Energy Policy Group (EPG)
Key policy issues in the Romanian electricity sector

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Energy Policy Group – Andrei Covatariu and Dragoș Tâlvescu
Ministry of Energy – Ruxandra Raluca Florescu and Cristina Necula

About EPG

Competences

- EPG is a Bucharest-based non-profit, independent think-tank specializing in energy policy, market analytics and energy strategy, grounded in February 2014. EPG's regional focus is Eastern Europe and the Black Sea Basin, yet its analyses are informed by wider trends and processes at global and EU levels.
- EPG promotes a technologically advanced, environmentally friendly and socially acceptable energy system. Its views are self-standing and science-based. EPG relies on the best specialized data sources, as well as on its own research concerning energy security and strategy, technology, markets, geopolitics and political risk.

SEERmap participants

- **Dragoș Tâlvescu**, EPG affiliated expert (energy economics)
- **Andrei Covatariu**, EPG affiliated expert (electricity networks and technology)

- **Cristina Necula**, Energy Ministry, counsellor, DG Energy Policy (RES, energy efficiency, cogen)
- **Raluca Florescu**, Energy Ministry, counsellor, Dept. of European Affairs and International Cooperation (RES, environment)

Contact

- office@enpg.ro, www.enpg.ro

Key policy issues in the Romanian electricity sector (1)

- **Three fundamental strategic objectives: security, affordability, emissions**
  - **Security of supply** – both short term (stress tests) and long term
    - Maintain a balanced, diversified power mix for the foreseeable future
    - Strengthen/ modernise the grid (transmission and distribution), expand interconnection capacity
  - **Affordability** – competitive price for industry/ services; affordable price for households
    - Competitive, liquid, efficient power market – based also on functional natural gas market
    - Gradual decommissioning of the remaining old, inefficient power plants/ CHPs
      - ✓ Market-based investments in new capacities, with limited state interference
    - Careful prioritisation and timing of grid investments, to avoid excessive cost and grid tariffs
    - Predictable and equitable taxation and subsidies in the electricity sector
  - **Emissions** – fair contribution to EU GHG targets; limit air, water and soil pollution, while preserving biodiversity
    - Future of nuclear energy – Cernavoda 3 &4 (CANDU 6 technology), extension of lifetime for 1&2
    - Future of lignite and sub-bituminous coal – declining competitiveness in regional market (ETS)
    - Future of natural gas – gradually taking over from coal, balancing friend of RES alongside hydro
    - Future of RES – gradual expansion of hydro, wind, solar PV and biomass/ biogas

Key policy issues in the Romanian electricity sector (2)

- Romania is on track to meet its European 20-20-20 commitments
  - Romania's power mix: 41% RES, 59% carbon neutral, 73% low emissions (incl. gas)
    - Power mix in 2015: 27% coal (lignite and sub-bituminous), 27% hydro, 18% nuclear, 14% natural gas, 11% wind, 2% solar PV and 1% biomass
    - Considerable untapped potential for wind, solar PV and biomass
      - ✓ Despite massive investments in wind and solar PV in the past 5 years, which pose affordability problems
      - ✓ Cheaper technology and capital can unleash significant new investments after 2020
  - Energy efficiency still has considerable potential, even in electricity
    - Romania's energy intensity at PPP is 95% of the EU average (0.229 toe/1000 €)
      - ✓ Considerable, rapid improvement in the past 20 years, due to industrial restructuring and modernisation
      - ✓ Limited potential for continued rapid increases in efficiency for industry, low-hanging fruits have been already tapped
      - ✓ Main potential in buildings, particularly thermal efficiency/ heating (low impact on electricity sector)
    - Gross of 52 TWh (about 2650 kWh/capita), just over 50% of 1990 level
      - ✓ Large potential to improve efficiency of gross electricity demand, with still considerable losses in the transformation, transmission and distribution segments of power
  - Non-ETS emissions are considerably below targets and the burden sharing agreement

Key policy issues in the Romanian electricity sector (3)

- Electricity demand has considerable potential to rise
  - Final electricity demand of 2000 kWh/capita expected to rise
    - Efficiency of final use will rise with adoption of LED-lights and eco-design of appliances
    - Higher living standards will unleash strong rebound effects – especially air condition in summer
    - 100 000 households lack access to electricity in Romania – off-grid solutions have high potential
  - Heating as new area of considerable potential electricity demand
    - Heat pumps (ground-based at low depth) are currently not competitive with natural gas boilers
      - ✓ End-user price ratio of electricity-to-gas is too high to justify investment, even for new homes
      - ✓ High CAPEX for heat pump, compared to gas boilers – some subsidies (e.g. Casa Verde)
    - Solar thermal for hot water has considerable potential
      - ✓ Will replace natural gas and may compete with distributed solar PV, especially in the countryside
  - Electric mobility and its impact on electricity demand
    - Trains, trams, subways and trolleybuses have been on a declining trend over the past years
      - ✓ Buses and mini-buses have become the cheaper, quicker alternative
      - ✓ Better road infrastructure expected to reinforce the trend, not least because of insufficient investments in infrastructure (mainly railways) for electric mobility
    - Electric cars, buses and trucks – not a high share in the foreseeable future
      - ✓ Current focus: charging stations and subsidised purchase of a small number of electric cars

Relevant policy documents on Romania's electricity sector

Recent policy documents (last two years)

- Communications to the European Commission
  - Energy efficiency action plans – updated plan to be submitted in early 2017
  - Scenarios for development of district heating to 2030 (EED, art. 14 submission)
  - Progress reports on renewable energy
- Communications to ENTSO-E, ENTSO-G, ACER
  - TYNDP for gas (2014-2023, the 2016-2025 plan is due in December) and electricity (2016-2025)
  - Annual reports on the electricity and natural gas markets, from the regulator

Upcoming policy documents relevant for SEERmap

- Revision of the green certificate (GC) scheme
  - Expected to bring stability in the GC market and ensure it is equitable
    - ✓ Current regulations are not delivering the promissed returns to all investors
  - The scheme will be closed for new investments as of December 31, 2016
    - ✓ No new scheme is envisaged in the near future
- Revision of the cogeneration bonus
  - Full compliance with EU competition regulations
- Romania's new Energy Strategy 2016-2030, with a perspective to 2050 (see next slide)

Romania's new Energy Strategy 2016-2030 (2050)

- Based on extensive public consultations and gathering of expert opinion
- Preliminary results from quantitative modelling due end of September 2016
  - Three main scenarios: Reference, Policies 2030 (EU 2030 targets), Policies 2030 maximal (more ambitious 2030 targets for Romania, binding at national level)
  - Four price sub-scenarios: Low, Medium low, Medium high and High fossil fuel prices
  - Numerous sensitivities – particularly with variations in the electricity mix (new projects)
  - Using the latest version of the PRIMES, GEM-E3 modelling suite
- Draft version open for public consultation from October 10, 2016
- Final version of the strategy planned by mid-November 2016
  - Setting targets for 2030 – for energy efficiency, renewable energy, GHG emissions etc.
  - Defining strategic objectives, operational objectives and priority measure to achieve them
  - Focus on trends and technologies, rather than individual projects in the power sector

Country specific issues – policies relevant for electricity

Other recent or upcoming decisions relevant for the SEERmap project

- Revision of Energy Law 123/2012 - currently in Parliament for revision
  - Version adopted in June 2016 is seen as distorting competition to support inefficient incumbents
  - Opening for direct electricity exports by domestic producers, which is currently forbidden
- Development of the power exchange OPCOM, by introducing new trading products
  - Derivatives similar to the futures and options available on Western European power exchanges
  - Important for the competitiveness of domestic power producers – enhanced possibility to hedge
- Support scheme for energy from biomass and waste
  - Subsidising energy from biomass is sensitive, due to concerns about deforestation
    - ✓ Meanwhile, no support for energy crops due to concerns about competition with agriculture
  - Subsidising waste-to-electricity solutions is also meant to solve a pending infringement procedure
    - ✓ Most waste currently goes to landfill unsorted, with little recycling
    - ✓ However, danger of environmental and health hazards from waste incineration
- Deployment plan for smart meters and smart grids (due in 2017/2018)
  - Current stage: Drawing conclusions in a national study encompassing several regional pilot projects
- Elimination of the infrastructure tax (so-called "*pillar tax*") from January 1, 2017

Country specific issues – power capacities

- Investment decisions (with partial public ownership)
  - Expansion of nuclear capacity by building 2 new nuclear reactors: Cernavoda 3&4
  - Building a large pumped-storage hydro capacity of 1000 MW at Tarnița-Lăpuștești
  - Building a new 600 MW, supra-critical unit based on lignite at the Rovinari power plant
- Future of old, inefficient power plants – both public and private
  - Complexul Energetic Hunedoara – insolvent and at risk of filing for bankruptcy
    - Plans for continued activity in 2 mines and for 380 MW, but compliance investments needed
  - Complexul Energetic Oltenia – large losses, restructuring necessary
    - Lay-offs, retiring old equipment, closing marginal/ high cost mines
    - Investments needed to comply with NOx regulations
    - Modernisation and compliance investments for unit Rovinari 5 and at Ișalnița
  - Uncertain future also for several other companies:
    - Romag Termo (Drobeta Tr. Severin), CET Govora, Electrocentrale Constanța, Electrocentrale Galați
    - Electrocentrale București needs to make large investments, but has high accounts receivable

Inputs to long term electricity scenarios

The three REKK suggested scenarios are suitable for the scope of SEERmap

- Reference Scenario
- Decarbonisation Scenario – 93% emissions reduction in power sector by 2050 starting now
- Delayed Decarbonisation Scenario – 93% emissions reduction by 2050, but starting in 2030

Romania is bound in its power sector development by EU commitments

- Issues related to network development are essential in a regional perspective
  - EU financing for interconnections between all countries in the region – security of supply
- Issues related to regional market coupling and integration
  - Regional market for ancillary services/ balancing, including demand side management
- However, it is essential to first ensure a competitive level playing field
  - Environmental compliance – same standards for SOx, NOx, dust, Hg etc.
  - Participation in the ETS market by all countries, with similar, if any, derogations etc.

No regional support schemes for power generation technologies needed

- Common European framework to facilitate capital flows (eliminate country risk)
- Local potential and environmental permitting should drive individual investment projects
  - Distributed generation from local, renewable sources, based on resources potential

THANK YOU
FOR YOUR
TIME AND ATTENTION!