CASE STUDY: GEORGIA’S GROWING GAS MARKET

INVESTMENTS IN STORAGE/TRANSMISSION

Ljubljana, 2018
Georgia’s Accession to EnC

In 2017, Georgia became a full-fledged member of EnC.

Implementation by 2021

Accession to EnC

Gas acquis

Exemptions under Accession Protocol

- SCP and NSGP are subject to exemption from implementation of Directive 2009/73/EC and Regulation 715/2009.
- Further exemptions apply to agreements between Georgia and Azerbaijan.
Characteristics of Gas Market in Georgia

- Isolated from other gas markets across EnC
- 94% of gas supplied from Azerbaijan, based on long-term contracts
- Highly concentrated, with subsidiaries of SOCAR dominating both retail and wholesale markets
- All customers are eligible
- GNERC sets ceiling prices for household customers, whereas prices for non-household customers are not regulated

<table>
<thead>
<tr>
<th>Natural Gas Supply</th>
<th>Volume (mcm)</th>
<th>Share in total volume (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan</td>
<td>1 199.75</td>
<td>51.2%</td>
</tr>
<tr>
<td>SCP Option+Supplemental</td>
<td>821.08</td>
<td>35.1%</td>
</tr>
<tr>
<td>Import</td>
<td>179.96</td>
<td>7.7%</td>
</tr>
<tr>
<td>Russia</td>
<td>134.59</td>
<td>5.7%</td>
</tr>
<tr>
<td>Domestic Supply</td>
<td>7.82</td>
<td>0.3%</td>
</tr>
<tr>
<td>Total</td>
<td>2 343.20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Main Challenges faced by Georgian Gas Sector

• High dependency on a single supplier, raising concerns for energy security

• Well-defined seasonal consumption pattern, with a consumption peak in winter and limited consumption in summer

• Need for modern transport infrastructure with increased capacities
## Functions of GOGC and GGTC

### GOGC
- Owner of gas transportation infrastructure and is responsible for capital expenditures
- Designated buyer of gas from SCP pipelines received from transit pipelines, acting as a wholesaler
- Facilitates new transit projects
- Prepares TYNDP on a voluntary basis
- 100% of GOGC shares are owned by a state-owned company, JSC Partnership Fund

### GGTC
- GGTC is the only transportation Licensee in Georgia
- Leases infrastructure from GOGC
- Responsible for operation and maintenance of high pressure gas pipelines with total length of almost 2000 km
- 100% of shares owned directly by the state
Gas Transportation System

- Entry into Transportation System: 4,339 mcm
  - Transit to Armenia: 1,996 mcm
  - Transported in Georgia: 2,308 mcm
    - Consumed by Direct Customers: 1,006 mcm
      - Thermal Power Plants: 521 mcm
      - Other customers: 485 mcm
    - Transfer to Distribution Network: 1,301 mcm
      - Distributed to Residential Customers: 884 mcm
      - Distributed to Non-Residential Customers: 358 mcm
    - Losses: 60 mcm
  - Losses: 35 mcm
Underground Gas Storage

- **Capacity of UGS:**
  - 190 mcm - cushion gas volume
  - 210 mcm - working gas capacity

- **UGS has several purposes:**
  - guarantee security of supply, particularly for households and TPPs
  - Serve as a tool to deal with seasonal demand
  - Serve as a balancing tool for TSO
  - Facilitate market development

*Location of Samgori South Dome
Source: Geostock Entrepose*
Financing the UGS Project

- UGS is planned to be operated seasonally with:
  - A gas injection period of 4 months
    - average injection rate: 1.75 mcm/d; maximum injection capacity: 2.5 mcm/d
  - A gas withdrawal period of 3.5 months
    - average withdrawal rate: 2 mcm/d; maximum withdrawal capacity: 5 mcm/d, up to 6 mcm/d during 1 day

- The total investment required for implementation of the project is around EUR 220-250 million

- The project will be financed by KfW, European Investment Bank and the GOGC
Access Regime

• The UGS is envisaged to be subject to regulated access
• Suppliers might be obliged to store sufficient gas to serve the “social” segment of customers and benefit from priority access to the UGS
• The remaining capacity may be auctioned
• In case of regulated access, the cost of storage will be reflected in end-user tariffs and price caps, as an additional component
South Caucasus Pipeline Expansion

- 691 km-long SCP pipeline transports gas from the Shah Deniz gas field in Azerbaijan to Turkey
- As a result of Shah Deniz Stage 2 development and completion of SCPX project, gas volumes exported through SCP will triple and reach up to 20 bcm/year by 2022
- Within the scope of SCPX, two new compressor stations (122 MW capacity in total) and a parallel pipeline (63.8 km) will be constructed in Georgia
AGRI LNG Project

- AGRI projects foresees a new route for delivering gas from Azerbaijan to Europe
- Within the scope of the project, an LNG terminal at Georgian Black Sea coast (Poti) will be commissioned and 2, 5 or 8 bcm liquefied gas annually will be transported to Romania (Constanta) by tankers
- A feasibility study has been conducted to find the commercial feasibility of the project and the technical feasibility after the Shah-Deniz Stage 2 development (2022-2025)
- Implementation of the project would require rehabilitation of the existing infrastructure or construction of a new pipeline in Georgia
- Project cost is estimated between €1.2 - 4.5 billion
- Challenges to implementation of the project include non-existence of a guaranteed source of gas supply, difficulties in the process of attracting investments and increased competition in the LNG sector
White Stream

- An alternative project to AGRI, envisaging delivery of Caspian gas from Turkmenistan to Romania via Georgia by 1,100 km offshore gas pipeline
- The first phase of the project will allow transportation of 8 bcm/y gas, with opportunities to increase the capacity to 16 bcm/y in the second phase and 32 bcm/y in the third phase
- The project is dependent on development of Trans-Caspian Pipeline
- In 2017 GOGC purchased 10% of shares of White Stream and W-Stream Caspian Pipeline
- ENTSOG recently included the TCP and the White Stream projects in Annex A of the TYNDP 2018, which is the first step for gaining the status PCI
Compressor Station at the Georgian-Azerbaijani Border (1/2)

• Most of commercial gas from Azerbaijan is imported through Kazakh-Saguramo gas pipeline

• Due to insufficient pressure (22-24 bar) at the Georgia-Azerbaijan border, the maximum load capacity is not enough (6.6 mcm/day) to meet the peak demand in Georgia during winter

• The problem is exacerbated in light of the 2016 deal between GoG and SOCAR on supply of additional 500 mcm gas, requiring pressure up to 37.1 Bar
Compressor Station at the Georgian-Azerbaijani Border (2/2)

• Possible solutions:

✓ Restoration of Kazakhi compressor station and increasing gas pressure to 30 bar
✓ Arrangement of a compressor station nearby the border to increase the pressure to 29.2 or 37.1 bar
✓ Complete rehabilitation of 800/700 mm Karadaghi-Tbilisi section to ensure proper functioning of newly commissioned 700 mm pipeline
Georgia-Armenia Interconnector

• The part of interconnector located nearby Georgia-Azerbaijan, Georgia-Armenia and Armenia-Azerbaijan borders and transiting Russian gas to Armenia, was mined at the early stage of Nagorno-Karabakh conflict

• As a result, pipeline maintenance work are rendered impossible and to address the issue, replacement of the 5.1 km segment of the interconnector is required
THANK YOU

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