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Securing Energy Supply and the Environment: Enhancing the Role of Gas in the Regional Energy Market

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Kari Nyman

Sustainable Development Dept
Europe and Central Asia Region
The World Bank

Key Messages

- Energy Community faces increasing energy security and environmental challenges
- Gas power can help the region improve energy security and the environment
- Multiple gas supply options are available – Russian and Caspian gas, Middle East, LNG
- New approach to attract the private sector to develop gas power plants - a Consortium sharing risks among investors and with countries in public private partnerships (PPPs)
- Develop a regional Gas Ring when developing gas infrastructure for gas power stations
- Regional action by the Energy Community
- The World Bank (and other IFIs) willing to help
- EU financing for TA and regional gas infra



Energy Shortages and Environmental Challenges Threaten the Energy Community

- Demand-supply balance to tighten
 - economic crisis provided only temporary “relief” as demand temporarily declined
- Most countries maintain low regulated tariffs
 - State utilities generally cover their low (historic) costs
 - Tariffs do not support new investment
- Countries are opening their markets, but
 - National utilities dominate national markets, as generators or single-buyers from generators/traders
 - Eligible customers are allowed to stay under the (artificially low) regulated tariffs
 - Effective opening and switching of suppliers is limited
- Environmental objectives of the Treaty



Natural Gas – A Promising Option for Power Generation in the Region

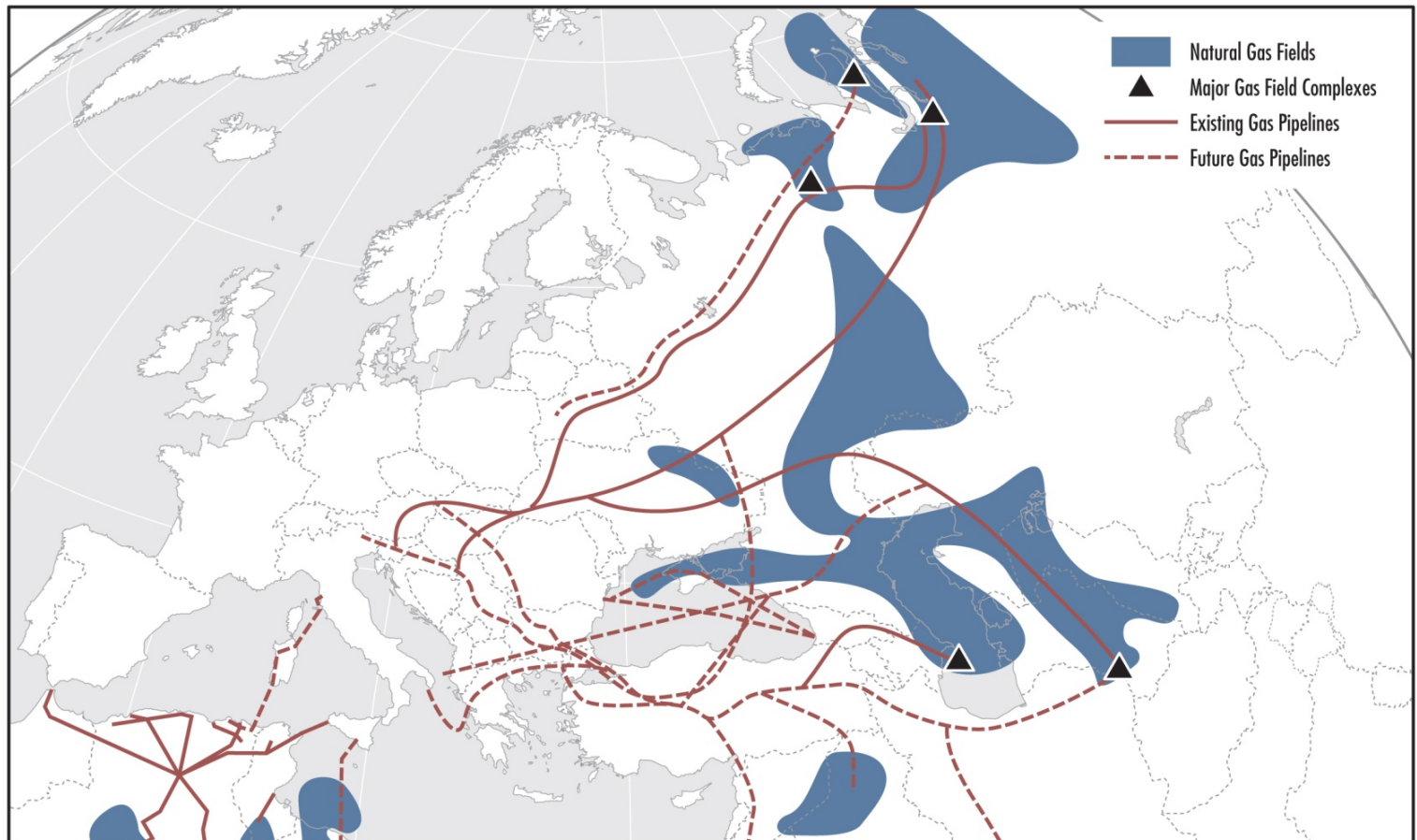
- Natural gas is a promising option to secure **energy supply and the environment** in the Energy Community countries
- While individual demand in each country in SEE is small, together the region can establish gas-fired combined cycle power stations (CCGTs) as **anchor loads** creating an initial gas market for about **2 bcm/year** = to take advantage of the **Azeri offer** to sell 2 bcm to the Energy Community.
- Several other gas supply options also available - Russia, Caspian, Middle East, LNG – and volume does not have to reach 2 bcm in one step



Pipeline Options for Gas Supply

Pipeline gas can be supplied from:

- Azeri, other Caspian and Middle East sources
- Russian fields



Implementing Gas Power – Anchor Loads

Conventional implementation approaches:

- Option 1: State-owned utilities in the individual countries build CCGTs.
- Option 2: State-owned utilities in the individual countries contract Independent Power Producers to develop gas power (note: Article 8 of EU's Electricity Directive provides for tendering).
- Option 3: Private gas power companies build gas power and sell to eligible consumers.



Implementing Gas Power – Anchor Loads

Conventional implementation approaches have not worked well in the Energy Community:

- Option 1: State utilities are unable to finance major power generation projects
- Option 2: State utilities are unable to contract major projects (see slide 8 for details)
- Option 3: Investor concerns about regulation/tariffs, market opening and transmission (see slide 9 for details) – investor perceptions about the regional electricity market ranging from “risky” to “non-existent”



Prerequisites for Option 2 - “State-based” Private Generation Investments

- Creditworthiness of public buyers of private generation – limited by tariff policy
- State guarantees – contingent liabilities on the States, EC/Treaty competition issues
- Project preparation – lack of bankable projects (plenty of ideas and concepts, few detailed feasibility studies and EIAs)
- Ability to contract private generation – reluctance to use advisors, projects don't move to bidding and agreements/closure

Willingness to meet investors' expectations



Constraints for Option 3 - Market-based Private Generation Investments

- Predictable regulation – Treaty transposed but not yet implemented, “gap widening”
- Cost-reflective tariffs – not yet in place
- Effective market opening – limited
- Access to cross-border transmission links – a few favored traders, transparency lacking, CAO proposed but not yet operational
- Regional day-ahead market – country-by-country market coupling preferred for “national control”, slow process expected

Investors look for a functioning market



Implementing Gas Power – Anchor Loads

Option 4 - a possible “new” approach *** to share risks among several investors and participating countries/state utilities:

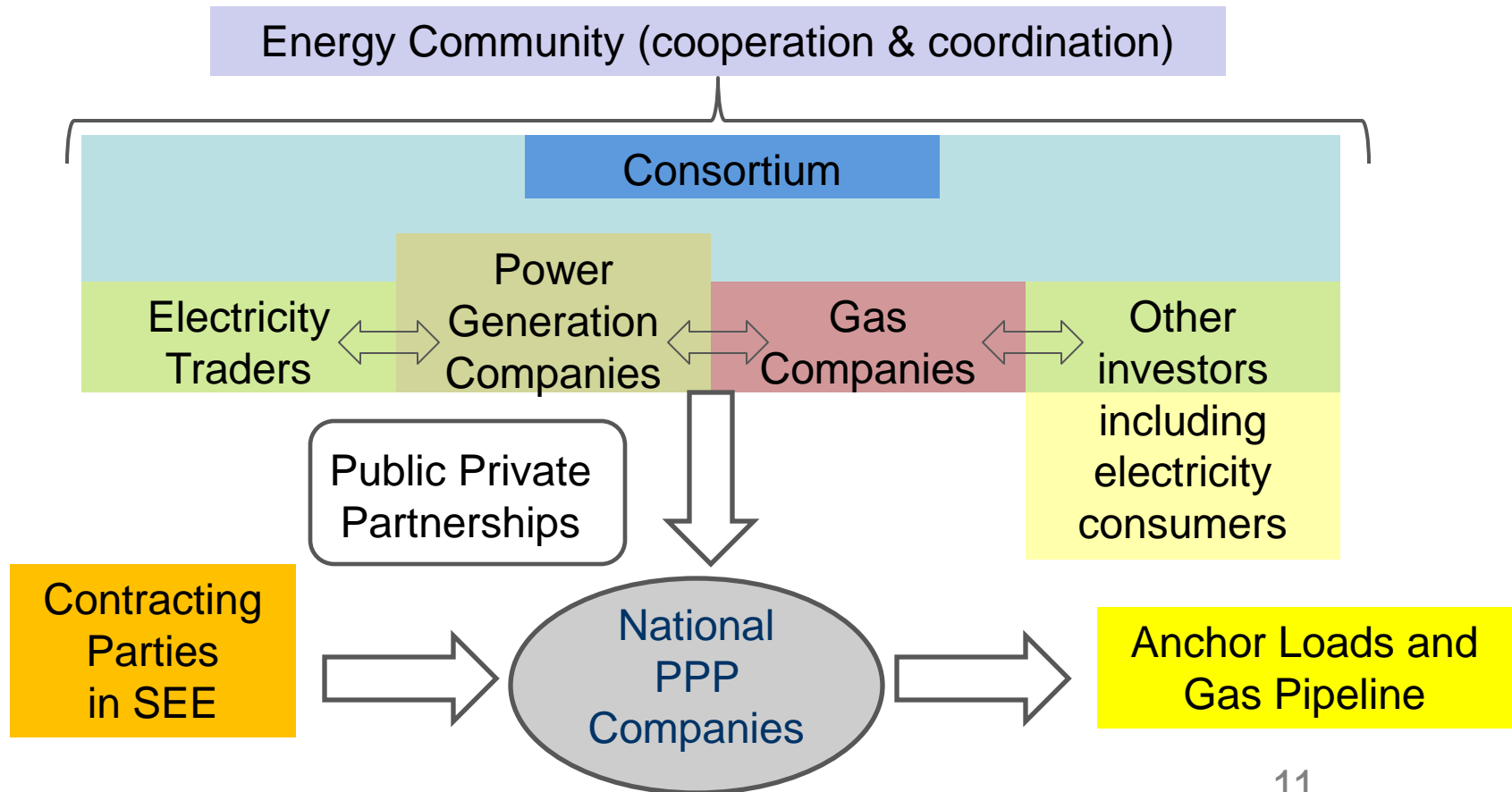
- Several investors in a consortium
- Countries/State utilities can join the consortium and/or contract power in addition to opening their electricity markets to enable the members of the consortium to sell to eligible consumers

*** not really a “new” approach: companies working together to pool resources and share risks and applying a variation of the widely-used public-private partnership (PPP) model to infrastructure development



Consortium for Implementing Gas Power

- Option 4: Consortium approach



Consortium for Implementing Gas Power

Consortium Approach has been used in Finland since 1930s – the Finnish PPP model (Mankala model):

- Large electricity consumers (mostly private, some state-owned) are usually (not always) the main shareholders
- Energy companies (mostly private plus the state-owned Fortum) and municipalities participate as shareholders
- **Shareholders buy the electricity at cost for their own use and/or for their customers** in Finland & NordPool
- Hydro (since 1930s), thermal (since 1960s), nuclear (since 1970s), biomass (since 1980s)
- Largest of these PPP companies is Pohjolan Voima (PVO), established in 1943. About 60 shareholders.
- Most recently established PPP company is Fennovoima, to develop a new nuclear power project. About 60 Finnish shareholders and E.ON in a large 1/3 minority share.



Consortium for Implementing Gas Power

Reference case for the Energy Community:

Consortium Approach applied by Romania in 2006/08

- Government objectives: attract private investment in a 2x700 MW Cernavoda nuclear power, without PPAs and sovereign guarantees and without any one private company gaining a major influence in the Romanian electricity market
- Unlike in Finland, model applied to primarily attract foreign energy investors (high threshold set for participation)
- Attracted a strong consortium: CEZ, Enel, GDF Suez, Iberdrola, RWE, and Arcelor-Mittal
- State-owned Nuclearelectrica was to have a 20% share
- EnergoNuclear established in 2008
- State later raised its share to 50% minimum but could not be finance it; consortium unraveled in late 2010/early 2011

Consortium for Implementing Gas Power

Consortium Approach could deliver Gas Power for the Energy Community

- Consortium approach attracted a strong consortium of energy companies for nuclear power in Romania, without PPAs, w/o sovereign guarantees, w/o IFI guarantees
- Gas power is much less expensive, much simpler to build and operate, much less controversial, than nuclear
- PPAs could be offered for part of the electricity if needed/ if State utilities and Governments are interested
- IFI support for the Consortium and/or Government/State utility participation and/or their electricity purchases
- Could be used to help trigger the Gas Ring, which has the prospect of EU financing support

Interest of Countries and Investors in the Consortium Approach could be explored in the Energy Community

Consortium for Implementing Gas Power

Ownership Structure of the Consortium

- The Consortium would establish national PPP companies in interested Contracting Parties
- Shareholdings could vary, including participation by local companies (electricity consumers and utilities)

Contracting Arrangements

- The shareholders of each national PPP Company would be responsible for all the costs of the electricity and would buy the electricity at cost for themselves and/or to market to their customers (locally and in the regional market)
- If any of the shareholders do not pay for the electricity they take from their PPP company, other shareholders would be entitled to take over the electricity
- Strong shareholder rights for long-term stability



Consortium for Implementing Gas Power

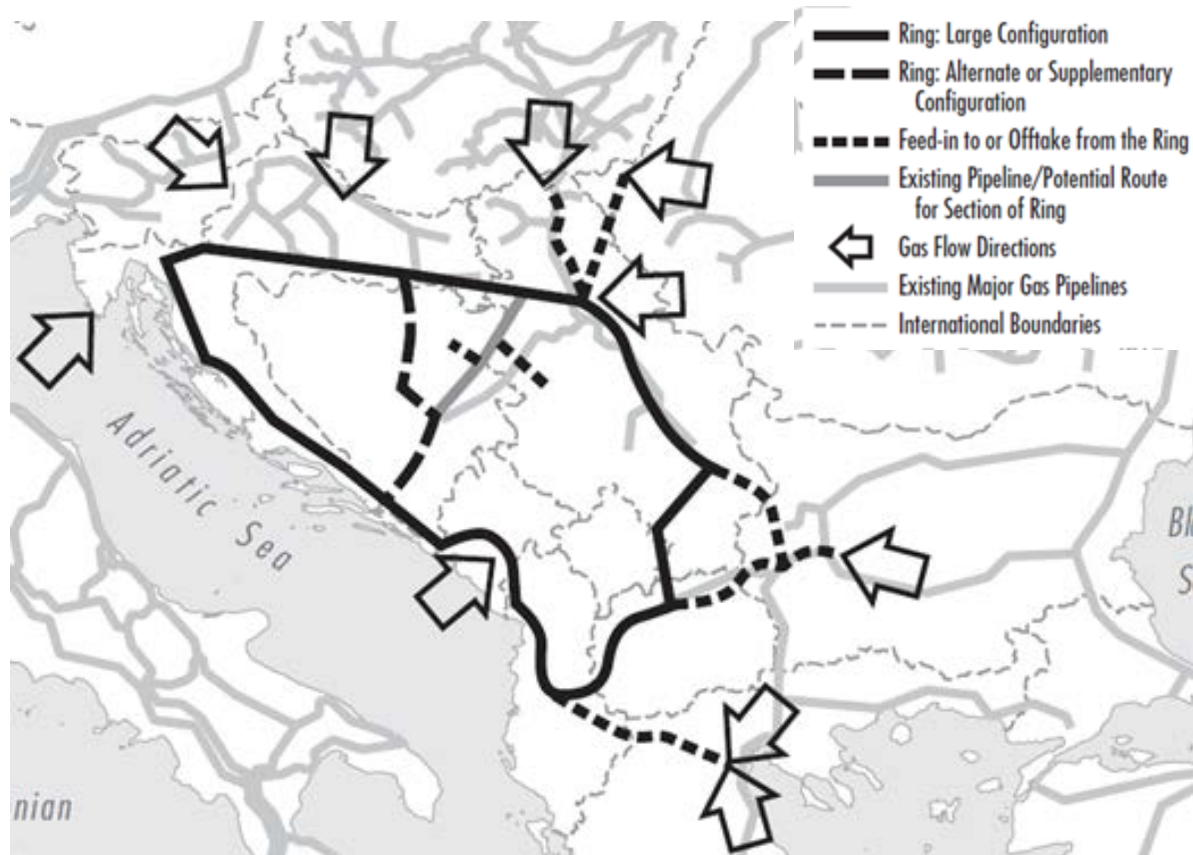
Gas pipeline infrastructure

- The consortium would determine the required gas infrastructure needed to deliver gas to its power stations
- Along with the national gas network companies, (and participating donors/IFIs and the Secretariat), the Consortium would help determine how the gas infrastructure would be developed
- Two alternatives – (a) the Consortium develops the required gas infrastructure; and (b) national gas network companies develop the main pipelines and the Consortium develops the balance
- Network development by national gas network companies would: (a) make third-party access and completion of the envisioned Gas Ring easier; and (b) facilitate possible EU grant and other donor and sovereign-guaranteed IFI financing of the network.



Configuration of Gas Infrastructure - Energy Community Gas Ring Concept

Gas transport pipelines supplying anchor loads would be most advantageous for the region if developed in the form of a *Gas Ring*.



Incremental Development of the Gas Ring

The Gas Ring would be developed in phases

- Albania-Montenegro-BiH-Croatia (=Ionian-Adriatic Pipeline), Bulgaria-Serbia being studied/discussed
- Bring gas to new power stations. Those power plants would, in turn, facilitate other gas uses/distribution
- Over time, other sections of the Gas Ring would be developed, to gasify new areas, connecting new entry points and increasing diversity of supply options and technical and commercial security of supply.
- Ultimately, the entire Gas Ring would be completed, delivering from this point onwards, all of the benefits of a ring, increase of capacity and security of supply with each new injection point.



Compatibility of the Gas Ring with other proposed gas pipelines

- The Gas Ring concept is compatible with all three proposed Southern Corridor infrastructure projects (ITGI, TAP and Nabucco) and SouthStream
- Sponsors of the Shah Deniz 2 gas field in Azerbaijan also considering pipeline investments.
- ITGI, TAP and Nabucco have all made public how their projects are compatible with the Gas Ring concept.
- the Gas Ring would facilitate the increased use of existing and the development of new storage facilities in the Energy Community countries



Benefits of a Gas Ring

- Facilitate increased supply diversity by allowing supply to the ring from almost any direction and from multiple directions,
- Link Energy Community countries into a regional SEE gas market and integrate with their neighbours
- Allow for the development of new gas-fired generation plants in these countries/regional market and help them to comply with their environmental obligations
- Significantly enhance technical security of supply, since a disruption at any one point in the ring could be overcome by supply around the ring from other directions/supply points
- Facilitate the future development of regional gas trading from multiple sources of gas, multiple import points into the region and also between countries in the region



Investment Costs and Financing

- Gas Power Plants: US\$2 billion (about 2,000 MW)
- Energy Community Gas Ring: US\$1 billion
 - 24-inch, 1,200 km
 - developed in phases, synchronized with gas power plant development
- Later: Gas Distribution (up to 20 cities): US\$1.7 billion
- Implementation of Gas Power:
 - Regional vision and coordination among policy makers
 - Essential to get private sector involved
 - IFIs willing to finance a part of the costs and help mitigate commercial/political risks
 - EU financing essential for the development of regional gas infrastructure – the Gas Ring



Implementing Gas Power - Next Steps

- Energy Community decision to enhance energy security through coordinated regional action for gas power – MC Oct 6, 2011
- Engage with private investors for their views on issues and options, including the Consortium approach
- Mobilize technical assistance for required studies and other preparatory work including the mobilization of the Consortium
- Energy Community Secretariat (or another agency) to launch the implementation of the Consortium approach by formally engaging countries and companies– to identify a few prospective gas power projects and attract a Consortium to develop them

Critical parallel action: Energy Community and individual countries to continue their efforts to address energy tariff/subsidy issues, improve energy regulation, open national energy markets, provide access to cross-border links

Implementing Gas Power - Next Steps

Role of the World Bank (and other IFIs as appropriate)

- WB could manage technical assistance
- IFC (a member of the World Bank Group) could provide equity and/or debt financing to the Consortium
- WB could provide financing to state gas utilities
- WB could provide partial risk guarantees to backstop Consortium's contracts with states utilities, in cases where
(a) the state utilities are otherwise unable to establish credible payment mechanisms; and
(b) the concerned state governments are willing to provide the necessary counter-guarantees.

EU financing for technical assistance and development of regional gas infrastructure

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