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ANALYSIS AND RECOMMENDATIONS FOR TEN- YEAR DEVELOPMENT PLAN FOR GEORGIAN GAS TRANSMISSION NETWORK, 2019-2028

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30 September 2020

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DATA

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ACRONYMS

CAPEX	Capital Expenditure
CBA	Cost-Benefit Analysis
CEF	Connecting Europe Facility
EC	Energy Community
EnCT	Energy Community Treaty
ENTSO-G	European Network of Transmission System Operators for Gas
EU	European Union
GDP	Gross Domestic Product
GGTC	Georgian Gas Transportation Company
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GoG	Government of Georgia
GOGC	Georgian Oil and Gas Corporation
GRIP	Gas Regional Investment Plan
ISO	Independent System Operator
LLC	Limited Liability Company
MoESD	Ministry of Economy and Sustainable Development of Georgia
NRA	National Regulatory Authority
OPEX	Operating Expenditure
PCI	Projects of Common Interest
TSO	Transmission System Operator
UGS	Underground Gas Storage
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

The purpose of this document is to provide in-depth analysis of the Ten Year Network Development Plan (TYNDP), 2019 -2028, developed by Georgian Oil and Gas Corporation (GOGC) and recommendations for alignment with the European Union (EU)-Georgia Association Agreement (AA) regarding Georgia's commitment to elaborate the 10-year infrastructure development plan. The outlined recommendations in this report are based on leading international practices in developing national TYNDP's and European Network of Transmission System Operators for Gas (ENTSO-G) requirements.

The TYNDP aims at developing a supply adequacy outlook and assessment of the resilience of the considered gas system, including identification of the investment gaps by identifying where missing infrastructure prevents achieving the pillars of the internal energy market: sustainability, security of supply, competition, and market integration. Subsequently, the TYNDP assesses at energy system-wide level, how the submitted projects jointly contribute to the improvement of the national gas system, mitigating the infrastructure needs.

The current gas TYNDP, 2019 - 2028 was prepared by GOGC in accordance with the requirements of Directive 2009/73/EC concerning common rules for the internal market in natural gas and Directive 2004/67/EC concerning measures to safeguard security of natural gas supply. It is based on 2016 and 2017 year editions of "10-Year Development Plan for Georgian Gas Transmission Infrastructure".

The goal of this report is to analyze TYNDP for Georgian Gas Transmission Network, 2019 -2028 and derive recommendations for developing a comprehensive TYNDP concept in compliance with the EU recommendations in order to create a favorable environment for infrastructure development through various funding initiatives, deliver secure and affordable gas to all consumers of Georgia, and establish a competitive gas market.

INTRODUCTION AND BACKGROUND

The purpose of USAID Energy Program is to: (1) support Georgia in energy market development per Georgia's obligations under the Energy Community Treaty (EnCT), (2) build the capacity of the Government of Georgia (GoG) and relevant institution(s) to evaluate the fiscal and long-term impacts of regulatory changes, (3) promote energy investments, primarily in Variable Renewable Energy (VRE) development, (4) to support integration of non-hydro renewable energy into the power system, and (5) provide strategic advisory services to the GoG to increase Georgia's energy security. Under the task 1, USAID Energy Program supports the GoG in developing competitive gas market compliant with the EU energy acquis.

Georgia is committed to integrate into European and Euro Atlantic organizations and to transpose best practice of leading European states into all sectors, including the energy sector. The foundation for developing a sustainable, competitive and secure energy lies in the AA which was signed between Georgia and European Union in September 2014. AA refers to major reforms that country has to implement, lists the mandatory EU directives and regulations to comply with and links the deadlines for their transposition, to the requirements set by Energy Community.

The main major objective of the TYNDP is to give maximum transparency for the prospects for development of the gas transmission networks and the natural gas storage facility. TYNDP identifies and analyzes the trends and factors determining the need of investments, as well as their allocation over time. All market participants will thus be informed and this will enable making better long-term investment decisions. The national TYNDPs serve as the basis for development of the Gas Regional Investment Plans (GRIPs), as well as the Community-wide Network Development Plan (TYNDP) developed by the ENTSO-G.

According to the Georgian Law on Energy and Water Supply, that was prepared according to the requirements of EU 3rd Energy Package and Energy Community Legal Framework, transport (transmission) network ten-year development plan should be prepared by the Gas Transmission System Operator (TSO) and should be presented to the Georgian National Energy and Water Supply Regulatory Commission (GNERC) and Ministry of Economy and Sustainable Development of Georgia (MoESD). On the basis of the consent of the government of Georgia, the Ministry not later than the end of the respective year ensures approval of the 10-year development plan of the transmission network. Also, according to the Law on Energy and Water Supply, If independent system operator has been designated and such an independent system operator does not reach an agreement with the transmission system owner regarding particular developments of transmission network assets owned by the transmission system owner, including, network expansion, the decision on such investments shall be made by the Commission based on economic and technical justification provided by an independent system operator and the transmission system owner.

In Georgia, currently operation of the natural gas transmission system is carried out by Georgian Gas Transportation Company LLC (GGTC), a state-owned company that holds natural gas transportation (transmission) license. It should be noted that, the gas mains and related equipment and structures are the property of JSC Georgian Oil and Gas Corporation. Under the lease contract between GGTC and GOGC, the system of gas mains is operated and maintained by GGTC and the construction of new gas pipelines and the major overhaul of the network are carried out by GOGC. According to the current situation, it is the responsibility of GOGC to prepare the transportation system development plan, which contradicts to the Energy Community Legal requirement, obligating the transportation system operator to prepare the plan. According to the new draft Law on Energy and Water Supply, the natural gas transportation network development plan should be prepared by TSO and presented to the GNERC.

TYNDPs are prepared by the gas transmission operators on the territory of the European Union in line with Art. 22 of Directive (EC) 2009/73. The guidelines for TYNDP's development are set out in Annex III 2(5) of Regulation (EU) No 347/2013 of the European Parliament and of the Council. The TYNDP is a bi-annual document under the Third Package which role is to inform stakeholders, decision and policy-makers whether the gas infrastructure is fit to ensure secure, competitive and sustainable gas supply to all citizens. TSO is the responsible party for the development of the TYNDP that sets out the vision of the organization for the gas network development.

The TYNDPs have a strong guiding function for decisions about future grid infrastructure investments and serves as a benchmark for candidate projects for the status of Project of Common Interest (PCI) which are identified by a European Commission-led process. Projects with the PCI label are entitled to

financial support from the EU's Connecting Europe Facility (CEF). Only a project which is part of the TYNDPs can become a PCI. From the perspective of project developers, national authorities and politicians, the inclusion of a project in the TYNDP serves as confirmation that a project has European relevance.

EU PRACTICE FOR DEVELOPING NATIONAL TYNDPS

At national level, according to Directive 72/2009, TSOs have to develop and comply with a TYNDP monitored by the National Regulatory Authority (NRA). The TYNDP is approved by the competent Ministry or the NRA.

At Regional level, according to Regulation 715/2009 EU Transmission system operators have to establish regional cooperation within the ENTSO for Gas and, among others, publish a (non-binding) regional investment plan every two years, and may take investment decisions based on that regional investment plan.

At EU level, according to Regulation 715/2009 the ENTSO-G should draw up, publish and regularly update a (non-binding) Community-wide ten-year network development plan (Community-wide network development plan). Viable gas transmission networks and necessary regional interconnections, relevant from a commercial or security of supply point of view, should be included in that network development plan.

Traditionally, TSOs use hydraulic models, which show flows and pressures in different market/demand scenarios, to identify bottlenecks and plan new capacity. Depending on the approach followed by the TSO, one or more system and market configurations are examined (as different demand/supply/infrastructure scenarios). EU TSOs use a variety of hydraulic models, such as Pipeline Studio (Ireland), Plant Flow (Baltic countries), PSI Ganesi (Germany), to simulate and optimize the flow natural gas. One of the widely used software, especially in complex large-scale pipeline networks, is SIMONE. This software can simulate steady state and dynamic flow scenarios. It comprises two parts:

- Network - describing the system's devices and their interconnections, and
- Scenario - defining the flow situation which is to be simulated for the given network.

Projections by sector are based on market analysis / studies, potentially complemented by consultations with major gas consumers that identify significant changes in gas demand (e.g. construction of new gas-fired plants, gasification of new areas, development of new industries). In some cases, the bottom-up gas demand assessment is calibrated and compared with gas demand scenarios developed under top-down approaches (e.g., policy visions and objectives and econometric models). Combination of bottom-up and top-down modeling enables for cross-checking forecasting results, identify forecasting gaps and differences and equips system planners with deeper insights on sector development.

EXAMPLES OF SELECTED EU MEMBER STATES

A highly transparent TYNDP ensures reliable inputs. ENTSO-G has always considered transparency as a vital element for developing the TYNDP. ENTSO-G further increased its commitment to transparency by releasing additional information at an early stage of the development process. ENTSO-G has taken steps in terms of early and increased transparency, providing the ability to ACER, NRAs as well as other stakeholders to react at an early stage of the process if necessary. At the national level, gas TSOs are responsible to develop TYNDPs and ensure transparency of information necessary for market operations.

CASE OF ROMANIA

Transgaz is the technical operator of the National Gas Transmission System of Romania ensuring the execution of the national strategy regarding the internal and regional gas transmission and dispatching. Transgaz is operating on ISO model and carries out the following activities:

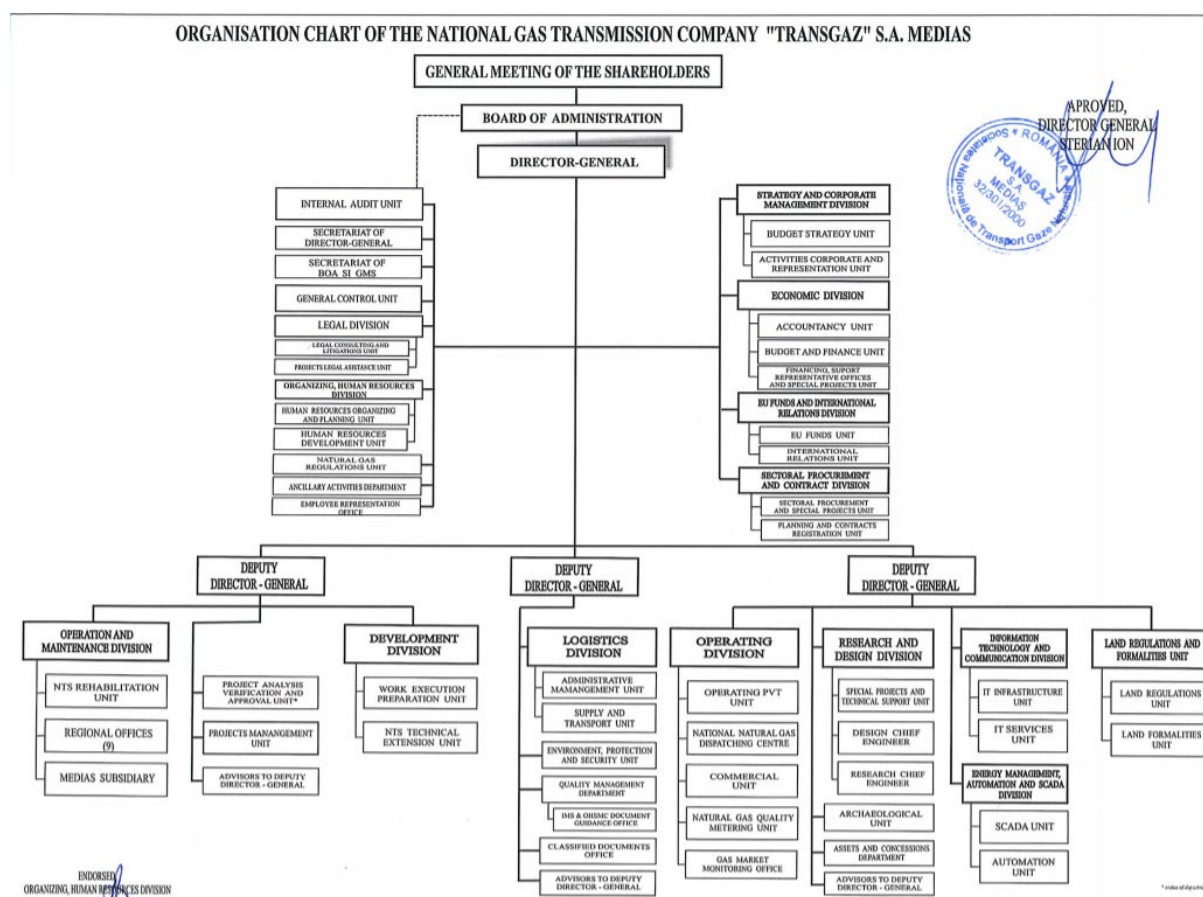
- Domestic gas transmission – activity that is a regulated monopoly, with tariffs set based on the methodology issued by National Regulatory Authority for Energy;
- International gas transmission – non-regulated activity achieved through dedicated pipelines, with tariffs set in line with the commercial contracts concluded between the parties;
- Natural gas dispatching, research and design in the field of natural gas transmission.

Transgaz is certified according to the Third Energy Package, is a member of ENTSO-G and responsible for development and implementation of TYNDP.

Organizational structure: Transgaz is structured by functional units (departments, units, divisions, offices) and production entities (9 regional offices, sectors, laboratories, working units etc.). Transgaz has a great number of engineers and technical staff specialized in research and design, exploitation, maintenance and technical assistance in gas transmission, In addition, Transgaz carries very complex strategic activities such as research and design department in the field of natural gas transmission consisting of 146 specialists with experience of over 25-30years. 88% of them are certified and specialized in research, design, technical assistance, oil and gas, energy efficiency, reduction of technological consumption, feasibility studies of rehabilitation projects and investments in modernization and development of National Transmission System, testing, approval and certification of equipment.

Considering its complex and extensive investment program, TRANSGAZ has developed significant capabilities to ensure competitive financing. The company has a professional department for accessing European funds and international relations. By means of the Ten years National Gas Transmission System Development Plan, TRANSGAZ proposes major investment projects, estimated at over EUR1.9 billion. Figure 1 presents organizational structure of TRANSGAZ. Among other core departments, the organization has separate unit for natural gas regulations.

Figure 1: Organizational Structure of TRANSGAZ



Source: www.transgaz.ro

CASE OF BULGARIA

Bulgartransgas has the basic characteristics of a separate TSO and of an ITO (ownership of the grid) implemented model. The Bulgarian gas transmission operator Bulgartransgas develops its TYNDP in line with Art. 81d, para 1 of the Energy Act (EA) published in SG 54 dated 17.07.2012 valid as of 17.07.2012.

The national TYNDP serves as the basis for development of the Gas Regional Investment Plans (GRIPs), as well as the Community-wide Network Development Plan developed by the ENTSO-G. The Management Board of the independent transmission operator is the competent authority

responsible for decisions, linked to TSO current activity, the management of the network and the activities, required for the draft of the TYNDP.

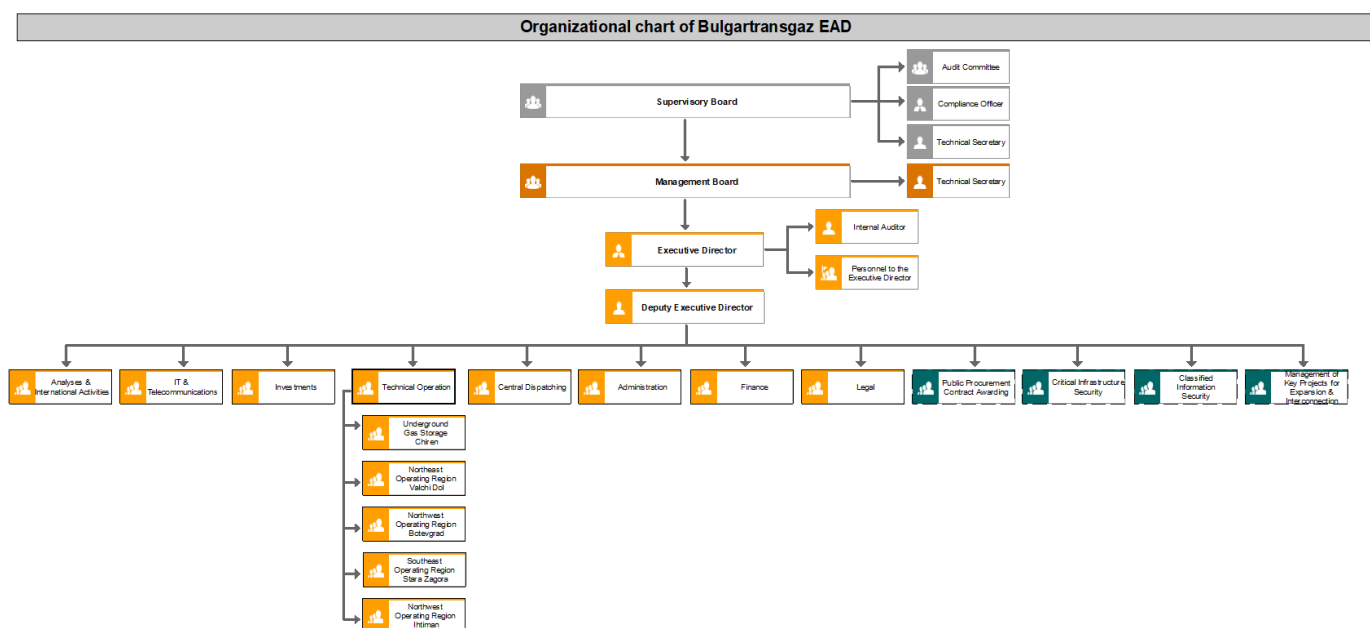
Bulgartransgaz has performed the following models:

- Macroeconomic model;
- Hydraulic model of the system;
- Integrated software platform for reservoir modelling and simulation of underground reservoir operations and the implementation thereof with the relevant hardware; Design and construction of a system separating formation fluids and the blown gas as a result of the wells gas gathering drainage and the remaining technological equipment of UGS;
- Business model aimed at expansion, reconstruction, modernization, and overhaul of the gas infrastructure.

Bulgartransgaz demand growth scenarios have been developed on the basis of a macroeconomic model showing the dependence of gas consumption in the country on the main macroeconomic indicators and a comparative analysis of the gas market in both the EU and Bulgaria, and the expected increased consumption, as a result of the joining of new users and expanding the production capacities of the existing ones. The relationship between the final and primary energy consumption and the GDP growth for past periods have been analyzed as well.

The organizational structure and the main departments of Bulgartransgaz is provided at figure 2. The organization manages five operating region and the Chiren underground gas storage.

Figure 2: Organizational Structure of Bulgartransgaz



Source: www.bulgartransgaz.bg

The TYNDP prepared by Bulgartansgaz fo 2020-2029 contains information on the following core topics: Natural gas market review in Bulgaria and in the region; Natural gas transmission and storage, including transited volumes; Natural gas demand growth scenarios; Supply sources; Security of Supply; 2020-2029 gas infrastructure projects, including information on investments; Estimated capacities for 2020-2024.

POSSIBLE TYNDP STRUCTURE

Regardless of the tools applied to design the network, each TSO has to make a number of assumptions related to its market and infrastructure in order to effectively identify its infrastructure needs, including:

- Scenarios for evolution of gas demand;
- Scenarios for gas market supply;
- Scenarios for gas prices;
- Scenarios for infrastructure development.

Demand Analysis: The Demand analysis recalls historical development, provides an analysis per sector and describes in detail the demand scenarios and how they achieve policy targets, informs on the commodity prices retained, and provides a detailed analysis of the data for the different scenarios. This data is usually collected by TSOs or provided to TSO's by different agencies.

Network design and infrastructure investments are very much driven by demand. In particular, transmission systems are designed to cover short-term (hourly or daily) stress / high-demand situations. Consequently, demand scenarios analyzed by the TSO are based on peak hourly or daily demand, usually also complemented by forecasts for average yearly demand (which is important for assessing the impact of the TYNDP projects).

Most TYNDPs of EU TSOs include gas demand projections disaggregated per sector. ACER, in its Opinion 14/2016, recommends extending the disaggregation of demand to all TYNDPs of EU. Detailing of gas demand per sector facilitates the review of gas demand projections and underlying assessments by the Regulator.

Supply Analysis: The Supply analysis shows the evolution of supplies, provides detailed information on existing and potential supply sources. Supply potentials are built on the data publicly available from governmental sources and other recognized institutions or publications. In addition, TSOs might obtain supply data from surveying existing and potential system users. The supply scenario serves to define the possible range for each supply as part of the analysis and calculation of indicators composing the TYNDP multi-criteria assessment.

Gas prices scenario: Most EU TSOs, when designing the network, do not consider gas price scenarios thoroughly. The reason is that to determine the maximum flows that the system would be able to accommodate, the TSOs take into account extreme system operation situations (e.g. serving very high 1-in-20 years' demand throughout the system), and not an optimized and market-based operation of the system that would be examined through different energy prices. The energy price scenarios would be relevant when sizing new projects that aim to increase market supply and displace other gas supplies or alternative energy source.

To perform the network design, the TSO should take into consideration the evolution of gas infrastructure. In case development of major new infrastructure that would have a strong impact on the rest of the transmission system is foreseen, then the TSO may examine more than one infrastructure scenario.

The baseline scenario or "reference grid" should include all the existing infrastructure, including those having an 'FID' status (defined under Regulation (EC) 256/2014 as the promoter decision to definitively earmark funds for the investment phase of a project). This represents a credible minimum set of infrastructures to be considered for the identification of existing capacities and for the assessment of bottlenecks and future investment projects to accommodate demand forecasts.

One or more additional scenarios for infrastructure development may be used, concerning the implementation of non-FID infrastructure.

Economic Cost-Benefit Analysis (CBA) analysis:

Project categories are essential for network integrity and efficient operation and typically do not have any direct incremental financial revenues for the TSO. In this context, financial analysis may not be relevant, as these projects have only negative cash flows stemming from related capital expenditure (CAPEX) and operating expenditure (OPEX). CBA analysis, on the other hand, is advisable only for larger projects in this category. For smaller projects, the TSO should at least provide non-monetized indicators e.g. reduction in losses, reduction in probability of disruption or disrupted volumes so as to provide adequate project justification to the Regulator.

Projects that aim to enhance security of supply or those aiming to reduce gas supply costs - will have direct incremental financial revenues for the TSO only in cases where the TSO transmits additional volumes of gas through its network. This is typically the case where gas displaces other fuels, and not where equal volumes of gas from (a more expensive) source are displaced by other (less expensive) gas. In the absence of additional gas volumes transported and additional revenues to the TSO, financial analysis will not be relevant. Even in cases where projects are expected to bring incremental revenues for the TSO, high project CAPEX may still render project net cash project flows to be negative and thus the project may be assessed to be financially unattractive. In this case, the project will have a negative impact on (i.e. increase) the average transportation tariff. Economic analysis is important in such cases, to assess whether a project can have significant wider benefits to the economy and society, to take the decision of going ahead or not. The economic analysis / CBA can be complemented with a qualitative assessment of non-monetized indicators that also highlight the benefits of the project (Non-monetized indicators).

ANALYSIS OF CURRENT TYNDP FOR GEORGIAN GAS TRANSMISSION NETWORK

The TYNDP 2019-2028 of Georgia Gas Transmission Networks presents:

- General Provisions and methodologies for deriving the TYNDP: The plan outlines demand-supply analysis, gas demand growth forecast and energy security risks. The preliminary financial assessment of the network development plans for a short-term period (2019-2021) is taken based on the actual data of the gas pipeline projects built (rehabilitated) and including construction contracts on the actual expenditure values.
- Overview of the Georgian natural gas sector: The plan provides description of transit and transmission infrastructure and gas consumption trends and forecast. The subchapter 2.5 of the Gas TYNDP is devoted specifically to energy security. The energy security subchapter presents the main threats to gas supply security, existing challenges associated with daily balancing and seasonal demand. Gas TYNDP provides the priority projects related to enhance the security of gas supply. The priority projects to be implemented in the short- and medium-term periods is the rehabilitation of the critical sections of East-West Gas Pipeline, and in the longer term – construction of UGS and the construction of interconnectors to link different directions and branches of Georgian gas mains. Additionally, Gas TYNDP states that energy security significant improvement is also possible with increase in capacity of connectors with neighboring countries, for example using compressor station on the pipeline incoming from Azerbaijan.
- Infrastructure development;
- Investment costs.

Table 1 presents an analysis of the current TYNDP developed by GOGC and compares its areas of analysis with the EU practice.

Area of analysis		Current TYNDP	TYNDP's EU Practice
I	GENERAL FEATURES		
1	Structure & clarity of the gas TYNDP	<p>1. Defined objectives for gas TYNDP development are given as: a) "endeavors to capture the transport infrastructure rehabilitation/reconstruction projects of the period between 2019 and 2028; b) addresses the identification of the investment projects to be implemented in 2019 with secured financing as well as the projects to be implemented in the next two years; c) presents a 10-year timeline for the implementation of the investment projects and the possible sources for funding such projects." (p.5)</p> <p>2. Outline of the TYNDP development: - data collection - data processing (scenarios) - Methodology and modeling - Drafting of TYNDP</p> <p>3. Purpose: "The purpose of the 10-year Natural Gas Network Development Plan is to ensure guaranteed gas supply to consumers at present and on a medium and long-term basis, and promote the formation of internal and regional markets based on EU energy legislation through the rehabilitation/development and stable operation of the internal transmission, trans-border and transit infrastructure.</p> <p>4. Identified projects: -Identified projects for 2019, for which financing has been provided and those of 2020-2021 transition stage, for the financing of which only a preliminary decision has been made; -Perspective projects for 2022-2023 and subsequent period, the decision on the financing of which will be made having regard to the need</p>	<p>1.The objective and purpose of TYNDP of Georgia outlines an analysis similar to analyses provided by TSO's in the EU. 2.Data collection process, methodology and scenarios lack a comprehensive representation. The TSOs typically examine a limited number of demand scenarios, usually ranging from 1 to 4. Scenarios can be based upon, and differentiated by, several parameters such as demography, macroeconomic trends, energy and environmental policies and obligations/targets, defined at the national or European level. 3.The outlined purpose of the current TYNDP is similar to those provided by TSO's in the EU</p> <p>4. Identified projects and considered financing is planned by GOGC and internal benchmarks.</p> <p>5. The presented results are also considered by TSO's in Europe.</p>

Area of analysis		Current TYNDP	TYNDP's EU Practice
		for their implementation and the availability of the necessary investments. 5. Results: The TYNDP presents investments timeline for the implementation of: - identified projects for 2019; - perspective projects for medium-term infrastructure projects, 2022-2023; - long-term projects, 2024-2028.	
2.	Methodologies and tools used	Consumption trends & forecast is defined by EC-LEDS/USAID findings. In addition, TYNDP presents different forecasts for demand-supply up to 2030. The current TYNDP is also based on hydraulic modeling for the infrastructure developing.	The approach is similar to EU TYNDP's practice that also considers hydraulic models to identify bottlenecks in demand scenarios. Analysis of the comparison between demand and supply on yearly basis is also considered. TYNDP is developed under the frame of the CBA methodology. There are three types of information that could be extracted for a model result: 1. Indicators concerning Security of Supply 2. Indicators with possible monetization: Disrupted Demand 3. Standardized monetization, i.e. Marginal prices.
II TECHNICAL FEATURES			
1.	Planning criteria	1. TYNDP outlines planning of the transmission network 2. TYNDP states: "The ultimate goal of TYNDP is to develop financially affordable natural gas infrastructure development plan that is distributed in a specific timeline, implementation of which would ensure guaranteed gas supply....for infrastructure and supply standards" (p.9) 3. Energy security is a key criteria for the development of TYNDP. The analysis of the Underground Gas Storage is based on the EU Regulation #994/2010 concerning measures to safeguard security of gas supply.	1. Planning criteria should be based on maintaining the standard energy quality parameters on the base of the forecasted demand. According to EU practice, TYNDP's present the planning criteria. 2. Defined planning criteria to support infrastructure development are not explicitly presented. 3. Energy security is a key driver for the development and implementation of TYNDP. The current TYNDP discuss energy security as priority for the country and analyses the history of gas disruptions and how they can be avoided. Calculation of N-1 standard contributes to Art. 5 of Regulation concerning measures to safeguard security of gas supply and repealing Regulation (EU) 994/2010.
2.	Scenarios	1. For the current TYNDP, the Ministry of Energy and EC-LEDS/USAID program provides the forecast for demand. The plan outlines a market demand-supply forecast for the period up to 2030. During the market modeling the country's economic and social development is discussed in the different scenarios. 2. The TYNDP discusses the imbalance between day and night consumption during peak load and minimum consumption in summer period	1. While demand forecasting is in most cases entrusted to the TSO's in Europe, future generation capacities and their construction schedules are retrieved by the authority that grants generation licenses (e.g. NRA or Ministry as the case might be). The scenarios are often used as a starting point by ENTSO-G and by national TSO's. Scenarios therefore have a strong influence in describing and planning for the future energy/gas sector. The principle of the scenarios developed for TYNDP is to set a range of possible futures for gas demand, in order to ensure that the gas infrastructure is accurately tested against those possible futures. They are not designed to be forecasts, nor visions of the future that aim for a specific target. Infrastructure scenarios should be considered for network analysis performance. 2. While the demand forecast developed and agreed with the Ministry of Energy is an overall good practice there is little information on the methodology and the key methodology and the key drivers considered for the development of the scenarios. For instance, GDP growth and demographic development demonstrate good correlation with the long

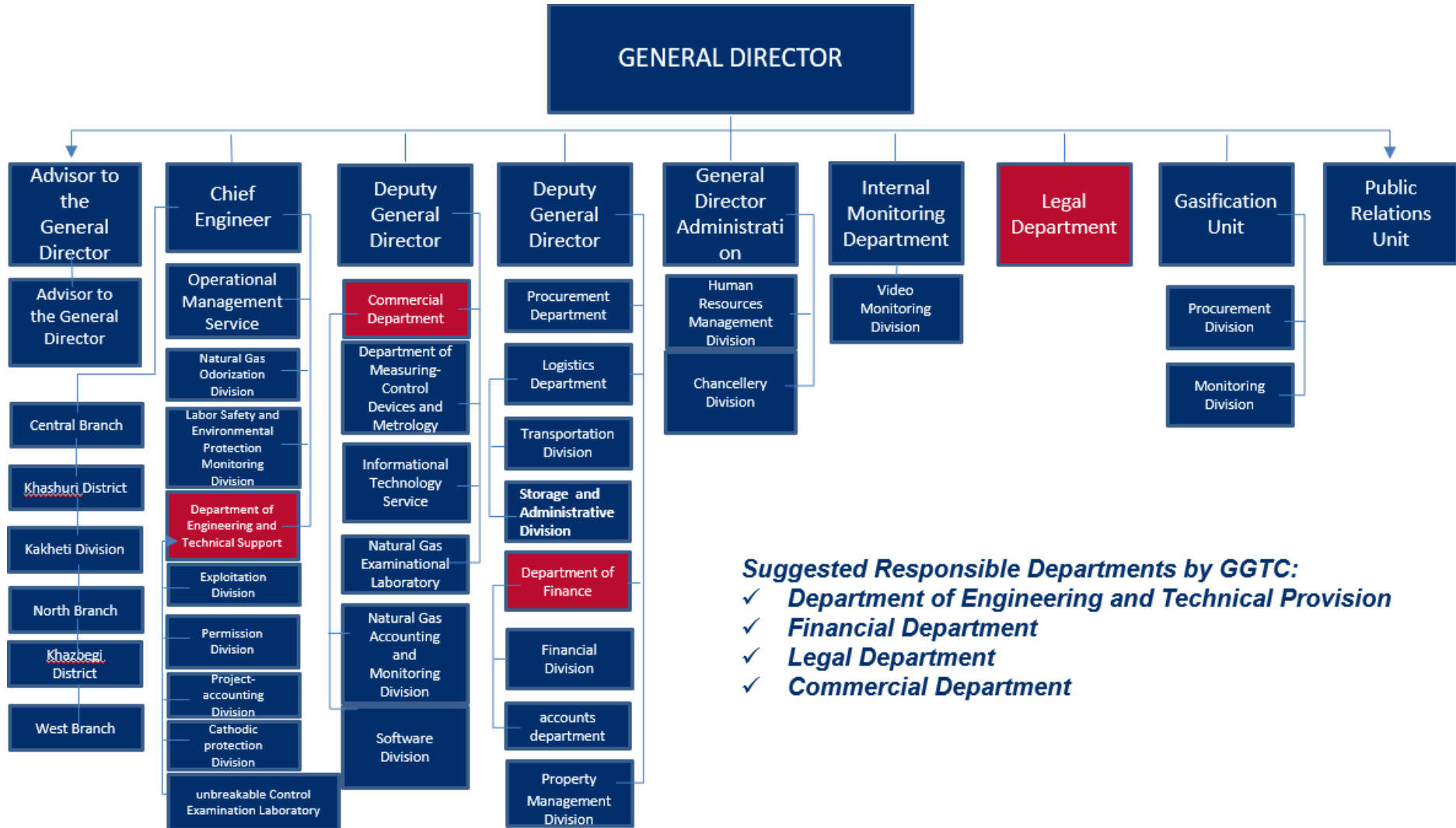
	Area of analysis	Current TYNDP	TYNDP's EU Practice
3	CBA approach	<p>The TYNDP states: "The preliminary financial assessment of the network development plans for a short-term period (2019-2021) is taken based on the actual data of the gas pipeline projects built (rehabilitated) and including construction contracts on the actual expenditure values. For assessment of the medium and long-term period planned projects indicative investment costs and actual benchmark values recommended by the European Energy Regulatory Association are used."</p> <p>The TYNDP does not consider CBA analysis. TYNDP outlines project's investment cost.</p>	<p>term development of the gas consumption. On the other hand, though gas consumption is adequately used for the development of the supply/demand balance scenarios the evolution of the annual/seasonal/daily peak demand forecasting is hardly explained.</p> <p>EU practice considers a similar financial assessment approach as described in the current TYNDP.</p> <p>CBA approach is a common EU practice for TYNDP development.</p> <p>The CBA leads to the following analysis of benefits:</p> <ul style="list-style-type: none"> • Project Cost, specifying estimated total project value; • Social and Environmental Impacts, reflecting level of certainty with respect to the planned rehabilitation or construction time of the project; • Security of Gas Supply, evaluating project impact on reliability status of the connected part of the network; • Socio-Economic Welfare, specifying annual income generated by operation of the project; <p>Investment costs of planned projects: TYNDP discusses the importance related to the planned projects. However, the investment costs do not provide quantitative information regarding the benefits of the proposed investments.</p> <p>b) In only several projects the TYNDP states about feasibility studies and most of the projects are provided for preliminary estimation only. This comes in contrast to the fact investment models are provided as economic decision making tool for this category of projects.</p>
III	LEGAL BASIS FOR THE DEVELOPMENT AND APPROVAL OF THE TYNDP	<ol style="list-style-type: none"> 1. The TYNDP is delivered for 2019-2028; 2. The TYNDP is elaborated according Article 32 of "Law of Georgia On Electricity And Natural Gas" and the amendment in paragraph 3 of Article 2 of "Law Of Georgia On Electricity And Natural Gas" 3. According to the Georgian Law about "Electricity and Natural Gas" GSE shall, in agreement with gas transmission licensees, annually, develop the draft TYNDP. <p>-According to the new draft Law on Energy and Water Supply, the natural gas transportation network development plan should be prepared by TSO and presented to the GNERC not later 1 October 2020.</p>	<ol style="list-style-type: none"> 1. TYNDP is usually developed for next 10 years' time frame. 2. Harmonization of the whole process took place with Directive 73/2009 and Regulation 715/2009. TYNDP has to be developed by the TSO and to comply with the national Regulatory body. <p>At EU level, according to Regulation 715/2009 the ENTSO-G should draw up, publish and regularly update a (non-binding) Community-wide ten-year network development plan (Community-wide network development plan). Viable gas transmission network and necessary regional interconnections, relevant from a commercial or security of supply point of view, should be included in that network development plan. While GOGC's TYNDP includes regional projects as well, it is hard to develop regional TYNDP as in EU, since neighboring countries of Georgia are not following EU legal practices.</p>
IV	TEMPLATES/PRESENTATION OF RESULTS	<p>The identified projects and investment needs in the TYNDP are described according to the following template:</p> <p>Project Name / Pipeline section name;</p> <ul style="list-style-type: none"> • Project importance: (e.g. 'Internal' or 'regional') • Forecasted Investment, specifies the estimated project implementation costs; • Current Status describes ongoing progress status of specific project. • Purpose of Project specifies project objectives. • Brief Project Description provides short narrative about project purpose, conditions. 	<p>The TYNDP does not provide quantitative assessment of the projects. The investment cost are provided by preliminary estimations</p>
V	DRAFTING AND APPROVAL PROCESS	<p>Currently TYNDP is developed by GOGC. According to the new law on Energy and Water Supply, Gas TSO shall develop TYNDP</p>	<p>TSOs prepare the national TYNDPs based on own methodologies and assumptions, of course respecting national official forecasts</p>

Area of analysis		Current TYNDP	TYNDP's EU Practice
			concerning the country's economic growth, etc. The NRAs or competent Ministries approve the national TYNDPs. NRAs monitor the implementation of the TYNDP.
VI	INVOLVMENT OF STAKEHOLDERS	There is no evidence that a formal public consultation has taken place.	The Ministry of Economy and Sustainable Development, GNERC, GOGC, other agencies and interested (parties) should take part in discussions of TYNDP. According to Directive 73/2009, ' <i>The regulatory authority shall consult all actual or potential system users on the ten-year network development plan in an open and transparent manner. Persons or undertakings claiming to be potential system users may be required to substantiate such claims. The regulatory authority shall publish the result of the consultation process, in particular possible needs for investments.</i> '

CONCLUSIONS AND RECOMMENDATIONS

- ✓ From the above it may be stated that the TYNDP provides a comprehensive description of new projects as well as a qualitative assessment of their benefits, an estimate of their cost and a plan for their implementation. However, these elements alone do not provide to stakeholders enough information in order to assess the necessity and economic justification of the proposed projects.
- ✓ The TYNDP has to be complemented with full information concerning the techno-economic viability of the proposed projects. This requirement becomes more critical for the case of the proposed interconnections, as the results of the techno-economic analysis depend heavily on assumptions (evolution of demand, development of new generation, level of whole-sale prices, need for imports, etc.)
- ✓ Major stakeholders took part in the discussions regarding the Georgian TYNDP 2019-2028; however, it is not clear if / how all interested parties participated in the process. There is no direct reference to a formal public consultation on the GE TYNDP. Not available any minutes / results of discussions held during the GE TYNDP development process. Next versions of TYNDP needs clarity on stakeholder consultation process and issues addressed.
- ✓ According to the law of Georgian on Energy and Water Supply, Georgian Gas TSO will be responsible to developing and implementing the TYNDP for Georgia Gas Transmission Network. Since GGTC currently holds transportation license and is envisaged to be the TSO as defined under the law, the organization shall take necessary measures to increase its capacity to develop TYNDP.
- ✓ GGTC will have to restructure its current organizational platform to accommodate the needed capacity for gathering the necessary data, developing tools and methodologies to develop the TYNDP. As presented under the appendix 1, from the current structural units GGTC suggested 4 responsible departments to start developing TYNDP: Department of Engineering and Technical Provision, Financial Department, Legal Department and Commercial Department.

APPENDIX 1. ORGANIZATIONAL STRUCTURE OF GGTC



- Suggested Responsible Departments by GGTC:**
- ✓ **Department of Engineering and Technical Provision**
 - ✓ **Financial Department**
 - ✓ **Legal Department**
 - ✓ **Commercial Department**

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