

# OUTCOMES GROUP SESSIONS

Group 1

Scenario Workshop – MSs/NRAs/EC feedback

5 July 2016



# Split per groups

First Name	Last Name
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James	Gudge
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Last Name	Organisation
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Stefan	Dunke
Stefano	Astorri
Susanne	Strobl
Tarvo	Siukola
Tatu	Pahkala
Tomas	Skrha
Tomasz	Jerzyniak

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Morning session. To warm  
up towards scenario  
development

# Discussion uncertainties and stories of scenarios

**Question:** Is it necessary to “connect the dots?” . To have one storyline all the way from 2025 to 2040?  
**Pros and cons of the different of the different options? 10 min. per question**

## Connect

Pros:

- Logical to connect the dots, represents the policy development.
- Captures policies, predictability for investors to guide investment decisions.

Cons:

- Could also introduce technological change that is not relevant for the previous scenarios

## Not connect

- Pro: Good to look at possibilities outside the dots – flexibility to investigate future developments. Can change the storylines if required.

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

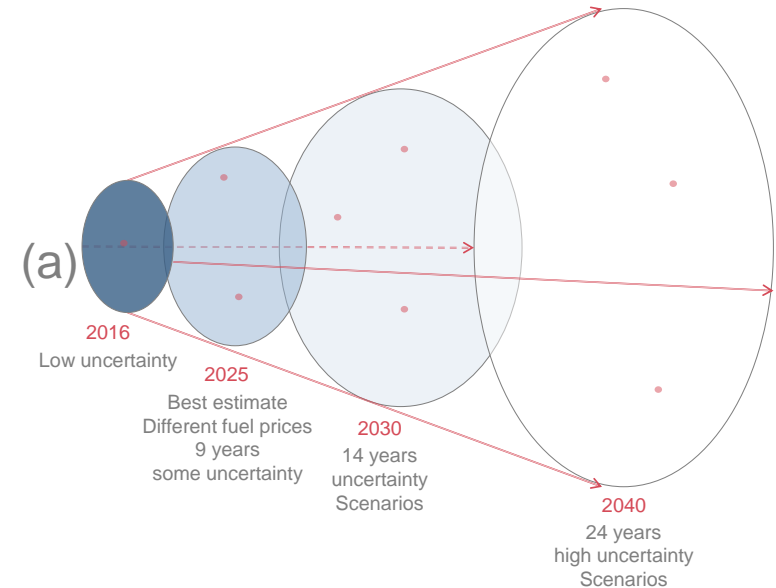
- Economic factors – finance
- Politics
- Regulatory frameworks
- Technological developments – storage, demand side response/flexibility
- Consumer behaviour and perception – will they react to energy prices in 2025
- Energy prices
- Fuel switching – merit order of coal and gas. Impact on other sectors
- Future of nuclear plants...impact on baseload generation
- RES-E development – large commercial vs small scale consumer

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

- At EU level? National level?

- Needs strong support? Happens anyway? Reaching the target.

- Support schemes
- Economics – grid parity, costs reducing
- Maturity of technology
- Self generation/consumption...large uptake in energy by people >> changes like this, influenced by things like fuel poverty or lack of disposable income
  - EU level consideration – there is always a gap in terms of poverty.
- Regulatory requirements, especially in some countries, building codes
- Targets – degree of freedom...why do not all sectors contribute to targets, not just the electricity generation sectors.
- Development driven by EU or National level – ultimately both.
- EU level should drive required developments, minimum case. Still requires turning into targets.





# 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:

- Support schemes
- Availability / connectivity – political agreements
- New global targets for climate change
- Political/regulatory decision not to use coal
- Environmental concerns
- Security of supply

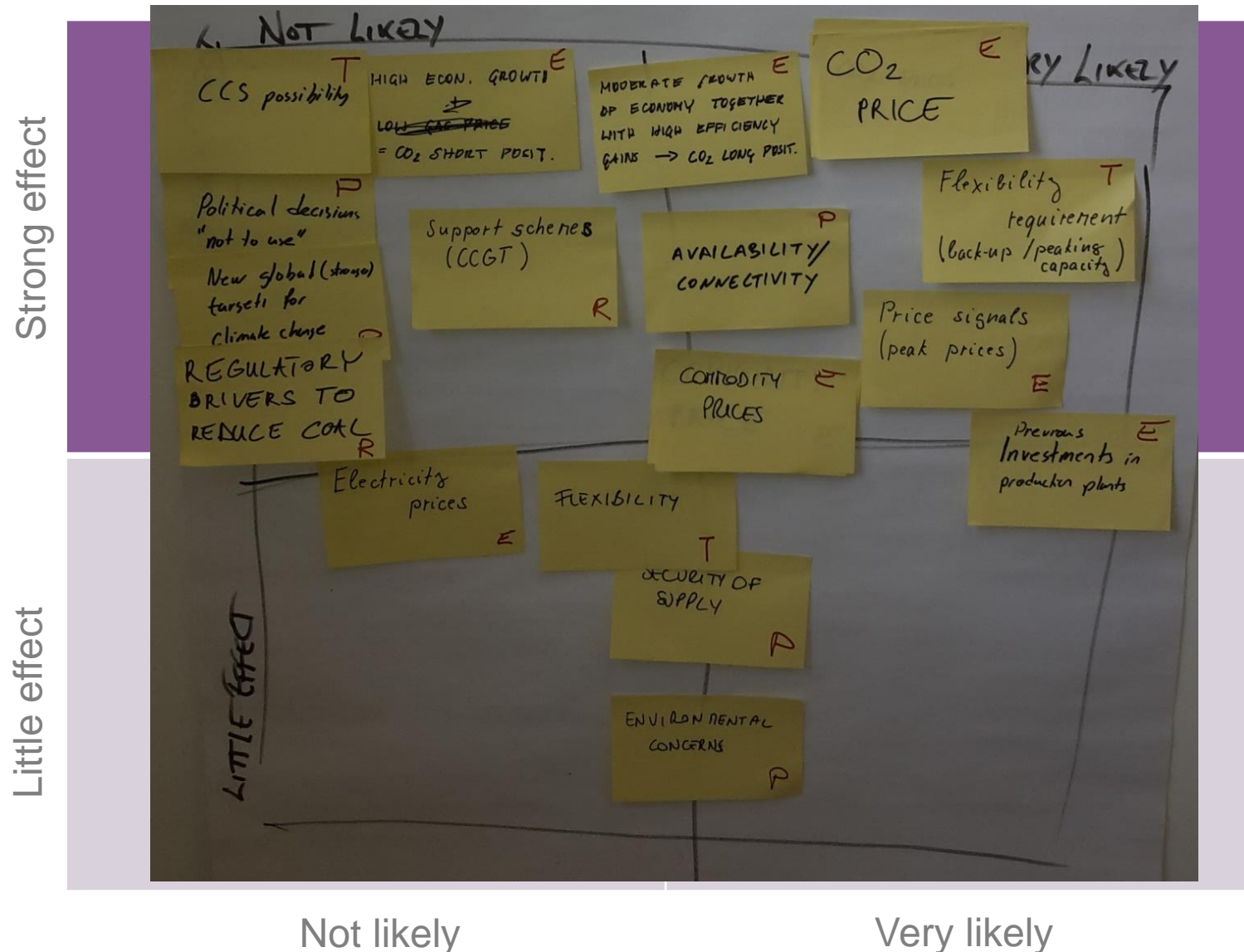
### Technological drivers:

- Flexibility requirements (backup/peaking capacity)
- CCS development

### Economic drivers:

- High economic growth = CO2 short position
- Moderate growth + high efficiency = CO2 long position
- Price signals (peak prices)
- Fuel price (coal and gas)
- Electricity prices
- CO2 price
- Previous investments in production plants

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



Notes:

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

How many says yes: 7

How many says no: 1

## Arguments for:

- Indigenous source of energy
- Security of supply
- Price – economic factors mentioned
- Low residual load (demand – RES = Residual). If required generation is so low then it doesn't matter if it is coal or another source like gas.
- Existing capacity mechanism to support to keeping coal as back up/peak capacity

## Arguments against:

- Political decision to stop using coal
- Strict environmental legislation
- Very high CO2 prices > regulation or market
- Environmental campaigns against coal
- Lower flexibility from coal plants in high RES world
- Uncertainty for old plants, no investment to modernise
- Not enough resources, increased price of coal

## Other remarks:

- Question is so general – maybe in some countries it will still exist so difficult to say it won't exist in the EU in 2040
- CCS increased possibility of being viable compared to 2025-2030

# Further discussion...

## Other remarks:

- Electric Vehicles – defined by storage?
  - Decentralised prosumer storage
  - PV – Battery 15 year pay back
  - Need to capture the impact of storage on a responsive demand and cost
- Environmental and climate issue
  - Production of electric vehicles – what is the true impact on environment? Generation of electricity from what sources?



# Afternoon session. Build your own scenario

# Build your own scenario (1,5 h)

Ask how probable. Optional to help discussion

**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.**

- Green Deal – change in the next 5/6 years of policies up to level that will trigger a change in tech and RES, massive investment to make a reality
- Least Infrastructure Scenario – policy advice to cope with reality
- Stable Energy Mix – should not remove anything that may be required in future
- Innovative “best case” for Environment (best case for environment, battery and renewable technology, affordable solutions)
- Low Investment Infrastructure

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

- Below climate target
- Above
- -40% GHG Above, 27% RES below/on track, 27% Energy Efficiency below, 15% Interconnection below
- On target but reallocated target on sectors – less on electricity, economically driven.

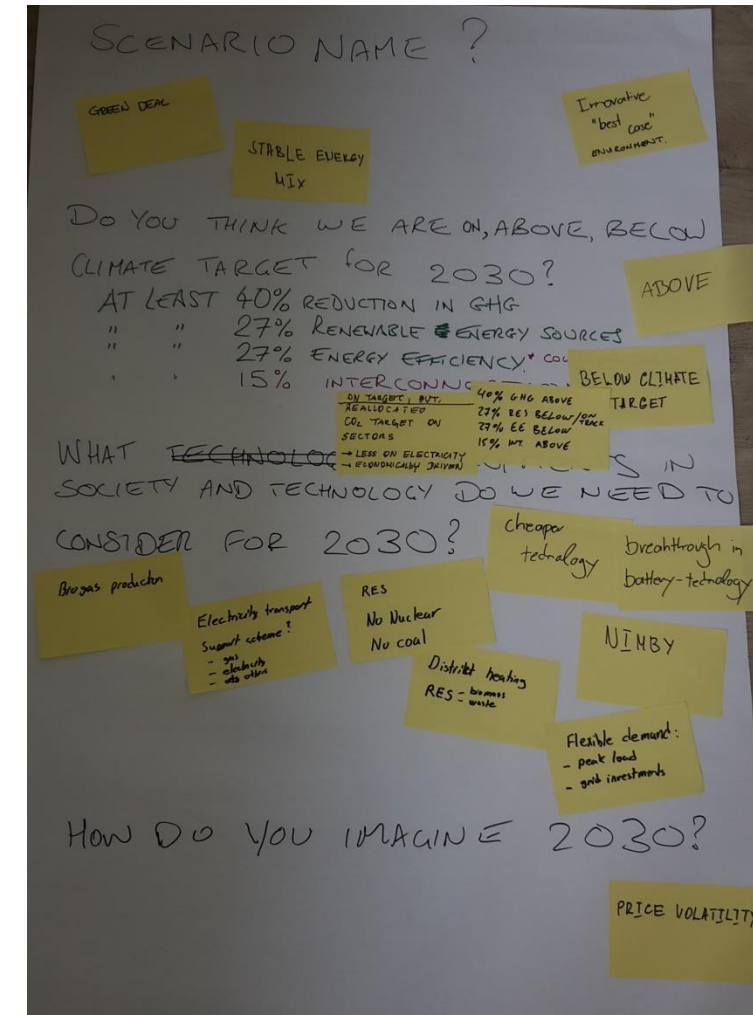
**Defining storyline for your scenario? Example: nuclear, green ambitions, economics.**

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

- Cheaper tech, battery breakthrough
- NIMBY (not in my back yard)
- RES, no more investment in nuclear or coal
- More district heating with biomass and waste
- Transport – depends on support scheme – gas, electricity others
- Bio-gas production
- Flexible demand – deal with peak load, reduce need for grid investments

**How do you imagine 2030?**

- Price Volatility



Factor		
Scenario name		Smart Planning
Category	Criteria	
Macroeconomic Trends	Climate action driven by	Regulation and policy. ETS sector. Political EU supported through national plans
	EU on track to 2050 target?	Yes with effort shared across all sectors...e.g. heating and transport, agriculture etc
	Economic conditions	Low growth
Transport	Electric and hybrid vehicles	Moderate growth, more hybrid solutions than pure electric. High income households
	Gas vehicles and shipping	Low growth for residential vehicles. Growth in lower income households. Higher growth in HGV and shipping
Residential / Commercial	Demand	Stable electricity, gas decline
	demand flexibility	Low
	Electric heat pump	Moderate growth
	Energy efficiency	On target 27%, efficiency needs to exist
	Hybrid heat pump	Not installed
Industry	electricity demand	Stable
	gas demand	Decline
	demand flexibility	High (driven by savings)
Power	Merit order	Low CO2...Gas and coal on par
	Nuclear	Not much investment in new plants, investment in existing plants – lifetime extension
	Storage	Prosumer storage with moderate growth. Flexibility of system.
	Wind	Moderate growth
	Solar	Moderate growth (distributed, prosumer)
	CCS	Not used – low CO2 price
	Adequacy	Lower RES-E than a green scenario. Conventional thermal units are available
Gas Supply	Power-to-gas	No growth – too expensive
	Shale Gas	None – economics and environmental
	Bio Methane	Moderate growth – taking the burden
Other	Maximise Infrastructure util.	Rethink of urban/regional planning considering energy efficiency
	Burden sharing	What sectors will be affected by targets, the electricity sector could be lower than 47% – renewables are a driver for grid expansion – other areas could rise
	Further discussion. 2030-40	Carbon storage innovation, transport sector burden...reduced mileage through smart regional planning, switch to LNG shipping