Conservation Authority (NRCA) and private environmental firms in the approval and permitting process leading up to the implementation of the Rockfort project, these government institutions have gained significant experience in the evaluation of the environmental aspects of power projects.

TABLE 5

Finance from equity subscriptions

Company	Percent	Thousands of U.S. dollars
Wartsila Group	18.90	3,648
Illinova Group	17.55	3,387
Continental Group	17.55	3,387
Scudder Latin America Group	35.10	6,774
IFC	9.90	1,911
Jamaica Energy Inc.	1.00	193
Total	100.00	19,300

Source: JEP's project documentation.

Annex 1 The Jamaican Power System

The Jamaica Public Service Company delivers electricity to the main load centers through a transmission network comprising two levels of transmission voltages, 138 kilovolts and 69 kilovolts. Electricity is sold at medium (24 kilovolts, 13.8 kilovolts, 12 kilovolts, and 4 kilovolts) and low (440/220/110 volt) voltage through a distribution network that includes about 11,200 circuit-kilometers of distribution lines. The JPS transmission and distribution system covers the entire island.

Historical and Projected Demand and Supply

Electricity consumption as measured by sales, has increased at an average annual rate of 4.3 percent during 1980–91. But sales fluctuated during this period, reflecting primarily changes in economic performance and retail tariff levels. During 1980–85, which was characterized by slow GDP growth and high petroleum prices following the second oil shock and recession in industrial countries, sales increased modestly at a rate of 2.3 percent a year. This low sales growth also reflects the impact of two adjustments in the electricity tariff in 1984—one that increased tariffs on average by 40 percent and another that increased tariffs by 54 percent.

During 1985–91 sales increased at an average annual rate of about 6 percent. The lack of a tariff adjustment from 1984 to 1990 contributed to increased sales during this period and these were also buoyed by higher GDP growth. This increase in consumption occurred despite the negative impact of hurricane Gilbert during 1988–89. The hurricane led to a decline in sales for the fiscal year 1988/89, during which electricity service was interrupted for an extended period in many parts of the island.

The forecast of electricity sales for the period 1992–2011 is based on an estimated GDP growth rate of about 4 percent a year. It is also based on the maintenance of tariffs at their real levels in 1992, losses at about 19 percent, mod-

est energy conservation through demand-side management measures, and no change in the relative prices of electricity substitutes at the household level.

The maintenance of tariffs at their real 1992 levels will require tariff adjustments, particularly in the early years of the forecast period when inflation is expected to be higher than in later years. Notwithstanding the revival of GDP growth during the period, these adjustments are expected to moderately dampen the demand for electricity.

The forecast for increased sales of electricity for 1995–2011 is about 4 percent a year. This forecast compares with increases at an average annual rate of 5 percent during 1981–94. Growth in consumption was strongest in the residential and large industrial sectors during that period. The forecast of power demand is that the system will require about 700 megawatts of additional capacity by 2010. The forecast takes into account system losses, but excludes power for station service within the power plants.

Least-Cost Expansion Plan

The objective of the Least-Cost Expansion Plan (LCEP) is to ensure that in providing new capacity, reliable and appropriate technology is adopted, unit sizes are compatible with the system size, and the timing of new units neither creates overcapacity nor results in capacity shortages. JPS has an installed generating capacity of 698 megawatts with hydro-capacity totaling 23 megawatt, forming a little more than 3 percent of installed capacity. The balance of 575 megawatts, forms 97 percent of installed capacity and consists of oil-fired units. About 112 megawatts of this capacity is supplied by independent power producers. In addition, JPS recently signed power purchase contracts for the acquisition of a further 60 megawatts of generating capacity (the Rockfort plant), which came on line in August 1996.

New base load generating capacity is needed to improve system reliability and reduce fuel consumption—in Jamaica,

for every one kilowatt-hours of electricity not supplied, JPS has estimated that about \$1.50 (J\$33.50) is lost in economic production.

Based on the LCEP, about 460 megawatts of new capacity will be needed during the next 10 years. The investment requirements for providing this new capacity is estimated at about \$850 million over the period. In addition, JPS will require additional funds for maintenance, rehabilitation, and support programs to sustain the new investments. This means that during the next decade an average of about \$85 million must be invested every year in the power sector. While the LCEP is subject to updating and annual reviews, if power outages are to be avoided in the short term, implementation of the options for the next four years must proceed on time.

A Technical Description of the Project

The JPPC proposal includes two identical 9K80MC/S diesel engine generators manufactured by MAN/B&W. Each unit is rated at 28,881 kilowatts. In addition, each engine will be fitted with a turbo compound system generating a further 563 kilowatts. A heat recovery boiler will also be included to produce steam. It will generate an additional 804 kilowatts per unit in a steam turbine, yielding additional capacity of 1,608 kilowatts. This will result in a net plant output of 60,496 kilowatts at 100 percent load. The corresponding plant heat rate at 100 percent is 1,889 kcal/kilowatt-hour. The proposed speed of the units is 103.4 RPM.

Each generator will be connected through a step-up transformer, switches, and circuit breakers to the JPS 69-kilovolt system. The breakers will synchronize the generators to the JPS system and will also be equipped with

synchronizing meters and relays. A 691-kilovolt tie-line breaker will also be provided between the JPS system and the generators. This is the point where the billing meters will be located. The plant will be fully dispatchable because reliable communication channels will be provided between the generator operators and the JPS dispatchers.

The diesel generator power house will comprise an engine hall, electrical annex, and mechanical annex. The base of the engine hall will be approximately 1,500 square meters and the height will be approximately 22 meters. The engine hall will be equipped with an overhead traveling crane with 130/20 tons hoist capacity. The floor area of the electrical annex will be approximately 265 square meters and the building will comprise high voltage rooms, low voltage rooms, and DC rooms. In addition, there will be an electrical room, a control room, toilet facilities, and an office. The mechanical annex will be approximately 254 square meters, and it will comprise a mechanical room and ventilation facilities.

The load carrying structure for the engine hall, electrical annex, and mechanical annex will be constructed as a premanufactured steel structure. The administration building and other ancillary structures, such as the fire pump-house, will be constructed of reinforced concrete and blockwork. The cooling water pumphouse will be constructed similarly and equipped with an overhead crane.

Two steel fuel oil tanks will be provided, each with a capacity of 49,000 barrels. The bottom of the tank farm will be constructed of concrete, and the farm will be surrounded by an earth wall. The wall will be designed to contain all 98,000 barrels of fuel in the event of leakage. Distillate fuel will be placed in a separate tank farm, approximately 10 meters x 10 meters and will be of similar construction as the fuel oil storage area.

Annex 2 The CARIFA 936 Bond Market

Section 936 funds are accumulated in Puerto Rico by U.S. corporations operating under section 936 of the Internal Revenue Code. These funds are available at below-market interest rates through the Caribbean Basin Projects Financing Authority (CARIFA) bond market.

Effective January 1, 1987, amendments to section 936 of the U.S. Internal Revenue Code (26U.S.C. 936) provide a tax exemption for certain investments in qualified Caribbean Basin countries. As a result of these amendments, investment funds available from qualified Puerto Rican financial institutions are a relatively low-cost source of funding for low-risk projects in qualified Caribbean countries.²⁰

Under section 936 income earned by an eligible U.S. company (a 936 corporation) operating an active trade or business in Puerto Rico may receive a tax credit to offset the U.S. tax otherwise attributable to the income earned from its Puerto Rican operations. This credit is available irrespective of whether the active income so generated is immediately repatriated to the United States or is retained in Puerto Rico.

The Benefits of 936 Funds

Section 936 funds are generally available to qualified borrowers directly from 936 corporations or indirectly from eligible depository institutions. The base rate of interest charged for such funds is generally lower than that charged for conventional loans because the interest received by the lender of 936 funds is generally exempt from both U.S. and Puerto Rican tax. Thus the lender can pass a portion of the tax benefit on to the borrower in the form of a lower interest rate.

The actual interest rate paid for 936 funds is determined by supply and demand forces in an active local capital market. Generally, 936 funds are available at a base rate of interest equal to approximately 85 percent of the equivalent maturity London Interbank Offering Rate (LIBOR). For example, if the current three-month LIBOR stands at 8.2 percent, the equivalent 936 base rate would be LIBOR 7

percent (8.2 percent \times 85 percent = 7 percent). The benefit to the borrower of receiving 936 funds instead of conventional funds might therefore equal a lowering of the interest cost by approximately 1.2 percent (120 basis points) a year.

936 Funds in the Caribbean

Effective January 1, 1987, the U.S. Congress expanded section 936 to allow favorable tax treatment for the investment of 936 funds in eligible activities in qualified Caribbean Basin countries. Under section 936 (d)(4), funds that are generated by the operation of an exempted business in Puerto Rico can be invested in qualified Puerto Rican financial institutions for investment in the Caribbean. The income generated by such investment qualifies as QPSII and is exempted from U.S. tax. A similar exemption from Puerto Rican tax applies under Puerto Rican law.

Under section 936 (d)(4), 936 funds can be invested only in qualified Caribbean Basin countries designated under the Caribbean Basin Economic Recovery Act of 1983 (the Caribbean Basin Initiative or CBI). Twenty-three countries are so designated and qualified. Congress also requires that to be eligible for such tax-exempt funds, the qualified countries must enter into a Tax Information Exchange Agreement (TIEA) with the United States.

Tourism also benefits when a CBI country signs a TIEA. Under the U.S. tax code taxpayers may deduct from their U.S. taxes any business convention expenses they incur in CBI countries. To date, Barbados, Costa Rica, Dominica, the Dominican Republic, Grenada, Jamaica, and Trinidad and Tobago have executed fully applicable TIEAs with the U.S. government.

Another requirement under U.S. law for the qualified investment of 936 funds in the Caribbean is that such funds be invested in active business assets or development projects in a qualified CBI country. A development project generally refers to an infrastructure investment, such as a road or water treatment facility, that directly supports industrial develop-

ment. Active business assets generally mean plant, equipment, and inventory associated with a manufacturing operation.

The regulations issued by the Department of the Treasury, implementing the CBI amendment to Section 936, detail what constitutes active business assets and development projects. The regulations broadly permit qualified investment in tangible personal property used in a trade or business, including reasonable incidental expenditures (such as installation costs), in qualified CBI countries. Section 936 funds can be provided to qualified CBI projects only for new investments. But the regulations permit the construction, rehabilitation, improvement, or upgrading of qualified CBI assets. An investment in used tangible personal property employed in the same CBI country within the last five years may not qualify. Moreover, 936 funds may not be used to refinance existing project facilities. However, the U.S. Treasury may approve the use of 936 funds to refinance some privatization transactions on a case-by-case basis. If a qualified CBI government is turning over state-owned facilities to the private sector, sufficient positive developmental benefits may exist to allow a portion of the purchase price to be financed by 936 funds. Generally, only up to 10 percent of the qualified investment of 936 funds in a CBI project can be used to finance working capital.

Another requirement of section 936(d)(4) is that the recipient of 936 funds open its books and records to the U.S. and Puerto Rican governments to ensure that the 936 funds are being used in accordance with the law. Section 936(d)(4) also requires that the lending of 936 funds to a qualified Caribbean recipient be approved by the commissioner of financial institutions for Puerto Rico. The circumstances under which the commissioner will approve such lending are discussed below.

Puerto Rican Law and the Regulations Governing 936 Investments

The commissioner of financial institutions for Puerto Rico has issued regulations for the investment of 936 funds in

the Caribbean. Under these regulations the project must first be endorsed by the Economic Development Administration of Puerto Rico (Fomento). Fomento will determine whether, on balance, the project is of benefit to Puerto Rico, or whether and to what extent the project has a materially adverse impact.

In order for a qualified Puerto Rican financial institution to invest 936 funds in the Caribbean it must obtain the approval of the commissioner for the specific investment. The Puerto Rican regulations further require, in order to ensure proper investment, that the financial institution making CBI investment comply with rigorous due diligence rules. If the investment is endorsed by Fomento and approved by the commissioner, then Puerto Rican law provides beneficial tax and regulatory treatment to such investment.

Qualified Caribbean Basin Country Regulations

For projects in qualified CBI countries to access 936 funds, the host government will normally require the project to seek the approval of that CBI government. Most CBI countries place tight restrictions on companies within their jurisdiction taking cross-border loans and investments. Approval by the central bank of the CBI country is typically required. Additionally, several governments in the region are now operating under letters of intent with the International Monetary Fund and are under contractual agreements with commercial banks that limit the amount of allowable indebtedness. In many CBI countries these provisions therefore require CBI governmental approval before any new 936 borrowings can occur. Most CBI countries impose withholding taxes on the interest income or dividends repatriated from enterprises in their countries. For borrowers to receive the benefits of the lower 936 interest rate, CBI governments must exempt 936 loans from such withholding taxes.

Annex 3 Prequalification and Bid Evaluation

The process of selecting the developer for the project began with the issuing of a notice of prequalification published in the *Financial Times* and in the local press on May 7, 1991. It requested an expression of interest from private developers to construct, own, and operate a 3x20 megawatt, or any equivalent combination, low-speed diesel power station and all support facilities for the government of Jamaica. The prequalification document was made available to all applicants beginning May 8, 1991, and the applicants were given until June 10, 1991 to return submissions. The prequalification document included the evaluation criteria, which were based on the developer's ability to mobilize financing and its experience in structuring BOO projects.

A great deal of time was spent debating which criteria to use to evaluate the bids, as they raised several issues for the World Bank and IDB concerning the adequacy of competition and the procurement arrangements.

Prequalification Criteria

The prequalification criteria awarded points to the prospective developers in three broad categories:

- Ability to raise equity and administer project financing.
- Technical qualifications.
- Project development experience.

The highest weights were given to project development experience and the ability to raise and administer financing—each received 40 percent of the total weighting. Technical qualifications was given a weighting of 20 percent.

Prequalification Issues

A review of the process noticed that some of the best known developers, particularly from the United States, did not qualify—the principal reason being that too much weight was placed on net worth and hence the ability of the project sponsors to raise loan capital from their own balance sheets. But in fact, no such balance sheet financing was contemplated by the companies sponsoring the project, and the lenders to the project would have recourse only to the assets of the project itself.

The foregoing coincidentally placed several large manufacturers of equipment, utilities, and contractors with very limited experience in independent power project develop-

TABLE 6

The Jamaica Private Power Company's calculation of the average discount price

Calendar year (Operating year)	1995 (1)	1996 (2)	1997 (3)	1998 (4)	1999 (5)	2000 (6)	2001 (7)	2002 (8)
Annual capacity purchase price (thousand U.S.\$ per year)	12,041	16,119	15,307	22,577	24,785	24,449	23,707	22,964
<i>Energy purchase price (U.S.\$ per kilowatt)</i>								
Inland fuel transportation	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Fuel	0.0192	0.0192	0.0192	0.0192	0.0192	0.0192	0.0193	0.0193
Variable O&M	0.0029	0.0032	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044
Total	0.0230	0.0232	0.0244	0.0244	0.0244	0.0244	0.0244	0.0244
Cold start costs (thousand U.S.\$ per year)	2	2	2	2	2	2	2	2
Energy sold (GWh)	350	420	420	420	420	420	420	420
Annual energy purchase price (thousand U.S.\$ per year)	8,053	9,763	10,263	10,263	10,263	10,264	10,266	10,267
Annual cost of cold starts (thousand U.S.\$ per year)	20	20	20	20	20	20	20	20
Annual estimated payment (thousand U.S.\$ per year)	20,113	25,902	25,590	32,860	35,068	34,734	33,993	33,251

Note: average discount price (\$/kilowatt hour) = $\frac{\text{present value of annual estimate payment discounted at 12 percent to the beginning of operating year } i}{\text{present value of energy sold discounted at 12 percent to the beginning of operating year } i}$

average discount price (\$/kilowatt) = \$0.0691 kilowatts

Source: JPPC's bidding document.

ment and negotiation, but with strong balance sheets, on the list of prequalified developers. These types of firms also received high ratings for their implementation plans.

Although interest in the project at the stage of prequalification and shortly thereafter was very great, and as many as seven bidders prequalified, only two bids were eventually received. Based on conversations with the prequalified bidders, it seemed that they had become focused on other activities as finalization of the RFP took more time than originally indicated at the time of prequalification in January 1992. The more experienced developers, however, perhaps because they better understood the complexity of the transaction to be undertaken, were more tolerant of the delays in completing the RFP. The long time that elapsed between notification of prequalified project developers and actual receipt of the RFP was clearly a factor limiting the number of bids.

In summary, it appears that if more weight had been placed on the project development experience and relatively less weight on the financial health of the applicants, the competition would have been enhanced by a wider choice of experienced developers, and more bids would have been received.

A clear lesson to be learned is that in future solicitations the RFP should be prepared before the prequalification exercise commences so that it can be issued as soon as prequalification is completed. With the experience gained, this should be feasible.

Bid Evaluation Criteria

Several different approaches were explored in an attempt to ensure that:

- Competition would establish low prices.
- The developer had sufficient knowledge of the project finance market to undertake the financial engineering required to make the deal amenable to the appropriate sharing of risks, attracting the necessary equity, and if possible, commercial debt.

It was finally agreed that the selection of the project developer would be based on the calculation of an average discount price, which would take all of the price factors into account. Table 6 shows the computation of the average discount price for JPPC's winning bid.

Sensitivity of the average discount price

Experience has since shown that there are some limitations to the concept of the average discount price as it was structured in the Rockfort RFP. The limitations arise from the inability of the ADP to discriminate between the sensitivity of various project proposals to different escalation factors in the tariff. It was always the intention to index the tariff to changes in some of the costs that make up the tariff, such as the exchange rate between the Jamaican dollar and the U.S. dollar, the cost of money, the cost of fuel and lubricants, the cost of spare parts, the cost of local and foreign labor involved in operating the plant, and the cost of idle station electricity. But the details of the proposed indexation were not included in the RFP, and the sensitivity of the average discount price to changes in these costs could not therefore be included as a factor in the evaluation.

This issue did not present a difficulty in the bid evaluation because the identical technology was being compared.

2003 (9)	2004 (10)	2005 (11)	2006 (12)	2007 (13)	2008 (14)	2009 (15)	2010 (16)	2011 (17)	2012 (18)	2013 (19)	2014 (20)
22,221	21,477	20,734	19,585	18,434	17,689	16,946	10,065	8,296	8,296	8,296	8,296
0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193	0.0193
0.0044	0.0044	0.0046	0.0046	0.0046	0.0046	0.0046	0.0048	0.0048	0.0048	0.0048	0.0048
0.0244	0.0245	0.0247	0.0247	0.0247	0.0247	0.0247	0.0249	0.0249	0.0249	0.0249	0.0250
2	2	2	2	2	2	2	2	2	2	2	2
420	420	420	420	420	420	420	420	420	420	420	420
10,268	10,269	10,366	10,367	10,368	10,370	10,371	10,475	10,476	10,478	10,479	10,480
20	20	20	20	20	20	20	20	20	20	20	20
32,509	31,767	31,120	29,972	28,822	28,079	27,337	20,560	18,793	18,794	18,795	18,796

But in the future, if the evaluation of bids is based on the simple average discount price concept and different technologies are to be compared, the result could be a project with a lower average discount price but greater sensitivity to future changes in the above parameters rather than one with a marginally higher average discount price but relatively insensitive to the future changes in the component prices. Thus the selection process would not necessarily have generated the lowest tariff in the long run.²¹

In preparing future bids it would be useful to examine whether a methodology that factors the sensitivity of the average discount price to the most important cost factors in the tariff could be developed for inclusion in the RFP. It should provide strict guidelines on the items for which indexation is allowed and the principles governing such indexation. The bidders would then be required to provide more detailed base cost breakout information, including computer spreadsheet models, as it relates to the indexation guidelines and principles. This would allow the evaluators to carry out the necessary sensitivity computations during the evaluation.

Other evaluation issues

During the technical evaluation a number of issues arose that related the responsiveness of the bids to the technical

criteria laid down in the RFP. The main issue was whether or not the proposed low-speed diesel unit had qualified under the minimum 21,000 hour operating experience criterion.

In their financial proposal, JPPC developed an innovative financing plan that would generate a lower average discount price as a result of the use of 936 bonds to finance both the debt portion of the financing required and the required equity. The issue arose as to whether 936 bonds underwritten by an irrevocable letter of credit should be considered "equity" in fulfilling the RFP requirement for 30 percent equity contributed by the developer. But legal opinion confirmed that sources other than sponsors cash could qualify as equity. In this regard the proposal by JPPC was regarded as substantially responsive. The proposal submitted by FPL also relied on the use of 936 bonds for financing, but they made no firm provision for replacing the bonds at the end of the five-year retirement period. Nonspecific proposals relating to the "possible rollover of the bonds" were made, but these were regarded by the evaluators as being too uncertain. FPL's financing plan was also short on the equity contribution requirements because the 10 percent standby financing required as a construction contingency was included as part of their equity. The bid from FPL was nevertheless regarded as substantially responsive.

Annex 4 Summary of Project Agreements

Implementation Agreement: Summary of Terms and Conditions

The implementation agreement was executed as of October 10, 1994, by the Jamaican government and JPPC. Pursuant to the implementation agreement, the government will grant to JPPC the exclusive right to design, build, own, and operate the Rockfort project and a license under the Electric Lighting Act to generate electricity for sale to JPS. In addition, the government of Jamaica will offer certain assistance to JPPC in order to facilitate the construction and operation of the project. The government's principal obligations are as follows:

- The government of Jamaica will guarantee the payments JPS is obligated to make to JPPC under the power purchase agreement, even if JPS is privatized.
- The government of Jamaica will not impede JPPC's ability to purchase foreign currency on the open market, transfer foreign currency abroad, or maintain foreign currency bank accounts in Jamaica or abroad. Moreover, if exchange controls are subsequently imposed, The government of Jamaica will commit to make foreign currency available to JPPC and will allow JPPC to transfer abroad foreign currency funds generated by the project.
- The government of Jamaica will guarantee the issuance of the specific regulatory approvals listed in Schedule 2. If the government of Jamaica fails to grant such approvals, JPPC will be excused from fulfilling its obligations by force majeure and may ultimately terminate the implementation agreement.
- The government of Jamaica promises to grant work permits, passes, visas, and so on to persons involved in the project, but the government of Jamaica may deny individual applications in accordance with the laws of Jamaica.
- The government of Jamaica will not terminate the World Bank or IDB loan agreements and will not

amend those agreements if the effect would be to prevent the World Bank or IDB from making the loans for the project.

- For seven years from the date of the implementation agreement, JPPC will not be liable to taxation in Jamaica on its income, and the nonresident lenders will not be liable to taxation in Jamaica on their income from interest and fees associated with loans to JPPC.
- Subject only to the restrictions imposed by the restricted list developed pursuant to the Trade Act of 1955, JPPC may import all items essential for the construction and operation of the project. In addition, the Ministry of Finance promises to grant JPPC a general remission of duties and taxes under the Customs Act, the Stamp Duties Act, and the General Consumption Tax Act, for plant, machinery, and parts required for the project.
- JPPC will be permitted seaward access to the site for dredging, the delivery of fuel, and other activities associated with the construction and operation of the project.
- Each party will be excused from performing its obligations under the implementation agreement because of force majeure events, including, among other things, hurricanes, epidemics, wars, riots, strikes, or changes in law after November 15, 1993.

After an appropriate cure period, JPPC may terminate the implementation agreement for, among other things:

- The revocation, nonrenewal, or adverse modification of the specified regulatory approvals.
- The expropriation or nationalization by the government of Jamaica of shares or assets of JPPC.
- A force majeure event that persists for more than 12 months (or 18 months if prior to commercial operations or if a diesel engine must be replaced).
- The winding up of JPS.

JPPC is a special-purpose company owned primarily by subsidiaries of Hydra-Co, UtilCo, the Energy Investors

Fund, and CDC. For its part, JPPC undertakes the following obligations:

- The initial members must contribute 35 percent of the total equity in the project at financial closing, and the total equity must constitute 30 percent of the project cost.
- The government of Jamaica has the right to approve all of the major project agreements and financing documents for the project.
- The government of Jamaica has the right to approve the appointment of JPPC's principal contractors, including the construction and O&M contractors.
- The government of Jamaica has the right to approve JPPC's assignment of any of its rights in the project, including the creation of security interests, and the assignment of any significant upstream owner's rights in the project. But the government of Jamaica has no right to approve:
 - Distributions of JPPC's net operating income whether through payment of dividends to preferred shareholders or loans to shareholders.
 - Transfers of assets worth less than US\$750,000.
 - Transfers of assets that are replaced by equivalent assets.
 - Transfers to project lenders on foreclosure.
 - Transfers ordered by a bankruptcy court.
 - Transfers to the estate or any beneficiary of a deceased individual.
 - Transfers to or from the Energy Investors Fund.

After an appropriate cure period, the government of Jamaica may terminate the implementation agreement for, among others, the following default events:

- Failure of JPPC to achieve the milestone dates for financial closing, commencement of construction, commissioned dates for individual units, or the commercial operations date for the project.
- Failure of JPPC to post the required security deposits or make payments to the government of Jamaica in excess of \$2,000,000.
- Abandonment of construction or operation of the project without JPS's consent.
- Continuous poor performance after completion of the project.
- Assignment of the implementation agreement or any of the project assets without the government of Jamaica's consent.

- The appointment of any principal contractor without the government of Jamaica's consent.
- The winding up of JPPC.

In addition to these default events, the government of Jamaica may also terminate the implementation agreement for the following reasons:

- A force majeure event that persists for more than 12 months (or 18 months if prior to commercial operations or if a diesel engine must be replaced).
- Expiration or termination of the power purchase agreement (unless caused by JPS's default after JPS is privatized).
- If JPS exercises its option to purchase the complex after JPS is privatized, JPS must pay JPPC the depreciated book value of the project (assuming 20-year depreciation), but JPPC must then pay the government of Jamaica a portion of the payment it receives.

All disputes arising under the implementation agreement must be resolved pursuant to the Arbitration Act of Jamaica under Jamaican law.

Power Purchase Agreement: Summary of Terms and Conditions

The power purchase agreement was executed as of October 10, 1994, by JPS and JPPC. Pursuant to the power purchase agreement, JPPC will build, own, and operate the Rockfort project and will sell all of the capacity and energy from the project to JPS. The terms and conditions governing the sale are as follows:

The term of the power purchase agreement will be 20 years from the date of the completion of the project and may be extended for an additional period.

The capacity of the project will be tested at regular intervals, and JPS will pay JPPC a fixed amount for the first 60,000 kilowatts of tested capacity and 65 percent of that amount for each additional kilowatt up to 5,000 kilowatts. The energy payment will be the product of a fixed amount per kilowatt hours (\$0.0230) times the net energy output of the project.²² Finally, JPS will pay JPPC a supplemental payment consisting of a fee (\$2,000) for each unit start and a number of pass-through items. These payments will be subject to the following indexation principles, among others:

- All base capital costs (\$85,573,000) will be adjusted for inflation beginning from September 26, 1993, at the rate of 0.35 percent per month until financial closing.

- The debt service portion of the capacity payment will be adjusted for interest rate variations.
- The fuel portion of the energy payment will be adjusted by the actual cost of fuel if purchased from Petrojam or by market indices if purchased from others.
- The portions of the capacity and energy payments that correspond to debt service on foreign currency loans, return on investment of U.S. dollar investors, and foreign currency expenses will be adjusted for foreign exchange fluctuations.
- The pass through of lease payments, increased taxes, increased insurance costs, increased compliance costs due to changes in regulation, and additional Jamaican dollars required by the broker bank to obtain U. S. dollars.
- If JPPC refinances the project on more favorable terms than those in the original loan agreements, JPPC must pay JPS 50 percent of the value of the improved terms through a reduction in the payments to JPPC over the remaining term of the power purchase agreement.
- To ensure the timely payment of amounts due to JPPC, JPS will establish a revolving letter of credit in an amount sufficient to cover two months' average projected capacity and energy payments.
- If JPS fails to complete the interconnection facilities within 10 days after the scheduled date for any reason (other than force majeure, an emergency, or JPPC's action), JPS must pay to JPPC liquidated damages of \$20,000 for each day that commissioning of the each unit is delayed, up to a maximum of \$3,000,000. If the interconnection facilities are not completed by the time the cumulative amount of liquidated damages equals \$2,500,000, JPPC may construct alternative facilities.
- The project will be fully dispatchable by JPS, and JPS will only compensate JPPC for efficient operation.
- JPPC may schedule maintenance outages only with the approval of JPS, and JPPC may not schedule maintenance outages during peak months or for more than 10 percent of the available hours without suffering liquidated damages.
- If JPPC ceases to operate the project for at least 48 hours without the consent of JPS for any reason (other than force majeure, a forced outage, approved maintenance, or JPS's actions), JPS may take over operation of the project until JPPC demonstrates that it

can resume normal operation. During any such period JPS must pay JPPC only the debt service and fixed operation and maintenance components of the capacity purchase price and must pay for or replace any fuel and lubricating oil used by JPS that JPPC has already paid for.

Liquidated damages will be assessed against JPPC for the following reasons:

- Delays in financial closing.
- Delays in completion of the project.
- Shortfalls in capacity at completion of the project.
- Subsequent shortfalls in capacity of the project.
- Failure to deliver energy in accordance with JPS's despatch instructions (which effectively requires JPPC to maintain 88 percent availability of the project).

JPPC must post security deposits to ensure the payment of these liquidated damages and other damages, but JPPC may use the security deposit posted during the operations period to serve as a source of United States dollars if JPPC cannot obtain U.S. dollars through a broker bank for 45 days.

A bonus will effectively be paid to JPPC for additional capacity. Although the capacity payment is based on 60 megawatts, 65 percent of the capacity purchase price will be paid for additional megawatts between 60 and 65 megawatts of tested capacity.

JPPC must maintain a 21-day supply of fuel at the site, except when the fuel supplier defaults in its fuel supply obligations. JPPC must also obtain JPS's approval for the primary fuel supply plan and an alternative fuel supply plan, which JPPC must implement if the primary fuel supply plan fails at any time.

JPPC or its construction contractor must obtain specified insurance throughout the term and apply the proceeds of such insurance to the repair of the project.

JPS has the right to approve the following, among other things:

- JPPC's plans for construction, operation and maintenance, and fuel supply and the agreements relating thereto.
- The appointment of JPPC's principal contractors, including its construction and O&M contractors.
- The assignment provisions are identical to those in the implementation agreement, except JPS may assign the power purchase agreement to another entity (perhaps through privatization) if that entity can perform JPS' obligations under the power purchase agreement.

- JPS has a right of first refusal over transfers of interest in the project (other than for financing purposes) and over transfers by upstream owners of interests in JPPC (other than transfers to or from the energy investors fund).
- The force majeure provisions are identical to those in the implementation agreement, except JPS must continue to pay JPPC the capacity payment for three months after the occurrence of certain political force majeure events, including wars, riots, strikes, or changes in law after November 15, 1993.

The termination provisions for default events are identical to the implementation agreement, and JPS may also terminate the power purchase agreement for the following additional reasons:

- A force majeure event that persists for more than 12 months (or 18 months if prior to commercial operations or if a diesel engine must be replaced).
- Expiration or termination of the implementation agreement.

Furthermore, JPS will have the option to purchase the project at a price equal to its depreciated book value minus any damages owed to JPS if it terminates the power purchase agreement because of JPPC's default. The purchase price is higher after JPS is privatized, but JPPC must pay over part of the higher price to the government of Jamaica.

Disputes arising under the power purchase agreement are to be resolved pursuant to a three-level procedure consisting of mutual discussion of the parties, referral to an expert, and arbitration pursuant to the Arbitration Act of Jamaica under Jamaican law.

Fuel Supply Agreement: Summary of Terms and Conditions

The fuel supply agreement was executed as of October 10, 1994, by Petrojam and JPPC. Pursuant to the fuel supply agreement, Petrojam will sell to JPPC all fuel oil necessary for the operation of the Rockfort project. The terms and conditions governing the sale of fuel oil under the fuel supply agreement are as follows:

- The term of the fuel supply agreement will be 20 years from the date of the completion of the project.
- JPPC will be required to purchase all of its fuel for the project from Petrojam, and Petrojam will be obligated to provide all such fuel to JPPC whether or not the refinery is operational. Pursuant to the fuel sup-

ply agreement, Petrojam will supply a high grade of No. 6 fuel oil with a 2.2 percent maximum sulphur content, which will allow JPPC to meet low emission standards for the project.

- Fuel will be delivered to the project by barge unless delivery by barge is impracticable, in which case Petrojam may deliver by tank trucks.
- The price for fuel supply shall be the ex refinery price or ex industry loading rack price for No. 6 fuel oil based on the petroleum pricing formula established by Petrojam and approved by the government of Jamaica. However, the price charged JPPC for fuel may not exceed the price of fuel sold contemporaneously to JPS by Petrojam, giving due regard to any difference in the grade of fuel supplied. The price for fuel transportation by barge shall be the Jamaican dollar equivalent of \$0.65 per barrel and by tank truck shall be the Jamaican dollar equivalent of \$0.51 per barrel as of January 1, 1994. The transportation prices shall be adjusted in accordance with changes in the rate set by the Petroleum Haulage Contractors Association for tank truck movements within the corporate area from a January 1, 1994 rate of \$0.41 per barrel.
- JPPC will be responsible for all taxes and duties associated with the fuel purchased.
- JPPC will be required to provide a letter of credit to ensure timely payment for deliveries of fuel oil.
- During shortages Petrojam will be required to allocate available fuel and transportation services between JPS and JPPC on an equitable basis and on similar terms.
- JPPC will be required to order fuel with seven days' notice, for periods of seven days, and in volumes of approximately 15,000 barrels. JPPC must use its best efforts to ensure that fuel deliveries are distributed substantially evenly over a two-month period. These ordering provisions facilitate economic barge delivery.
- If Petrojam fails to supply fuel ordered by JPPC, JPPC may enter into spot contracts for the purchase of fuel from other suppliers.

Liquidated damages will be assessed against JPPC for the following reasons:

- Delays in the completion of the project.
- Modification or cancellation of orders by JPPC without sufficient notice.
- JPPC's purchase of fuel from another supplier when Petrojam is able to supply such fuel.

- Each party must indemnify the other for claims brought against the other as a result of the indemnifying party's negligence or damage it causes to the environment.
- The *force majeure* provisions are identical to the IA. Petrojam may terminate the fuel supply agreement for, among other things:
 - Termination of the IA or PPA due to a default by JPPC
 - Abandonment of operation of the project without JPS's consent.
 - A force majeure event that persists for more than 12 months (or 18 months if prior to commercial operations or if a diesel engine must be replaced).
 - Assignment of the fuel supply agreement without Petrojam's consent.
 - Assignment of the power purchase agreement, implementation agreement, or any of the project assets without the government of Jamaica's consent.
 - The winding up of JPPC.

JPPC may terminate the fuel supply agreement for, among other things:

- The revocation, nonrenewal, or adverse modification of the specified regulatory approvals accompanied by termination of the implementation agreement or power purchase agreement.
- The expropriation or nationalization by the government of Jamaica of shares or assets of JPPC accompanied by termination of the implementation agreement or power purchase agreement.
- A force majeure event that persists for more than 12 months (or 18 months if prior to commercial operations or if a diesel engine must be replaced).
- The winding up of Petrojam.

Private Sector Energy Fund Loan Agreement: Summary of Terms and Conditions

At financial closing the Rockfort Diesel Project will be financed initially with the proceeds of certain Series A bonds to be issued by the Caribbean Basin Projects Financing Authority (the "debt bonds"), certain Series B and C bonds to be issued by CARIFA (the "equity bonds"), and approximately \$14,000,000 from CDC. The debt and equity bonds, the proceeds of which CARIFA will lend to JPPC for use in constructing the project, will be issued to take advantage of favorable provisions of U.S. tax law, which enable the holders of such bonds to accept a lower rate of interest on their investment. Repayment of the debt bonds will be backed up by a letter of credit issued by Deutsche Bank AG, New York Branch, which certain other commercial banks (collectively, the "debt banks") will help to underwrite. Repayment of the equity bonds will be backed up by two letters of credit issued by Banco Santander, New York Branch (the "equity letter of credit bank"), which in turn will be backed up by letters of credit and guarantees provided by the equity investors in the project.

The loan agreement between the NIBJ, acting as the agent of the government and administrator of the PSEF of Jamaica, and JPPC will also be executed at financial closing and will become effective as of financial closing. Pursuant to the loan agreement, NIBJ will irrevocably commit to lend up to \$81,000,000 to JPPC, so that JPPC may refinance the principal amount of the loans made to the project, using proceeds of the debt bonds on approximately the fifth anniversary of financial closing, or such earlier date as the debt bonds are redeemed. The government of Jamaica will borrow the \$81,000,000 from the World Bank and IDB and make those funds available to NIBJ as part of the PSEF of Jamaica.

The principal terms and conditions of the loan agreement are as follows:

- The principal terms and conditions of the loan agreement are as follows:
- The amount of the loan is the lesser of \$81,000,000 and the amount of eligible expenses (as defined below) incurred by JPPC in connection with the project.
- JPPC will repay the principal amount of the loan to NIBJ in Jamaican dollars in 144 equal monthly installments starting after funding occurs, when the government of Jamaica is required to begin repayments to the World Bank and IDB under its loan agreements with them.
- The interest rate on the loan will vary from year to year and will be equal to the average of the yield for the previous year of 30-year United States Treasury bonds plus 3 percentage points.
- JPPC will provide security (including, without limitation, a legal mortgage over JPPC's real property and floating charges over JPPC's personal property) to NIBJ to secure JPPC's performance under the loan agreement. In addition, JPPC will provide substantially similar security to the debt banks and CDC to secure JPPC's obligations under its reimbursement and loan agreement with the debt banks and the loan from CDC. NIBJ would have the right to exer-

cise its rights as to this security only after the debt banks and CDC's loans are paid off.

The loan agreement will not become effective (and NIBJ will not become committed to make the loan to JPPC) until the following conditions precedent (the "initial conditions"), among others, are fulfilled:

- NIBJ is satisfied that all necessary project agreements and financing documents are in satisfactory form and are binding upon each party thereto.
- The World Bank and IDB are similarly satisfied as to certain project agreements and financing documents.
- JPPC has an adequate management and staffing plan and has appointed certain key officers approved by NIBJ.
- JPPC has received the funds from the issuance of the debt and equity bonds and CDC's loan agreement has become effective.

After the loan agreement becomes effective, NIBJ's obligation to make the initial disbursement of the loan will become irrevocable upon the fulfillment of the following conditions precedent:

- The conditions precedent to the effectiveness of the loan agreement are met, which is anticipated to occur at financial closing.
- NIBJ receives notification from the World Bank and IDB that the World Bank and IDB have available for disbursement the funds necessary for NIBJ to make the loan.

The World Bank and IDB each have three conditions precedent to the funding of their loans:

- They will advance funds only to reimburse or pay JPPC for expenses (collectively, "eligible expenses") that are eligible for reimbursement or payment by the World Bank and IDB (for example, those expenses will have to have been incurred in member countries of the World Bank or IDB).
- JPPC must demonstrate that the quality of the goods purchased is in conformity with the technical requirements of the project.
- JPPC must provide the World Bank and IDB with information about the procurement procedures to be applied and the results of that procurement as NIBJ, the World Bank, and IDB may require.

The World Bank, IDB, NIBJ, and JPPC have agreed to disbursement procedures designed to ensure that proceeds of debt bonds are spent only on eligible expenses and that the World Bank and IDB will commit in advance to fund

loans to the government of Jamaica to finance those expenses. Accordingly, the parties anticipate that NIBJ's obligation to make disbursements of the loan will become irrevocable, for all practical purposes, as construction funds are disbursed from the debt bond proceeds account. NIBJ has the right to disapprove any such disbursement if certain conditions are not met. A technical expert hired by NIBJ (the "technical agent") will review the relevant documentation and assist NIBJ, the World Bank, and IDB in overseeing all such disbursements.

Actual funding by NIBJ will not occur until the earlier of approximately five years after financial closing or the occurrence of a take-out event. Take-out events include the failure by the JPPC to maintain approximately \$3,000,000 on deposit in the U.S. Debt Service Reserve Account, any acceleration or redemption of the debt bonds, and the bankruptcy or liquidation of the JPPC. The delay in funding by NIBJ is designed to allow JPPC (and thus Jamaican ratepayers) to benefit from the lower interest rate on the debt bonds (as compared with the interest rate to be paid to NIBJ by JPPC) for as long as such bonds are outstanding and the position of the debt banks, which are underwriting a letter of credit to enable the issuance of the debt bonds at such an interest rate, is secure.

If the debt bonds are redeemed during construction of the project due to the occurrence of a take-out event, NIBJ and CDC will continue to fund loans to complete construction of the project unless certain events occur. Such events include, among others:

- Failure of JPPC to pay interest (other than default interest) on the CDC loan and fees payable to CDC under the CDC loan agreement, unless JPPC shall have cured such default within 30 days after its occurrence.
- The occurrence of a bankruptcy event of default by JPPC (unless it is caused by CDC).
- In the reasonable judgment of NIBJ, available construction funds are then less than the aggregate unpaid amount required to complete construction of the project in accordance with all applicable requirements of law and the applicable project agreements.

As part of the loan agreement, JPPC makes certain representations and warranties, as well as affirmative and negative covenants, to NIBJ. The major representations, warranties, and covenants, include, among others:

- That JPPC has no other significant indebtedness or investments (other than certain permitted investments

of amounts on deposit in the various project accounts in cash equivalents and similar securities and contracts) and will not incur any such indebtedness or undertake any such investments.

- That JPPC shall construct, operate, and maintain the project according to the approved project agreements.
- That JPPC will not dispose of any project assets or materially amend the project agreements without NIBJ's consent.
- That JPPC will fund the U.S. Debt Service Reserve Account at financial closing, and will replenish that account from revenues to maintain it, in an amount equal to \$7,000,000 while the debt bonds are outstanding, which amount represents approximately one year of debt service on the debt bonds, and thereafter, in an amount sufficient to pay approximately six months of debt service on the CDC loan and the loan under the loan agreement.
- That JPPC will not distribute any dividends prior to the completion of the project, if it is in default or if the debt service coverage ratio falls below 1.3 to 1.
- That the debt service coverage ratio will not fall below 1.0 to 1 at any time.
- As is typical in project financings, the loan agreement contains nonrecourse provisions. These provisions effectively mean that NIBJ can look only to the project and the money and certain other assets of JPPC related to the project for repayment of the loan. If JPPC has insufficient money or other such assets to repay the loan, NIBJ would have no right (barring fraud, misrepresentation, gross negligence, or willful misconduct) to look to any other person for repayment.

The primary obligations of NIBJ under the loan agreement include the following:

- To review and, if appropriate, approve all project, financing, and equity documents relating to the project, and to deliver a certificate at financial closing evidencing the satisfaction of the initial conditions.
- To review requests for disbursements of debt bond proceeds on a monthly basis and work with JPPC, the World Bank, IDB, and the technical agent to evaluate such requests.
- To use diligent efforts to cause the World Bank and IDB to fund loans to the government of Jamaica, and to on-lend such funds when received, on the terms and conditions set forth in the loan agreement.
- To maintain a control account showing the amount of the outstanding loan under the loan agreement, the applicable interest rate, other obligations owed by JPPC under the loan agreement, and payments by JPPC on the same.
- To review and, if appropriate, approve amendments to project, financing, and equity documents relating to the project and changes in certain key project personnel and parties.
- To give notice to JPPC if NIBJ receives any proceeds of insurance relating to the project and to hold and dispose of such proceeds in accordance with the terms of the loan agreement.
- To permit JPPC to withdraw funds from the Debt Service Reserve Account to be used to pay certain project costs, and to cause the escrow agent maintaining the Account to pay excess amounts on deposits to Jamaica Public Service Company and JPPC under certain circumstances.

Annex 5 Risk Management Arrangements

Construction Phase Risk Management

Nature of risk	Responsible party	Risk mitigants
Contractor's financial strength	JPPC; NIBJ	Diligence: contractor parent guarantees; letter of credit; standby facilities; NIBJ take-out
Technology and efficacy	JPPC; NIBJ	Diligence: contractor parent guarantees; letter of credit; standby facilities; NIBJ take-out
<i>Delay</i>		
Natural force majeure	Insurers; JPPC; NIBJ; JPS	Insurance; standby facilities; NIBJ take-out
Political force majeure	Insurers; MIGA; JPPC; NIBJ; JPS	Political risk insurance; MIGA; standby facilities; NIBJ take-out
JPPC change orders	JPPC; NIBJ	JPPC liquidated damages; standby facilities; NIBJ take-out
JPS variations	JPS; JPPC; NIBJ	JPS payments; standby facilities; NIBJ take-out
Noncompletion of interconnection facilities	JPS; JPPC; NIBJ	JPS liquidated damages; standby facilities; NIBJ take-out PPA provides JPPC can complete facility
Contractor's fault	Contractor	Contractor's liquidated damages; letters of credit; parent guarantees.
<i>Cost overrun</i>		
Site conditions	JPPC; NIBJ	Standby facilities; NIBJ take-out; EPC guaranteed scope
Natural force majeure	Insurers; JPPC; NIBJ	Insurance; standby facilities; NIBJ take-out
Political force majeure	Insurers; MIGA; JPPC; NIBJ; JPS	MIGA political risk insurance; standby facilities; NIBJ take-out
JPPC change orders	JPPC; NIBJ; JPS	JPPC liquidated damages; standby facilities; NIBJ take-out
JPS variations	JPS; JPPC; NIBJ	JPS payments; standby facilities; NIBJ take-out
Contractor's fault	Contractor	Letters of credit; parent guarantees
<i>Funding</i>		
Interest rate movements	JPS	Indexation of tariff payments
Exchange rate movements	JPS	Indexation of tariff payments
Equity	JPPC	Sponsor letters of credit or parent guarantee (CDC)
Performance	Contractor	Contractor's retainage; contractor's liquidated damages; letters of credit; parent guarantees

Operating Phase Risk Management

Nature of risk	Responsible party	Risk mitigants
<i>Performance and operating costs</i>		
Plant performance	Contractor; Operator; JPPC; NIBJ	Contractor's warranties; operator's liquidated damages; equity; NIBJ take-out
Operator performance	Operator; JPPC; NIBJ	Operator's liquidated damages; equity; NIBJ take-out
increased costs caused by operator	Operator; JPPC; NIBJ	Operator's flood budget; equity; NIBJ take-out
increased costs caused by natural force majeure	Insurers; JPPC; NIBJ; JPS	Insurance; equity; NIBJ take-out; power purchase agreement relief
Increased costs caused by political force majeure	Insurers; MIGA; JPS; JPPC; NIBJ	MIGA; political risk insurance; indexation of tariff payments; equity; NIBJ take-out; power purchase agreement relief; the government of Jamaica guarantee
Operating Permits	JPPC; NIBJ; Jamaica	Equity; NIBJ take-out; implementation agreement covenants
<i>Fuel</i>		
Unavailability	IPPC; NIBJ	Change suppliers; equity; NIBJ take-out
Price increase	JPS	Indexation of tariff payments
Petrojam default	Petrojam	Change suppliers; Petrojam indemnity
Natural force majeure	Insurers; JPPC; NIBJ; JPS	Insurance; equity; NIBJ take-out; power purchase agreement relief
Political force majeure	Insurers; MIGA; JPPC; NIBJ; JPS	MIGA; political risk insurance; equity; NIBJ take-out; power purchase agreement relief
Excessive heat rate	JPS; JPPC; Operator	Indication of tariff payments for deregulation equity; operator's LDs
<i>Power purchase</i>		
Low demand and low dispatch	JPS	Continued capacity payments
JPS force majeure	JPS	Continued capacity payments
Nonpayment by JPS	JPS; Jamaica; JPPC; NIBJ	IPS letter of credit; the government of Jamaica guarantee; reserves; equity; NIBJ take-out
Abandonment by JPPC	IPPC; NIBJ	Termination of power purchase agreement; NIBJ take-out
<i>Financial</i>		
Interest rate movements	JPS	Integration of tariff payments
Exchange rate movements	JPS	Interaction of tariff payments

Notes

1. The capacity that is available from the independent power producers is made up of a 42-megawatt combustion turbine installation at Bogue in Montego Bay and 74 megawatts provided from a barge-mounted medium-speed diesel facility at Old Harbour. Both of these installations have resulted from agreements signed after the financial close of the Rockfort project. They came on line in December 1994 and October 1995, respectively.

2. Dollars (\$) refer to U.S. dollars throughout the review, unless otherwise stated.

3. The Steering Committee comprises representatives from the following ministries and agencies: Office of the Prime Minister, Ministry of Finance and Planning, Ministry of Public Utilities and Transport, Energy Sector Policy Implementation Unit, the Attorney General's Department, Planning Institute of Jamaica, JPS, Petroleum Corporation of Jamaica, NIBJ, and the Natural Resources Conservation Authority.

4. Vindicating its position on this matter, the government had earlier interrupted development of the Energy Sector Development and Privatization Project to consider an unsolicited bid for expanding the system. It received a base bid for a considerably higher price than was eventually accepted for the low-speed diesel-based project, even though that offer was for a larger increment of capacity and used a cheaper but, given the available fuel, inappropriate technology for baseload duty.

5. The RFP, however, did not impose any restrictions on bidders offering alternative technologies that need residual fuel as long as they could establish that the equipment met the criterion of having been in commercial operation using residual fuel for 8,000 hours on the date of the submission of the bid.

6. This exercise was carried out by the staff of JPS's Planning Division using the ENPEP Wein Automated System Planning (WASP), which is a widely used dynamic programming optimization model.

7. Under the Accord Venezuela and Mexico make a portion of oil payments as a credit to finance the commercial exchange of goods and services, or short-term and long-term economic development projects. The First Accord was signed on August 3, 1980, and it is renewable on an annual basis. The terms now in effect

stipulate credit levels that vary with the price of oil. Below \$21 per barrel the credit is 20 percent of the cost of the crude oil. The credit level increases with the price of oil up to a maximum of 25 percent if the price of oil rises above \$40 per barrel. The Thirteenth Accord was renewed in August 1992. Under this Accord Jamaica can lift up to 13 MBCD each from Venezuela and Mexico. It stipulates that 20–25 percent of the cost of each shipment, on a cargo-by-cargo basis, may be converted into a credit bearing 8 percent interest, to be paid in 10 equal semi-annual installments. The five-year credit can be converted into a 12-year loan with interest at 6 percent, if the money is used for energy or development projects (subject to approval from Mexico and Venezuela).

8. The average discount price, which is a levelized price, includes debt service, equity returns, and operating costs, and represents the average of the discounted price of capacity and energy over the 20-year life of the project. The base energy price will vary each year, mainly in accordance with the debt-service profile chosen by the developer. The actual capacity and energy prices will vary in accordance with the indexation provisions of the tariff.

9. The lower power plant construction costs in the PMPC are the result of a favorable movement in the basket of European currencies producing savings that JPPC was allowed to keep under the rules of the bid. But during negotiations JPPC offered to share some of the savings with the Jamaican government by passing a portion through to the tariff.

10. Section 936 of the U.S. Internal Revenue Code (26U.S.C. 936) provides a tax exemption for certain investments in qualified Caribbean Basin countries.

11. CDC is an official development financial institution of the United Kingdom.

12. The fact that most of the project's equity is being funded with the issuance of bonds should not distract attention from the central point that investors do remain liable and are the first line of defense against any downside risk associated with the project.

13. At financial close the LC Banks were a consortium of AAA and AA rated banks; Deutsche Bank AG, New York Branch, BOT Financial Corporation, and NationsBank. Subsequently, the commercial banks' exposure on the project was syndicated and the result-

ing participations in the letter of credit is now: Deutsche Bank, A.G., New York Branch, \$20 million (24.1 percent), ABN-AMRO Bank N.V., \$21.8 million (26 percent); BOT Financial Corporation, \$20 million (24.1 percent); NationsBank of Florida, N.A., \$15 million (18 percent); and Fuji Bank, Los Angeles, \$6 million (7.2 percent).

14. The indexation provision allows JPPC to pass any increase in costs associated with, inter alia, movements in the U.S. dollar-Jamaican dollar parity to JPS by increasing the sale price of its generated power. The government's agreement to permit the price of JPPC's generated energy to change in accordance with changing market conditions was a crucial factor in reducing overall project risks, and thus facilitating its financing.

15. Eligibility in this context refers to eligibility for funding by CARIFA tax-free bonds under CARIFA rules.

16. Expenditures to be covered by the Series A bonds also had to include eligible items under the loan agreements with the two multilateral banks financing the PSEF that would take out these bonds in five years.

17. As explained earlier, these expenditures were reviewed and certified by NIBJ and the multilateral banks during the course of construction.

18. The Fuel Supply Agreement was negotiated separately between JPPC and Petrojam, the state-owned oil refinery.

19. These commitments comprise \$38,651,629 from the World Bank sources and \$38,630,626 from the IDB sources. Disbursements will be made when the take-out of the bonds by the Energy Fund takes place.

20. The future of CARIFA and its access to concessionary funding is in some doubt, as moves in the U.S. Congress appear to be leading toward the eventual elimination of the tax benefits provided to companies for investments in Puerto Rico.

21. With the exception of the financing cost components, capital costs would be excluded from indexation. The costs to be indexed mainly affect the variable cost component of the tariff and, in the long run, these costs will have the greatest effect in determining how the price of electricity to the consumer will increase. Thus, for example, projects with relatively low capital costs but relatively higher heat rates could turn out better in a comparison of average discount prices with those with higher capital costs but better heat rates if the average discount prices are computed assuming zero escalation in fuel prices over a 20-year period. If, however, the comparison is done assuming an escalation in fuel prices, the ADP rankings could change because fuel cost is such a large component of the average discount price.

22. Energy payments are also adjusted to compensate for low load dispatch in accordance with an agreed heat rate curve.

OTHER RMC PUBLICATIONS

IDA10: The First Two Years - Review of the FY94-95 IDA Program, December 1995.

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