

Bulgarian gas market:

Role of gas in decarbonisation

The International Conference 15 June 2018 Sofia: Energy Security of South East Europe and the National Security.

Jayesh Parmar, Baringa Partners;
within the framework of



- Introduction Baringa
- Scope and approach; highlights report
- Detailed recommendations for action
- Conclusions for discussion

Baringa overview



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We help clients using our deep industry insight to:

- ▲ Run more effective businesses
- ▲ Launch new businesses and reach new markets
- ▲ Understand and navigate industry change

We are international, working jointly with US-based Energy and Environmental Economics



- ▲ Founded in 1989 and based in San Francisco
- ▲ E3 has 45 professionals focusing on electricity sector economics, regulation, planning and analysis

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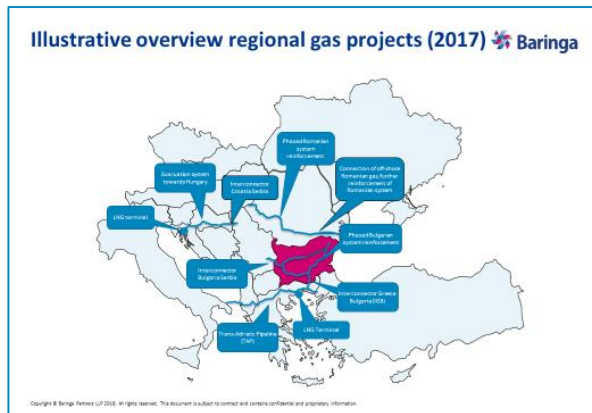
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Scope and approach report

Baringa has undertaken an independent review of the Bulgarian gas market timed to the formulation of the 2030 energy strategy by Bulgarian policy makers



Sources: Bulgartransgaz



Source projects: CESEC

Scope:

- ▲ To review and discuss the current gas market situation in Bulgaria, and the approach to an enhanced role of gas in reaching decarbonisation targets in 2030 within the energy mix
 - Set within the context of the ongoing development of greater market access and diversification of gas infrastructure routes, and the emergence of a gas hub in Bulgaria
- ▲ To assess the opportunities for gas as an enabler to addressing Bulgaria's energy trilemma of affordability, decarbonisation and security of supply and identify a set of focused recommendations.

Approach:

- ▲ Desktop study* to gather information and data on 1) status and outlook on Bulgarian gas market, role of gas in the energy mix as well as the decarbonisation agenda and 2) Regional gas infrastructure development, where relevant to Bulgaria
- ▲ Baringa qualitative analysis and assessments
- ▲ Engagement with stakeholders to exchange insights. The discussions were conducted in the week of 26 February 2018 and included Government institutions, electricity and gas traders, natural gas distributors, RES generators and investors, infrastructure developers, NGOs active on market and energy issues, associations from the gas and electricity sectors, energy sector advisors and experts. Today we continue.

Increasing the use of gas is an opportunity

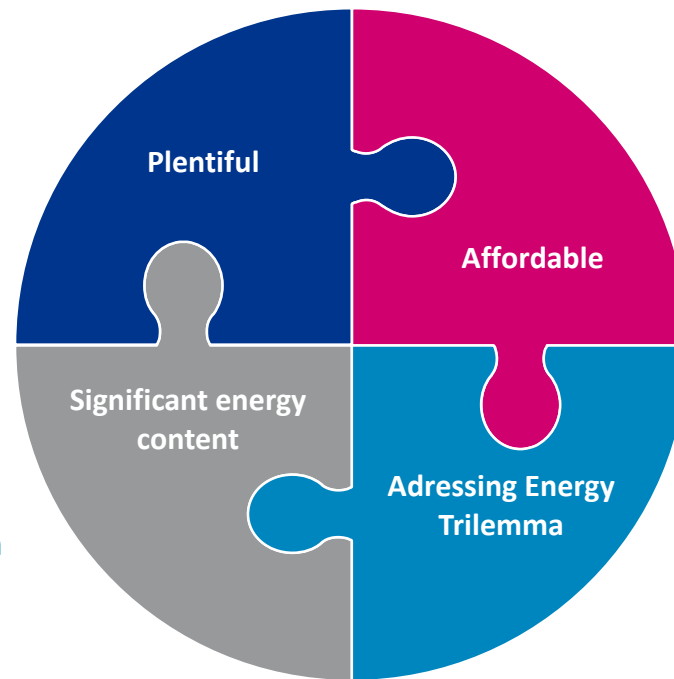
The characteristics of natural gas mean that it can and should play a key and increasing role in the future energy mix of Bulgaria.

It is a fuel in plentiful supply globally, and with good exploration potential in Bulgaria.

The Bulgarian gas market could tap into additional sources of gas, and enable competition in supply, with selective infrastructure investment and the gas hub initiative.

Gas efficiently delivers and stores significant energy content.

Gas is particularly effective in the provision of heat; and decarbonising heat is challenging with full electrification being very costly. Gas can meet peak and flexibility needs at a relatively low cost.



With global prices projected to remain relatively low, gas is an affordable part of the energy mix

Market reforms under EU-acquis guidance will help this.

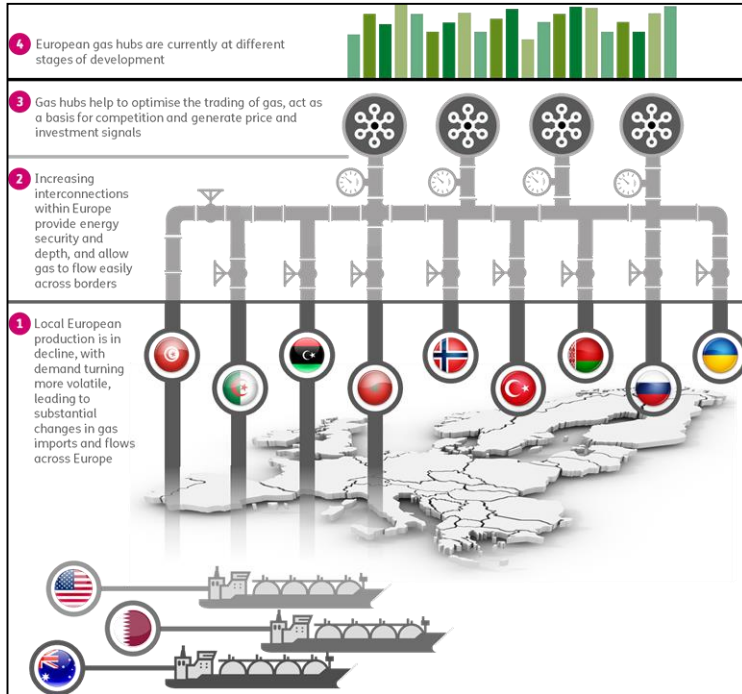
Gas can effectively help address the Energy Trilemma: delivering decarbonisation, maintaining security of supply, and ensuring that energy is affordable.

Gas is low-carbon and can play a key role in Europe's decarbonisation pathways by replacing higher carbon emitting fuels, and working in partnership with renewables to meet energy demand and flexibility needs.

Global gas markets offer 'plentiful' gas access

Natural gas is a fuel in plentiful supply globally, and with good exploration potential in Bulgaria. The market circumstances offer appropriate opportunity for gas to help address the Energy Trilemma.

Today's gas market import options EU



Source: Baringa

Black sea encouraging finds may offer an option (subject to infrastructure development and appropriate market reform)

Gas developments in Ukraine (Ukraine capacity to be accessible in long term if and when transit contracts expire)

Global LNG (via Greece at present, or – once IGB, ISB and ITB active - via Croatia/KrK, or via North-South route (BRUA, Eastring as options), or via Turkish LNG terminals

African gas, and/or Mediterranean developments (Israel, Cyprus) accessible commercially via Southern Corridor and/or LNG

Norwegian gas, accessible via North-South route being developed (Baltic pipe would connect onwards to central-European infrastructure)

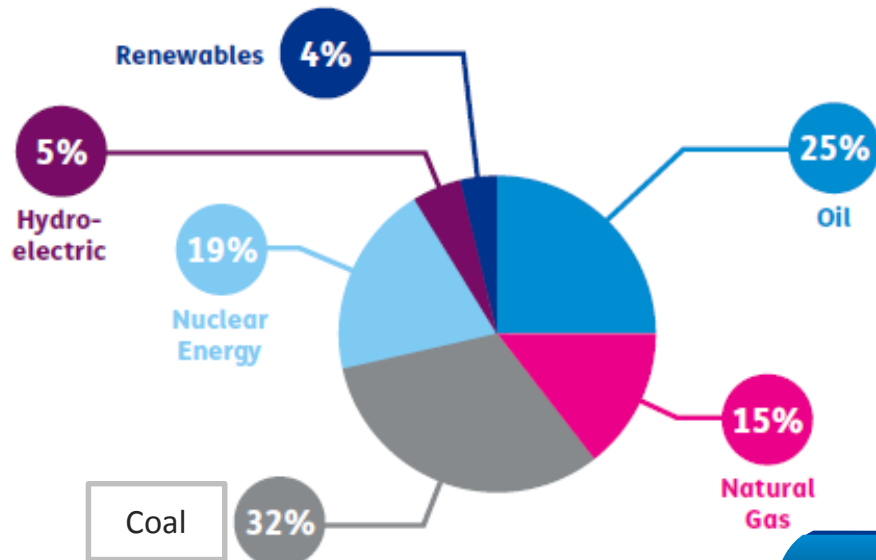
Russian gas, via existing or new route (noting recent developments)

- We see increasing market integration within Europe, and globally (LNG), coupled with ample infrastructure currently, and a trend to short-term contracting.
- In parallel, encouraging conventional gas potential (e.g. Shell, OMV Petrom) is being explored in direct vicinity of Bulgarian gas market.

Role of gas has been relatively limited thus far

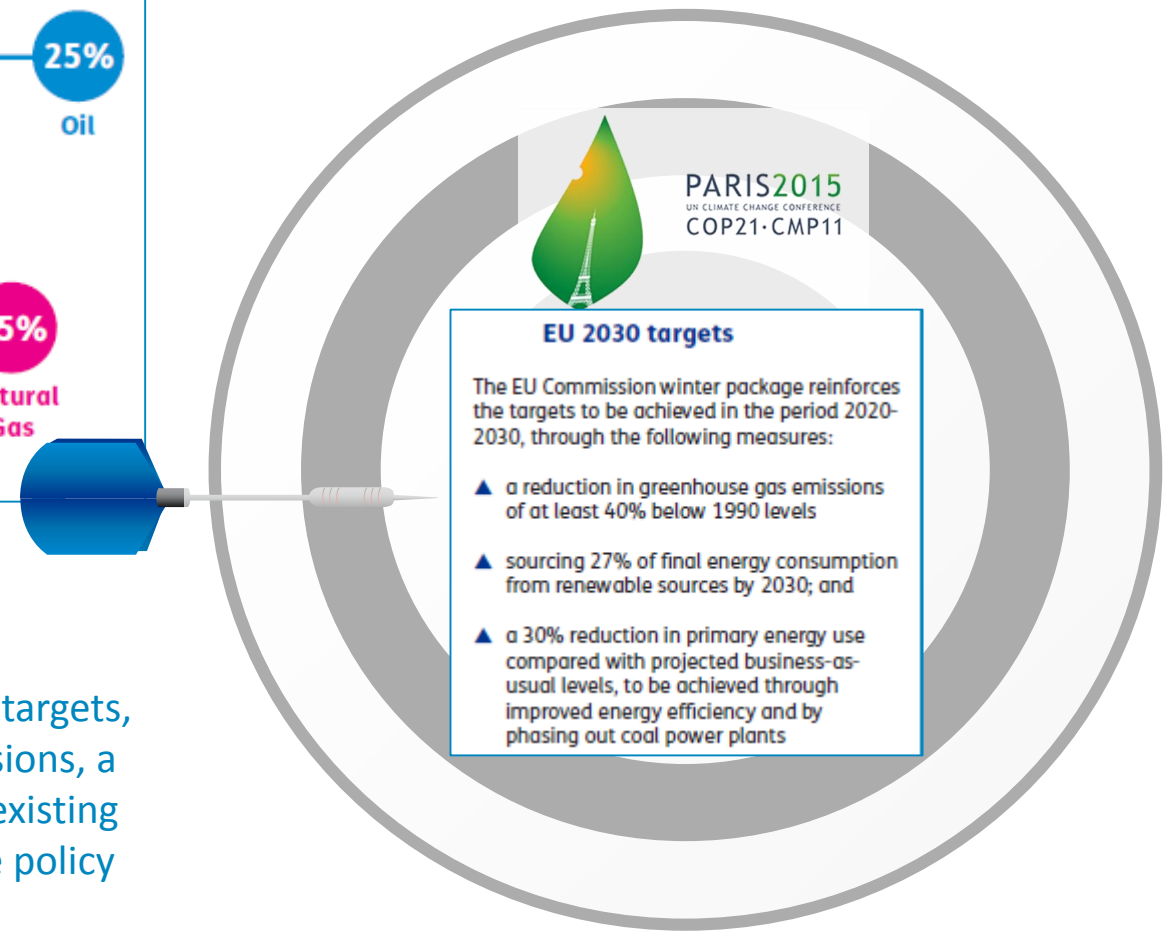
Hitting the EU 2030 and longer term targets could be focused with an enabling energy strategy

Figure Bulgaria Primary Energy Consumption in 2016 (in %, total 18.1 Mtoe)



National energy strategy 2020-2030

For Bulgaria to meet its 2030 climate change targets, and in particular the reduction of CO₂-emissions, a more detailed plan for the transition of the existing energy mix is needed, along with supportive policy developments



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Unlocking market access - introduction

Gas market access needs to develop further to induce the potential for role of gas as secure, affordable and decarbonising pathway tool for 2020+ period

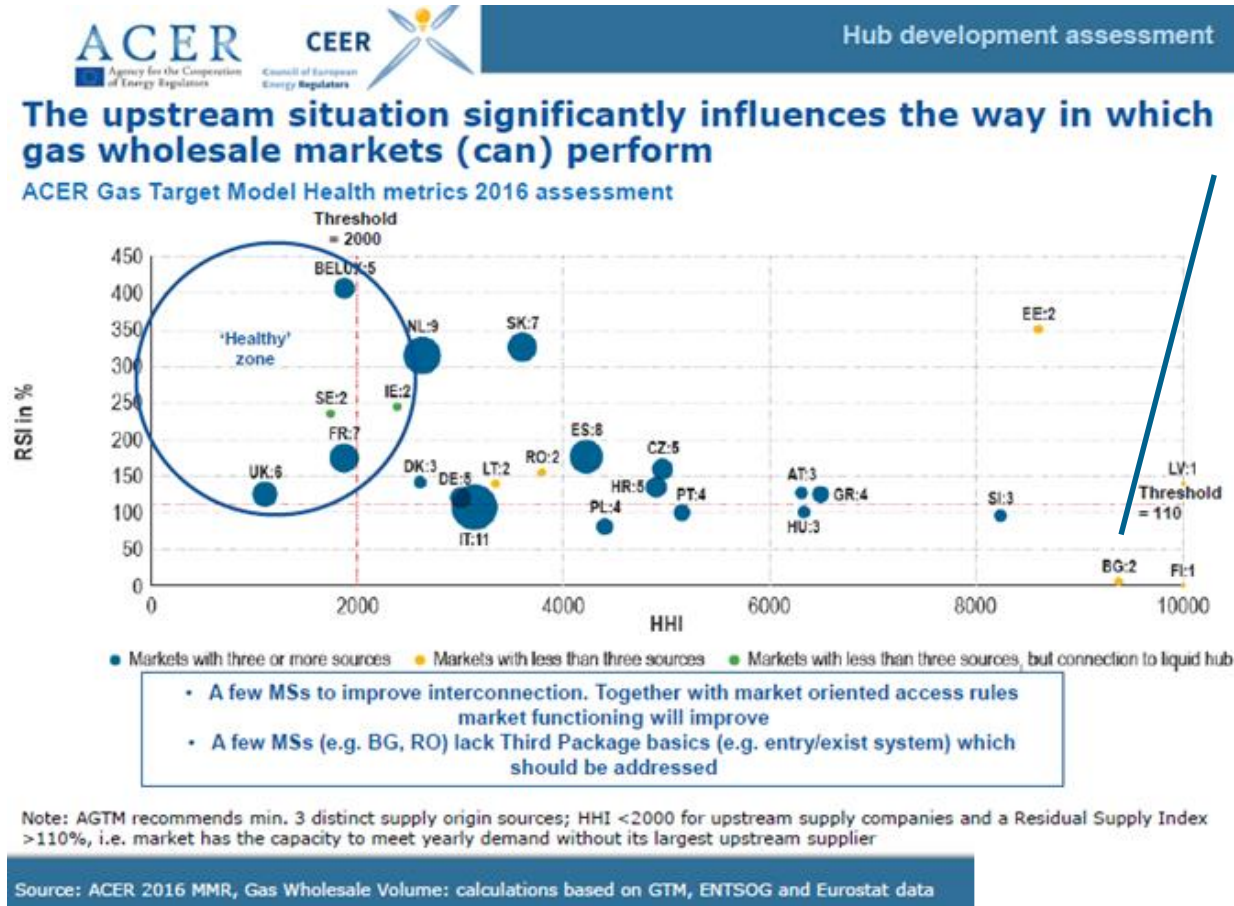
- Gas demand, nationally and regionally, offers ample potential for the growth of gas demand.
 - Bulgaria has been working to implement EU energy market reforms that would support diversity of supplier choice, resulting in increased competition. This would also reduce the risks of security of supply shortage as a result of reliance on a single source.
 - However, progress towards market liberalisations has not been sufficiently rapid or effective and the market remains highly concentrated with limited competition, as shown by the concerns of EC/ACER (see next slide).
 - Supporting progress in key infrastructure development for supply diversification is being made. We applaud the recently concluded Open Season Second Phase for incremental capacity at all IPs (including non –EU ones).
- ▲ So what can be done?



Market access with the EU-acquis as guidance (1)

ACER analysis shows the amount of work still to be done for the Bulgarian gas market to exhibit the Target Market Health metrics, and the points to focus. The ongoing work by BGT on detailed EU network codes implementation, in co-operation with EU stakeholders, is to be continued.

ACER assessment of European gas market development (ACER, 2017)

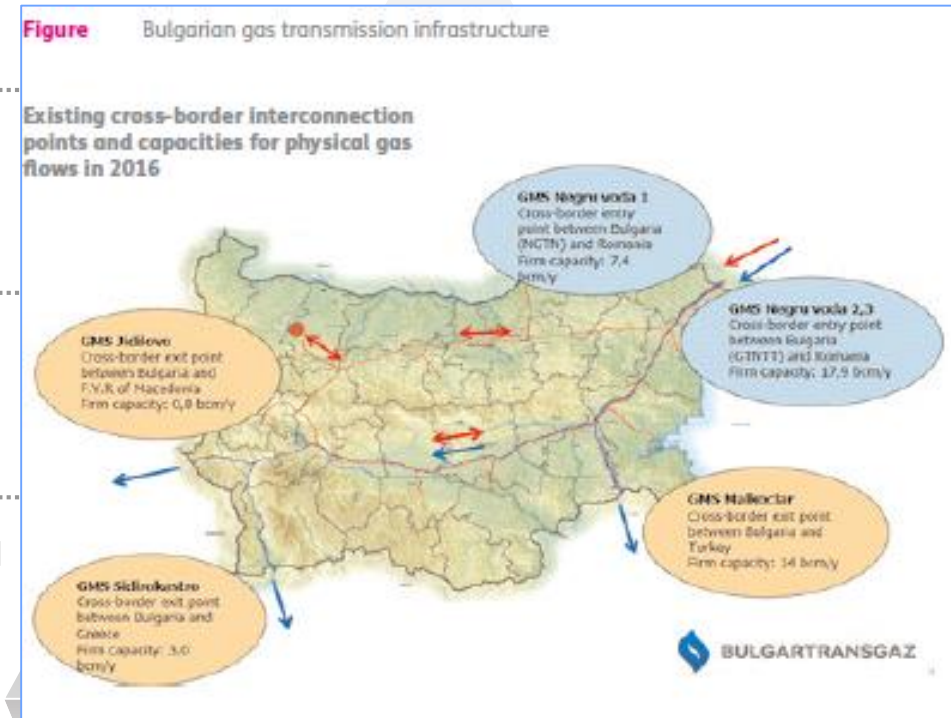


Bulgaria is lagging behind, according to ACER analysis on:

- Number of supply sources;
- Institutional set-up;
- Lack of accessible interconnections;
- limited gas storage availability;
- wholesale pricing being non-hub based.

Market access with the EU-acquis as guidance (2)

The Bulgarian gas hub initiative creates momentum to consider a priori market access rules and liquidity in more detail. E.g. congestion management measures and research into merging two balancing areas.



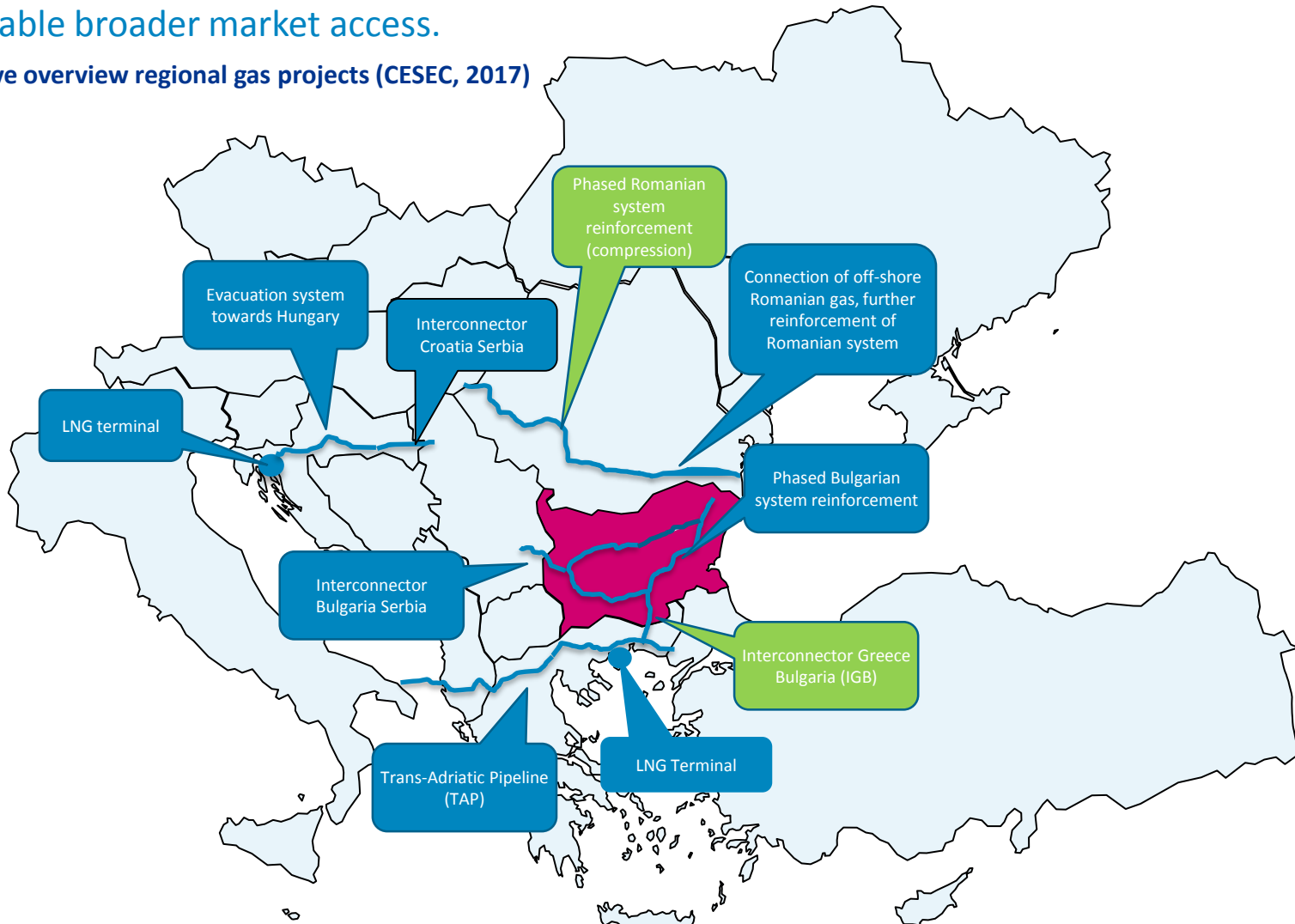
Baringa gas hubs success analysis model

Note: (Liquid) hubs won't emerge overnight. There's often steady progress over time, even after market enabling features are in place.

Supporting selective investments

Gas infrastructure development offers regional opportunity, to use the existing underutilised national Bulgarian network, with selective investments, connecting to regional gas demand of over 70 bcm/year (Turkey, Greece, Romania, Western Balkans). IBG and Romanian compression investment would immediately enable broader market access.

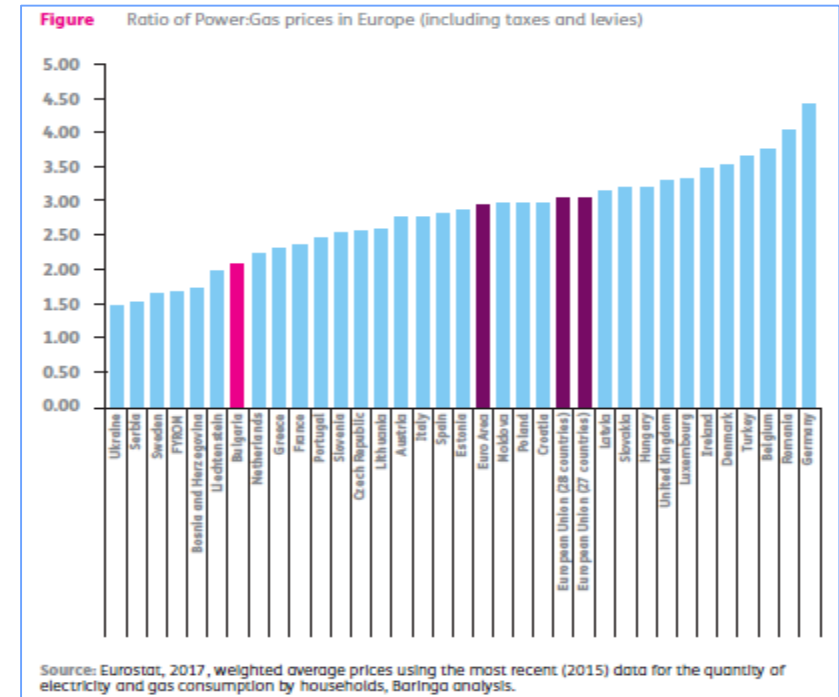
Illustrative overview regional gas projects (CESEC, 2017)



Levelling playing field between Gas and Power

Allow gas to freely compete in the market by ensuring it is not detrimentally treated via regulation and policy versus electricity

- We list below the key inhibitors to growth of gas that we heard of in stakeholder discussions.
- There is frustration amongst the gas distribution companies in Bulgaria that regulation supports electricity at the expense of gas (e.g. the Security of the Electricity System Fund).
 - Since 2017 contributions to the Fund are made also by the two TSOs - electricity (ESO) and gas (Bulgartransgaz). This requirement for the gas TSOs to contribute is seen by stakeholders as unfair.
- The key inhibitor to the installation of gas in homes is the relative cost of power – with most homes being heated via electricity, consumers must be persuaded to switch from that to gas and entails switching costs, connection to network and initial investment into gas equipment (cooking, gas-boiler).
 - Natural gas has a very minor role in heating, with electricity, coal, district heating dominating the heating market. Bulgarian heating association calculations show that using night electricity tariffs will deliver more competitive heat over natural gas. This market sentiment was confirmed in discussions with stakeholders in February 2018.
 - Power prices are regulated and compared to other European countries, inexpensive relative to gas, making the case for switching less compelling (as shown in Figure above).



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Focus areas for detailed transition plan to 2030

Two focus areas are suggested for policy makers in the plans to be set out in the national energy strategy for 2020-2030 as a bridge to the future

- **Unlock market access for gas**
 - **Enable enhanced market access using the detailed EU-acquis as guidance**
 - **Support for selective infrastructure investment**
- **Create level playing field between gas and power**
 - **Allow gas to freely compete in the market by ensuring it is not detrimentally treated via regulation and policy versus electricity**





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***Note slide 5:**

This qualitative case study is a Baringa contribution to the debate across Europe, as initiated by ‘role of gas’-event co-organised in November 2017, with Eurogas, National Grid, and support of ENTSOG. This case study – made in part possible by commercial funding by Shell – can be a helpful input to the preparation of national energy and climate plans in course of 2018. As a strong believer in the critical role that natural gas will play in addressing the energy transition, Shell is highly motivated to lead the dialogue and support others, such as Baringa, who contribute to it with analyses and recommendations.