Gas Transportation Tariffs

Key Elements, Situation in Bosnia and Herzegovina and Gap Analysis

July 3, 2018 - Dr. Konstantin Petrov, USAID EIA
From cost to network tariffs

Actual cost of gas transportation company

Cost related to gas transportation network activities

Regulatory assessment of cost efficiency

Regulatory allowed revenues

Regulatory provisions for cost allocation

Regulatory provisions on network tariff structure and capacity products

Network tariffs

Sum of network tariffs needs to match allowed revenues

Regulatory provisions on unbundling

Cost related to other (competitive) activities

Regulatory provisions on network tariff structure and capacity products
Entry-Exit Network Access Model

- **Mandatory** access model for gas transmission system operators in the European Union and the Energy Community
- Each entry and exit tariff is priced separately and may therefore differ at each point
- Tariffs can be set to reflect capacity scarcity and allow for signals to encourage efficient utilization of the network.
- Tariffs should adequately differentiate between the different types of capacity products
- Tariffs should allow for the recovery of the allowed revenue

An entry-exit area may cover the whole country or different regions within a country and be operated by one or multiple TSOs (e.g. Germany), in the latter case a compensation mechanism between TSOs needs to be in place.
## Pricing Principles

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost recovery</td>
<td>Enable network operator to recover efficient network cost (including an adequate rate of return) from its network users via network tariffs.</td>
</tr>
<tr>
<td>Non-discrimination</td>
<td>Level playing field should be created for all users. Users are treated equally irrespective of size, ownership or other factors (e.g. transit vs. domestic).</td>
</tr>
<tr>
<td>Economic efficiency</td>
<td>Tariff design should provide efficient short and long-term signals for the use of the transportation network infrastructure.</td>
</tr>
<tr>
<td>Transparency and simplicity</td>
<td>Network users should be able to easily determine charges they face. Administrative cost of practical implementation of tariffs should be limited.</td>
</tr>
<tr>
<td>Balancing of stability and flexibility</td>
<td>Ensure long-term incentives for network users Enable adjustments of network tariffs to changes of the gas market.</td>
</tr>
</tbody>
</table>
Different types of network related tariffs

**Network Tariff Elements**

- **Network connection charges**
  (for the access of the user to the network)
  - Shallow/deep connection charges
  - Individual/standardized connection charges

- **Use of network tariffs**
  (for the transport of gas across the network)
  - Capacity, commodity and fixed charges
  - Entry-/exit split
  - Locational tariffs
  - Time dependent tariffs

- **Metering charges**
  (for installation, operation, maintenance and reading of meters)
  - Could be part of use of network tariffs
Options for use of transportation network tariffs within an entry-exit tariff system

Possible differentiation of gas transportation tariffs

- **Type of charge**
  - Capacity Charge
  - Commodity Charge
  - Standing / Fixed Charge

- **Entry-Exit split**
  - Entry or exit charges
  - Entry and exit charges

- **Regional differentiation**
  - Uniform tariff (post stamp)
  - Locational tariff (point based)

- **Time of use**
  - Flat tariff
  - Seasonal factors
  - Price multipliers

- **Capacity product**
  - Duration (short / long-term)
  - Firm / interruptible
  - Forward / Backhaul
  - Restrictions on allocability
## EU acquis for gas transportation network tariffs (I)

### Directive 2009/73/EC (common rules for internal market in natural gas)

- National regulatory authority (NRA) to set or approve non-discriminatory and cost-reflective network tariffs
- Network tariff methodologies to be approved by NRA prior to their entry into force
- Network tariffs and methodologies to be published prior to their application

### Regulation (EC) No 715/2009 (conditions for access to natural gas transmission networks)

- Network tariffs shall be based transparently on actual costs incurred (incl. an appropriate return on investment)
- Network tariffs to be set separately for every entry and exit point of the transportation system (i.e. implementation of an entry-exit system)
- Cost-allocation mechanisms and methodology for setting network tariffs for entry and exit points to be approved by NRA
- TSO to offer long-term, short-term, firm and interruptible capacity products

To be implemented in Bosnia and Herzegovina by 1.1.2015 and 1.1.2014 respectively
EU acquis for gas transportation network tariffs (II)

Regulation (EU) 2017/460 (network code on transmission tariff structures for gas)

- Regulatory allowed costs caused by technical or forecasted contracted transportation capacity and distance to be recovered by capacity tariffs
- Cost mainly driven by transported gas volumes and/or to manage revenue under- and over-recovery to be recovered by uniform commodity tariffs
- Reference price methodology for capacity tariffs to be set or approved by NRA applying similarly for all entry and exit points (choice on methodology to be made by NRA)
- Possible options for allocation of cost to entry and exit points: Postage Stamps, Matrix Approach, Capacity Weighted Distance, Distance to Virtual Point
- Definition of multipliers and seasonal factors for non-yearly standard capacity products and adjustments interruptible capacity
- Detailed publication requirements for gas TSO in relation to methodology for calculation of network tariffs and tariff levels

Not yet been adopted for Energy Community; adoption foreseen for 2018
Status Quo in Bosnia and Herzegovina

- **State level and Federation of Bosnia and Herzegovina:**
  - Gas transportation tariffs and methodology to determine them neither defined nor published

- **Republika Srpska:**
  - Gas transportation tariffs and calculation methodology not published
    - (only tariffs for Karakaj – Zvornik section of Gaspromet published)
  - Requirements for the network tariff methodology to be applied are provided by Rulebook
    - Transportation tariffs to be based on allowed revenues of TSO determined by RERS
    - RERS to determine transportation tariffs for each entry and exit point
    - Application of capacity and commodity charges and charge for system services
    - Capacity charges based on fixed network cost and reference price
    - Commodity charges based on forecasted amount of delivered natural gas and variable cost, which may include part of capacity cost if this would increase capacity utilization
    - Application of discounts for interruptible and multipliers for monthly and daily capacities, as well as overrun charges
Transportation Tariff Structure in Republika Srpska

Transportation Tariff Structure according to Methodology

- Maximum allowed revenue
  - Capacity
  - Commodity
  - System service charge
    - Entry points
    - Exit points

Connection charge (shallow)

Based on actual cost of individual connection

Based on actual cost of individual connection
Transportation Tariff Structure in Republika Srpska

Published Transportation Tariffs for Gaspromet in 2013

Karakaj – Zvornik section of Gaspromet, incl. different commodity charges for exit to other transportation systems and exit to DSOs

Proposed Transportation Tariffs of Gaspromet for the Šepak–Karakaj section

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Maximum allowed revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>0.7185 KM/Sm3/day/year</td>
</tr>
<tr>
<td>Commodity</td>
<td>0.4852 KM/1000Sm3</td>
</tr>
</tbody>
</table>
International Experience

Split between capacity and commodity charges for gas transportation in the region

- Ukraine
- Slovenia
- Serbia
- Romania*
- Poland
- Moldova
- Hungary
- Italy*
- Greece
- fYR of Macedonia
- Czech Republic
- Croatia
- Bulgaria
- Austria

* Percentage of total regulated revenue recovered via capacity charge (%)
* Percentage of total regulated revenue recovered via commodity charge (%)

Source: Energy Community Regulatory Board: Gas transmission Tariffs in South and Central East Europe; Feb. 2018
International Experience

Split between entry and exit charges for gas transportation in the region

- Ukraine
- Slovenia
- Serbia
- Romania
- Poland
- Hungary
- Italy
- Greece
- Czech Republic
- Croatia
- Bulgaria
- Austria

Source: Energy Community Regulatory Board: Gas transmission Tariffs in South and Central East Europe; Feb. 2018
International Experience – Bulgaria

- Bulgartransgaz (BTG) EAD single gas transportation network operator
- Application of an entry-exit model
- Network tariff methodology approved by Bulgarian regulator
  - Transparent information according to EU Regulation
  - Application of a matrix model for cost allocation to entry and exit points (locational pricing)
  - Application of uniform prices at national exit and entry points

![Diagram showing revenue distribution with 90% Capacity, 10% Commodity, 50% Entry points, and 50% Exit points]
International Experience – Croatia

- PLINACRO Ltd single gas transportation network operator
- Application of an entry-exit model
- Network tariff methodology issued by Croatian regulator
  - Transparent information according to EU Regulation
  - Application of a matrix model for cost allocation to entry and exit points (locational pricing) – commodity charge for exit points only
  - Entry and exit tariffs at interconnection points significantly higher than at domestic exit points
International Experience – Serbia

- Srbijagas and Yugorosgaz as gas transportation network operators
- Application of an entry-exit model
- Network tariff methodology issued by Serbian regulator
  - Cost allocation to entry and exit points based on contracted annual capacities; commodity charge for exit points only
  - Application of uniform prices at national exit and entry points; differences prices for cross-border interconnection points

```
<table>
<thead>
<tr>
<th></th>
<th>Capacity</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowed revenue</td>
<td>100%</td>
<td>30%</td>
</tr>
</tbody>
</table>

- Transmission system: 30.8%
- Production: 2.8%
- Storage: 6.3%
- Entry points: 39.9%
- Domestic consumption: 22.4%
- Exit points: 30.1%
- Interconnector: 7.7%```
International Experience – Germany

- 16 gas TSOs operating in 2 market areas (2 entry-exit zones) → to be merged into a single area by 1.4.2022
- Market area virtually merges transmission and downstream distribution systems into a single balancing zone
- Allowed revenues determined for each of the 16 German TSO
- Network users pay network tariffs at entry and exit points of a market area
- TSO recover their allowed revenues from entry and exit charges of points within their own physical network → different entry-exit split for each TSO
- Application of single reference tariff methodology for each market area foreseen / under discussion (EU requirement)
  → Application of a uniform capacity tariff for each market area based on the forecasted capacities for each entry and exit point
  → inter-TSO compensation payments between TSOs based on differences between allowed revenues of a TSO and collected revenues
Hvala!

Dr. Konstantin Petrov
Managing Consultant, Energy Markets & Technology

DNV GL Energy

DNV GL Energy Advisory GmbH
Zanderstr. 7
53177 Bonn

Phone: +49 228 44690 58
E-Mail: Konstantin.Petrov@dnvgl.com