

OUTCOMES GROUP SESSIONS



Group 2

Scenario Workshop – MSs/NRAs/EC feedback

5 July 2016

Participants

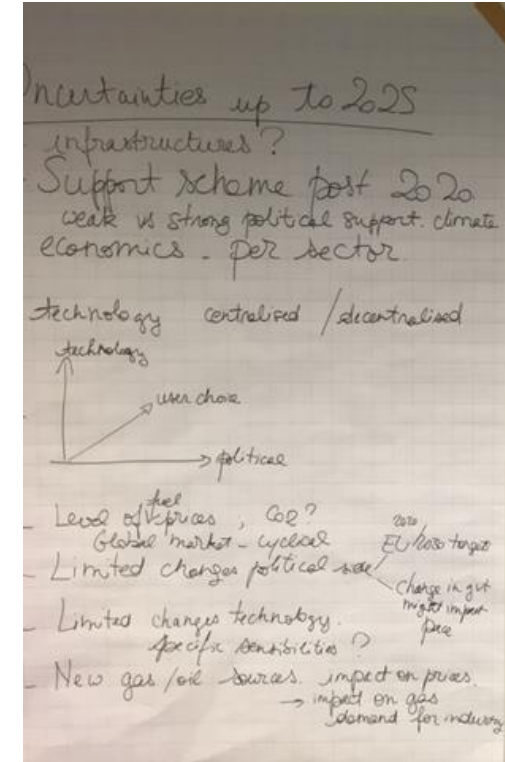
- Ana Ecaterina Badarau (Romanian Ministry of Energy)
 - Boyko Nitzov (ACER)
 - Gudmund Bartnes (Norwegian Energy Directorate)
 - Riccardo Vailati (AEEGSI)
 - Sébastien Lepy (RTE)
 - Tatu Pahkala (Finnish Ministry of Employment and the Economy)
 - Max Laven (Dutch Ministry of Economic Affairs)
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- Céline Heidrecheid (ENTSOG)
 - Stefano Astorri (ENTSOG)

Morning session. To warm
up towards scenario
development

Discussion uncertainties and stories of scenarios

Which assumptions are most uncertain for the near term (until 2025)?:

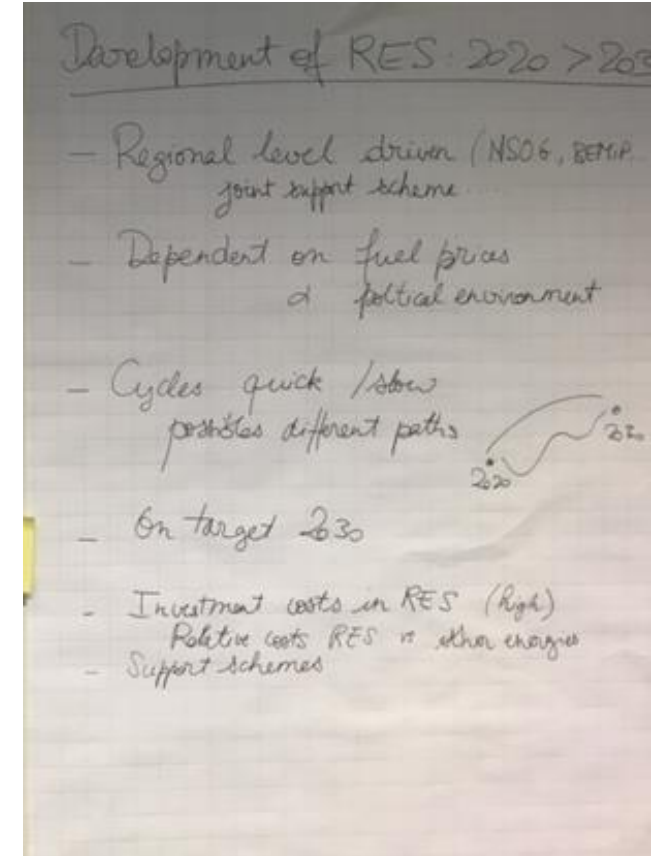
- **Technology development**
 - centralized vs decentralized
 - some technological breakthrough could be possible but in the scenarios development those should be considered more as a sensitivity analysis respect to a more «stable» and likely situation
- **Political**: in term of strong climate policies. Targets in Europe have been already defined for 2020 and 2030 and should be then taken into account in the scenarios. The path in between may instead take different shapes.
- **Conflict** between highly effective policies and unavailable technologies (or vice versa)
- **Economic growth**: especially after 2020 economic growth will be the driver for technology implementations in different sectors
- **Global commodity price evolution** while future CO2 price considered less uncertain
- Development of **new gas and oil sources** (e.g. Romania production) with consequent impact on availability and prices



Discussion uncertainties and stories of scenarios

How is the development of RES progressing from 2020 to 2030 ?

- At EU level? National level?
 - Needs strong support? Happens anyway? Reaching the target.
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- development of RES more at regional level (corridors)
 - will continue to depend on support schemes (not always working properly) and will need strong regulatory and political support
 - influenced by fuel and CO2 prices
 - cyclical evolution of RES development (boost and bust) depending on evolution of global prices. It will be therefore difficult to forecast how this will happen at regional level
 - RES target to be considered met: we can assume 2020 and 2030 RES level as more stable point (fixed level) but we cannot know for sure the path/trend to 2020 and between 2020-2030
 - (relative) investment cost of RES will be one of the main drivers (eg. offshore wind): RES technology development path will always stay ahead of other fuel technology advancements?



Discussion about the use of coal and gas for power on the short time horizon (2025-2030)

What are the drivers towards gas being used before coal (Get people to write the answer on post it notes and sort in groups. Three per person) (10 min)?

Groups

Regulatory or Political drivers:

- Climate change policies per MS (often divergent and that's why the impact would be low even if policies would be more than likely)
- Protectionist practices at national level to keep a certain national generation mix favoring specific fuels
- Limited emissions from coal due to LCPD and IED (high probability since already implemented and binding) but impacting only in that Countries where measures haven't been taken yet (for this reason the effect is expected to be little)

Technological drivers:

- Long-term flexibility for RES by gas as backup (high probability given the increasing share of RES and the flexibility of gas-fired plants but only after 2030)
- For CCS development no clear idea on where to put it but still an important element to be at least considered in the scenarios

Economic drivers:

- Price differential depending on marketing policies of main suppliers since both coal and gas will be always imported
- CO2 prices (in 2030 we will still have CO2 ETS but its value and impact is what will be uncertain)
- Global commodity prices

Other:

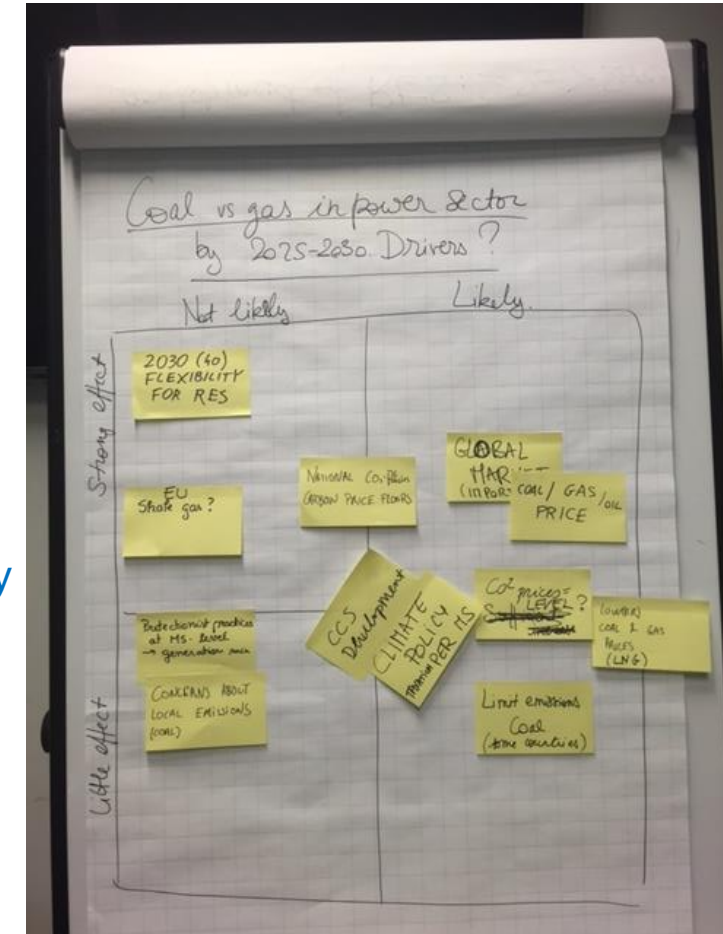
- EU shale gas (strong effect on prices and oversupply but not credible)
- National concerns pushing out more polluting fuels such as coal (not considered highly probable especially in certain countries too much relying on coal today)

How likely are these (drivers) to happen? (10 min)

Strong effect	<ul style="list-style-type: none"> RES flexibility by gas (more 2040) EU shale gas 	<ul style="list-style-type: none"> Global commodity market (impacting on price imports) Coal/gas prices
Little effect	<ul style="list-style-type: none"> Protectionist practices impacting on national generation mix Public concerns about local emissions pushing out higher polluting fuels (such as coal) 	<ul style="list-style-type: none"> Limited emissions from coal due to LCPD and IED (but impacting only in that Countries that hasn't take any decision yet) Climate change policies per MS
	Not likely	Very likely

Additional labels in the table:

- national CO2 prices/carbon floor (between Strong and Little effect, Not likely and Very likely)
- CCS development (between Little effect, Not likely and Very likely)
- CO2 prices level??? (between Strong and Little effect, Very likely)
- Lower coal and gas price for always oversupply (between Strong and Little effect, Very likely)



Do we have coal in power generation, heat and industry in 2040? (10 min)?

How many says yes: x2

How many says no: x5 (in terms of significant reduction and no phase-out)

Arguments for :

All policies look at emission reduction making coal more expensive

RES development and more flexibility needed

Existing gas local resources to be used providing more stability in generation against coal/lignite

No new coal power plants

Arguments against :

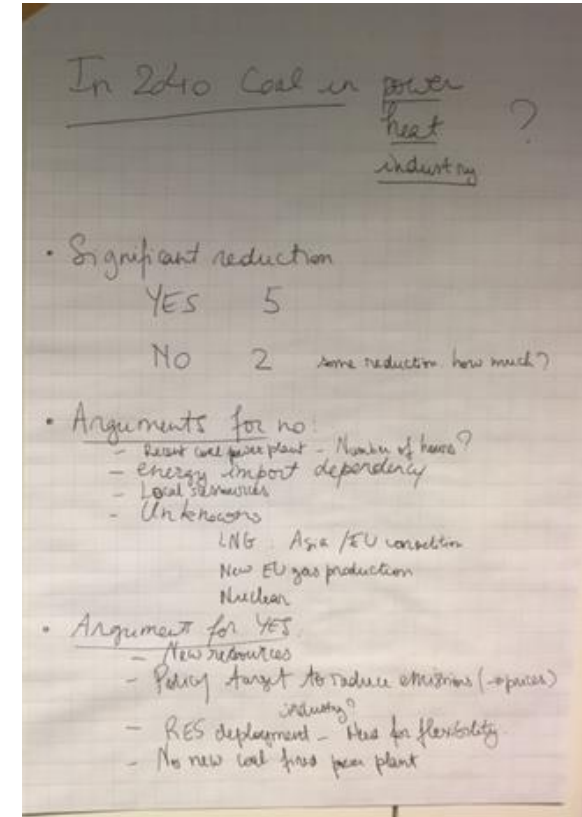
Energy imports (will increase to 70%) and local availability of coal could reduce it

Local support for recently built coal power plants

Other remarks:

Most of the participants agree that a significant reduction is expected (but not a complete phase-out). The level of this reduction is uncertain and due to different factors such as:

- new gas sources availability
- Panama canal making LNG to Asia more economically viable and reducing its availability for Europe
- nuclear evolution (less nuclear make more coal more likely)



Afternoon session. Build
your own scenario

Build your own scenario (1,5 h) (see next 2 slides)

Ask the group to come up with a name for a scenario (or two) and build their own scenario (more if there is time)

Start with a blank flipchart: describe the scenario in short sentences. Three to four elements. The scenario should be plausible/believable.

Defining questions: Do you think we are on, above or below the climate target for 2030?

Defining storyline for your scenario? Example: nuclear, green ambitions, economics.

Which relevant developments in society and technology do we need to represent in the scenarios for 2030?

How do you imagine 2030?

Views on 2030

STORYLINE of 2030 scenario:

The defined «Gradual progression towards 2030 targets» scenario foreseen a 2030 picture with not big changes compared to today observed trends (i.e. a “tomorrow as today” vision).

Moderate economic growth expected (around 1%) not being able to drive significant technology changes (e.g. in elec. storages, gas vehicles, etc.).

Europe results being overall on track with binding 2020 and 2030 targets (not going beyond).

CO2 prices increase moderately and emission reduction is mostly achieved with energy efficiency and subsidies to RES.

Being cheaper and with a greater impact investment in energy efficiency before RES. All new dwellings are well insulated (1% of houses every year), as according to EU Regulation. While renewables sources follow the same evolution trends observed in the last few years.

Among renewables biogas and biomethane increase significantly. However, given the size of the potential, they still cover a share of total gas consumption with fossil gas still playing a relevant role.

Gas oversupply (LNG and potential new sources) make gas more competitive than coal (even with not extraordinary high CO2 prices).

However coal is not completely phased out since still necessary for system needs in some Countries

Climate action driven by		
Macro economic trends	EU on track to 2030 target?	Gradual or modest
	Economic conditions	GDP ~ 1% (20-25)
	Electric and hybrid vehicles	Moderate growth
Transport	Gas vehicles	Low growth
	Demand flexibility	
Residential / Commercial	Electric heat pump	
	Energy efficiency	Increasing
	Hybrid heat pump	
Industry	Electricity demand	Low / declining
	Gas demand	Low / declining
	Demand flexibility	
Power	Market order	Gas
	Nuclear	- Phase out where today - Reduction of under calls - Existing units phase out
	Storage	Limited growth
Renewables	Wind	Today trends
	Solar	Today trends
	Bio	Increasingly significant
Gas Supply	Autoproducers	Not significant
	Power to gas	Not significant
	Shale Gas	No
Other	Gas infrastructure	Increasing (still low share in gas supply)
	Biogas	Increasing (still low share in gas supply)

Factor		
Scenario name		Gradual progression towards 2030 targets
Category	Criteria	
Macroeconomic Trends	Climate action driven by	
	EU on track to 2050 target?	Generally on targets 2030
	Economic conditions	Economic growth: GDP ~ 1% (0-2%)
Transport	Electric and hybrid vehicles	Moderate growth, based on today trends
	Gas vehicles and shipping	Low growth, based on today trends
Residential / Commercial	demand flexibility	
	Electric heat pump	
	Energy efficiency	Ambitious insulation 1% of stock / year
	Hybrid heat pump	
Industry	electricity demand	business as usual or declining
	gas demand	business as usual or declining
	demand flexibility	
Power	Merit order	Significant coal reduction: coal where system needs
	Nuclear	Today national phasing out implemented, existing units unchanged, under construction come on line
	Storage	Limited growth
	Wind	Today trends as basis
	Solar	Today trends as basis
	CCS	Marginally significant
	Adequacy	
Gas Supply	Power-to-gas	Not significant
	Shale Gas	No
	Bio Methane	Increase, but remains a limited part of the overall gas supply
Other	Bio gas	Competing with coal and gas (few %)

