



WORLD BANK GROUP

UKRAINE: UKRZALIZNYTSIA (UZ) MODERNIZATION STRATEGY

Policy Note 1: Preparations for the opening of
Ukraine's rail cargo market

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Preface

This Policy Note is one of a series of individual papers originating in a request from Ukraine's Ministry of Infrastructure (Mol) and JSC Ukrzaliznytsia (UZ) to the World Bank to address specific topics concerning Ukraine's railway sector. The Policy Notes address the following topics.

1. **Railway market opening for cargo services:** progress in the meeting rail commitments in the EU-Ukraine Association Agreement, reorganization of UZ, Ukraine's readiness for and implications of market opening, pre-requisites to avoid leaving UZ in an unfavorable situation.
2. **Loss-making long-distance passenger services:** service costing, institutional and financial options for providing sustainable transport passenger services for long distance travel.
3. **Selected Freight Business Issues:** specific matters on which Bank advice has been sought including cargo tariffs, customer service and perceptions, and operating efficiency.
4. **Debt management:** options for UZ to restructure its debt and reach a financially stable situation.
5. **Infrastructure asset management and prioritization of investment.** Asset management strategy and life-cycle costing in the renewal and reconstruction of UZ's railway infrastructure network.

This Policy Note deals with **Topic 1: Railway market opening for cargo services**. The EU-Ukraine Association Agreement 2014 commits the parties to cooperate and seek to harmonize policy, legislation and regulation across a broad range of areas, including railway market opening. This Policy Note is aimed at supporting Ukraine by identifying policies and actions that could help accelerate its strategic readiness for railway market opening.

Glossary of terms and acronyms

CURRENCY EQUIVALENTS

Exchange Rate (Feb 2019)

Currency Unit: Ukrainian Hryvnia (UAH)

USD 1 = UAH 26.9

ACRONYMS

AMS	Asset Management System
AMCU	Antimonopoly Committee of Ukraine
CoM	Cabinet of Ministers
CSM	Common Safety Methods
ERA	European Rail Agency
EU	European Union
GoU	Government of Ukraine
IM	Railway Infrastructure Manager
MAIC	Multi-annual Infrastructure Contract (to part-fund the net costs of uneconomic lines kept open by government on social grounds, also known as network PSOs)
MoF	Ministry of Finance
MoI	Ministry of Infrastructure
NCRT	National Commission for Regulation of Transport
PSO	Public Service Obligation, potentially comprising service PSOs (obligation to operate non-commercial services) and network PSOs (obligation to operate non-commercial lines)
SAR	State Agency for Railways (to be established)
SMS	Safety Management System
TAC	Track access charges (charges levied for use of railway infrastructure)
TOC	Train operating company ('Carrier' in Ukrainian Law)
TSI	Technical standards for interoperability
USD	United States Dollar
UZ	Joint Stock Company, JSC Ukrzaliznytsia (registered October 2015)

Summary of Findings and Recommendations

Background

1. The draft Law on Railway Transport of Ukraine (the 'new Railway Law') is currently awaiting sign-off from other ministries and the approval of the Cabinet of Ministers. The Law, among other aims, is intended to align with commitments contained in the EU-Ukraine Association Agreement 2014.
2. The Agreement commits the parties to cooperate and seek to harmonize policy, legislation and regulation across a broad range of areas. In its railway sector, Ukraine undertakes to approximate its legislation to specified EU legislation (the 'rail acquis') within stipulated timeframes, generally by 2022.
3. The new Railway Law is effectively an 'enabling law'. It sets out the broad aims of the law, the roles and responsibilities of the key governance agencies and broad criteria for executing those functions. This confers flexibility but also means that much of the substantive work of drafting implementing regulations, building or strengthening the governance institutions and developing the administrative and regulatory processes need to proceed separately.
4. The focus of this Policy Note is the 'market opening' provisions of the new Railway Law (and of the Association Agreement) particularly as this relates to cargo transport. That is, the arrangements allowing cargo train operating companies, whether public or private, to provide transport services on Ukraine's rail network on a fair and equal (competitively neutral) basis.

Key elements of market opening

5. Market opening on a fair and equal basis requires far-reaching changes in the institutional structure of the rail sector in Ukraine, in the organisation of Joint Stock Company, JSC Ukrzaliznytsia (UZ), and in the market for railway services. These changes include:
 - (a) **Introduction of management independence.** The corporatisation of UZ in October 2015 was a critical first step. A Supervisory Board was established in 2015 but did not have any independent members. In 2018 the SB was reformed with seven members, four of which are independent. But UZ cannot yet be said to be managerially independent because, among other constraints, there is quite heavy regulation of commodity tariffs and UZ management is required to internally cross-subsidize many activities.
 - (b) **Improvement of the financial situation of state railway enterprises.** The above factors also contribute to the fact that the company's financial situation is currently insufficient to meet all its historic debt obligations and, at the same time, sustain its capital assets.
 - (c) **Separation between infrastructure management and transport operations.** Infrastructure management and transport operations are not yet independently managed and there is not yet a financial accounting separation between infrastructure and transport operations.
 - (d) **Compensation for public service obligations.** The principle of PSOs, an essential precondition for both financial stability and a competitively neutral market opening, is contained in the draft new Railway Law. UZ is currently in the process of defining and estimating the costs of its PSOs in consultation with MoI, but is not yet in a position to submit a substantiated claim.

- (e) **Licensing of railway undertakings.** MoI has already drafted licensing documentation and conditions for rail undertakings wishing to participate in an open market: their implementation must wait until the enactment of the new Railway Law and the establishment of the State Agency for Railways (SAR) which is intended to be the key regulatory agency.
- (f) **Infrastructure access regime.** Five of the main structural elements of the rail acquis relating to the infrastructure access regime are: allocation of infrastructure capacity; infrastructure access charges; safety certification; the network statement; and an infrastructure contract with government. The current status is summarised below. Most elements cannot be formally implemented until the draft new Railway Law is enacted, although the preparatory work can be done.

Elements of Infrastructure access regime	Progress/comments
<i>Capacity allocation framework</i>	<ul style="list-style-type: none"> In progress. MoI is developing a draft infrastructure allocation framework for discussion with UZ and the approval of CoM. The Framework will need the oversight and approval of SAR, that can only be established when new Railway Law is enacted.
<i>Infrastructure charges framework</i>	<ul style="list-style-type: none"> In progress. MoI is developing a draft infrastructure access charges framework for discussion with UZ and the approval of CoM. The Framework will need the oversight and approval of National Commission for Regulation of Transport (NCRT) when the new Railway Law is enacted.
<i>Safety Certification</i>	<ul style="list-style-type: none"> In progress. UZ is liaising with the European Railway Agency (ERA) and is preparing and will progressively introduce Common Safety Methods (CSM) and Safety Management Systems (SMS). SAR will take over safety regulation role on its formation, following enactment of new Railway law.
<i>Network Statement</i>	<ul style="list-style-type: none"> Not yet started. UZ has not yet created an independent Infrastructure Manager whose responsibility would include the Network Statement (it would also require inputs on capacity allocation and charges frameworks from MoI)
<i>Multi-annual infrastructure contract</i>	<ul style="list-style-type: none"> Not yet started. Related in large part to the possible public funding of the non-commercial parts of the network, an infrastructure contract between the UZ Infrastructure Manager and GoU is likely to be a significant element of a broader PSO framework. It also impacts the Network Statement.

Benefits and risks of market opening

- The planned opening of the railway market provides positive opportunities for Ukraine, but also creates serious threats if it is not well planned and implemented. Policies of contestability and private sector participation in rail cargo transport have typically been successful in improving industry performance where they have been adopted.
- Competition creates incentives to managers to meet market needs at the lowest possible cost; and it encourages them to innovate in service to obtain market advantage. It is, for example, impossible to conceive that the road freight industry internationally would be the formidably fierce competitor to rail that it is if it were confined in each country to operations by a single state-owned operator.
- The most immediate benefit is that the expectation of market opening gives UZ the incentive and impetus to improve its own efficiency and performance. UZ faces fundamental structural

problems: an investment backlog, deteriorating assets, and low market perceptions of its operating and service performance. It is probably not sustainable in the long-run without reform, and freight market opening is an opportunity to tackle the problems in a fundamental way across all of UZ's activities, not just cargo transport.

9. Although the EU model of railway organization is not the only structural option that could have been adopted by Ukraine, there seems little doubt that the impending contestability of use of national railway infrastructure is acting as a positive catalyst for internal reforms in UZ; and at the policy level, the need to adopt a formal PSO framework will crystalize for government the real costs of operating passenger services previously concealed by cross-subsidies from freight, and the costs of operating non-commercial lines, currently supported by traffic on the core network. Such transparency will hopefully underpin a more critical scrutiny of how to improve social value for money in the rail sector policy-making.
10. Rail market opening will also over time provide more choice of cargo services, attract new participants, generate much-needed investments in traction, rollingstock and terminals to an industry where the assets are old and outdated. New participants will also bring new ideas about customer-focus, operating efficiency and service innovation.
11. In terms of risks, market opening poses a formidable threat to UZ cargo operations. International experience is that rail cargo markets are readily contestable. Ukraine's heavy, concentrated rail flows of bulk commodities are likely to attract significant competition and exert downward pressure on cargo tariffs for higher tariff classes. Most of the traffic carried by new participants will probably be abstracted from UZ.
12. Given UZ's current financial situation is already very tight, UZ's overall financial situation could deteriorate, and cargo earnings would certainly no longer be able to support other parts of railway business. A new railway sector funding framework incorporating compensation for socially important loss-making passenger services and lines is therefore a pre-condition of successful market opening.

Status of preparations

13. MoI and UZ are both fully aware that the challenge for Ukraine is to manage market opening in such a way as to maximize the opportunities and mitigate the threats.
14. With limited technical resources, a small team is working within MoI, reporting to the Cabinet of Ministers (CoM) on meeting the provisions of the Association Agreement. It has strengthened the new draft Railway Law and has drafted a methodology for infrastructure access charges. UZ has assembled plans for further separating infrastructure activities and accounts from transport operations and is progressing the costing of passenger services to assist in defining PSO services.
15. There is still a long way to go: the new Railway Law is not yet enacted; the key regulatory body for the railway sector (SAR) is therefore not yet formed; existing entities with future regulatory responsibilities (such as the NCRT and the AMCU) have not yet determined how they will discharge their responsibilities in the new railway market; the entities of UZ that will provide infrastructure and transport services are not yet independently managed businesses; PSO arrangements have not been determined either for loss-making social passenger services (service PSOs) or for loss-making parts of the network (network PSOs).
16. It is crucial to enact the new Railway Law (some suggested amendments are recommended below) to sanction the establishment of the new institutional and regulatory framework and give impetus and urgency to the preparation process. However, the new Law is unlikely to be in place until final quarter, 2019, at the earliest.

Strategic readiness for market opening

17. When 2022 arrives, it would be a considerable achievement for Ukraine to be able to ‘tick the boxes’ to demonstrate that legal and regulatory instruments are by then in place to ‘approximate’ to the various elements of the EU rail acquis.
18. It is even more important matter for Ukraine’s railway sector, both public governance and public enterprises, to be strategically fit and ready to make the market opening a success, which implies attaining three pre-conditions:
 - i. **A strong, commercially-focused UZ Cargo carrier capable of competing in an open market.** Nothing is more important to the success of Ukraine’s future railway market than to attain improved performance of UZ. Ukraine has huge human and material resources tied up in UZ and it will dominate the market for many years to come: it is difficult to see how the future railway framework can be successful if UZ does not successfully adapt to it. This is true for all parts of UZ but is especially important for the cargo business.
 - ii. **A sustainable funding framework for the railways sector as a whole.** Early implementation of a sustainable funding framework for UZ itself is essential. The interrelated financial parameters of infrastructure access charges and public service obligation arrangements need to be put in place under the existing market structure prior to extending to a new market structure.
 - iii. **Effective public institutions to administer policy and regulate the industry.** Strategic readiness could be accelerated by facilitating the early planning and development of ‘shadow’ institutions and processes of government (and local government) administration and management ahead of their formal creation by the new Law. Preparatory actions will put Ukraine in a stronger position to create effective institutions in a timely manner prior to market opening.
19. For each of these three imperatives, Figure 1 lists some suggested fast-tracking actions that would help accelerate Ukraine’s strategic readiness for market opening. Each of these actions is described in more detail in the Policy Note.

Figure 1: Actions which could accelerate readiness for market opening.

1. A strong UZ Cargo carrier	2. Sustainable industry funding framework	3. Effective governance institutions
<p>a. Amend draft Law to strengthen UZ's commercial freedoms in the cargo market.</p> <p>b. Fast-track the creation of a UZ Cargo and Logistics Company.</p>	<p>a. Adopt provisional infrastructure access charges for UZ's own business lines.</p> <p>b. Determine provisional cost of PSOs for loss-making passenger services and net costs of retaining non-commercial branch lines (network PSOs)</p>	<p>a. Prepare the operating mandate and organisation blueprint for the SAR.</p> <p>b. Create a 'shadow' PSO contracting unit within Mol.</p> <p>c. Develop a Toolkit for local suburban contracting units.</p>

Timeline for implementation of recommendations

20. The target year for market opening contained in the EU-Ukraine Association Agreement is 2022. If it were assumed that the new law could be gazette by about mid-2020, this would require implementation by mid-2021 under the timetable contained in the Law itself (Chapter XI). Either way, that is a tall order, and emphasizes the importance of getting preparatory work started early.
21. The Policy Note suggests a fast-track timetable for implementing recommendations phased over the two and half years remaining until 2022.
22. The aim would be to try to make major preparatory progress with setting UZ's track access charges, measuring PSOs, and designing the State Agency for Rail in the remainder of 2019: then to be able to implement them for a full year 2021 prior to market opening in 2022. In addition, the timetable would seek have UZ restructured into freight (and passenger) companies ready for 2021, separated from infrastructure management.
23. The Bank team's view is that the two-and-half years timetable is attainable if there is sufficient political and institutional commitment to it, and if there are sufficient skilled people deployed to implement and manage change of this magnitude.
24. Ultimately, if it is not possible to attain a restructured UZ, proper treatment of PSO's, and an effective State Regulatory Agency by 2021, it may be in the interests of the railway sector and of Ukraine to consider delaying full market opening for a short period rather than to implement it prematurely.

1. The New Railway Law

1.1 The planned institutional structure

The draft Law on Railway Transport of Ukraine (the 'new Railway Law') is currently under consideration by other ministries and awaiting the approval of the Cabinet of Ministers. The Law was originally drafted in the period 2014-15 but was not enacted at that time. Since then, the draft has been significantly amended to better align with the requirements relating to railways contained in the EU-Ukraine Association Agreement 2014 (The requirements of this agreement are examined in Section 2). Table 1.1 provides an overview of the industry architecture that will follow from the enactment of the new Railway Law.

Table 1.1: Allocation of sector functions under new Railway Law

Main sector functions	Entity responsible
<i>Approval of national transport strategies and policies including railway policies.</i>	Cabinet of ministers of Ukraine (CoM)
<i>Execution and supervision of national railway strategies and policies</i>	Ministry of Infrastructure (Mol)
<i>Execution and supervision of technical, safety and infrastructure access regulation.</i>	A new State Agency for Railways (SAR)
<i>Approval of infrastructure access charging methodology</i>	National Commission for State Regulation of Transport (NCRT)
<i>Approval of methodology for tariffs of entity with a monopoly (dominant market) position</i>	
<i>Determination of an entity having monopoly (dominant market) position</i>	Antimonopoly Committee of Ukraine (AMCU)
<i>Railway accident investigations</i>	A new state agency for investigation of transport accidents
<i>Management of infrastructure on the public railway network</i>	An independently managed and accounted infrastructure unit of UZ to be nominated as 'Infrastructure Manager'
<i>Operation of railway transport services</i>	<ul style="list-style-type: none"> • UZ cargo and passenger carriers
	<ul style="list-style-type: none"> • Private cargo and passenger carriers
<i>Contracting for provision of uneconomic but socially important non-suburban domestic rail passenger transport services</i>	Ministry of Infrastructure
<i>Contracting for provision of uneconomic but socially important suburban rail services</i>	Local executive authorities or Local governments

The new Law also defines the rights and responsibilities of:

- **Rollingstock Operating Companies:** These may provide certified railway rolling stock to customers, which can include traction rollingstock provided to train operating companies.
- **Rail sidings operators:** These are to operate under an agreement between the Infrastructure Manager and the owner of rail sidings who manages transport and shunting operations within their own sidings.

The new Railway Law creates a structure intended to strengthen the governance of the railway industry, create common regulatory requirements for all carriers, and facilitate market opening.

1.2 Main responsibilities of governance entities

Table 1.2 summarises the main responsibilities of the key bodies involved in sector governance, including the Infrastructure Manager, which has statutory duties within the structure.

Table 1.2 Summary of main responsibilities of each entity under the new Railway Law

ENTITY	MAIN RESPONSIBILITIES
CABINET OF MINISTERS (COM)	<ul style="list-style-type: none"> • <i>Rail sector policies and legislation and direction of relevant ministries and executive agencies responsible for implementation.</i> • <i>Adoption of the rules for rail infrastructure access.</i> • <i>Nomination of socially important passenger services, specification of their service and quality standards, tariff and compensation for losses.</i>
MINISTRY OF INFRASTRUCTURE (MOI)	<p><i>Defines and implements state policies in the rail sector:</i></p> <ul style="list-style-type: none"> • <i>definition of state railway and railway safety policy</i> • <i>prioritization of areas for rail transport development</i> • <i>international cooperation in railway transport</i> • <i>oversight of mobilization and civil defence in emergencies and in times of crisis in the field of rail transport</i> • <i>approval of the rules for the rail transport of passengers and cargo.</i> • <i>approval of procedures for registration of railway rolling stock, rules for non-discriminatory access to public-use rail infrastructure, safety authorization and certifications, and train driver licensing</i> • <i>contracting for provision of socially important domestic passenger transport services by rail in domestic traffic</i> • <i>competent Ukraine authority of Ukraine for oversight of transport of dangerous cargoes.</i> • <i>Prior to their establishment, MOI exercises powers of National Commission for transport regulation State Agency for Railways and state expert agency for technical investigation of transport accidents at transport.</i>
NATIONAL COMMISSION FOR STATE REGULATION OF TRANSPORT (NCRT)	<ul style="list-style-type: none"> • <i>state regulation and compliance monitoring of TAC, and transport tariffs of entities having a monopoly (or dominant market) position.</i> • <i>approval of the methodology for setting TAC, and transport tariffs of entities having a monopoly (or dominant market) position.</i> • <i>approval of Infrastructure Manager's investment programs;</i>

<p>STATE AGENCY FOR RAILWAYS (SAR) (not yet formally named and is referred to in the draft Law as <i>the central executive body for the state regulation and supervision in the field of rail transport</i>).</p>	<ul style="list-style-type: none"> • <i>state licensing and regulation of railway entities, rollingstock, public use rail infrastructure and sidings</i> • <i>promoting efficient rail services market, balancing the interests of society, business entities, consumers and state</i> • <i>approval, regulation and compliance monitoring of a non-discriminatory track access regime: prior to establishment separate UZ Infrastructure Manager and carrier, allocates the capacity of infrastructure to users.</i> • <i>rail safety management systems (SMS) approval, authorizations, certification and compliance for Infrastructure Manager, train operating companies, rollingstock operating companies and rail sidings operators.</i> • <i>In case of non-compliance, identified upon results of the verification of safety management system to the established requirements, it takes binding decisions to eliminate such non-compliances within a defined period of time. In case the decision was not fulfilled in a due time, the central executive body for the state regulation and supervision in the field of rail transport takes a decision to revoke the safety authorisation (safety certificate).</i> • <i>Both safety authorisation and safety certificate (part A and/or part B) can be subject to revocation under the grounds established by the Law of Ukraine “On Permit System in Economic Activity”.</i> • <i>train driver licensing and oversight of fitness and competence.</i> • <i>compliance with minimum service quality standards of passenger services</i> • <i>authorization of commissioning of structural subsystems;</i> • <i>oversight of emergency management and response systems</i>
<p>STATE AGENCY FOR TECHNICAL INVESTIGATION OF TRANSPORT ACCIDENTS</p>	<ul style="list-style-type: none"> • <i>independent from SAR and from any other participants in the industry</i> • <i>Investigates all the railway accidents, including level-crossing accidents</i> • <i>Identifies accident causes to help improve the safety management system, to prevent future accidents.</i> • <i>Not involved in any pre-judicial process</i>
<p>LOCAL EXECUTIVE AUTHORITIES OR LOCAL GOVERNMENTS</p>	<ul style="list-style-type: none"> • <i>Organization and exclusive contracting for socially important suburban services by competitive procurement process, to be compensated from state and local budgets</i> • <i>Services that transit through multiple jurisdictions may be co-financed by the entities concerned: local authorities may provide such services on their own within their own territory without tender.</i> • <i>Provision of public amenities in the landside area, facilities for mobility-impaired, intermodal transfer points and services.</i> • <i>Cooperation with Infrastructure Managers, carriers, cargo owners, etc to improve railway efficiency, effectiveness and utilisation, including establishment of multi-mode suburban transport companies: cost sharing or contributions to the Infrastructure Manager for suburban rail infrastructure and facilities.</i> • <i>May choose to compensate the Infrastructure Manager for operating underused unprofitable railway stations, tracks, halts etc with funds from local budgets.</i>
<p>INFRASTRUCTURE MANAGER</p>	<ul style="list-style-type: none"> • <i>Manage and maintain the railway infrastructure network and control train movements in accordance with a safety management system and environmental laws</i> • <i>Ensure the allocation of capacity and access to public rail infrastructure and ancillary infrastructure services</i> • <i>Draft a Network Statement defining the infrastructure available for transport and all the information required for accessing it: basic rules, deadlines, procedures, criteria and tariffs.</i> • <i>Inspect rollingstock condition and driver certification and fitness for trains using the infrastructure.</i>

1.3 Enactment and implementation of the new Railway Law

The third draft of the new Railway Law has been registered with the Ukraine Parliament and is currently under review by other relevant ministries. It could become operative by final quarter 2019. However, the State Rail Agency is the key nodal agency in the administration of the new regulatory framework, and it is unlikely that it could be an effective functioning body with its own funding approvals in the national budget until around the end of 2020. Prior to SAR's establishment, its powers under the Law would be vested in the MoI¹.

The new Railway Law is an 'enabling law'. It sets out the broad aims of the law, the roles and responsibilities of the key governance agencies and broad criteria for executing those functions. It is for more detailed instruments to determine how those functions are to be performed. In principle, the new Law applies equally to any such undertaking whether the state-owned JSC Ukrzaliznytsia (the corporatized Ukraine Railways) or any private railway undertaking. Indeed, it does not refer to JSC Ukrzaliznytsia at all. However, in practice, because of provisions relating to a 'dominant carrier' it will have a higher regulatory burden on UZ than on other carriers, and some amendments are suggested in Section 4.

This 'enabling' character of the new Railway Law confers helpful flexibility and adaptability but also means that much of the substantive work of building or strengthening the institutions and developing the administrative and regulatory processes for market opening must be separately completed.

¹ CHAPTER XIII, article 6 of the new Railway Law.

2 Railways In the EU-Ukraine Association Agreement

2.1 The commitments

The EU-Ukraine Association Agreement 2014² (hereinafter ‘Association Agreement’) commits the parties to cooperate and seek to harmonize policy, legislation and regulation across a broad range of areas. In its railway sector, Ukraine undertakes to approximate its legislation to specified EU directives and regulations within stipulated timeframes, generally within eight years of the entry into force of the Association Agreement, or 2022. The relevant parts of EU legislation (hereinafter referred to as the ‘rail acquis’) are set out in an Annex to the Association Agreement³, and relate to:

- (a) Market and infrastructure access
- (b) Treatment of public service obligations
- (c) Technical and safety conditions
- (d) Interoperability
- (e) Combined transport

The focus of this Policy Note is ‘market opening’. Market opening involves new arrangements that would allow train operating companies, whether public or private, to provide transport services on Ukraine’s rail network on a fair and equal basis. Under the new Railway Law, an ‘independent’ UZ Infrastructure Management entity (probably a company) will ‘sell’ access to its network in return for track access charges (TAC). The actual ‘market’ to be opened in the first instance is therefore the market for train paths on the railway network. However, if new operators purchase train paths, then this in turn will lead to opening of the market for rail services.

Market opening requires new arrangements in the railway sector, of which key elements of the above list are (a) infrastructure access and (b) treatment of public service obligations (which affects competitive neutrality) and (c) technical and safety conditions. These elements require changes to the public governance of the sector, and the management of JSC Ukrazaliznytsia, hereinafter referred to as UZ.⁴

The ‘*market and infrastructure access*’ requirement contains a number of provisions that require far-reaching changes in the institutional structure of the rail sector in Ukraine, in the organisation of UZ and in the market for railway services. In summary they include:

- i. Introduction of management independence and improvement of the financial situation of state railway enterprises;
- ii. Separation between infrastructure management and transport operations;
- iii. Licensing of railway undertakings;

² ratified by all parties Sept 2017

³ ANNEX XXXII to Chapter 7 on transport

⁴ Ukraine is making significant and positive progress in approximating its approaches to the matters of technical harmonization and common engineering rules implicit in iii-v above, including adoption of appropriate Technical Standards for Interoperability (TSI). These initiatives will help better integrate Ukraine’s railways into the wider European network, as well as create a more level and familiar playing field for manufacturers and operators.

- iv. A European rail network for competitive freight; and
- v. Allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification.

2.2 Management independence and improvement of the financial situation

The corporatisation of UZ in October 2015 was a critical first step in establishing the state railway as a commercial enterprise operating at ‘arms’ length’ from government. The state is the sole shareholder of the company as represented by the Cabinet of Ministers⁵. The corporate governance of the company has a tri-partite structure: the General Meeting (the Cabinet of Ministers (CoM) performs this function); the Supervisory Board which protects shareholders’ rights and oversees the activities of the Management Board; and the Management Board, which controls the day-to-day management of the company. Ukraine’s Audit Commission monitors the financial and economic activities of the company. Improving financial and economic stability of the company is the first of six priority objectives adopted by the company.

Financial sustainability: The company’s financial situation is currently neither adequate nor sufficient to sustain its capital assets. UZ does not receive any direct budget subsidies at present but the overall financial situation of the company is very fragile and its ability to reinvest in productive assets is severely limited. Its Annual Report for 2017 reports a before tax profit of UAH 772.1 million (USD 28.7 million) and after-tax profit of UAH 114.5 million (USD 4.3 million). Within the overall result, the Company estimated a profit from cargo transport of UAH 14.077 billion (USD 523.3 million) but a loss on passenger services of UAH 9.952 billion (369.9 million)⁶. The company’s cargo transport profit is currently used to fund: (a) the passenger subsidy (b) the maintenance and rehabilitation of the company’s infrastructure, cargo and passenger assets and (c) meet all its debt liabilities, whether the debt was taken mainly for the benefit of cargo or passenger services. Clearly the rail cargo activities cannot meet all these calls on its earnings. As a result, the age and quality of assets is deteriorating in all areas of transport activity.

Management independence: Corporatization was an essential step but UZ cannot yet be said to be managerially independent. Two constraints in particular limit commercial independence: (a) the government heavily regulates all UZ’s passenger tariffs and many cargo rates so that UZ’s pricing strategy and traffic yield (revenue per passenger-km and per freight tonne-km) is only under limited management control, which also blunts the development of any more market-based business and pricing strategy; and (b) UZ management is required by government to operate many loss-making passenger services and non-economic lines without compensation, which eats up cargo profits and blocks UZ management’s imperative to re-invest in the assets that enable it to sustain profitable cargo services. Under the proposed market opening requirements of the rail acquis, any continuation of cross-subsidy of passenger services would be a burden on UZ: unless replaced with public funding of the social components it would put UZ at a huge disadvantage to private cargo operators.

⁵ JSC UZ brought together the previous UZ Headquarters, the 6 regional railway entities, 35 subsidiaries, and shares in 7 joint-venture companies.

⁶ Based on a full allocation of company costs to three sectors including infrastructure costs.

2.3 Separation of infrastructure management from transport operations

GoU mandated the process of UZ organisational restructuring to improve sector efficiency and effectiveness in 2009, many years before signing the Association Agreement. As a result, UZ formed vertical divisions that distinguished between different activities and included creation of an infrastructure 'vertical' and other functional divisions. This reorganisation established the structure currently in place, a more commercial structure than the one it replaced, but still more of an administrative structure than a commercial structure.

The further separation between infrastructure management and transport operations required under the Association Agreement has additional purposes integral to the EU rail acquis. They are:

- to create an independent 'Infrastructure Manager' not competing in rail services markets: this is to facilitate market opening on a non-discriminatory (fair and equal) basis between transport service operators; and
- to ensure separation of financial accounts between infrastructure and train operations so that any state financial aid is transparent in its purposes.

The current UZ corporate structure provides a positive (and arguably essential) stage for developing an effective 'lines of business' organisation but does not yet meet the essence of the acquis.

- **Separation between infrastructure management and transport operations.** Infrastructure management and transport operations are not yet independently managed at the corporate level, but both still subject to common corporate oversight and direction; and they are co-managed on the operational level by the six regional divisions.
- **Separation of financial accounts.** There is not yet the separation between infrastructure and operations that would meet the rail acquis. UZ's accounting systems can provide segmented accounts by ex-poste management accounting allocations not through separate financial accounts.

Separation of accounts of railway infrastructure and transport services and of freight and passenger operations is crucial for transparency of the use of public subsidies or 'State aids'. Under the railway acquis, the granting of State aid to the railway industry can be authorised only where it contributes to the completion of an integrated European market, open to competition and interoperable and to Community objectives of sustainable mobility⁷.

In its corporate strategy, 2019-2023, the company intends further to develop the structure to create a corporate centre responsible for company policy and oversight, as well as provide shared services, and five main business 'segments' or divisions:

- Cargo transport and logistics
- Passenger transport

⁷ The forms of State aid that may be given to railway undertakings for services, infrastructure and (in certain circumstances rollingstock) is given in Community guidelines on State aid for railway undertakings (2008/C 184/07) which can be accessed at [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52008XC0722\(04\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52008XC0722(04))

- Network infrastructure and access management
- Heavy maintenance and production
- Other activities (social services for employees and management of non-core assets)

This will be a further positive step, but the business segments planned are conceived as divisions of an integrated infrastructure/operations company, not independently managed companies.

2.4 Licensing of railway undertakings

The State Agency for Railways⁸ (SAR) is to be the entity which will be responsible for licensing, registration and regulation of railway entities, rollingstock, public use rail infrastructure and sidings. A railway undertaking must be able to demonstrate to the licensing authorities of the state before the start of its activities that it will at any time be able to meet the requirements relating to good repute, financial fitness, professional competence and cover for its civil liability. The SAR cannot be set up until enactment of the draft Law.

Preparations are being made by MoI to establish a licensing system for railway undertakings. MoI has already drafted licensing documentation and conditions with the support of an EU twinning project. But Implementation must wait until the enactment of the new Railway Law and the establishment of the SAR. However, if the Law can be enacted by late 2019, and SAR progressively established through 2020, it seems feasible that full licensing of railway undertakings can commence in 2021.⁹

2.5 A European rail network for competitive freight

Regulation (EU) 913/2010 promotes the establishment of international market-oriented rail cargo corridors which requires:

- strong co-operation between different national Infrastructure Managers along an international corridor on key aspects such as allocation of train paths, deployment of interoperable systems and infrastructure development;
- Infrastructure Managers to give adequate capacity and priority for freight in line with market needs and monitor performance to ensure that common punctuality targets for cargo trains are met; and
- promotion of intermodality¹⁰ between rail and other transport modes by integrating terminals into corridor management and development.

For Ukraine a promising avenue for compliance with this part of the Association Agreement is to participate in the Rail Freight Corridor North Sea-Baltic, established in 2015 to connect important North Sea ports with Central Europe and the Baltic States. It is intended to extend RFC North Sea – Baltic by 2020 to Estonia, Latvia and towards the Poland – Ukraine border. This corridor concept does not appear as a specific component of the Company's draft corporate strategy to 2023, but the

⁸ The entity is not yet formally named as is referred to in the draft Law as *the central executive body for the state regulation and supervision in the field of rail transport*.

⁹ Under the Association Agreement, the licensing process should approximate to the rail acquis but a Ukrainian licence will not immediately be valid throughout the EU.

¹⁰ The EU defines intermodality as a characteristic of a transport system whereby at least two different modes are used in an integrated manner in order to complete a door-to-door transport movement.

strategy does address the potential rail cargo markets between the EU and China, Iran and India that might transit Ukraine on such a corridor.

2.6 Infrastructure access regime

The Association Agreement includes approximation to the requirements of Directive 2001/14/EC of the rail acquis regarding allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. This is referred to collectively below as the 'infrastructure access regime'. Five of the key structural elements of the rail acquis in regard to the infrastructure access regime are:

- **Network Statement.** The country's railway Infrastructure Manager must publish a Network Statement setting out the nature of the infrastructure which is available to railway undertakings and the conditions for access.¹¹ Railway undertakings would be entitled to the minimum access package and access to service facilities on a non-discriminatory basis.
- **Infrastructure contract with government.** The accounts of an Infrastructure Manager should at least balance income from infrastructure charges, surpluses from other commercial activities and any budget funding on the one hand, and infrastructure expenditure on the other. A government may require the Infrastructure Manager to balance these accounts without State funding. If there is state funding should be through a (multi-annual) infrastructure contract (MAIC) between government and the Infrastructure Manager.
- **Allocation of infrastructure capacity.** The State may, if it chooses, establish a framework for the allocation of infrastructure capacity while respecting the management independence of the Infrastructure Manager. Infrastructure capacity should be allocated by the Infrastructure Manager on a fair and non-discriminatory basis. Where the Infrastructure Manager is not independent of any railway undertaking, in its legal form, organisation or decision-making functions, the capacity allocation should be performed by an allocation body that is independent in those terms.
- **Infrastructure access charges.** The state should establish a charging framework and either establish specific charging rules or delegate this to the Infrastructure Manager together with determination and collection of the charge. If the Infrastructure Manager, in its legal form, organisation or decision-making functions, is not independent of any railway undertaking, the charging functions (other than collecting the charges) should be performed by an independent charging body. Infrastructure Managers should ensure that the application of the track access charges (TAC¹²) scheme results in equivalent and non-discriminatory charges for different railway undertakings that perform services of equivalent nature in a similar part of the market.
- **Safety certification.** In order to obtain the safety certificate allowing infrastructure access, each railway undertaking would need to comply with the regulations under national law, compatible with Community law and applied in a non-discriminatory manner, laying down the technical and operational requirements specific to rail services and the safety requirements applying to staff, rolling stock and the undertaking's internal organisation. The safety

¹¹ The detailed content requirement of a Network Statement is laid down in Annex I of the Directive.

¹² The term track access charges (TAC) is used as shorthand for an overall system of charges for access to railway infrastructure and infrastructure related services such as electrical energy, train control services, use of breakdown services etc.

certificate shall be issued by whichever body is designated for the purpose by the Member State in which the infrastructure used is situated.

The current status is summarised in Table 2.1. Most elements cannot be formally implemented until the draft new Railway Law is enacted, although the preparatory work can be done.

Table 2.1: Progress of Ukraine in implementing infrastructure access regime

Elements of Infrastructure access regime	Progress/comments
Capacity allocation framework	<ul style="list-style-type: none"> <i>Mol is developing a draft infrastructure allocation framework for discussion with UZ and the approval of CoM. The Framework will need the oversight and approval of SAR, that can only be established when new Railway Law is enacted.</i>
Infrastructure charges framework	<ul style="list-style-type: none"> <i>Mol is developing a draft infrastructure access charges framework for discussion with UZ and the approval of CoM. The Framework will need the oversight and approval of NCRT when new Railway Law is enacted.</i>
Safety Certification	<ul style="list-style-type: none"> <i>UZ is liaising with the European Railway Agency (ERA) and is preparing and will progressively introduce Common Safety Methods (CSM) and Safety Management Systems (SMS). SAR will take over safety regulation role on its formation, following enactment of new Law.</i>
Network Statement	<ul style="list-style-type: none"> <i>UZ has not yet created an independent Infrastructure Manager whose responsibility would include the Network Statement. It will also require inputs on capacity allocation and charges frameworks from Mol.</i>
Multi-annual infrastructure contract	<ul style="list-style-type: none"> <i>UZ has not yet created an independent Infrastructure Manager. Possible claim for a MAIC has not yet been addressed and will depend partly on identification of non-economic network costs.</i>

2.7 Treatment of public service obligations

Regulation (EEC) 1192/69 relates to compensation for financial burdens devolving upon transport undertakings by reason of the maintenance of public service obligations. Public service obligations (PSOs) means obligations which the transport undertaking in question, if it were considering its own commercial interests, would not assume or would not assume to the same extent or under the same conditions. PSOs may include the obligation to operate, the obligation to carry and tariff obligations. This regulation had its origins in EU policy on making transparent and minimizing the distortions of 'state aids' on competition between modes of transport. But it is also an essential adjunct to opening Ukraine's rail market to intra-modal competition, for reasons explained in Section 3.

To determine the amount of such compensation, the effects which the termination of any such obligations would have on the undertaking's activities must be taken into account. Any obligation to operate (for example, to maintain routes surplus to commercial requirements of the network) or to carry (to operate transport services at a loss) is regarded as imposing economic disadvantages where

the reduction in the financial burden resulting from termination of the obligation exceeds the reduction in revenue. It is for transport undertakings to apply to the competent authorities for the termination of PSOs where such obligation entails economic disadvantages for them and should apply specified the provisions of the regulation to calculate what savings could be made as a means of improving their financial position. Where the obligation to operate or to carry covers one or more categories of the passenger or goods traffic on the whole or a substantial part of a network, the financial burden which would be eliminated by terminating the obligation shall be estimated by allocating among the various categories of traffic the total costs borne by the undertaking by reason of its transport activities. The regulation promulgates various detailed rules for treatment and processing of PSO's. One significant requirement is that costs should be calculated based on efficient management of the undertaking and the provision of transport services of an adequate quality.

The principle of PSOs is contained in the draft of the new Railway Law, which requires that the organizers of socially important passenger transportation, including UZ, shall publish an annual report regarding the performance of obligations related to the provision of such services, information on contracts signed and amount of compensation paid to the carriers. Competent authorities are to provide an Annual Report on the PSOs for which they are responsible, the carriers involved, and the compensation payments made. Under the EU rail acquis, if there is a direct award of PSO contracts to a UZ Passenger transport entity, the method of calculation of the amount of PSO is closely prescribed and must be disclosed. PSO compensation amounts can also be set competitively by allowing different train operators to bid for contracts to supply the PSO services. This may eventually be the way that some of Ukraine's local authorities may wish to discharge their responsibilities for funding loss-making suburban services.

UZ currently receives no compensation for PSOs other than a small amount received for concessionary fares to certain community groups. The company is currently in the process of trying to define and estimate the costs of its PSOs. In principle, a claim for PSOs could be made prior to the enactment of the new Railway Law, but it is unlikely any compensation would be paid prior to the enactment of the Law.

3 The benefits and threats of market opening

The planned railway market opening provides positive opportunities for the Ukrainian economy, but also creates certain threats if it is not well planned and implemented. The two main potential benefits are the positive performance incentive effect on UZ and the benefits of participation of new companies. The main threats are to UZ's own cargo business, and to the overall budgetary impact of the railway sector.

3.1 Benefits to UZ of market efficiency incentives

The expectation of market opening of rail transport services to third party train operating companies gives UZ the incentive and impetus to improve its own efficiency and performance. UZ faces fundamental structural problems, an investment backlog, deteriorating assets, and low market perceptions of its operating and service performance. Ukraine's national railway network is probably not sustainable in the long-run without reform, and freight market opening is an opportunity to tackle the problems in a fundamental way, across all of UZ's activities, not just cargo.

Although the EU model of railway organization is not the only structural option that could have been adopted by Ukraine, there seems little doubt that the impending contestability of use of national railway infrastructure is acting as a positive catalyst for internal reforms in UZ; and at the policy level, the need to adopt a formal PSO framework will crystalize for government the real costs of operating passenger services previously concealed by cross-subsidies from freight, and the costs of operating non-commercial lines currently cross-subsidized by traffic on busier lines. Such transparency will hopefully underpin a more critical scrutiny of how to improve social value for money in the rail sector.

As the single biggest transport company in Ukraine, and indeed one of the biggest in Europe, improvements in UZ's efficiency can yield substantial long-term benefits to passengers, cargo shippers and taxpayers. The need to prepare for competition should create incentives to UZ transport operations managers to meet market needs with customer-oriented services provided at the lowest possible cost. But such management improvements are not confined to transport service provision. The need for a UZ Infrastructure Manager to prepare and promulgate a comprehensive Network Statement and regularly deal with many carriers to try and meet their demands for rail capacity should engender a management culture more sensitised to those attributes of rail infrastructure assets that add value to the comparative advantage of railways, and more attuned to the commercial consequences of different asset management and investment strategies.

It is likely that in the first few years, the sheer scale of UZ operations means that this benefit could be the main benefit of market opening. However, a more efficient and commercial UZ could also contemplate taking advantage of reciprocal opportunities to compete in the provision of rail services in the open rail markets of EU, though with so much to do in Ukraine, this may become a business priority only in the longer-term.

3.2 Benefit of participation of new train operating companies

Policies of contestability and private sector participation in rail cargo transport have been successful in improving industry performance just about everywhere they have been adopted. Competition creates incentives to managers to meet freight market needs at the lowest possible cost; and it encourages them to innovate in service to obtain market advantage. It is, for example, impossible to

conceive that the road freight industry internationally would be the formidably fierce competitor to rail that it is if it were confined to operations by a single state-owned operator.

Ukraine has sufficient railway traffic flows to make intra-rail competition a realistic option leading to more choice of services on about half of its network. Ukraine's railway system would benefit substantially from a market structure that will attract new participants (general carriers and own-account carriers), bringing new private investments in traction and rollingstock to an industry where the assets are old and outdated and public funds for such investment severely constrained.

Just as importantly, competition and new operators will bring new ideas regarding customer-focus, service efficiency and service innovation. While most cargo carried by new operators will almost certainly be abstracted from existing UZ flows, new approaches may help the railway sector attract some market segments currently using road transport which would deliver external community benefits in road accident savings, lower environment impact and fewer greenhouse gas emissions.

The UZ Infrastructure Manager, applying a system of non-discriminatory infrastructure access charges, will of course earn a given level of revenue whether trains are operated by UZ entities or new operators. However, the Infrastructure Manager will also have an incentive to support efforts of all operators to retain traffic on rail or attract new traffic from road transport as this will help protect and/or boost its revenue base. This support will be most immediately felt if it offers a high level of efficiency and reliability in the management of infrastructure capacity and train movements.

3.3 Threat to UZ cargo operations

Market opening will affect the different parts of UZ in different ways. The Infrastructure Division will handle and earn infrastructure access charges from all trains, UZ's or other carriers, and if market opening brings more cargo to railways, infrastructure income could increase.

However, international experience is that rail cargo markets are contestable. Ukraine's heavy, concentrated rail flows of bulk commodities will attract significant interest. New commercial carriers will target the more attractive segments of UZ's traffic where profitability is highest. Large production companies may wish to run their own trains or contract their transport from third-party carriers. In both cases, UZ will be under pressure to reduce its own tariffs on higher priced segments to retain such traffic. However, the threat to UZ cargo operations is not only loss of traffic and revenue. Third-party carriers wishing to enter the market will look to UZ to recruit some of their key operating managers and staff.

3.4 Threat to JSC UZ financial sustainability

Because railways in Ukraine already carry a very high market share of cargo compared to international standards, it seems likely that most traffic carried by new operators will be abstracted from UZ cargo operations rather than be new traffic generated to rail. Given UZ's current financial situation is already very tight, UZ's overall financial situation would deteriorate and cargo would be unable to support either passenger services or the full burden of rail infrastructure, as it does now. Other things being equal, the financial performance of UZ could reduce even with efficiency improvements. A new railway sector funding framework incorporating compensation for socially important loss-making passenger services and lines is therefore a pre-condition of successful market opening.

3.5 Preparations for market opening

The challenge for Ukraine is to manage market opening in such a way as to maximize the opportunities and mitigate the threats. MoI and UZ are aware of the challenges and are making preparations.

With limited technical resources, a small team is working within MoI, reporting to the Cabinet of Ministers (CoM), on meeting the provisions of the Association Agreement. It has greatly strengthened the new draft Railway Law, made significant progress in the licensing framework for railway undertakings and has drafted a methodology for infrastructure access charges. Similarly, UZ has adopted 'improving readiness for open markets' as one of its six main business objectives. And it proposes a new 'Lines of Business Structure' awaiting approval of Supervisory Board and Shareholder. It is contemplating a new accounting system and is progressing the costing of passenger services to assist in defining PSO services.

The actions both MoI and UZ are taking in their respective spheres are positive and headed in the right direction. But there is still a long way to go. The new Railway Law is not yet enacted; the key regulatory body for the railway sector (SAR) is therefore not yet formed; existing entities with future regulatory responsibilities (such as the NCRT and the AMCU) have not yet determined how they will discharge their duties in the new railway market conditions; the entities of UZ that will provide infrastructure and transport services are not yet independently managed businesses; public service obligation compensation payment requirements have not yet been assessed; and some of the 'nuts and bolts' process requirements to administer an open railway market, such as a 'network statement' have not commenced.

The need to enact the new Railway Law as soon as possible is crucial to facilitate the establishment of the new institutional framework and give impetus and urgency to the preparation process.

4 Accelerating strategic readiness

4.1 Strategic readiness

When 2022 arrives, it would be a considerable achievement for Ukraine to be able to ‘tick the boxes’ to demonstrate that legal and regulatory instruments are by then in place to ‘approximate’ to the various elements of the EU rail acquis. However, it will be an even more important matter for Ukraine’s railway sector, both public governance and public enterprises, to be fit and ready to make market opening a success. To meet this greater challenge, of being strategically ready for market opening, Ukraine must try to fast-track attainment of three main pre-conditions:

1. A strong, commercially focused UZ Cargo carrier capable of competing in an open market;
2. A sustainable funding framework for the railways sector as a whole; and
3. Effective public institutions to administer policy and regulate the industry.

For each of these pre-conditions, Figure 4.1 lists some suggested actions that through fast-tracking, would help accelerate Ukraine’s strategic readiness for market opening.

Figure 4.2: Main pre-conditions for strategic readiness and key actions suggested

1. A strong UZ Cargo carrier	2. Sustainable industry funding framework	3. Effective governance institutions
<p>a. Amend draft Law to strengthen UZ's commercial freedoms in the cargo market.</p> <p>b. Fast-track the creation of a UZ Cargo and Logistics Company.</p>	<p>a. Adopt provisional infrastructure access charges for UZ's business lines.</p> <p>b. Determine provisional service and network PSO compensation.</p>	<p>a. Prepare the operating mandate and organisation blueprint for the SAR.</p> <p>b. Create a 'shadow' PSO contracting unit within Mol.</p> <p>c. Develop a Toolkit for local suburban contracting units.</p>

4.2 A strong, commercially focused UZ cargo carrier

Nothing is more important to the future of UZ’s railway market than the performance of JSC UZ within it, both as an Infrastructure Manager and as a cargo and passenger carrier. Nothing is more important to the success of Ukraine’s future railway market than to attain good performance from UZ. Ukraine has huge human and material resources tied up in UZ and it will dominate the market for many years

to come: it is difficult to see how the future railway framework can be successful if UZ does not successfully adapt to it. This is true for all parts of UZ but is especially important for the cargo business. Two key action areas should be considered in the cargo area.

4.2.1 Legally strengthen UZ's commercial freedoms

As noted earlier, the draft Railway Law does not refer to JSC UZ and is therefore seemingly neutral as between the rights and obligations of UZ and other carriers. But in practice the Law as drafted is likely restrict the commercial freedom of a UZ cargo carrier more than a private carrier, in two significant ways.

- **Tariff freedoms.** Under Article 8, railway carriers will be free to set their own tariffs other than in markets where *'entities having monopoly (dominant) position on the market shall be regulated through the establishment of the methodology for calculating the tariffs'*. For some time after the rail market is opened the UZ Cargo company will have a very high market share but because of market opening, it will have very limited market power. UZ's cargo customers will be readily contestable by third-party carriers. If a 'dominant market position' is defined as a high market sharer then in many markets the UZ Cargo company will be regulated as to its tariff methodology whereas a new operator, starting with small market share, can set its own tariffs. The UZ Cargo company will be subject to both the decisions of the [The Antimonopoly Committee of Ukraine (AMCU)] as to what constitutes a dominant market position; and it will be responsible to the National Commission for Regulation of Transport as to what is an economically justifiable tariff formula. By contrast new carriers with small opening market share will have tariff freedom.
- **Common carrier obligation.** The second restriction is that the new draft Railway Law imposes a 'common carrier' obligation on the dominant operator. Chapter XIII (Final Provisions) requires that *'the carrier having a monopoly (dominant position) in the market of rail transportation of freight, is obliged to transport cargo, including by means of single wagons/assorted trains, ad-hoc trains on the infrastructure of public use at the economically justified tariff'*. Although this provision does not create an obligation to carry traffic at less than an economically justified tariff, the formula for such tariff is again subject to decisions of the [AMCU] as to what constitutes a dominant position under the Law and to the National Commission for Regulation of Transport as to an acceptable tariff formula. Again this will inevitably involve differential treatment and possible competitive disadvantage to a UZ Cargo company compared to private carriers.

Regulation of infrastructure access tariffs is necessary, reflecting the 'natural monopoly' inherent in railway infrastructure. But an open and contestable railway carrier market for cargo makes it unnecessary to have such special restrictions and exceptions on cargo tariffs charged to cargo consigners. Customers who are not content with UZ Cargo company's services or tariffs can run their own trains, seek alternative supply from third-party operators, or negotiate with UZ Cargo entity for an alternative price/product mix to meet its needs. Cargo transport is a fast-moving and fast-changing market. A UZ Cargo carrier should have no less tariff and service flexibility than its competitors.

It is therefore recommended that the draft Law be changed to exclude (or if that is not politically possible, be subject to a limited transitional period) the special tariff obligations or 'common carrier' obligations to be applied to an operator with a dominant market position. If GoU is reluctant to adopt this proposal because of concerns about UZ Cargo company's high market share at the time of market opening, it would be better either to time limit these provisions (say, to three years after market

opening) or restrict tariff regulation to markets where it can be demonstrated that there are prohibitive or onerous barriers to entry of an own-account or competing railway carrier or other mode of transport.

Tariff regulation before market opening

In the period after enactment of the new Railway Law and before market opening, the existing tariff regulations (other than for services of social importance) should be progressively relaxed to give UZ time to adopt more market-based pricing structures prior to competition. This is likely to lead to a contractually negotiated tariff schedules with major cargo customers, a wider range of tariffs based on market factors for standard cargo tariffs, and a more service-differentiated fare schedule for long-distance passenger services. The impending threat of competition by third-party train operations on the network will be a disincentive to price-gouging. Price regulation in this interim period before market opening could be by exception, where cases of abuse of market power can be substantiated.

4.2.2 Fast-track the formation of the UZ Cargo Company

There is a strong case for establishing UZ Cargo Company as soon as practicable. This would: (a) make the management more clearly responsible and accountable for their use of resources and business performance than under a divisional structure, and (b) bolster the 'independence' of the 'Infrastructure Manager' from transport operations in accordance with the Association Agreement. The most successful rail cargo operators globally are constituted as companies, a form of commercial organization that has stood the test of time and circumstance. UZ has strong and positive plans for cargo and logistics business. Only when UZ Cargo is established as a company, with its own management focused on serving and retaining and winning cargo business, its own traction and rolling stock¹³, skilled personnel, commercial freedom, and ability to reinvest its profits in service-enhancing assets, will it be able to compete successfully.

This proposal is consistent with UZ's planned corporate core plus 'lines-of-business' organization strategy but accelerates attainment of its logical end-state in the crucial cargo sector.

The challenges of forming this company are considerable, but much of the detailed work required for would equally be required for divisional separation: for example, allocation of responsibilities, design of new organization charts, appointment of key managers, allocation of assets (including locos and rollingstock) and staff. In addition, a Cargo Company would need its own financial accounts including opening balance sheet containing an appropriate share of historic debt. It would also require cross-charging with other parts of UZ, especially the charging of infrastructure access charges by UZ as Infrastructure Manager. But even as part of a divisional structure, a proper sector accounting process would need to have an internal pricing system that would raise the same challenges.

It may be argued by some that a Cargo Company cannot be implemented until UZ has a new accounting system. However, it is the new company that would focus and drive the implementation of a new accounting approach. Achieving the best structure with which to respond to the new rail

¹³ The Bank team fully agrees with UZ's plan not to establish a separate traction business segment but instead to allocate the necessary traction and rollingstock assets to the two main transport business segments of cargo transport & logistics and passenger transport who will 'own', operate and manage these vital assets.

cargo market early is crucial. The ‘tail’ of financial accounting should not wag the ‘dog’ of effective business structure.

4.3 Sustainable funding framework

As with an effective UZ organization structure, implementing a sustainable funding framework for railways is important to establish in advance of market opening. There are two parts to this challenge, and they are sequential.

- first, it is necessary to set UZ’s own **infrastructure access tariffs** to ensure a stable allocation of the costs of railway infrastructure to the various UZ businesses that use it. This allocation will (a) determine the income of the Infrastructure business and its financial stability, and (b) influence the accounting profit or loss of various UZ transport businesses segments; and
- second, given the estimated financial performance (including infrastructure costs) of defined social service segments, estimates can be made of level of **PSO compensation** that would be required under the new Railway law by central and local governments.

Ukrainian parties involved in these matters can recognize that methodologies and estimation techniques for matters such as infrastructure access tariffs and PSO payments have evolved in EU countries over many years. The important thing is to get the broad policy principles accepted by the institutions and ministries involved, and the corresponding implementation processes established. Precision in the values cannot be expected immediately but will improve over time. Creating the right incentives in the funding framework and creating transparency in funding flows, are the most important early objectives.

4.3.1 Establish the initial infrastructure access tariffs for UZ

Separation of UZ verticals into the main business segments (or companies requires infrastructure costs to be allocated to the three main carrier entities: cargo and logistics; long-distance passengers; and suburban passengers. Within suburban passengers it requires further breakdown into the specific suburban systems as a basis for negotiation with local authorities. MoI is responsible for designing the infrastructure access charges framework that will effectively determine such allocation. So prior to market opening it needs to impose an infrastructure charging framework that UZ Infrastructure can apply to its own entities, but which can be logically extended to third-party carriers in due course.

There are various ways of setting infrastructure access charges, with wide divergences as between different member states of the EU. Some countries have adopted relatively low charges ‘to encourage greater use of rail infrastructure capacity’. In some cases, this justification masks the economic reality that modest rail traffic volumes are inherently insufficient to recover infrastructure costs. Other countries, usually those with higher traffic densities, have adopted much higher infrastructure access charges.

Ukraine’s national budgetary constraints, relatively high traffic volumes, and the existence of capacity constraints on many main lines suggest that Ukraine’s targets for infrastructure cost recovery should be set at the higher end of European experience characterized by countries such as Poland, Latvia, Lithuania and Estonia.

Moreover, more than half of UZ's track capacity is consumed by passenger trains¹⁴ and some of the technical standards of many of these lines (such as maximum speed capability) is effectively provided for passenger trains rather than cargo trains (which have lower market need for speed). Long-distance passenger services should therefore be charged a significant share of common and joint costs on main lines. Similarly, on most of the suburban networks the suburban traffic is the prime user and should be allocated a correspondingly high proportion of the infrastructure costs. This approach will naturally lead to larger accounting losses, particularly for suburban services, but this reflects both the reality of passenger service infrastructure demands and the need to make compensation request both realistic and transparent. Because of the wide variety in traffic density on different routes there is a case for considering a significant level of differentiation in charges. A surcharge for train paths on congested routes would be justified and may provide incentives for some cargo carriers to use other routes. Conversely zero mark-ups on marginal costs would be sensible on those lines that have low density but are kept open and funded by government direction.

4.3.2 Accelerate the implementation of UZ PSO contracts

Compensation requirements for social services and uneconomic lines can only be estimated after infrastructure cost allocation and infrastructure access charges have been determined. It is important to put the PSO contracts in place as soon as possible after the enactment of the new Railway Law because UZ needs to experience a period of stability in its funding framework before market opening. That framework would need to include funding of any UZ suburban services for which funding responsibility has not yet been taken over by local authorities. While MoI drives the policy, it is UZ that must provide a substantiated claim for compensation.

Compensation mechanisms for PSOs need to be in place as soon as possible after the enactment of the new Railway Law. The potential claims for compensation include:

For the UZ Long-distance passenger company:

- compensation for (non-commercially based) concession fares offered to specific community groups
- compensation for losses incurred for '*socially important*' long-distance rail passenger services
- compensation to meet any historical debt charges associated with long-distance passenger services;
- direct payment of (or compensation of future debt charges for) any new capital investments associated with socially important loss-making segments of long-distance passenger service.

For UZ suburban passenger company (ies):

- compensation for total losses incurred in running a suburban rail system;
- compensation for any historical debt charges associated with the suburban system;
- direct payment of (or compensation of future debt charges for) any new capital investments associated with the suburban system.

¹⁴ The proportions of train-kms on the network (excluding works trains) are long-distance passenger services (28 percent of train-kms), prigorodne (incl. suburban) passenger services (25 percent) and freight trains (47 percent).

For the UZ Infrastructure Manager:

- compensation for the net losses (access charge income less O&M costs) of maintaining and operating non-economic branch lines. Annex A shows that on around 45 percent of the railway network (8,000 km) could not earn enough in TAC revenue to fund the costs of its own infrastructure operation and maintenance. In practice, if GoU wishes to retain low density branch lines it would be most straightforward and more transparent to fund them directly through an MAIC as a network PSO. However, before doing so it is recommended that the GoU undertake a detailed analysis of each of the lines that constitute the approximate 8,000 km of potentially uneconomic lines to determine if they have wider social and economic value that justifies retention and subsidy. Such a review would need to consider the following factors for each line:
 - i. Could the line have any persuasive long-term strategic importance (e.g. as a bypass route for cargo on congested main lines)?
 - ii. Does the main cargo or passenger flow on the line originate at the end, or only part way along the line, which might imply retaining a shorter section of line?
 - iii. How well utilized are any passenger train services on the line and could service to these passengers be provided more economically at an equal or higher level of service by contracting with a road transport operator to provide good quality road bus services?
 - iv. If the line is dominated by one industrial user (e.g. a grain shipper or a paper mill), would that industry be willing to take over the operation of the line, shunting its wagons to/from the main line for collection by regular freight train services?
 - v. Is there any other private company or group willing to take a long-term concession for operating it as a 'short-line' (the usual economic model applied to branch lines in the USA)?
 - vi. Is there an Oblast government or other local government interested in keeping the line open either by financial support or taking over responsibility for the line?

Given international experience it is likely that, even after rigorous review, many lines in the non-commercial network will not be found to be justified strategically or socially for continued public funding, while significant net cost savings could be made through their closure.

- compensation through the MAIC for any remaining cost of rail infrastructure not recovered through the government approved infrastructure access charging framework. The Bank team considers adequate compensation essential for UZ's funding stability and for competitive neutrality in the rail cargo market. It therefore one of the key pre-requisites for market opening. Although UZ does not have modern sector accounting software it does have sufficiently extensive and reliable cost and operating data that, with the application of management accounting techniques, would allow an indicative initial compensation claim to be submitted to MoI and MoF to jump-start what will inevitably be a long process of negotiation and validation of the claim.

In the event that Ukraine is not able to fund the full level of compensation before market opening, an interim solution would be to replace the implicit cross-subsidy with an explicit subsidy funded by a special surcharge on all rail cargo traffic, whether carried by UZ or a third-party carrier. The income from the surcharge would be used to continue the support of passenger services. The surcharge could then be phased out over a period of, say 3-5 years, as the national and local authority compensation payments for passenger services are progressively increased. This approach would make clear the

scale of the passenger PSO funding requirement and retain competitive neutrality in the rail cargo market during the transitional phase. It would be a better way of supporting PSO passenger losses than simply loading all infrastructure costs to cargo trains and giving passenger trains a free or cheap ride, which would continue to hide the subsidy, understate the real costs of passenger PSOs, and distort the infrastructure access charging system.

4.4 Strong governance institutions

The third area to try and accelerate readiness for market opening is in the area of institution-building. The draft new Railway Law provides little guidance as to how these institutions should be formed and how they should undertake their work. Preliminary institutional design work will put Ukraine in a stronger position to create effective institutions in a timely manner, once the new Railway Law is enacted.

4.4.1 Develop an institutional blueprint for the SAR

The State Agency for railways will be the key entity for the technical and economic regulation of the railway sector in an open market. It is suggested that MoI, which will exercise the powers of SAR until it is formed, should consider initiating a management consulting assignment to establish an operating mandate and blueprint for SAR to guide its early establishment. This would include:

- **Regulatory objectives:** MoI is responsible for establishing detailed regulatory policies under the Law and should mandate these objectives. SAR's regulatory objectives will presumably be to regulate the railway industry to ensure that railways provide safe, environmentally compliant, commercially sustainable, market-responsive services, and that regulations are competitively neutral as between different participants in the industry.
- **Accountability framework:** The mandate should identify SAR's required reporting and accountability framework vis a vis MoI as the supervising ministry, suggested operational and financial performance measures, public transparency framework, and a system of dealing with complaints about its conduct.
- **Information and data requirements:** The mandate should specify the minimum requirement for SAR to collect, collate and monitor physical, technical and economic information about the status and performance of the railway sector in Ukraine. This should cohere with standardization requirements of the rail acquis.
- **Regulatory functions:** based on the provisions of the draft new Railway Law the mandate should specify the functions (and sub-functions) that SAR must perform and define its authority in dealing with different levels of government and other ministries/Agencies.
- **Organization structure:** The blueprint should recommend an organization and management structure designed to make SAR an effective and cost-efficient regulator, incorporating the GoU's administrative requirements for state agencies. The structure should propose the main central and line divisions and the organizational sub-divisions. In proposing an organization and management structure for SAR, MoI could consider the various models employed by EU member states to carry out a similar mandate to that proposed in the new Railway Law
- **Regulatory administration and processes:** The blueprint could contain model licensing, regulatory and compliance documents and processes, management systems, manuals and procedures for the SAR to discharge each of the main statutory functions. Again, sample documentation could be sourced from several EU countries. MoI has already made good progress about future licensing of railway undertakings but there are many other areas to

cover. Naturally, when a new SAR is established its management should be able to propose its own approaches to each function but having model documentation in place will enable it to be an effective organization sooner.

- **Consultative processes:** It will be desirable for SAR to be outward looking, ready to consult with and be responsive to the views of the many public and private sector stakeholders and levels of government. The blueprint could identify an approach to creating an enduring mechanism for stakeholder consultation and input, while maintaining the independence of its deliberations and regulatory determinations.
- **Human Resources Plan:** The plan should analyze and classify the competencies and numbers of staff necessary for the SAR to perform the defined regulatory functions and recommend a staffing plan - including description of key responsibilities and minimum qualifications - by function, qualifications and grade. The HR Plan might usefully distinguish between an initial minimum staffing plan to get the agency started with critical regulatory functions, and a longer-term HR development plan to fully meet its mandate.
- **Budget requirements:** The mandate should make preliminary organizational cost projections for SAR, identify its state budget requirements and requirements for budget formation, allocation, authorization, controls and audit. This would need input from the MoF to ensure realism in resourcing projections.

If work on the mandate were initiated sufficiently early, it could be possible to ensure completion of the mandate within the same timeframe as enactment of the new Railway Law. Having such a blueprint ready would help jump-start the work of the new organization, accelerating regulatory readiness for market opening.

4.4.2 Create a shadow social service contracting unit

The CoM is ultimately responsible ensuring the provision of socially important rail passenger transport and definition of the parameters of their provision (quality standards, methods of calculating the tariffs and compensations to the carrier, and approval of standard agreement). However, MoI will have administrative responsibility for exercising this responsibility. As argued in Section 4.3, the successful early implementation of this function is essential for UZ's funding stability and for competitive neutrality in the rail cargo market. However, it is equally vital from the point of view of GoU policies for providing an adequate level of public transport and delivering personal mobility throughout Ukraine.

There are arguments in support of establishing the passenger services unit as a 'shadow' unit in MoI, in advance of the enactment of the draft new Law. At the moment, a (very small) group of people in MoI are handling all aspects of meeting the railway provisions of the Association Agreement. At this stage UZ has not submitted its claim for PSO payments, but as soon as it does, MoI needs to be in a position to assess and negotiate such claim. This will not require a very large unit, though it will be desirable for it in due course to have access to skills in public passenger transport, railway services design, and financial analysis.

To get started, the function could be vested in an experienced senior official to act as a focal point for resolving PSO issues and as a counterpart for negotiations with UZ. By establishing it as a separate unit from those working on infrastructure access charges it will help avoid conflicts of interest between the social passenger services unit (which may wish to minimize contract prices paid for social services) and the infrastructure access group which must seek the most reasonable allocation of infrastructure costs and tariffs to different sectors, even if this increases the requirement for PSO compensation.

4.4.3 Develop a Toolkit for local government management and funding of suburban rail contracts.

Compensation for operating suburban services is likely to be the single biggest element of PSO payments. It is therefore one of the most important funding streams to ensure sector financial stability. Under the new Railway Law this funding responsibility will devolve to local executive bodies or local authorities. However, it is probable that many local bodies do not have the experience or local institutional structures to readily assume this responsibility. It is clearly important to do as much as possible, as early as possible, to help them prepare. Therefore, MoI has a strong interest in supporting the local bodies in building their capacity to take on their suburban railway role, in addition to MoI's progressing its own work on compensation for long-distance passenger service PSOs.

It is suggested that MoI consider commissioning the preparation of a Suburban Railways Contracting Toolkit. Such toolkit could contain a number of modules: a guide to new Railway Law requirements; list of infrastructure and services contained in each suburban system; practical guide to suburban rail services specification; alternative forms of contract that could be used (e.g. gross or net revenue contracts); model service contract documentation; suggested monitoring service monitoring methods and performance indicators; model development agreements for locally financed rail infrastructure; and others.

Supportive institutional measures could include MoI/UZ convening a contact group of senior transport officials in local authorities to facilitate consultations and planning for the new rail market conditions, provide technical training and support, and promulgation of best practices between local authorities.

5. Indicative timeline for implementation

The target year for market opening contained in the EU-Ukraine Association Agreement is 2022 which looks increasingly tight, particularly as there is as yet no firm expectation as to when the new Railway law will be enacted and gazette. If it were assumed that the new law could be gazette by about mid-2020, this would require implementation by mid-2021 under the timetable contained in the Law itself (Chapter XI). Either way, that is a tall order, and emphasizes the importance of getting preparatory work started early, even before the Law is enacted.

Figure 5.1 indicates broadly (in six-month time blocks) how the recommendations of the Bank contained in this Policy Note could be phased over the two and half years remaining until 2022. The aim would be to try to make major preparatory progress with setting UZ's track access charges, measuring PSOs and designing the State Agency for Rail in the remainder of 2019, with a view to being in a position to implement them in a full year 2021 prior to market opening in 2022 and to have UZ restructured into freight (and passenger) companies by then, separated from infrastructure.

Resource availability is clearly a major challenge. MoI has limited administrative resources for some of these tasks and would need to find ways of supplementing their existing implementation team, already stretched by the many tasks they are undertaking. UZ has large numbers of people, but possibly not enough with the kinds of skills required. In both cases external support and human resources would be helpful and possible essential.

The Bank team's view is that the two-and-half years timetable is attainable if there is sufficient commitment to it, and if there are sufficient skilled people deployed to implement and manage change of this magnitude. Ultimately, if it is not possible to put in place the three preconditions of a restructured UZ, proper treatment of PSO's, and an effective State Regulatory Agency by 2021, it may be in the interests of the railway sector and of Ukraine to consider delaying full market opening for a short period rather than to implement it prematurely.

Figure 5.1: Possible fast-track timeline to implement critical measures before market opening

Main Tasks	Fast-track timeline			
	2019	2020	2021	2022
1a. Amend draft Law to give UZ a level playing field		Delete or time-limit dominant carrier clauses		
1b. Create UZ Cargo & Logistics Company			Determine coy. assets, employees, organigram, opening accounts and provisional business plan and budget	1st year of company
2a. implement internal UZ Track Access Charges		Determine provisional TAC for use by UZ	1 st year of UZ internal access charges	Determine final TAC for all operators
2b. Assess and implement service PSOs and non-commercial network contract (MAIC)		Assess required PSO payments	Negotiate PSO policy and payments with MoF (joint UZ/MoI activity)	1st year of PSOs
3a. Prepare mandate and blueprint for State Agency for Railways (SAR)		SAR scoping, organisational and regulatory process study		SAR set up
				1 st full year of SAR operation
3b. Create "shadow" PSO contracting Unit within MoI			Shadow unit to negotiate with UZ and MoF on PSOs	Permanent PSO contract specification and performance monitoring unit
3c. 'Toolkit' and training for local authorities			Create contact group between MoI and local authorities and commission Toolkit and training for LA's to take on legal and technical responsibilities for suburban services (Joint MoI/local authority activity)	

Market Opening

 MoI lead activity

 UZ lead activity

Annex A: Low-density rail lines requiring policy review

An understanding of the economics of Ukraine's railway network is essential to developing a policy position about the level and structure of PSO payments under the new Railway Law. The Bank team has undertaken preliminary analysis which indicate the nature and importance of the issue.

Under the EU rail acquis, and in accordance with the new Railway Law, an 'independent' UZ Infrastructure Management entity (probably a company) will 'sell' access to its network in return for track access charges (TAC). The actual 'market' to be opened in the first instance is therefore the market for train paths on the railway network.

What is the nature of the railway network for which the market will be opened? In broad terms, Ukraine's working rail network is nearly 20,000 km long, of which 10,000 km is electrified (with two different voltages) There is a wide range in the cargo utilisation of this network.

To provide a visual representation of utilisation, the Bank team plotted the flows on stylised network diagrams. Figure A1 shows the distribution of freight flows by route measured by net tonnage of cargo. This shows that about 30 percent of the network carries 10 million tonnes of cargo per year or more: the most heavily-used sections carry up to 70 million net tonnes of cargo each year, an extremely high traffic level by European and world standards. The busiest parts of the network will almost certainly attract multiple new cargo rail companies to buy train paths from the UZ Infrastructure Management entity. Conversely, about 20 percent of the network carries fewer than 250,000 net tonnes annually, equivalent to perhaps 2-3 trains/week: these 'low-density' branch lines are a financial burden to many railways and in some countries have been gradually closed. Most are unlikely to be of much interest to new operators.

Figure A2 shows utilization of the network by long-distance passenger services, this time measures by carriage-km. It includes PlatzKart and Kupe services. Mainline passenger train services (including intercity trains, not shown on Figure A2) use about 60 percent of the network. International experience is that the rail passenger market is substantially less contestable than rail cargo markets. When the network is opened there may be some demand from new operators for train paths to operate passenger services on the main lines but possibly only 1-2 operators on these main routes.

The Bank team then made estimates of which parts of the network might be financially viable when a market for train paths is created. That is, which parts of the network are capable of earning sufficient in revenue from TAC to pay for the costs of maintaining and operating railway infrastructure and which would not. For analytical purposes the analysis assumed a uniform TAC level across the whole system (i.e. the same charge per gross tonne-kilometer for anywhere on the system) and with charges set at full cost recovery levels for the system as a whole (which is at the highest end of EU experience). Figure A3 shows that on this basis, around 55 percent of the railway network could earn enough in TAC revenue to fund itself. The remainder, about 8,000 km of lines, could not. If the low-density lines are retained it will require that their costs (a) be supported by TAC revenue from the main-lines, or (b) funded by multi-annual infrastructure contract (MAIC) payments from the GoU, or (c) funded by GoU through direct subsidies to passenger train services using them that are in turn paid to the Infrastructure Management entity to recover the full infrastructure costs of the lines they use.

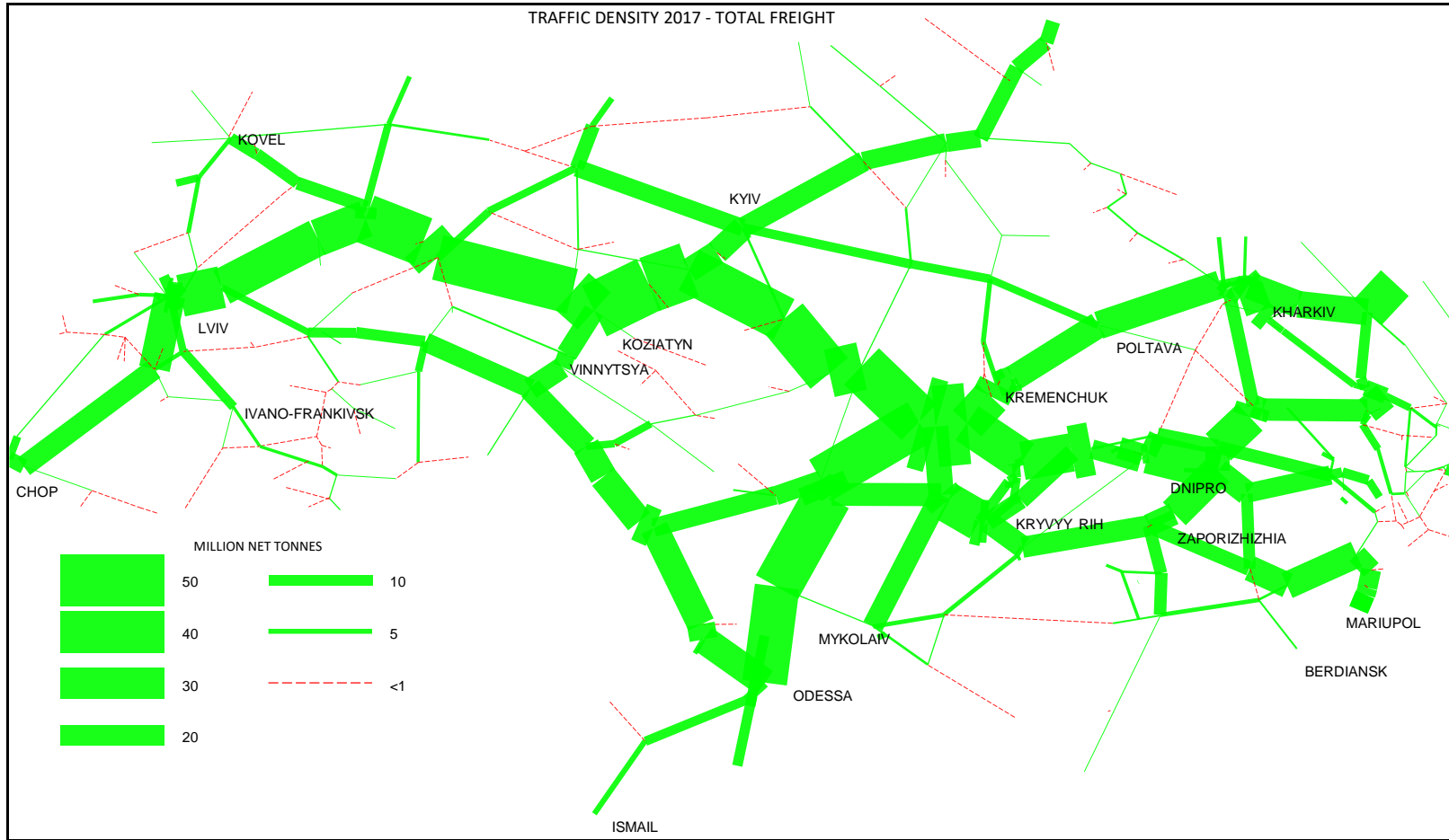
In practice, if GoU wishes to retain low density branch lines it would be most straightforward and more transparent to fund them directly as a network PSO through an MAIC. However, before doing so it would make sense to undertake a detailed analysis of each of the lines that constitute the approximate 8,000 km of potentially uneconomic lines to determine if they have wider social and economic value

that justifies retention and subsidy. Such a review would need to consider the following factors for each line:

- (a) Could the line have any persuasive long-term strategic importance (e.g. as a by-pass route for cargo on congested main lines)?
- (b) Does the main cargo or passenger flow on the line originate at the end, or only part way along the line, which might imply retaining a shorter section of line?
- (c) How well utilized are any passenger train services on the line and could service to these passengers be provided more economically at an equal or higher level of service by contracting with a road transport operator to provide good quality road bus services?
- (d) If the line is dominated by one industrial user (e.g. a grain shipper or a paper mill), would that industry be willing to take over the operation of the line, shunting its wagons to/from the main line for collection by regular freight train services?
- (e) Is there any other private company or group willing to take a long-term concession for operating it as a 'short-line' (the usual economic model applied to branch lines in the USA)?
- (f) Is there an Oblast government or other local government interested in keeping the line open either by financial support or taking over responsibility for the line?

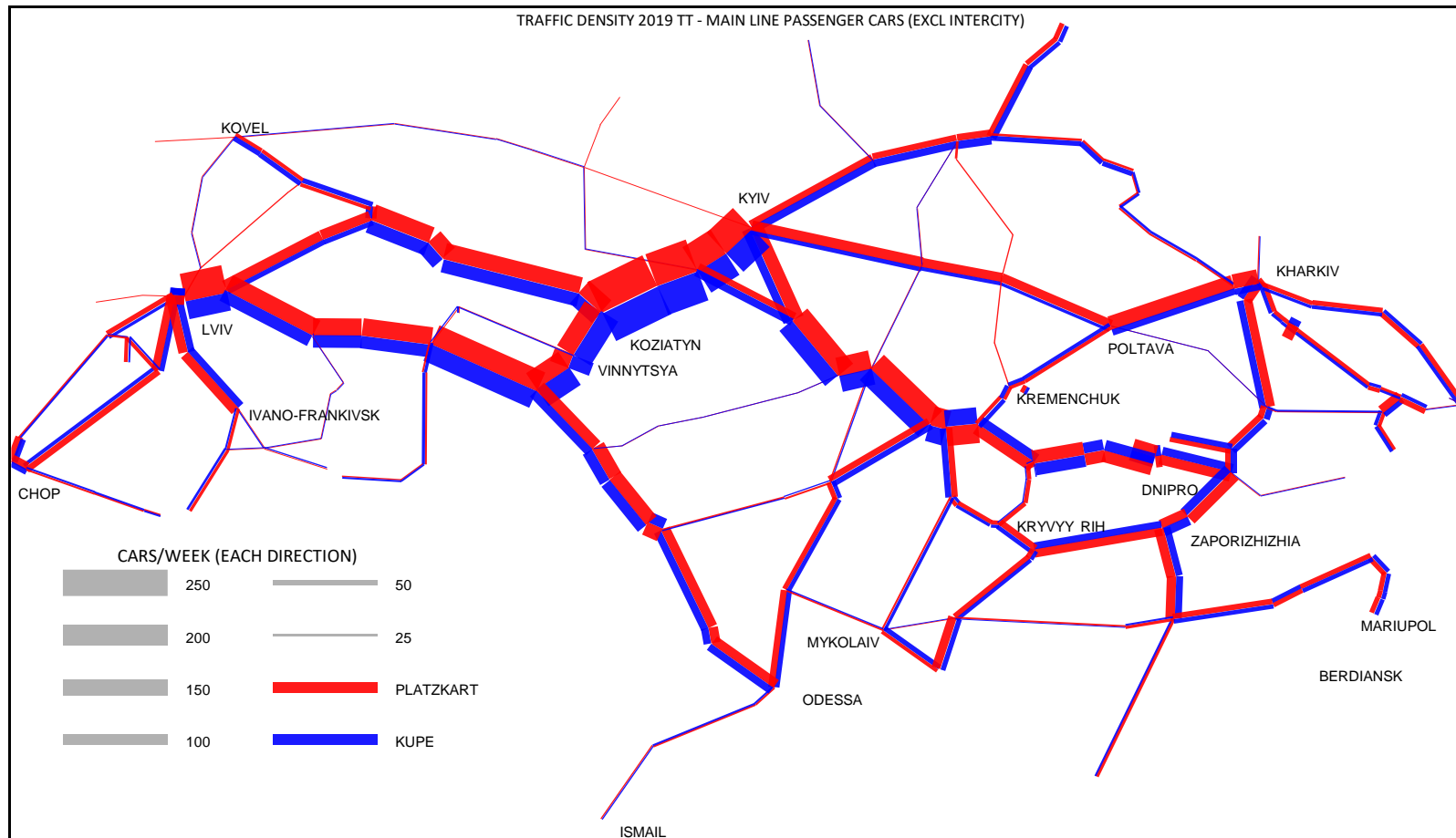
Importantly, it is not necessary to wait for the passing of the new Law for Mol/UZ to commence a joint review of low-density lines as an input to determine which should be retained, a necessary input to quantifying the necessary MAIC payments.

Figure A1: Utilisation of Ukraine Railway Network: cargo tonnes



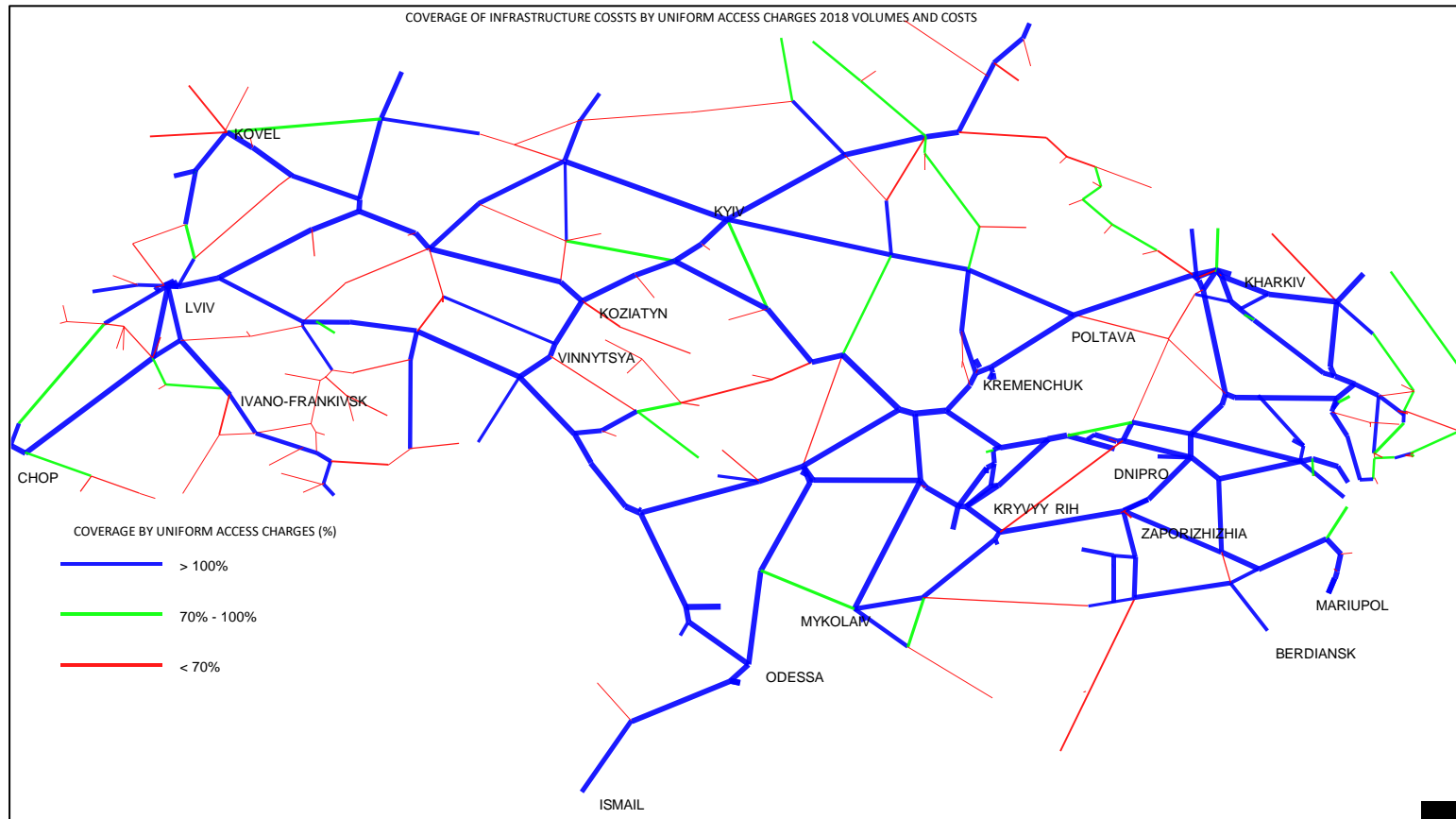
Source: UZ data and World Bank analysis

Figure A2: Utilisation of Ukraine Railway Network: passenger trains



Source: UZ data and World Bank analysis

Figure A3: Potential coverage of UZ Infrastructure Management entity's line costs by TAC revenue



Source: UZ data and World Bank analysis