

# 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

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



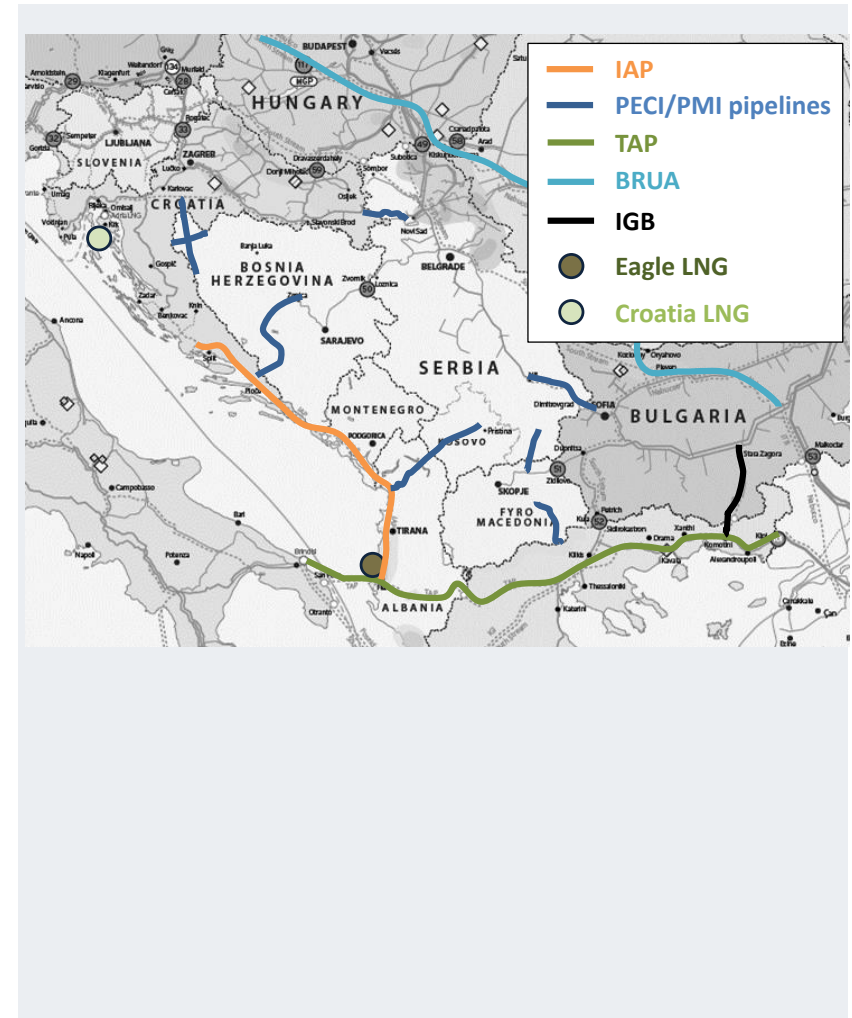
Economic Consulting Associates is a specialised electricity and gas economic consultancy based in London, UK. Practice areas in gas include:

- ▶ 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

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## ► 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

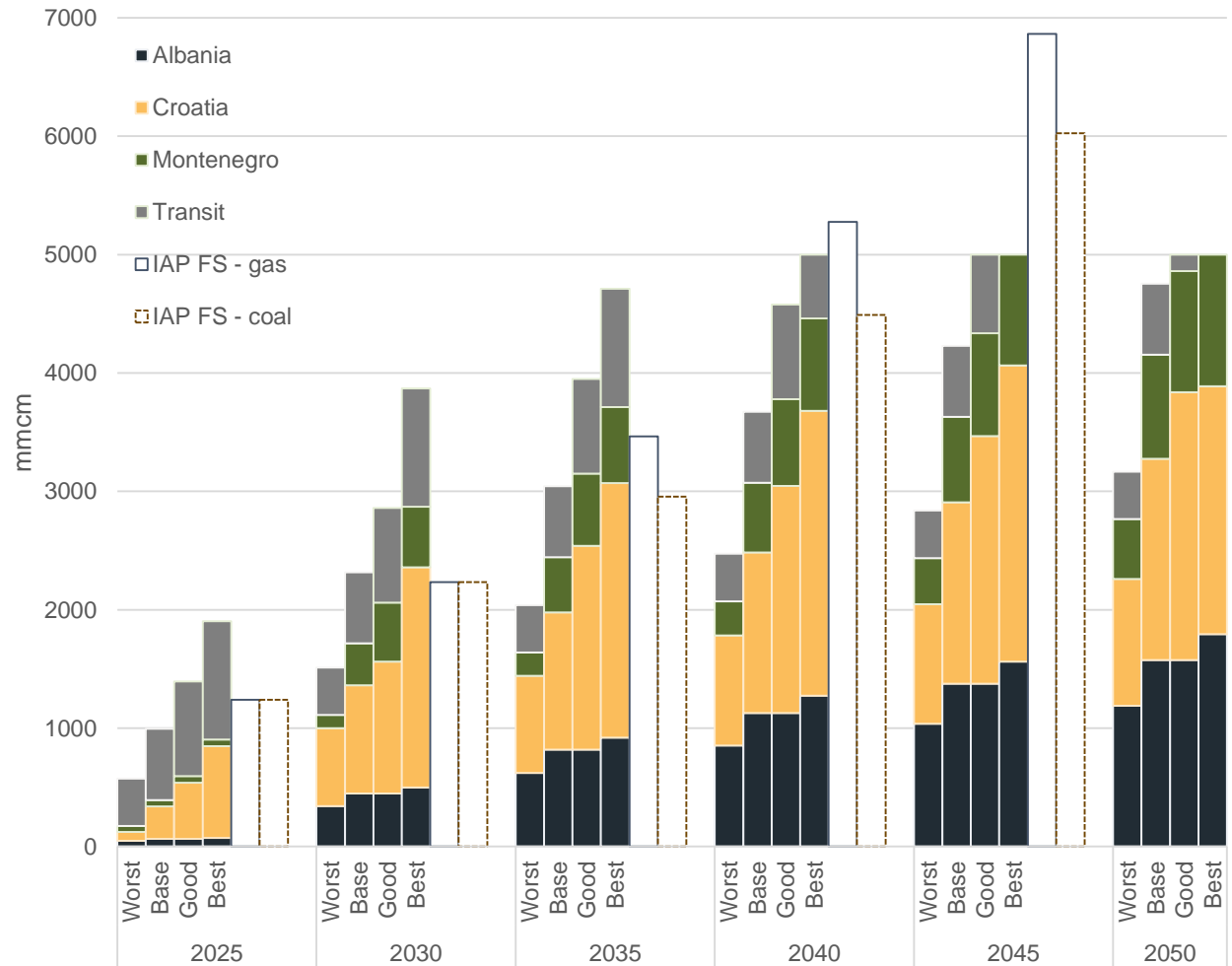
## ► International transmission through Croatia

- 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

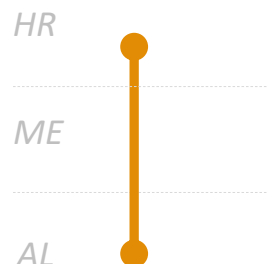
- ▶ Higher short-medium-run demand than FS due to transit flows
- ▶ High dependence on Croatian demand and transit flows in short-run
- ▶ Optimistic cases see IAP's 5 BCM capacity reached by 2040



# Approach to tariff analysis – three separate business models

## Business model ①

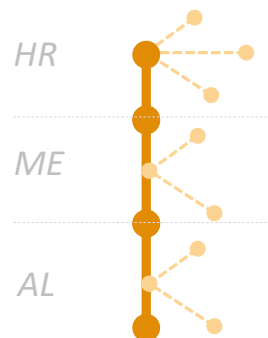
*IAP Company*



- ▶ 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

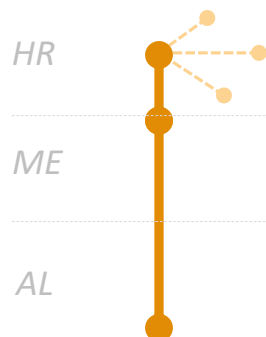
*Regulated TSO*



- ▶ 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*

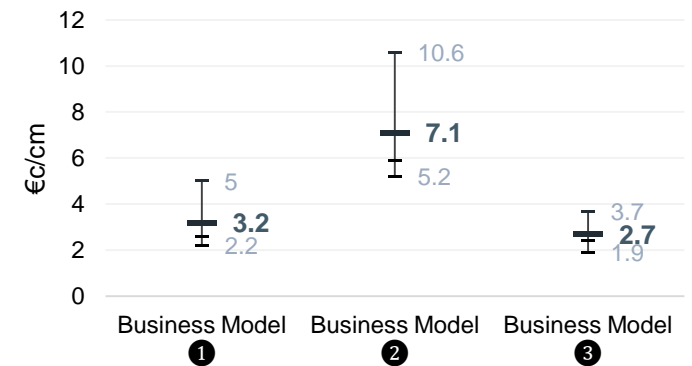


- ▶ Combination of ① and ②
- ▶ Croatian segment integrated in Croatian asset base
- ▶ Segments in ME and AL combined as a 'small IAP' and treated as standalone
- ▶ Tariff in Croatia based on existing tariff regime
- ▶ Tariffs for AL-ME section: postage stamp cost recovery

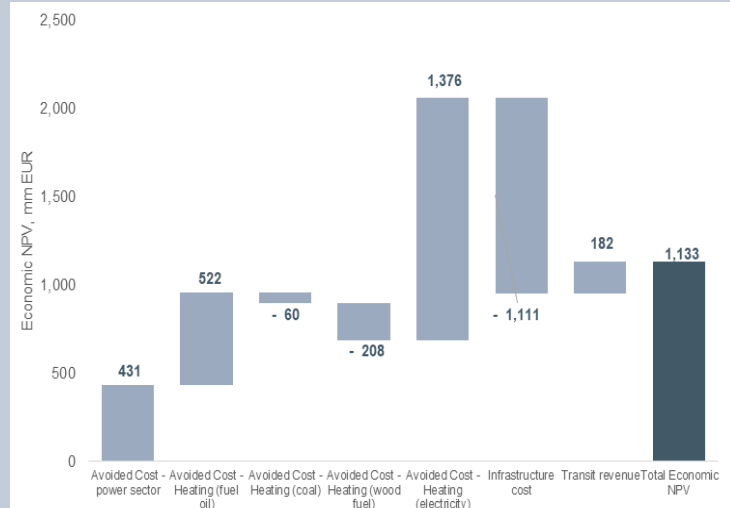
# Integrating IAP with the Southern Gas Corridor will ensure viability

- ▶ **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)

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## 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

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- ▶ **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

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**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

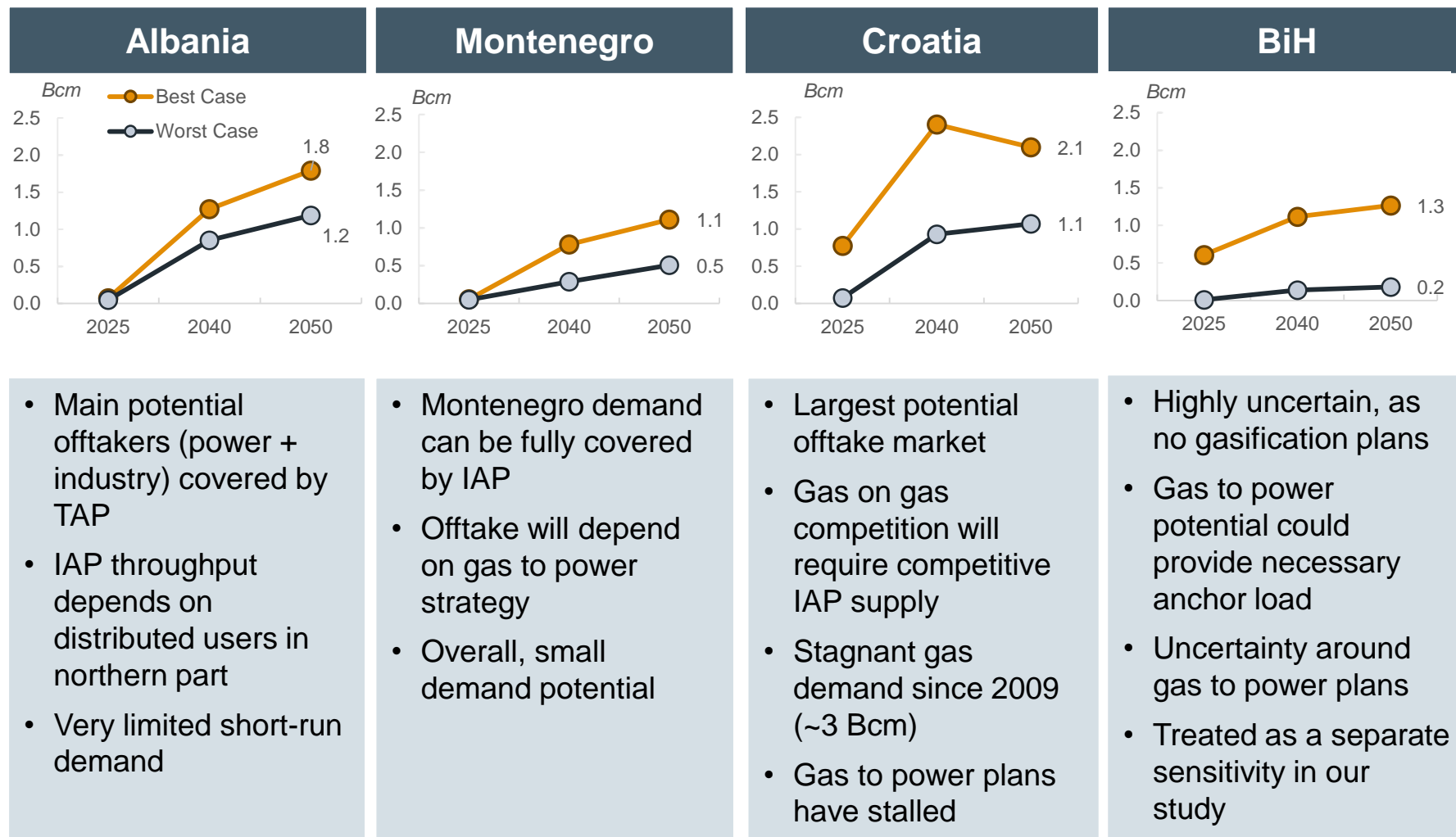
**2 Can transmission bottlenecks in Croatia be overcome?**

- ▶ 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?**

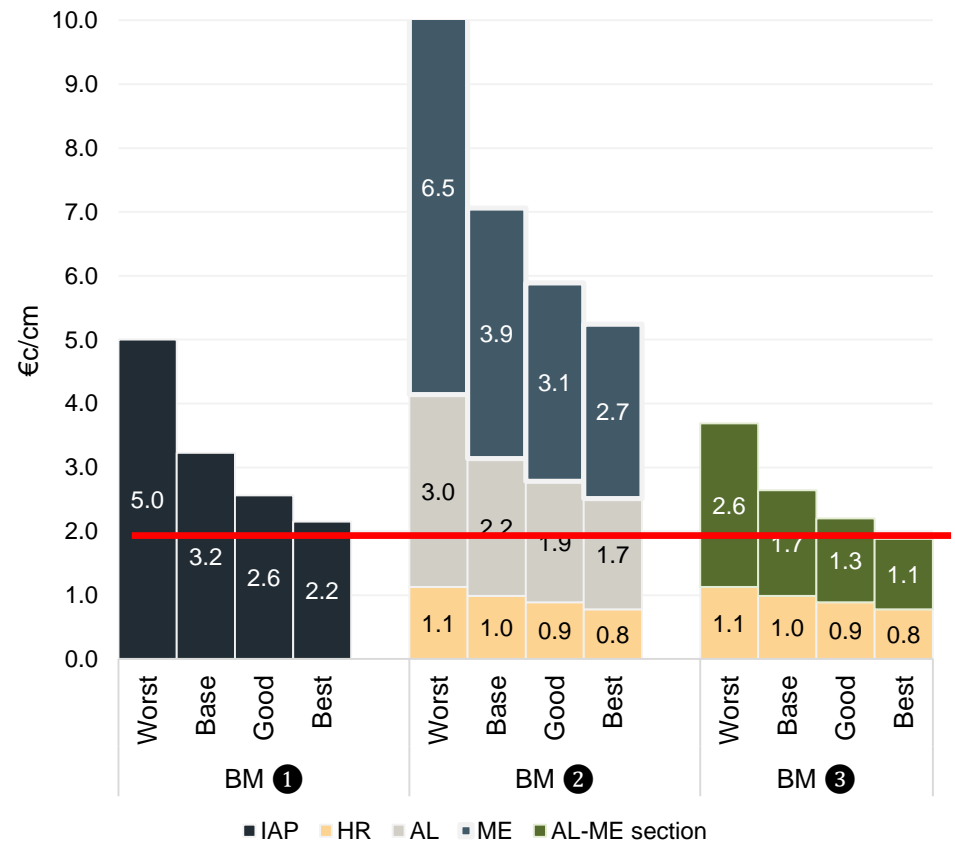
- ▶ This will crucially depend on the IAP transmission tariff
- ▶ We use the combined Italian and Slovenian transmission tariffs as comparator
- ▶ Uncertainty of IAP tariff and possible offtake means that we have treated international transit as a sensitivity parameter

# IAP offtake potential along IAP route is small – Will depend on gasification policies



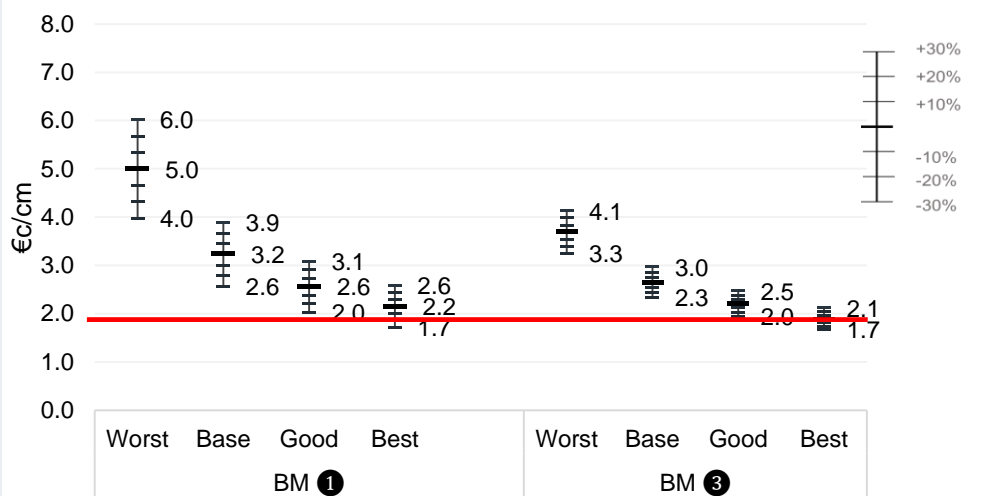
# Combination of ME-AL as standalone and the HR segment integrated yield lowest tariffs

- ▶ **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



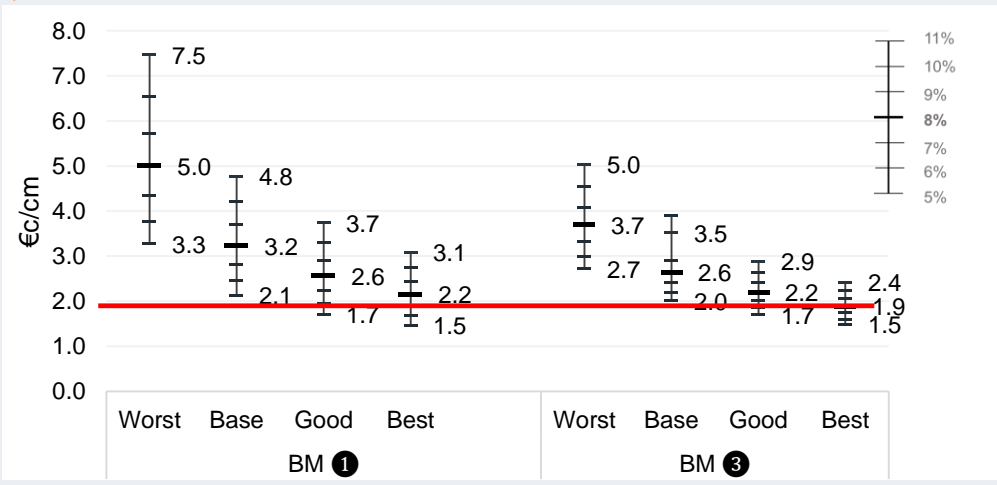
# Sensitivity – tariffs only fall under the threshold level under the most optimistic of cases

## 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

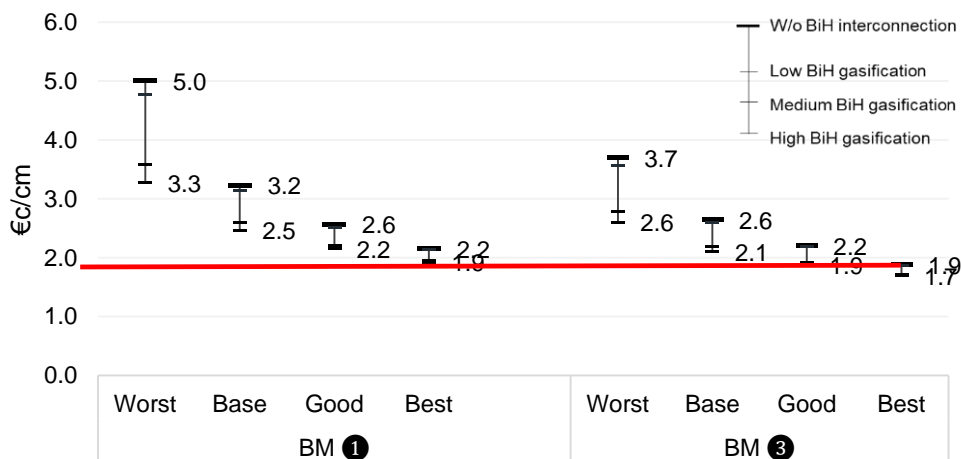


- Tariff low enough under high throughput and 5-6% rate of return scenarios
  - But** setting 5-6% rate of return gives **IRR below 2%**



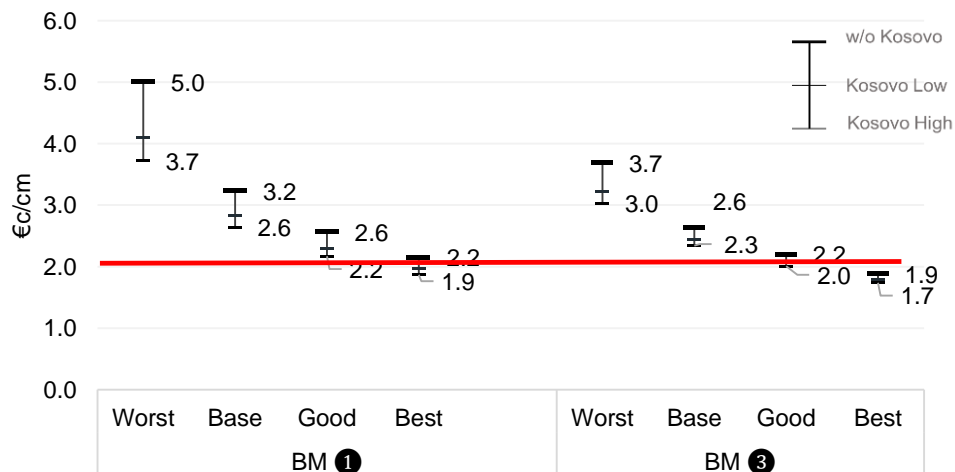
# Sensitivity – Additional interconnector to BiH can make a difference, less so for Kosovo

## Tariffs with BiH interconnector



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

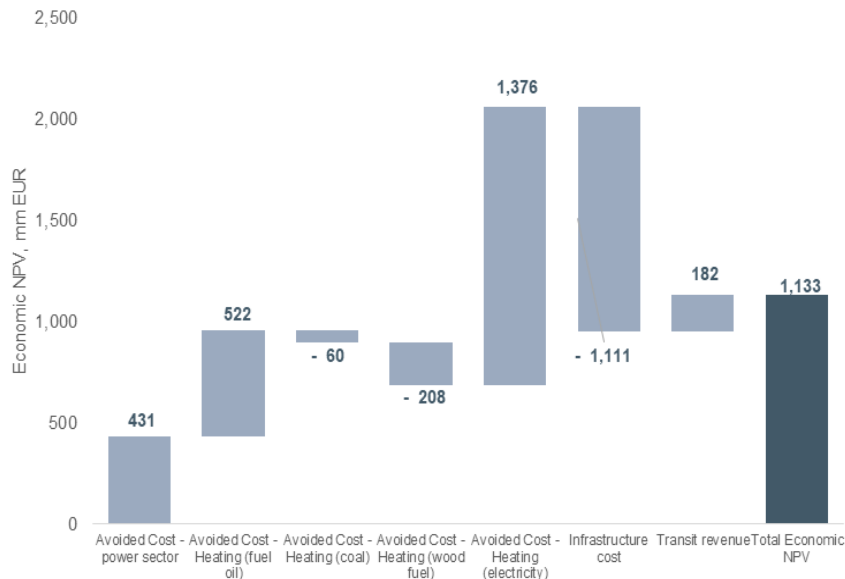
## Tariffs with Kosovo Interconnector



- 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

