Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 05-Feb-2020 | Report No: PIDC28544

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BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Ukraine	P172998		Modernization of Gas Transmission System Project (P172998)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EUROPE AND CENTRAL ASIA	Sep 07, 2020	Dec 01, 2020	Energy & Extractives
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance	JSC Mahistralni Gazoprovody Ukrainy (MGU), Gas Transmission System Operator of Ukraine LLC	

Proposed Development Objective(s)

The Project Development Objective is to help improve the efficiency of the natural gas Transmission System Operator (TSO) and to strengthen its technical and institutional capacity.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	260.63
Total Financing	260.63
of which IBRD/IDA	250.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	250.00

Non-World Bank Group Financing

Counterpart Funding	10.63
Sub-borrower(s)	10.63

Environmental and Social Risk Classification	Concept Review Decision
Moderate	

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Since 2014, Ukraine has undertaken considerable reforms to reinforce macroeconomic stability and bolster the foundations of growth.** After a significant contraction in 2014-2015, economic growth has picked up (2.4 percent in 2016-2017, 3.5 percent in 2018-2019). However, higher sustained economic growth is needed to deliver a durable improvement in living standards. While moderate poverty declined to 16.8 percent in 2018 from a peak of 27 percent during the crisis in 2015, it remains above the pre-crisis level (14.1 percent in 2013). The Ukrainian economy continues to be driven by domestic consumption and agriculture. The export structure remains concentrated in basic commodities rather than higher value-added products integrated with global value chains. Investment and productivity have yet to rise to levels needed to support strong and sustained economic growth (fixed investment remained at 17 percent of GDP in 2018, while FDI remained at 2 percent).

2. **Key structural reforms in the social and energy sectors have helped reduce current expenditures and public debt.** During the crisis of 2014-2015, fiscal adjustment was accomplished via: (i) the energy tariff reform to close the quasi-fiscal deficit; and (ii) a nominal freeze on wages, pensions, social assistance despite high inflation. As a result, the overall fiscal deficit was reduced from 10 percent of GDP in 2014 to 2.3 percent in 2016 (reform of energy pricing, primarily for natural gas, being the most important contributor to the reduction of public expenditures between 2014 and 2016). From 2016 onwards, significant further reforms were implemented in the social sectors (pensions, housing utility subsidies, and health) to promote fiscal sustainability. As a result, spending on social benefits declined from 16.3 percent of GDP in 2016 to 14.8 percent in 2019. On the revenue side, performance has improved modestly with the economic recovery. Tax revenues increased from 33 percent of GDP in 2016 to 34.4 percent in 2019. Overall, the fiscal deficit was maintained at about 2 percent of GDP in the last three years, with a primary surplus of 1.2 percent GDP in 2018. Public and publicly guaranteed debt declined from 81 percent in 2016 to an estimated 51 percent in 2019.

3. **The political transition in 2019 has provided the new Ukrainian authorities an unprecedented mandate and opportunity to address the obstacles to economic growth and advance major economic reforms.** President Zelensky was elected in April 2019 with a large majority of the vote. Subsequently, the President's Servant of the People party won a majority of seats in the July 2019 parliamentary election. The new Government which took office in August 2019 presented its 5-year program to Parliament in October, setting ambitious aspirational goals for the next five years, in particular with regard to GDP growth acceleration, attraction of foreign direct investment (FDI), development of infrastructure, job creation, poverty reduction and improvement in public services. The program also outlines key reform priorities including opening the agricultural land market, de-monopolization by unbundling the two largest state-owned monopolies, Naftogaz and Ukrainian Railways, and making further progress in strengthening nascent anticorruption institutions.

4. **In the short term, growth is expected to remain robust at around 3.6 percent on average by 2021, but with significant economic, fiscal, and social fragility.** Political uncertainty and vested interests undermine the reform agenda

and the investment process. The large share of the State in the economy, coupled with weak institutions and governance challenges, including in the non-banking financial sector, pose additional risks. Ukraine has made progress in recent years in strengthening its macroeconomic framework but faces significant financing needs in 2020-2021. Public and publicly guaranteed debt has declined from 81 percent of GDP in 2016 to an estimated 51 percent of GDP in 2019. The fiscal deficit has been maintained at under 2.5 percent of GDP for four years in a row (2016-2019), while public current expenditures have declined from 46 percent of GDP in 2013 to an estimated 37 percent in 2019. At the same time, Ukraine faces sizable debt repayments in 2020-2021, with about 8 percent of GDP (US$11 billion) per year needed to repay public debt and finance the fiscal deficit. The authorities plan to finance about 40 percent of this from external sources (horizon of 5 years or more), with the rest raised domestically (with maturity up to 2 years). In order to raise the necessary external financing at affordable terms and exit the cycle of rolling over public debt during the next three years, it will be important to deliver on the pending reform agenda, maintain prudent macroeconomic management, and secure financing from international development partners.

5. **Further ambitious structural reforms will be critical to achieving sustained higher growth.** With powerful vested interests standing in the way of reforms, building a coalition among reformers in government, Ukrainian civil society, and international development partners around key reforms has been critical to their progress. Financing and technical support from the World Bank, as envisioned by the FY17-21 CPF, in close coordination with the IMF, EU, US Treasury, USAID, the UK, and other bilateral partners has been central to this effort. Lack of competition and weak institutional governance have been identified as major impediments to investment, productivity, and growth by the Ukraine Growth Study completed in 2019.[1] An anticompetitive environment in key sectors distorts markets and serves as a barrier to entry and investment. It can also facilitate State capture by oligarchs and high levels of corruption, further undermining investor confidence. In this context, the promotion of institutional reforms, transparency and competition in infrastructure sectors with a large footprint of State-owned enterprises (energy and transport) can help promote investment and efficiency in important parts of the economy.

Sectoral and Institutional Context

6. **Historically, the energy sector in Ukraine was characterized by inefficiency, widespread corruption fostered by non-market pricing, and by management structures non conducive to accountability and transparency.** As a result, Ukraine had a very energy-intensive economy due to inefficient energy use per unit of GDP, about three times higher than in the EU. Also, the reliability and quality of service were declining due to deferred maintenance, minimal investment and decaying infrastructure. Limited progress on energy sector reform took place until 2013, until such reforms became critical in response to the post-Maidan economic and financial crisis of 2014-2015 when the economy contracted by a cumulative 16 percentage points. In 2014, the gas sector – which for two decades had been dominated by a state-owned vertically integrated National Joint Stock Company (NAK) Naftogaz – was responsible for a massive quasi-fiscal deficit amounting to close to 6 percent of GDP. In addition, for geopolitical considerations, the reduction of dependency on gas imports from Russia became a Government of Ukraine (GoU) priority. Since 2015, the country has implemented gas sector reform on multiple fronts. These reforms were designed and implemented within the framework of the Energy Community Treaty (ECT) to which Ukraine has adhered in December 2010. These reforms also benefited from significant coordinated support from Development Partners (see Appendix 1).

7. For the gas sector, key reform milestones were the partial opening of gas supply competition and the progressive alignment of gas prices for households to market levels, following the adoption of the 2015 Gas Market Law which legally aligned Ukraine gas market with the 3rd EU Energy Package. The most necessary and sensitive aspect of gas sector reform

[1] *Ukraine Growth: Faster, Lasting, Kinder*, World Bank, 2019.

was the adjustment of gas tariffs and prices and their alignment with market prices, in order to (i) achieve overall cost recovery in the gas sector and (ii) prevent the inefficiencies and leakages associated with gas pricing below market prices. The adjustment of gas prices was implemented rapidly for the commercial/industrial segment in 2016, and with a phased approach for households (including District Heating). In addition, the Housing and Utility Subsidy (HUS) program was scaled-up to ensure that gas and heat expenditures remain affordable for poor households. This program, though costly, was critical for the political and social acceptability of energy tariff adjustments. In addition, reforms on multiple fronts (administration, control, targeting) after the initial scale-up have allowed to considerably reduce the budgetary cost of this program as a share of GDP.

8. As a result of these reforms, the previously dominant position of Naftogaz in the gas sector, due to its vertically integrated structure and dominant position in gas production, transit and import of gas, storage, and wholesale supply has been eroded. This has been in particular the case for the supply to commercial and industrial users of gas and to public buildings, which in total represents close to ~40% of the domestic market. This segment is now characterized by significant supply competition. Naftogaz has remained *de facto* monopoly supplier for direct supply to District Heating Companies (DHCs) and indirect supply to households, through regional supply companies. Regional supply companies have been established as a result of the legal unbundling of Regional Gas Distribution Companies (RGDCs) which separated supply activities from gas distribution network operators (DSO). Naftogaz supplies these two market segments under a Public Service Obligation (PSO) regime, characterized by (i) price regulation, and (ii) obligation to supply. The PSO regime was established as a transitional arrangement aiming to (i) protect consumers against excessive prices before sufficient effective competition can develop, and (ii) avoid unacceptable supply disruption for end-users even in case of non-payment by DHCs and regional distributors.

9. Thanks to the progressive alignment of PSO prices with market gas prices, Naftogaz has experienced a remarkable financial recovery, transforming itself from massive recipient of government financial support to the largest contributor to the government budget (through royalties on gas production, normal business and corporate taxes and dividends to the Treasury).

10. The adjustment of gas tariffs has contributed to a significant reduction in gas consumption. In 2013, total Ukrainian gas consumption was 50 bcm, of which 20 bcm for the industrial/commercial sectors, and 27 bcm for the residential and public building sectors. By 2016, the country's total consumption had been reduced by more than one third to 33 bcm, with the most significant decline being for the industrial sector (consumption halved to 10 bcm). The reduction in residential and DH consumption to 20 bcm in 2016 has been less dramatic but still significant and has continued after 2016. In 2018, total Ukrainian gas consumption was 32 bcm, of which 9 bcm for the industrial/commercial segment, and 18 bcm for the residential, heating and public building sectors. In addition, the consumption of the gas sector itself (transmission and distribution), is above 4 bcm and composed primarily of technical losses and energy use. The high level of gas consumption is partly related to the transit activity but is also the result of inefficient and decaying infrastructure, as well as significant overcapacity.

11. A critical step for the gas sector reform and implementation of the 2015 Gas Market Law was the unbundling of the Gas Transmission System Operator (GTSO). Ownership unbundling of gas transmission from Naftogaz and certification of the new GTSO was seen as necessary to improve transparency and competition in the gas market and focus Naftogaz on increasing domestic gas production as its core business, while creating conditions for the new gas transit agreement with Gazprom (Russia) in line with the European gas market principles. For this purpose, on July 01, 2016, the Cabinet of Ministers of Ukraine (CMU) adopted resolution No.496 on unbundling which established the Joint Stock Company Main Gas Pipelines of Ukraine (MGU) to receive 100% of the assets and management rights for natural gas transit. However, the transfer of ownership of the Gas Transmission System Operator (GTSO) from Naftogaz to MGU was not implemented right away due to the legal conflicts between Naftogaz and Gazprom which were engaged in an arbitration process (so called Stockholm Arbitration) regarding the existing contracts for gas supply and transit signed in 2009. Based on the Stockholm Arbitration (SA), Gazprom was awarded about $2 billion under the gas supply rulings (December 2017), and Naftogaz was awarded about $4.6 billion under the transit rulings (February 2018). Also, given that the SA did not accept

any change in the gas transit contract, Naftogaz, through its subsidiary JSC Ukrtransgaz (UTG), was deemed the only entity legally authorized to operate the GTS until the transit contract expiration on December 31, 2019.

12. In this context, the new Government which came to the office in August 2019, adopted the Resolution No.840 (on September 18, 2019) and an Action Plan for the implementation of ownership unbundling of the GTSO from Naftogaz by January 1, 2020. The plan included (a) adopting the Law on Unbundling comprising amendments to several laws required to enable the implementation of the ownership unbundling; (b) cancelling the 1999 agreement between the State Property Fund and Naftogaz regarding the transfer of Economic Management Rights (EMR) over GTS to Naftogaz, and transferring EMR to MGU; (c) signing of Sale and Purchase Agreement (SPA) between Naftogaz and MGU; (d) certification of newly established Gas TSO by the Energy Regulator (NEURC); (e) licensing of Gas TSO and the adoption of new tariff system for gas transport by NEURC. All these activities were implemented on time and in parallel with negotiations with Gazprom regarding the new gas transit contract. As result, the new gas transit agreement was signed on December 31, 2019, and the new independent Gas TSO became fully functional on January 1, 2020.

13. The new transit agreement stipulates the minimum gas transit of 65 bcm in 2020 and 40 bcm per year from 2021 to 2024. Also, Gazprom agreed to pay about $2.9 billion to Naftogaz to settle all remaining claims under the SA. Under the new transit arrangement, Naftogaz will act as the agent of Gazprom and take the regulatory risk in Ukraine. As result, Gazprom is expected to pay about $7.2 billion over the next five years (including VAT) to Naftogaz, and Naftogaz is responsible to pay about $6.8 billion to Gas TSO for transit services based on the above transit volumes and the entry-exit tariffs established by NEURC. The expected transit revenue of Gas TSO will be around $2 billion (including VAT) in 2020 and $1.2 billion per year from 2021 to 2024.

14. The new gas transit agreement and the domestic gas transport needs (totaling about 100 bcm in 2020 and declining to around 70 bcm p.a. in the next four years) will be significantly below the capacity of Gas TSO which was designed to transport twice larger volume of gas. Also, the overall efficiency of GTS, particularly the efficiency of gas compressor stations, is significantly below the European standards because of the ageing, obsolete technology, and deferred maintenance. As a result, the GTSO faces a major challenge to modernize its infrastructure and develop a new business model appropriate for its new circumstances and in line with the EU practices. The proposed project aims to support Gas TSO in meeting these challenges and becoming a viable and sustainable TSO able to fulfil its strategic mission to ensure the development of the competitive, transparent and non-discriminatory gas market and to secure reliable gas flows for Ukrainian and European consumers in the most efficient way.

15. Another challenge for the GTSO is related to the fact that the progress towards full cost-recovery in the gas sector across the supply chain is not complete. Regulated tariffs for DH and gas distribution remain below cost recovery levels. For this reason, DSOs and DHCs have annually taken about 1.5-1.8 bcm of gas belonging to the GTSO without paying for it ("unauthorized offtakes"). The historical debt arrears for unauthorized gas offtake have remained with UTG as part of the unbundling, but the responsibility for procuring gas to compensate the volumes of unauthorized offtakes will fall on the GTSO from January 1st, 2020 onwards, which will represent a factor of financial risk for the GTSO, as long as the process of adjusting tariff regulation for DSO and DHCs is not complete.

Relationship to CPF

16. **The proposed project would contribute to the objectives of the Ukraine Country Partnership Framework (CPF) for FY17-21.** The objectives of the CPF (Report # 114516-UA discussed at the Board on June 20, 2017) are to promote sustained and inclusive economic recovery through a program focusing on four areas: (i) making markets work; (ii) fiscal and financial sustainability; (iii) efficient, effective, and inclusive service delivery; and (iv) better governance, anticorruption, and citizen's engagement.

17. Under the first focus area ("making market works"), the CPF identified as a priority objective the improvement of the quality of energy infrastructure services in particular by using Ukraine's accession to the Energy Community as a leverage to implement energy sector reform. This includes specifically unbundling the gas sector and supporting Ukraine's ambition to remain an energy transit country. In addition, supporting the operationalization of GTSO unbundling and its effective independence from the historically integrated dominant producer, supplier and storage operator, will help lock in the progress achieved in gas sector reform in terms of transparency, opening to competition and cost-reflectivity and a major achievement regarding governance.

18. In addition, the CPF recognizes Climate Change as an important dimensions of ASA activities and potential new operations, in line with the GoU ambitions. In this respect, the Ministry of Energy and Environmental Protection of Ukraine (MOEEP) has recently disclosed for public consultation the concept for 2050 Green Energy Transition ("UKRAINE GREEN DEAL 2"). This Transition Concept has been developed in the context of the European Commission strategic goal of making the EU climate neutral by 2050 under the European Green Deal, through accelerated energy transition in all branches of the EU economy and cooperation with non-member countries. Energy transition can create opportunities as well as constraints for Ukraine which has an Association Agreement with the EU and is member of the Energy Community. This concept would revise the 2035 Energy Strategy adopted in 2018.

19. The transition concept logically stresses the objective of decarbonization of productive activities and of the residential sector through increased Energy Efficiency (EE). On the energy production side, the objective is to increase the share of renewable energy (Ukraine to reach a 70% share of renewable energy sources in its electricity generation mix by 2050). This would entail increasingly decentralized power supply, made possible by the implementation of digitalization and other new technologies in the area of consumption management, distributed storage and distributed generation. The place of natural gas in the Ukrainian energy mix would be impacted in multiple manner by energy transition. The reduction of total energy consumption and increased use of renewables would tend to reduce natural gas consumption. On the other hand, under this concept, natural gas would play an essential role as bridge fuel during the energy transition in substitution to coal. The stated objective is to achieve a complete substitution of coal-fired thermal power plants (TPPs) by 2050 due to the development of RE power generation, "*together with highly maneuverable gas-fired generation*".

C. Proposed Development Objective(s)

The Project Development Objective is to help improve the efficiency of the natural gas Transmission System Operator (TSO) and to strengthen its technical and institutional capacity.

Key Results (From PCN)

D. Concept Description

Component 1. Infrastructure modernization (US$200 million)

This component will finance the modernization of the physical infrastructure of GTSO by replacing aging and obsolete gas compressor stations with modern equipment in order to improve reliability and reduce operating costs, in particular energy costs. The GTSO is a significant user of energy (natural gas and electricity). It is estimated that annual gas consumption for technical needs (compression, fuel gas, technical losses) was around 1.2 bcm annually, not including

purchases of gas to cover balancing needs and unauthorized offtakes.
It is expected that the project will finance only a limited number of priority objects (e.g. 3 compression stations). The final selection will be carried out based on a technical-economic analysis and comparison of different options, in alignment with modernization and optimization strategy currently under preparation by the GTSO. This strategy will also inform the upcoming update of the Ten-Year Network Development Plan (TYNDP) to be approved by NEURC. The update of the TYNDP is being prepared with the assistance of experts provided by consortium of West European gas TSOs (Gasunie, Eustream, SNAM, GRTgaz) which have assisted UTG (and now the GTSO). The TYNDP reflects the needs to modernize aging equipment as well as the internal organization and operations of the TSOs, in particular through automatization and improved metering. In addition, the GTSO will need to implement the transition towards accounting for energy instead of gas volumes, which is the international best practice.

The investment strategy also reflects the overall context for gas transmission and transit of stagnant domestic demand and reduction of international transit volumes compared to historical levels, which will likely result in a rationalization of the transmission network and capacity reduction which will result in a significant proportion (up to 80 percent) of existing compression stations to be taken out of operation.

The new strategy envisages an evolution of the TSO’s role in the context of future hybrid energy system which will support deep decarbonization of gas and electricity system in Ukraine envisaged under the “Green Deal” in Ukraine. The strategy calls for the implementation of hydrogen-ready technology in modernized gas compressor stations which will be expected to transport decarbonized gases (ranging from biogas to “green gas” and hydrogen). To support this strategic direction, this component will help Gas TSO modernize gas compressor stations by introducing modern equipment and managing diversity of technological choices needed for the operation of decarbonized gas transport system.

Based on available information, it is not envisioned that the project will finance new pipeline capacity or replacement given that the main transit route for Russian gas under the new agreements with Gazprom (Urengoy-Pomary-Uzhgorod) is already being rehabilitated under a project co-financed by EIB and EBRD.

Component 2. Modernization of IT infrastructure (US$ 40 million).
This component will finance the modernization of the IT systems of the GTSO as part of its Digitalization and automation strategy. The overall objective is to fully operationalize the independence of the unbundled TSO (which is still partially reliant on UTG IT systems) and to meet the requirement of an active and competitive gas market with regard to real time information, transparency and data-sharing, and operating flexibility.
The major investment under this component would be a new centralized SCADA system combined with upgrading equipment with smart sensors so as to enable remote control of GTS infrastructure. The IT requirements for this purpose have already been developed by an external consultant in 2018. In addition, USAID has initiated technical assistance support to the GTSO for the development of technical specifications for SCADA and Electronic Data Management System, as part of a comprehensive data management strategy.
This would be accompanied by modernization of metering equipment, particularly at the interfaces between the TSO and gas distribution networks so as to put in place the needed metering infrastructure for a modern competitive gas market (including real time metering for balancing, and accounting in energy units rather than gas volumes).
In addition, digitalization would also contribute to long term GTSO modernization by improving asset management and predictive maintenance, thereby facilitating optimal investment planning.

Component 3. Capacity building, Project Management and Technical Assistance (US$ 10):
3.1. Project Management**.** This sub-component will finance consultancy support for project implementation and supervision (US$ 3.0 million).

3.2. Capacity Building and Technical Assistance (US$ 7.0 million).

The detailed content of proposed capacity-building activities will be finalized on the basis of exchanges with client counterparts (GTSO/MGU with inputs from experts seconded by consortium of West European TSOs, MoF) and in coordination with other development partners (e.g. USAID) to ensure complementarity of support.

With regard to capacity-building for the GTSO, the bank team will carry out a capacity assessment with a particular focus on the following areas: (i) environmental and social management, (ii) occupational safety, (iii) procurement and fiduciary. In addition, the opportunity of TA support related to the decarbonization strategy in the gas sector (hydrogen transition) will be considered.

Finally, the team will assess the need for institutional capacity-building within MoF, to enhance the ability of the Ministry unit supervising the energy sector to carry out its new missions (overseeing energy TSOs).

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

The project investments may range from full reconstruction of compression stations and GDS in some cases to partial modernization (replacement of compressors, system of automatic controls, protection systems, cooling equipment…) to be carried out within the footprint of existing GTSO facilities (compressor and distribution stations). The major investment will also be SCADA system. These activities will not generate significant adverse environmental impacts or substantial risks on human population, and the predictable impacts are expected to be temporary, reversible, moderate in magnitude and site-specific. No adverse impacts such as involuntary land acquisition, impacts on indigenous peoples, on biodiversity and habitats are expected.

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