World Bank and Energy Community Secretariat

Gas to Power in South East Europe: Prospects and requirements

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Outline

- Introduction to the study
- Starting points
  - Gas demand in West Balkan countries
  - Gas prices
  - Previous proposal for the Gas Ring
- A case for gas
  - The regional concept
  - A new approach
    - Sub-regional approach
    - PPP
    - Consortium approach

Gas to power in the South East Europe countries
Introduction to ECA

- Economic consultancy based in London, UK, established in 1997
- Experience in gas, electricity and water sectors, including
  - Gas and power infrastructure economics
  - Regulatory advice
  - Energy policy planning
- International scope with particular experience in SEE Europe and the West Balkans
  - Proposed Gas Ring concept
  - Gas and electricity market studies
  - RE integration in power markets
  - Security of gas supply studies
  - EE strategy and ESCO design
- Clients include WB, EBRD and private sector

ECA has carried out projects in gas and electricity in over 50 countries in Europe, Asia, Africa, Australasia, Middle East and South America

ECA has substantial experience in energy projects in the West Balkan countries
Gas to Power in South East Europe – the brief

- **Study for the World Bank and ECS**
- **Objectives**
  - revisit the Gas Ring proposals
  - develop a PPP consortium approach to promote investment in gas and power infrastructure in the region
- **Focus**
  - Potential role of gas in the region
  - Interest of private and public investors
  - Identifying key conditions required for a PPP consortium
  - Design the structure and formalisation of the consortium
- **Propose a roadmap for implementation of PPP consortium approach**

ECA is lead firm in multidisciplinary team including national and international infrastructure financing experts as well as law firms Allen & Overy and Karanovic/Nikolic
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Gas only plays a small role in power generation mix – hydro, lignite dominate

Source: Entso-e and Entso-g
Gas prices currently not competitive compared to hydro and lignite/coal

Widening price spread between coal and gas

Variable costs of power generation for gas above electricity price range between 20 and 40 €/MWh
Reason for optimism - factors that may improve gas to power investment opportunities

- Access to more diversified supply sources – e.g. LNG and Azeri supplies
- Downward gas price pressure from:
  - Shift in gas trading in Europe from long term contracts to spot markets – convergence of prices
  - Global oversupply of LNG in medium to long term possible
- Age of existing power plants
- Environmental commitments
- Political commitments – gas features as prominent fuel in future development plans with 1,940 MW planned by 2020
Economic cost of electricity generation:
Gas may be lower than lignite

- On a financial basis, gas is currently not attractive compared to lignite.
- Considering the environmental costs, gas may be the preferred option.
- Across all countries, the NPV (over 30 year time horizon) of total costs (including environmental costs) may be lower for gas than for lignite.
Existing and planned gas fired power plants in West Balkans

- Jertovec Dual fuel, 84 MW
- Zagreb CHP, 330 MW
- ELTO Zagreb, 90 MW
- Sisak Dual Fuel, 230 MW
- Zenica CCGT, 560 MW
- Kakanj Dual fuel, 170 MW
- TETO Osijek, 90 MW
- Gazprom Osijek, 450 MW
- Novi Sad CCGT, 450 MW
- CHP TETO, 234 MW
- CHP Kogel, 30 MW
- CHP Energetika, 300 MW
- CHP Zapad, 200 MW
- CCGT Negotino, 300 MW
- Vlorë Dual fuel, 120 MW
- Unspecified plant, 300 MW
Many proposed regional projects that could diversify supply sources for the region

- TANAP and TAP will bring new gas to the region after 2017
New gas supply entry points for Russian, Azeri gas and LNG are proposed

- Gas from Agri LNG or White Stream via Romanian transmission system
- Gas via South Stream
- Gas via TAP, AGRI LNG or White Stream
- Gas via TAP or Greek LNG terminal

LNG from Adria or Hrvatska LNG
LNG from Eagle LNG
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Gas to power in the South East Europe countries
Opportunities for gas to power investment to improve in medium term

Reasons for slow development in past

- Low lignite and high gas prices
- Hydro generation as baseload
- Lack of political commitment to gas
- Slow electricity demand growth

Key drivers for future gas demand

- Downward price pressure from shift to gas spot market trading and access to LNG
- Gas considered key factor in future national energy plans
- National environmental commitments
- Replacement of old power plants
- Access to more diversified gas sources
The regional concept: Gas Ring as proposed in 2008/9

- 6.5 bcm/yr Operational
- Interconnector Hungary-Croatia
- ?? bcm/yr 20xx (?)
- Interconnector Serbia-Croatia
- 2 bcm/yr 2015
- Interconnector Bulgaria-Serbia
- Existing Bul-FYRM
- TAP pipeline
- 10 bcm/yr 2016
- 0.8 bcm/yr Operational

Existing
Planned
A new approach

- Coordination among all 7 countries simultaneously is difficult (e.g., elections!)
- Start with projects involving smaller sub-regions of SEE
- TAP, possibly LNG, will create opportunities
- Engage the private sector to maximum extent
- Private sector investors are common approach in power IPPs and LNG terminals
- Pipelines and transmission lines are more difficult
- Bring parties together in a consortium (one or more) structured to facilitate financing

- Sub-regional approach
- PPP
- Consortium
Three different options and sub-regional steps towards full development

Option 1
- Updated version of Gas Ring concept
- TAP/IAP interconnection
- Link from Greece (TAP) > Macedonia > Northern countries
- Key supply sources: TAP, LNG, South Stream

Option 2
- Integration with TAP only in Albania
- Albania-Kosovo interconnector
- Short link to Macedonia
- Key supply sources: same as Option 1

Option 3
- LNG focused strategy
- Same supply route for Kosovo, Macedonia as option 2
- LNG terminal in Montenegro, as well as Albania, Croatia
Consortium: promote buy-in from public and private investors

- Consortium will assist project development by improving economies of scale
- Could be smaller consortia within the region (sub-regional approach)
- Public and private entities (PPP)
- Potential parties to express interest
- Design suitable consortium structure
The consortium approach – next steps

- **Structure and legal status of the Consortium**
- **Role of PPPs** – maximise private sector leverage on public sector financing
- **Financing infrastructure** – investment and ownership
- **Electricity offtake arrangements** – spread their risk across different downstream credit-worthy offtakers
- **Gas buying arrangements** – which parties underpin the gas purchasing? Long term contract or spot?
- **Payment mechanisms, guarantees** – spreading the risk – role of guarantees and potential guarantors

**Project proposals**
One or more groups of countries

**Expressions of interest**
Private and public parties – ‘in principle’ commitment

**Structuring the Consortia**
Ensuring each Consortium improves risk allocation, project economics, and financeability

**Roadmap**
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