Western Balkan Gas Infrastructure Workshop

Gas to Power Phase 2 – IAP Feasibility

Vienna, 24 May 2018

Project managed by the World Bank
Background, objectives and ECA introduction

- Word Bank led study with WBIF financial support
- Follow up on the findings made in Phase I of revisiting of SEE Gas Ring with the objective to

*Review of the economic and commercial feasibility of the Ionian-Adriatic Pipeline (IAP)*

- ECA - multi-disciplinary team including:
  - Fred Beelitz, Gas to power economist ECA
  - Ray Tomkins, Electricity market expert ECA
  - Naske Afezolli, Albanian and regional energy market expert, IA SEE
  - Scott Edmonds, Energy Economist, ECA
  - Mike Madden, pipeline engineer, ECA Associate

Economic Consulting Associates is a specialised electricity and gas economic consultancy based in London, UK. Practice areas in gas include:

- Pricing
- Regulatory economics
- Midstream gas economics incl. LNG
- Long term gas strategies – Masterplans
- Market design
- Sector restructuring
- Gas to power integration

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IAP’s strategic importance – a key channel for Caspian gas to Central Europe

- 5 Bcm/y pipeline with tie in points in AL, ME, HR, BiH and possibly Kosovo
- Supported by WBIF *(Feasibility Study in 2014; current study on ME and AL sections)*
- Project Company to be established in 2018 *(SOCAR as engineering consultant)*
- IAP’s strategic importance:
  - Can play a pivotal role for *gasification of West Balkan region*
  - Can be considered part of the *EU’s Southern Gas Corridor*
  - Can support *decarbonisation of West Balkans*
  - With TAP expansion to 20 Bcm, can support *EU supply diversification*
Key drivers for the development of IAP

- **Croatia as anchor offtake market**
  - Only established and sizable gas market connected to IAP
  - IAP as diversity and security of supply option for Croatia

- **Expansion of TAP and access to wider gas sources**
  - 90% of TAP already contracted for the Italian market – expansion to 20 BCM is a precondition for IAP
  - Other supply sources (Iran, Iraq, Kurdistan) or SOCAR Azeri gas needed

- **International transmission through Croatia**
  - Prohibitively high tariffs required if IAP does not serve gas beyond Croatia
  - Planned Croatian transmission strengthening by Plinacro

- **Gasification strategies of Albania, Montenegro, and BiH**
Total potential throughput as estimated by ECA

- Higher short-medium-run demand than FS due to transit flows

- High dependence on Croatian demand and transit flows in short-run

- Optimistic cases see IAP’s 5 BCM capacity reached by 2040
Approach to tariff analysis – three separate business models

Business model ❶

IAP Company

- Project treated as a standalone
- IAP Company develops, owns and operates the pipeline
- One cost recovery tariff applies for the whole pipeline on the basis of a regulated return
- Postage stamp tariff

Business model ❷

Regulated TSO

- IAP split in three segments
- Each segment developed and financed by national TSOs.
- Tariffs apply that are in line with national regulated transmission tariffs
- IAP segments integrated into national networks

Business model ❸

AL-ME as IAP Company + HR section as regulated TSO

- Combination of ❶ and ❷
- Croatian segment integrated in Croatian asset base
- Segments in ME and AL combined as a ‘small IAP’ and treated as standalone
- Tariff in Croatia based on existing tariff regime
- Tariffs for AL-ME section: postage stamp cost recovery
Integrating IAP with the Southern Gas Corridor will ensure viability

- **Cost recovery tariffs for IAP would need to be high**
  - not unusual for international pipeline projects
  - Low throughput volumes - Offtake markets along its route alone are too small

- **Integrating project with Southern Gas Corridor ensures viability**
  - International transmission of Caspian gas to European markets will be key
  - Takes advantage of TAP and of possible capacity expansion to 20 Bcm

- **Project is economically feasible**
  - Economic NPV: €1.3 billion
  - CO2 reduction from switching to gas for heating is key driver
Conditions that can ensure feasibility of IAP (1/2)

1. Secure throughput for IAP in short term
   - Strengthen Croatian transmission (to max south-north transit)
   - Ensure TAP capacity expansion to 20 Bcm
   - Ensure significant volumes of Croatia’s demand is met by IAP (Between 40% and 50% of demand)
   - Expedite gas to power developments in Montenegro, Croatia, Albania and BiH (~1.5 GW extra capacity until 2025)
   - Accelerate gasification efforts of distribution consumers in Montenegro, Albania and BiH

2. Provide grant funding
   - Grant funding needs to ensure competitive transmission tariff: 60% (~€370 million)
   - Could be partially covered by WBIF and CEF, however gap remains

3. Apply tariff minimising business model
   - Split the CAPEX treatment of the project:
     - Croatian segment integrated into Plinacro’s asset base
     - AL-ME section as an international pipeline
   - Does not require separate development, but only applies for tariffication purposes
Conditions that can ensure feasibility of IAP (2/2)

4. Facilitate financability of the project

- Provide *regulatory exemptions*

- **Attract investors** that would see IAP as part of a portfolio
  - IAP on its own does not need to generate high returns, but can be considered as a means to attract higher returns ‘downstream’
  - Involve *Caspian and Middle Eastern gas suppliers* could act as project sponsors

- Ensure high **equity portion** of the investment

- Provide *concessionary loans* with low interest rates reducing the debt repayment obligation
Summary points for IAP feasibility

- **IAP should be seen as an integrated project with Southern Gas Corridor**
  - International transmission of Caspian gas to European markets will max short term throughput
  - Takes advantage of TAP and of possible capacity expansion to 20 Bcm
  - Feasible together with Croatia LNG (seasonal vs. anchor load)

- **Suitable business model and project sponsors can improve economics**
  - Business model **3** yields lowest tariff
  - Upstream producers as project sponsors considering IAP a strategic investment

- **Feeder connections to BiH and Kosovo can reduce tariffs further**

- **EU support will be important driver for success**
  - Grant funding requirements vary between 0% and 60% depending on throughput
  - Key question 1: *How important is gas for path of decarbonisation for West Balkans?*
  - Key question 2: *How important is IAP for diversity of supply for the EU?*
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Background slides
Transit beyond Croatia is key for IAP to be viable – IAP to form part of the Southern Corridor

1. Can sufficient transit be secured to bridge low initial offtake from West Balkan markets?
   - Transit to overcome initial phase of very low throughputs
   - Possible offtake markets: Hungary (9 Bcm/y), Slovenia (1 Bcm/y), Austria (9 Bcm/y) and CEGH
   - Offtake will depend on IAP tariffs and ability to compete with existing suppliers
   - Displacing existing supplies however will take more than just low prices

2. Can transmission bottlenecks in Croatia be overcome?
   - Plinacro does not perceive this to be a problem
   - Existing connection to Hungary would be sufficient for exports up to 3 Bcm/y – this is even strengthened with LNG development package
   - To Slovenia, €60 million additional investment is needed

3. Can IAP supplied gas compete on Central European Gas Hubs?
   - This will crucially depend on the IAP transmission tariff
   - We use the combined Italian and Slovenian transmission tariffs as comparator
   - Uncertainty of IAP tariff and possible offtake means that we have treated international transit as a sensitivity parameter
IAP offtake potential along IAP route is small –
Will depend on gasification policies

- Main potential offtakers (power + industry) covered by TAP
  - IAP throughput depends on distributed users in northern part
  - Very limited short-run demand

- Montenegro demand can be fully covered by IAP
  - Offtake will depend on gas to power strategy
  - Overall, small demand potential

- Largest potential offtake market
  - Gas on gas competition will require competitive IAP supply
  - Stagnant gas demand since 2009 (~3 Bcm)
  - Gas to power plans have stalled

- Highly uncertain, as no gasification plans
  - Gas to power potential could provide necessary anchor load
  - Uncertainty around gas to power plans
  - Treated as a separate sensitivity in our study
Combination of ME-AL as standalone and the HR segment integrated yield lowest tariffs

- **All business models above critical threshold level of 1.9 €c/cm**
  - Based on combined Italian and Slovenian transmission tariffs
- **Small IAP yields lowest tariffs**
  - Despite additional Croatian investments assumed for northern
- **Regulated TSO worst outcome**
- **BM ❸ implies that non-IAP consumers in Croatia subsidise the Croatian segment**
Sensitivity – tariffs only fall under the threshold level under the most optimistic of cases

Tariffs with CAPEX variation

Tariff only sufficiently low if CAPEX assumed to be 30% lower and assuming the most optimistic demand scenario

Under Base Case, CAPEX would need to be 60% lower

Tariffs with rate of return variation

Tariff low enough under high throughput and 5-6% rate of return scenarios

But setting 5-6% rate of return gives IRR below 2%
Sensitivity – Additional interconnector to BiH can make a difference, less so for Kosovo

**Tariffs with BiH interconnector**

Tariff becomes competitive in the most optimistic BiH gas demand scenarios and most optimistic other throughput scenarios

**Tariffs with Kosovo Interconnector**

Kosovo demand would only be significant if coal fired power generation is replaced by gas - unlikely
IAP is economically viable – CO2 reduction from switching to gas for heating is key driver

- Economic NPV: EUR 1.1 billion
- Remains positive across different sensitivity analyses
- Key driver: environmental benefits from switching to gas through Co2 reduction

Approach

1. NPV of avoided cost of gas to power
   - Displaces coal fired power generation

2. NPV of gas used for heating
   - Separate calculations for the displacement of fuel oil, coal, wood fuel and electricity

3. NPV of transit revenue
   - Transit tariff calculated as cost recovery tariffs

4. NPV of total infrastructure cost
   - As estimated in the previous sections and the Gas Masterplans

Economic NPV of IAP