

How to make the most of your ENTSO-E

# QUESTIONS FOR THE DAY

Group 4

**Scenario Workshop**

2 JUNE 2016



# Split per groups

Firstname	Last name	Group	Firstname	Last name	Group
Alexander	Scheibe	2	Kostis	Sakellaris	3
Alexander	Phillips	1	Manon	Dufour	2
Ali	Shahbazov	1	Marco	Gazzola	4
Andrei	Dumitru	3	Margherita	Salucci	1
Anton	Nordstram	3	Maria	Castro	4
Antonio	Gomez Bruque	2	Mark	Johnston	4
Celine	Heidrecheid	2	marta	navarrete	2
Cliff	Simon	3	Michael	Joerg	1
Daniel	Hosp	3	Mikolaj	Jasiak	3
David	McGowan	2	Niels	Franck	4
Eugen-Costinel	Mihalache	2	Olivier	Lebois	2
Frida	kieninger	2	Pekka	Vile	4
Gabor Miklos	Dudas	4	Philipp	Thaler	1
George	George	4	Pieter	Boersma	4
Gianluca	Flego	4	Roland	Joebstl	1
Heiko	Stubner	4	Sanjeev	Kumar	4
Idoia	Lejona	2	Siobhan	Hall	4
James	Gudge	3	Sophie	Westlake	2
Jan	Kostevc	3	Stefan	Dunke	3
Jean-Francois	Fauconnier	2	Stefano	Astorri	1
Jerome	Le Page	3	Sylvia	AngyalovÃ;	3
Jon	Gibbins	1	Thomas	Rzecznyk	3
Jorgen	Apfelbeck	1	Stefanie	Scheidl	1
Juan	Lopez-Vaquero	3	Victor	Charbonnier	2
Julia	Platona	1	Volker	Schippers	1
Kees	Alberts	4	William	De Riemaeker	1

# Questions and discussion during morning presentations

Before morning session discussion

E3G:

Paris agreement.

Missing an accelerated scenario that goes beyond the 2050 target.

GRT-GAS:

TYNDP comes every two years. New target for 2050 can come in a later version when they have been finalised.

E3G:

Important to have a realistic range.

Mark Johnston

How do you treat the option of CCS and nuclear.

EEB (European environment buro)

Non target scenario may be necessary for infrastructure .

Which choices can be made now? Which choices are linked because of physical point of view.

(R.V. gasunie something (NL)).

Important to look at 2025 (a path for 2040-2050)

Scenarios: Biomass?

Are we using it for: non-energy, biofuel, green gas (big impact on gas and even on electricity).

ETS as a driver (functioning well) can be argued as non-possible even though the outcome may be plausible.

GRT-GAS:

Targets. Different paths.

Morning session. To warm  
up towards scenario  
development



# Discussion about years 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

**A storyline from point to point all the way from 2016 to 2040 (b and c):**

**Pros:** easy to communicate, consistent, more like an action plan for decision making: identifying stepping stones to meet the targets. Back casting. You can redraw the lines in every edition, see what changes. Monitor the progression. Goal is helping the decision makers, that is easier with timelines (they can relate to them). Identify the gap.

Can show that one path can lead to higher cost later.

Path is important.

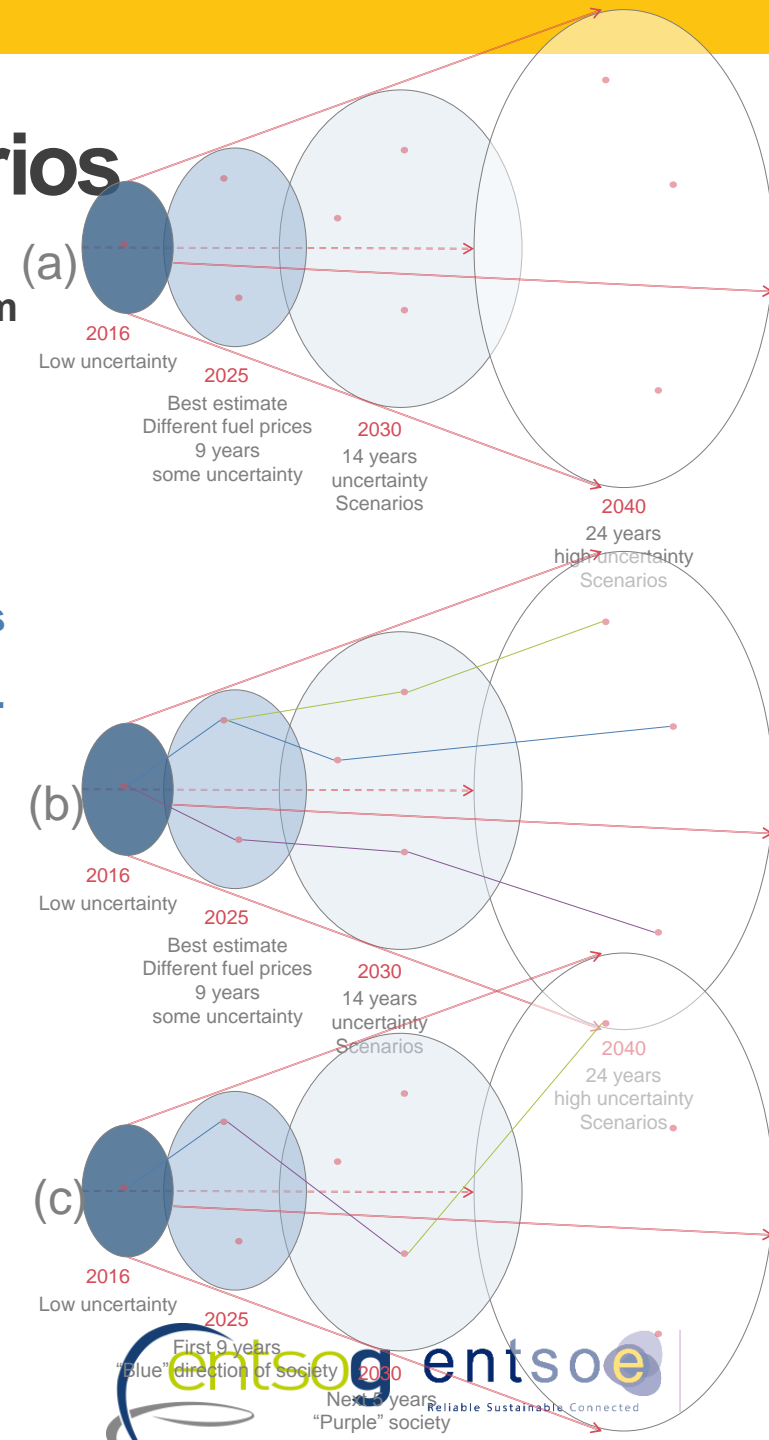
**Cons:** more work

**No storyline from point to point all the way from 2016 to 2040 (a):**

**Pros:** More flexibility

**Cons:** Risk of having Unlogical decision for short term (don't build coal in 2030 if you know it has to close in 2050)

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



# Discussion about years and stories of scenarios

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

What is uncertain

- Merit order
- Electricity and gas demand
- Technologies (batteries, solar PV) p2g for the somewhat longer term (2030), hybrid versus all-electric heat pumps. Source of gas (LNG or Russia). Shale gas not so important for grid developments
- National generation adequacy.
- What happens with nuclear (phase out?), on a EU level?
- Governmental policy

What is more certain

- Electricity infrastructure

(a)

Low ur

(b)

Low ur

(c)

Low ur

A Lot of Possibilities until 2025

Merit order  
to Thermal

Technology development.

Demand for gas and electricity

Small Scale Battery

Political Harmonisation in European Energy Policy can happen or not.

Wide Scale EV deployment

Gas supply: LNG or Russia.

PV

Nuclear: Quick Phase out

Heat pumps and hybrid heat pump

European stance on new nuclear: Hinkley example is tested

Capacity support mechanisms.

NGO-power

Quickly, No investments in "fossil business" due to public influence.

# Discussion about the use of coal and gas 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) (10 min)?

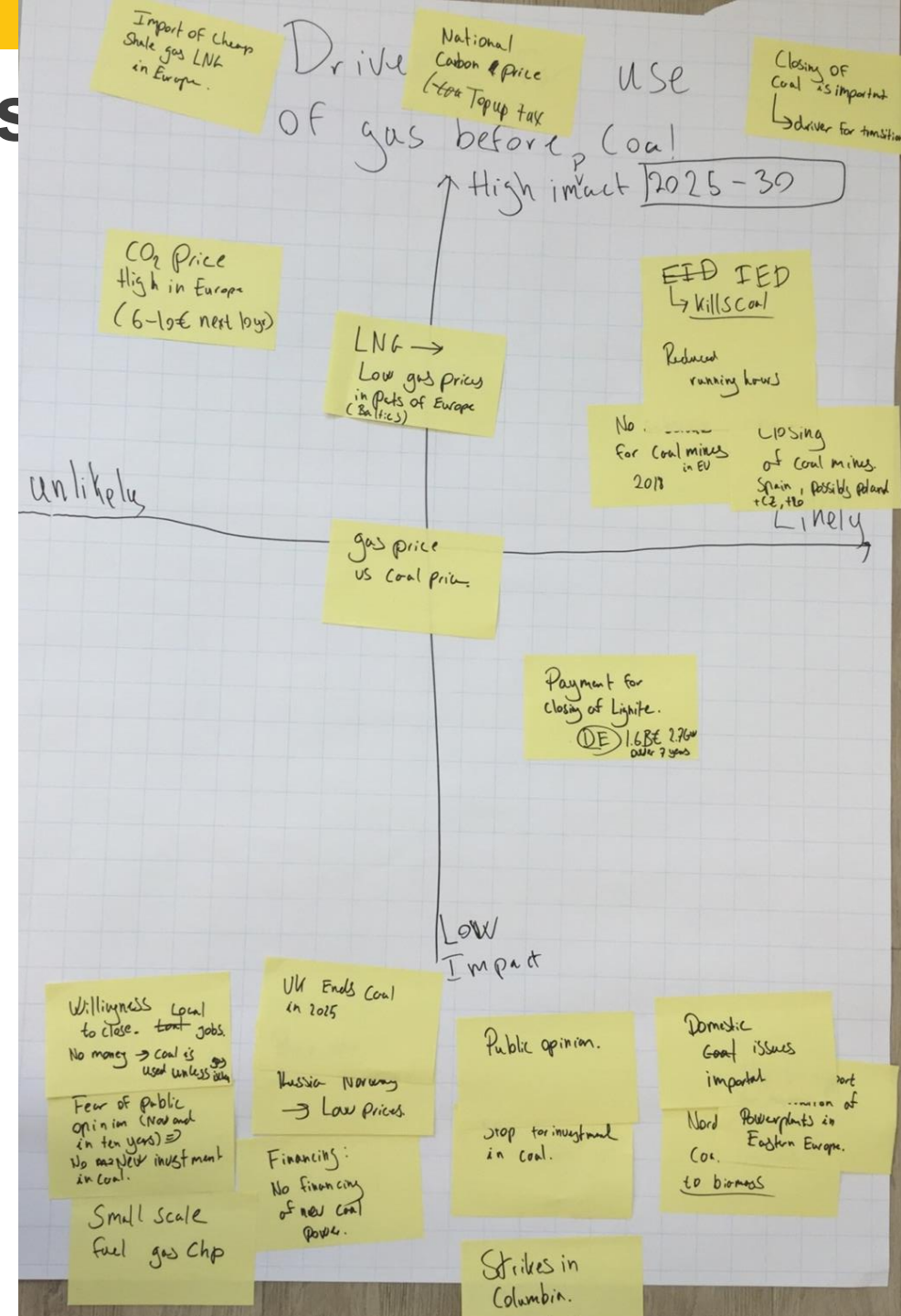
## Groups

Regulatory or Political drivers: coal tax, forced phase out of coal plants. No subsidies for coal mines, Forces closing of coal mines

Technological drivers: Small scale generation (fuel cells)

Economic drives: High CO<sub>2</sub> price, National carbon price. Lower gas price vs coal. Gas and coal demand in Asia. Boost to gas production to reduce price. Possibility to get bank loans for coal. Is there money available to make changes (close mines, pay more for energy).

Other: Is gas recognised to be cleaner than coal (public opinion). May be different from country to country.





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

How many says yes: 0

How many says no: 4

Arguments for (2-3): No attendees voted yes.

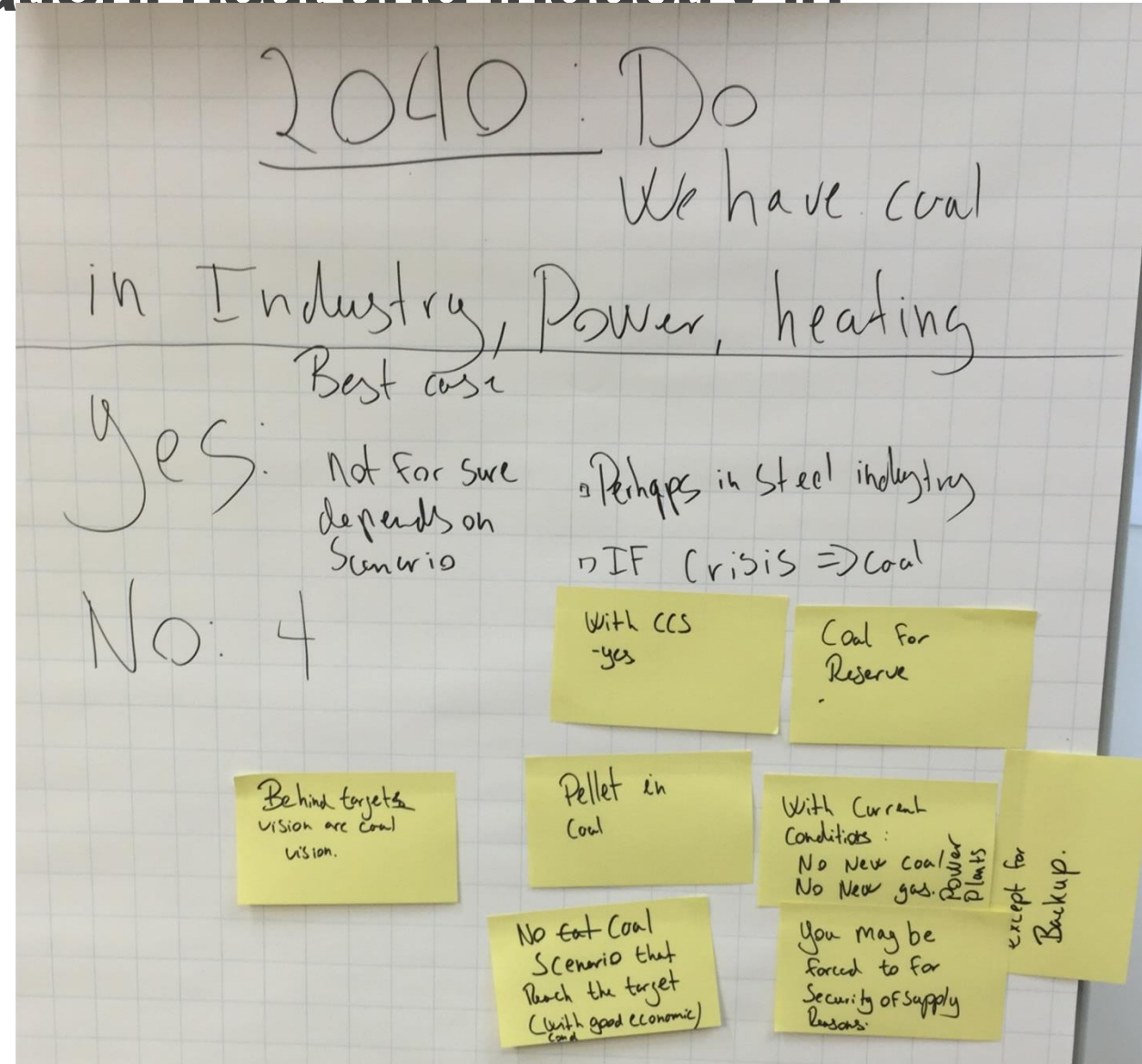
However:

Some coal use cannot be replaced (high temperatures, steel production). CCS. Absence of money scenario?

Current situation is: no investment triggers for new power plants (gas and coal). Forced to keep coal for security of supply.

In Eastern Europe, it may be had to close coal plants. If mines are closed there, Western Europe has to pay for it.

Arguments against (2-3): 4 attendees voted no. No place for coal in green scenario. CCS for low running hours makes no sense.





# Lunch poster session: Select the three 2040 storylines that are considered worth developing for TYNDP?

Count of dots

Global climate action:

Subsidized Green Europe:

Sustainable Transition:

Behind Targets:

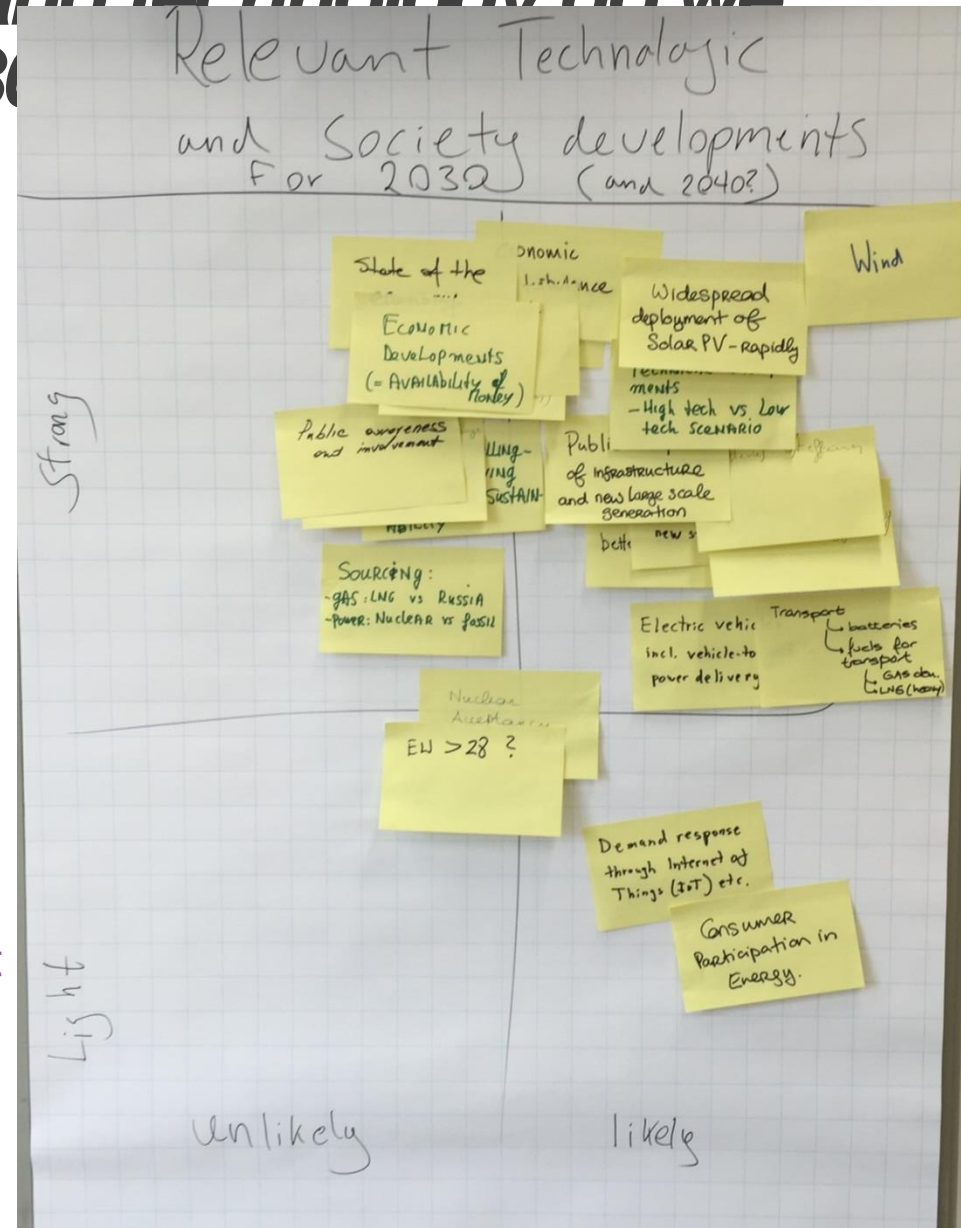
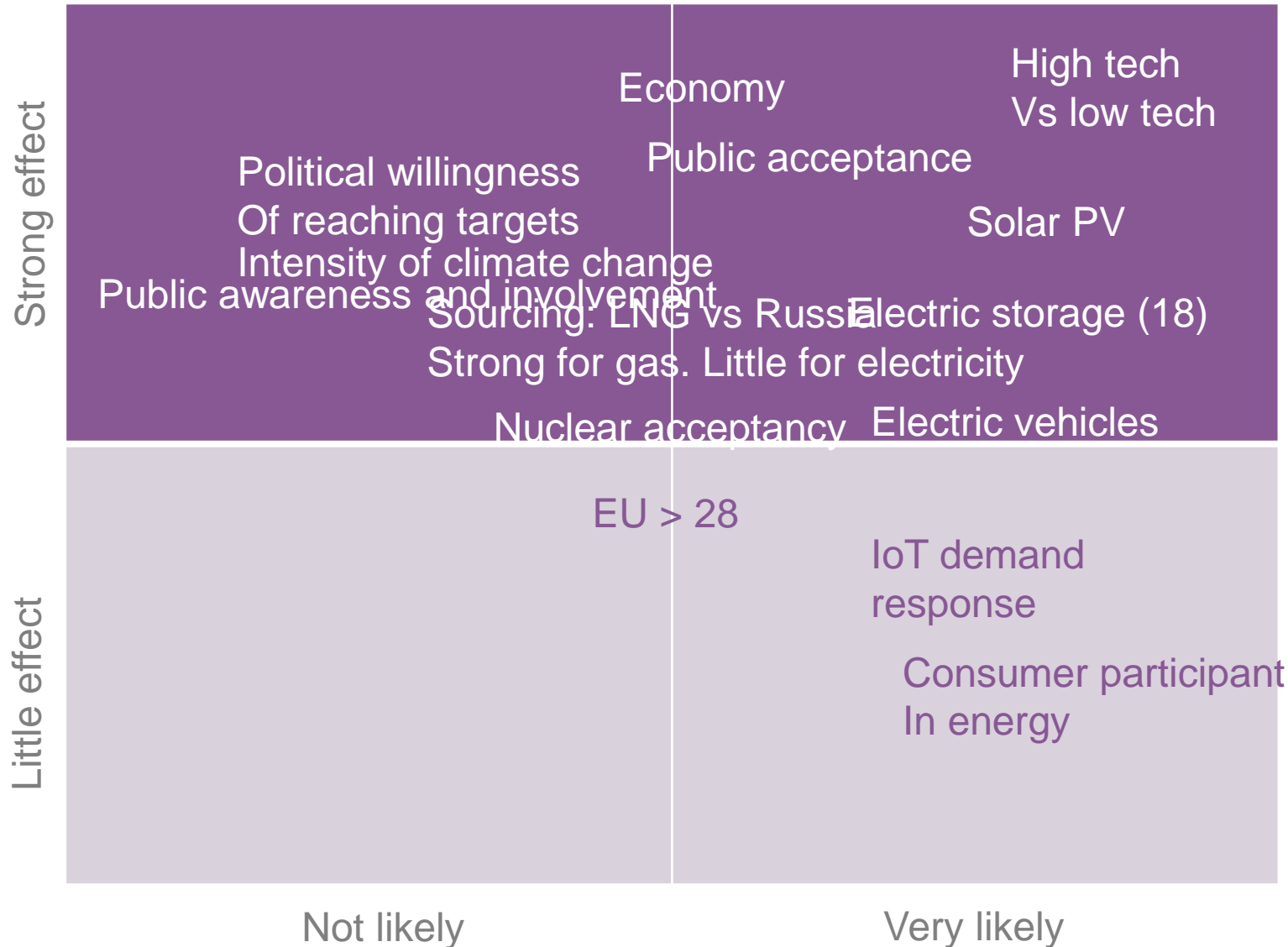
Distributed Generation:

Comments:

The storylines (storylines + matrix) will be put on the wall for the stakeholders to select the three they like consider worth developing further. They get **three** dots each so that they can put them on the posters.

Afternoon session. Build  
your own scenario

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



# Build your own scenario (1,5 h)

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

*Green focus (optimistic)*

*Low progress scenario/business as usual (less optimistic/rational)*

*Focus on gas scenario. Focus on electricity.*

*Consumer focused scenarios*

*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.

**How do you imagine 2030?**

	Climate action driven by	?
Macro economic Trends	EU on track to 2050 target?	Yes
	Economic conditions	Growth
Transport	Electric and hybrid vehicles	Growth
	Gas vehicles	Transition for personal transport Important for heavy transport
		Bio mass Biogas
	Demand flexibility	
	Electric heat pump	When necessary New vs existing Regional
Residential / Commercial	Energy efficiency	Improving
	Hybrid heat pump	When necessary
	District heating	
	Electricity demand	
Industry	Gas demand	
	Demand flexibility	
Power	Merit order	gas partner of RES gas before coal
	Nuclear	gradual phase out
	Storage	Day/night storage in batteries
	Wind	High
	Solar	High
	CCS	Starts to be economically viable for industry (with high land prices)
	Adequacy	
	Power-to-gas	Starts to be economically viable
Gas Supply	Shale Gas	Not significant
	Bio Methane	High



Factor		
Scenario name		Green scenario. Economic growth, political willingness.
Category	Criteria	
Macroeconomic Trends	Climate action driven by	No idea. Not important for the result. Could be consumer driven.
	EU on track to 2050 target?	Targets met.
	Economic conditions	Growth
Transport	Electric and hybrid vehicles	Growth
	Gas vehicles and shipping	Transition for small vehicles. Gas for heavy transport and ships.
Residential / Commercial	demand flexibility	Consumers wants to choose.
	Electric heat pump	(1) Were possible geothermal and district heating. (2) Were possible all electric. New homes: all electric (designed for the area) . Regional differences. (numbers indicate merit order of house heating development)
	Energy efficiency	Improving.
	Hybrid heat pump	(3)Hybrid heat pumps were necessary. Regional: cool areas with hybrid heat pumps. In uninsulated houses could also be hybrid. Nordic areas all electric heat pumps even though cold.
Industry	electricity demand	Not for high temperature process
	gas demand	
	demand flexibility	
To Power	Merit order	Gas before coal
	Nuclear	Nuclear. Tendency for gradual phase out (shut down due to technical reasons)
	Storage	Day/Night storage
	Wind	High
	Solar	High
	CCS	Only in industry. Because of high utilisation (load hours). Thermal power plants have too few full load hours to sustain CCS
Gas Supply	Adequacy	
	Power-to-gas	On the way. Starting to be used.
	Shale Gas	No big numbers
	Bio Methane	High
Other	Gas	Gas should be the partner of renewables
	District heating	Is used were available: biomass, geothermal and power to heat. The scenario is on the path to 2050. Fossil fuel CHP fased out or converted to biomass
	Coalmines	Local coal mines in Europe closed