

Western Balkan Gas Infrastructure Workshop

Gas to Power Phase 2 – IAP Feasibility

Vienna, 24 May 2018

Project managed by the World Bank



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Background, objectives and ECA introduction

- ▶ World 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 Afezulli**, Albanian and regional energy market expert, IA SEE
 - ▶ **Scott Edmonds**, Energy Economist, ECA
 - ▶ **Mike Madden**, pipeline engineer, ECA Associate



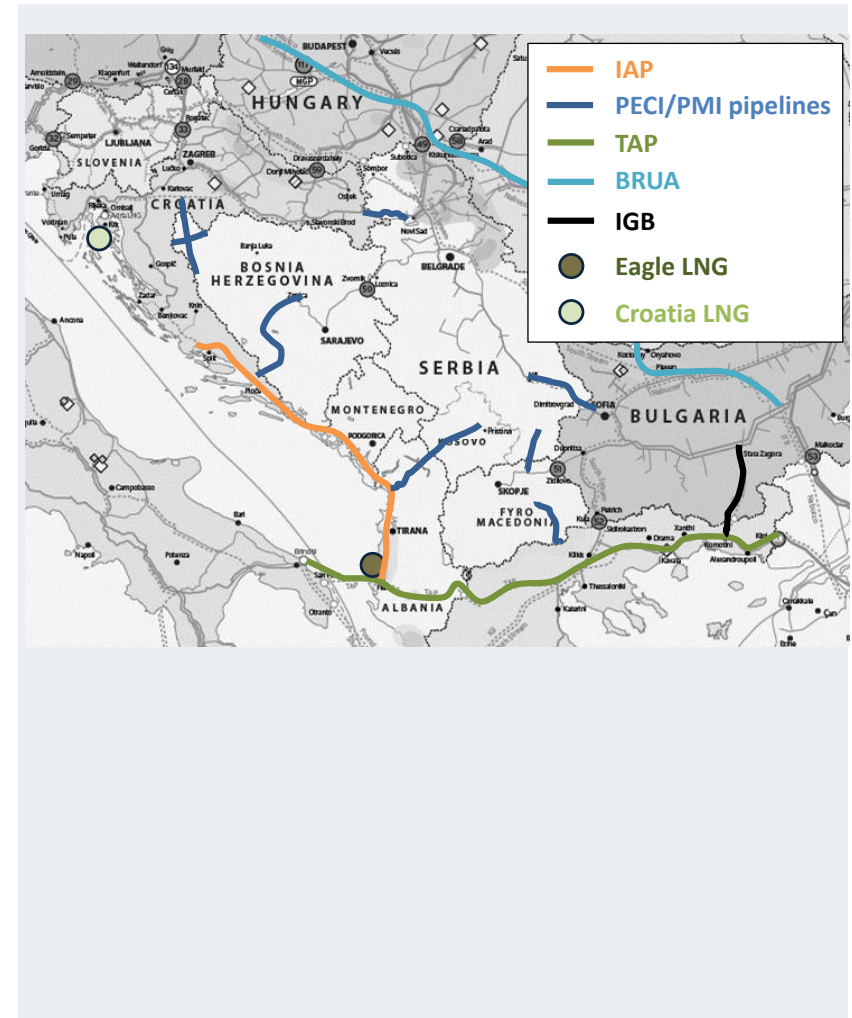
Economic Consulting Associates is a specialised electricity and gas economic consultancy based in London, UK. Practice areas in gas include:

- ▶ 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

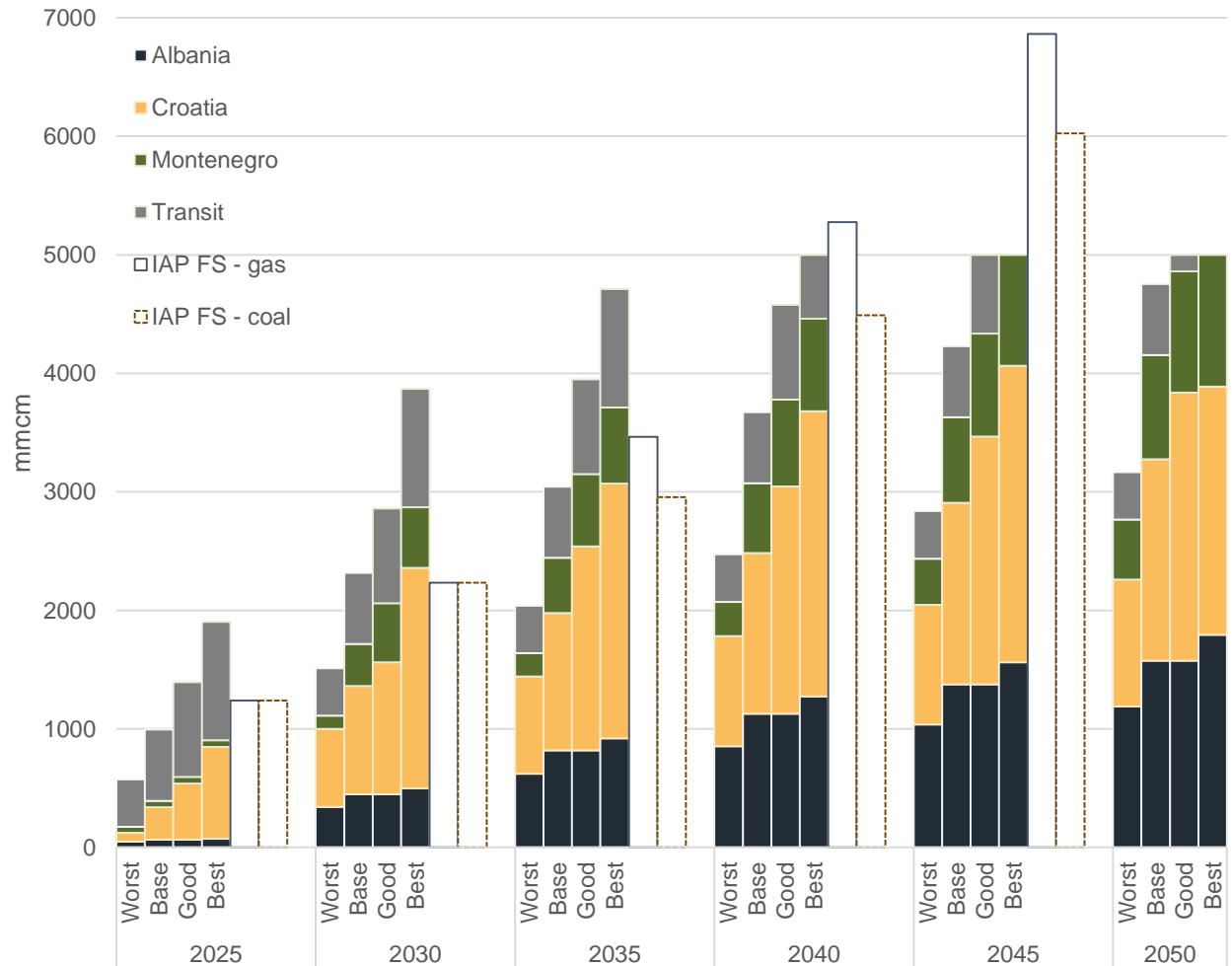
▶ International transmission through Croatia

- 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 1

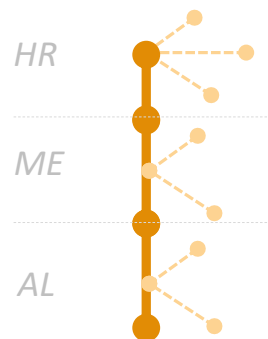
IAP Company



- ▶ 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 2

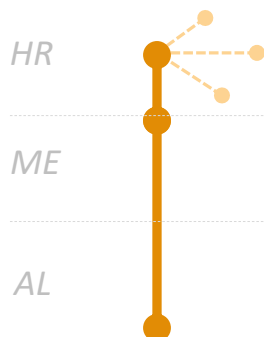
Regulated TSO



- ▶ 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 3

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

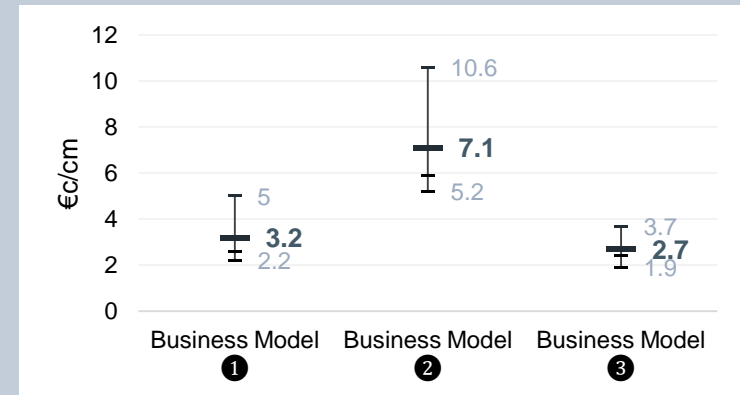


- ▶ Combination of **1** and **2**
- ▶ Croatian segment integrated in Croatian asset base
- ▶ Segments in ME and AL combined as a 'small IAP' and treated as standalone
- ▶ Tariff in Croatia based on existing tariff regime
- ▶ Tariffs for AL-ME section: postage stamp cost recovery

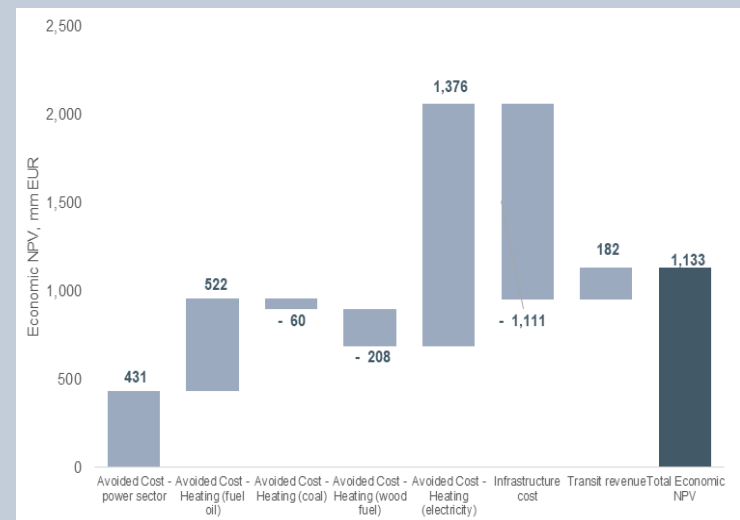
Integrating IAP with the Southern Gas Corridor will ensure viability

- ▶ **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

IAP Transmission tariff ranges



Economic NPV breakdown



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

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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

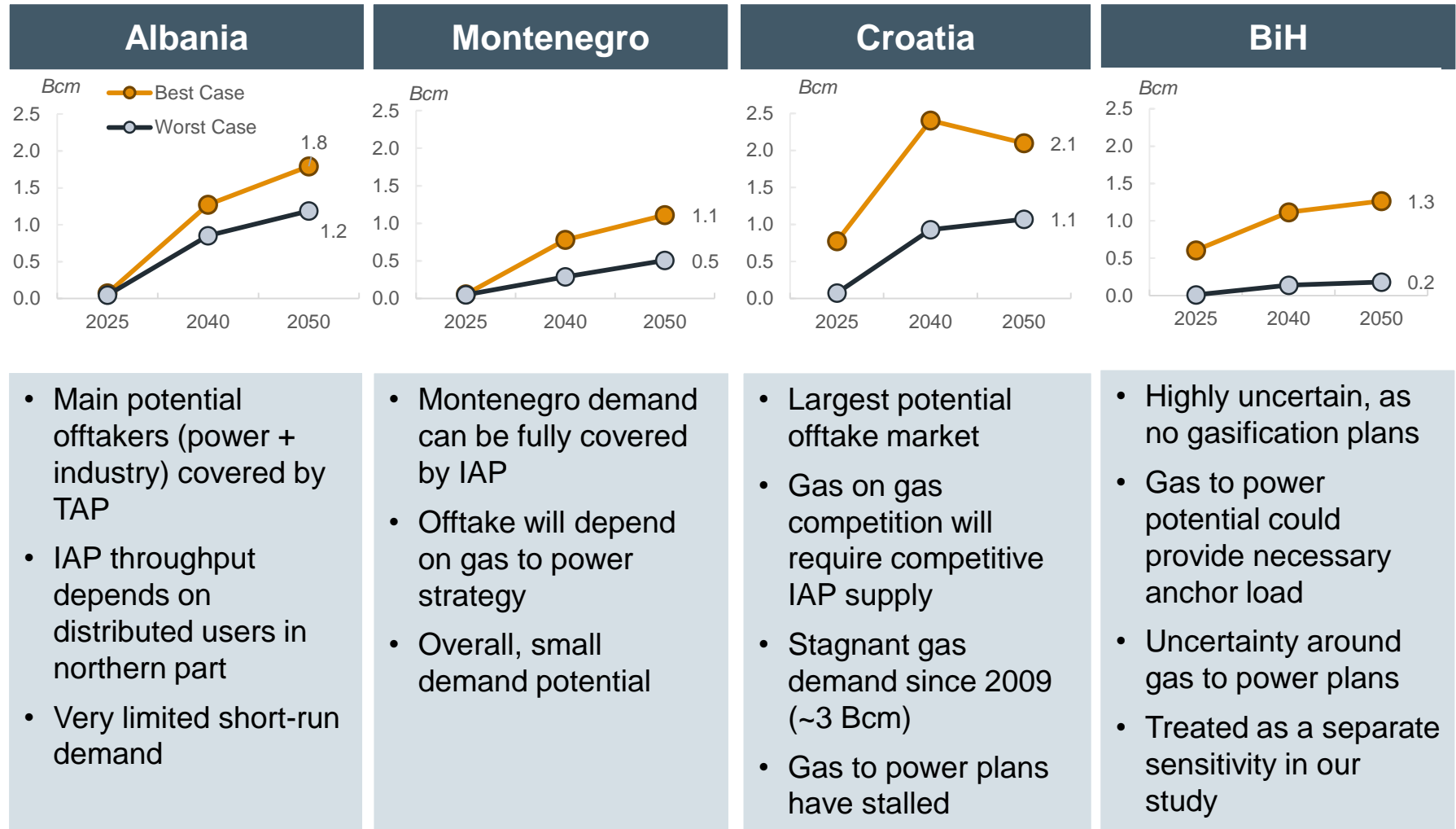
2 Can transmission bottlenecks in Croatia be overcome?

- ▶ 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

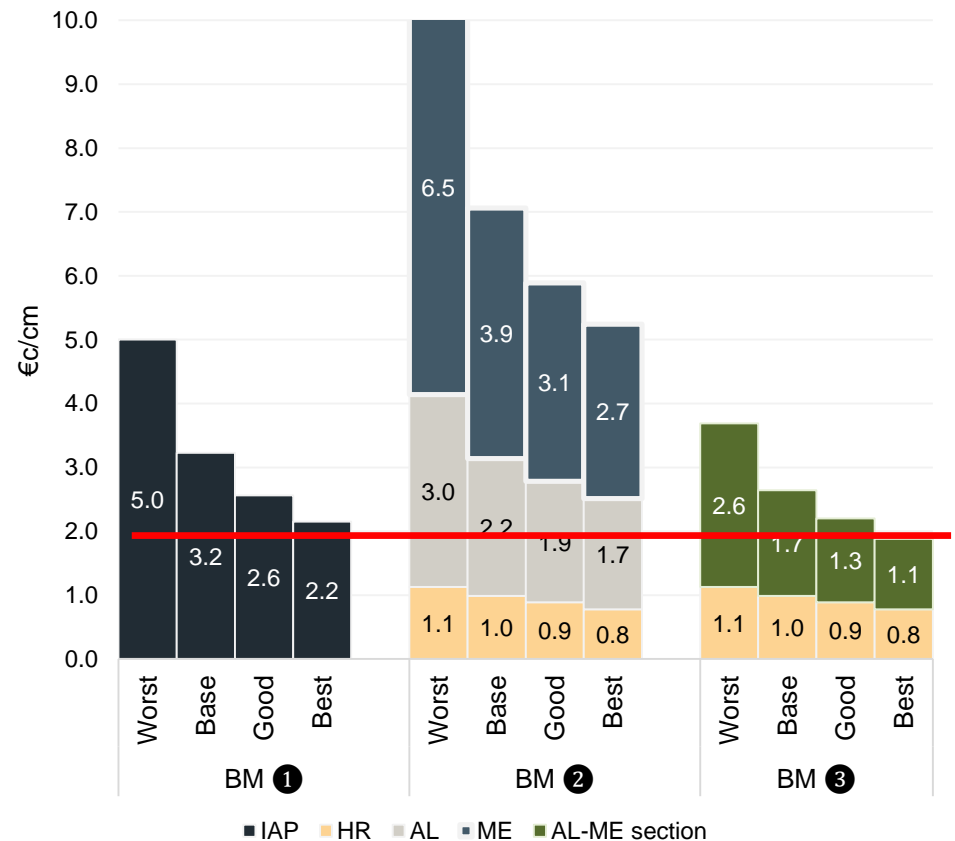
- Montenegro demand can be fully covered by IAP
- Offtake will depend on gas to power strategy
- Overall, small demand potential

- 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

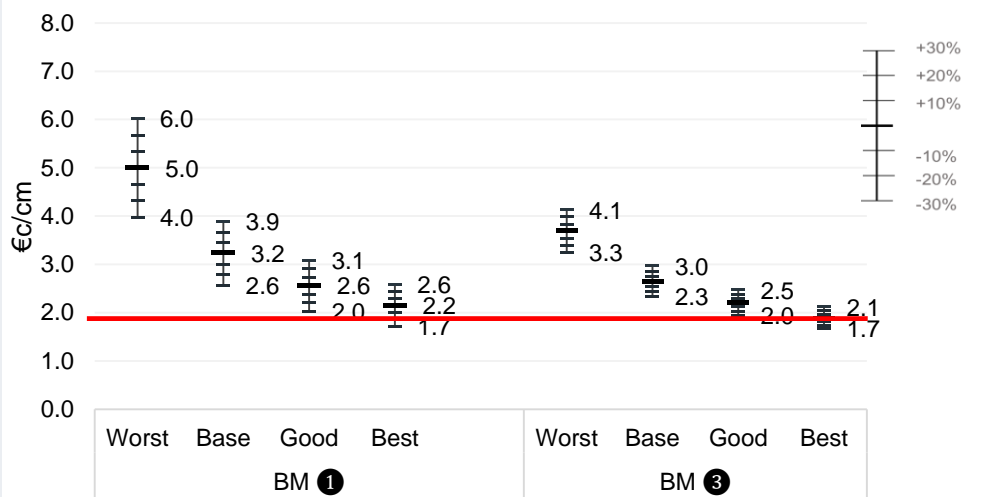
Combination of ME-AL as standalone and the HR segment integrated yield lowest tariffs

- ▶ **All business models above critical threshold level of 1.9 €/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 ③ implies that non-IAP consumers in Croatia subsidise the Croatian segment**



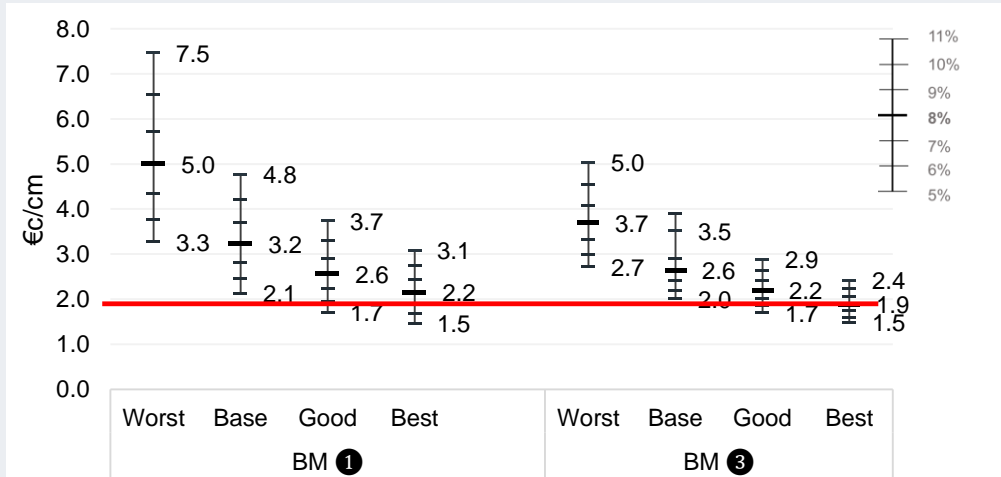
Sensitivity – tariffs only fall under the threshold level under the most optimistic of cases

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

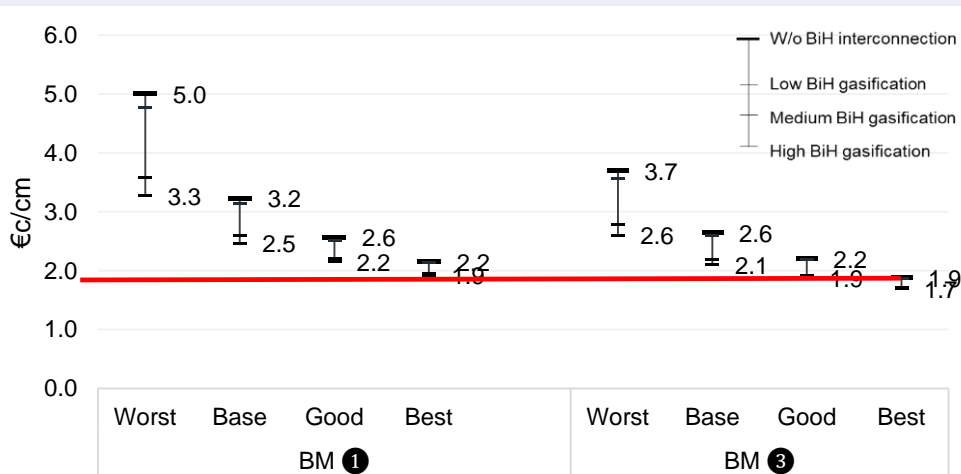
Tariffs with rate of return variation



- Tariff low enough under high throughput and 5-6% rate of return scenarios
 - But** setting 5-6% rate of return gives **IRR below 2%**

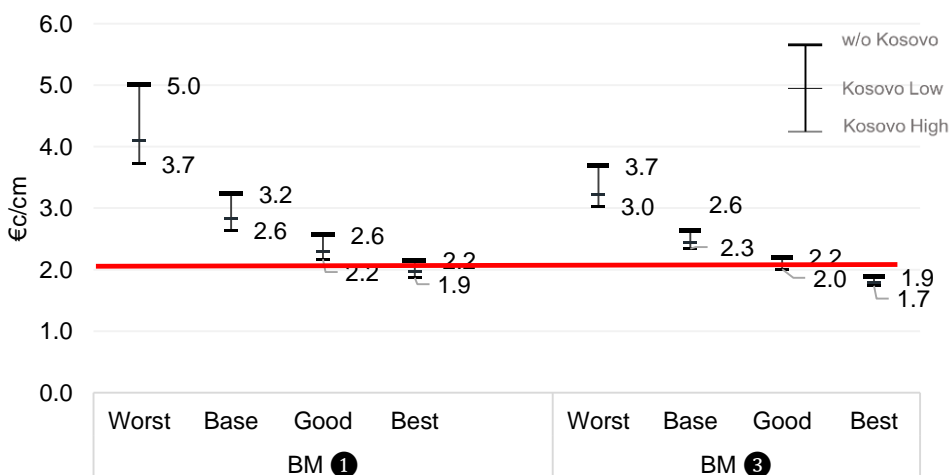
Sensitivity – Additional interconnector to BiH can make a difference, less so for Kosovo

Tariffs with BiH interconnector



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

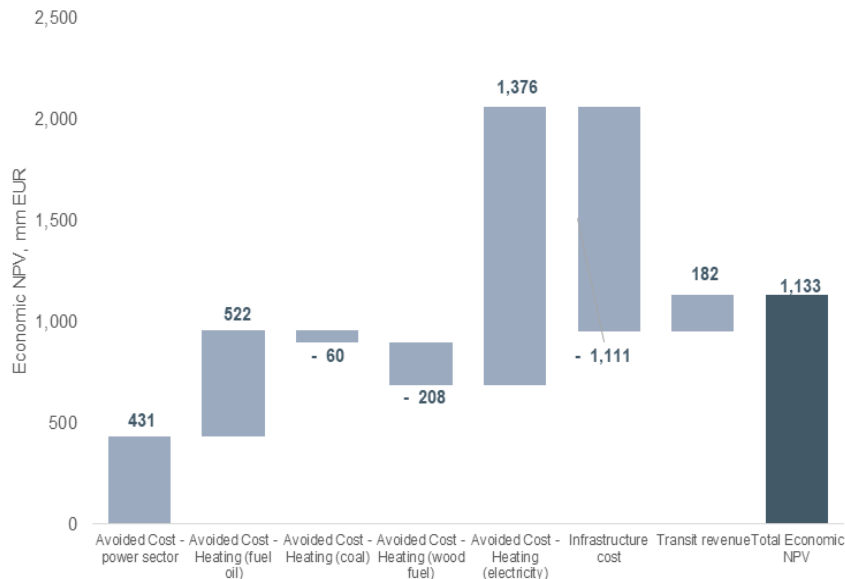
Tariffs with Kosovo Interconnector



- 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

