TYNDP-2014 Long Term Development Stakeholder's Group

TYNDP SCENARIOS CONSULTATION

PRELIMINARY OUTCOMES

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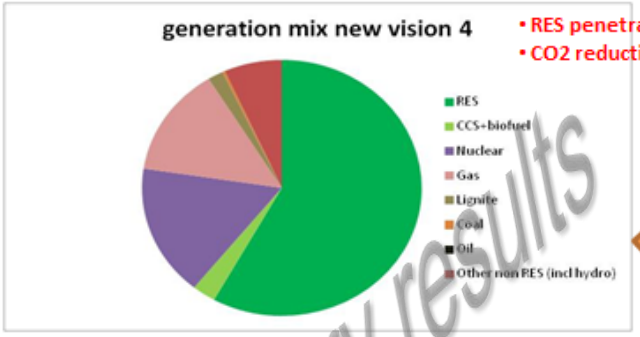
Reliable Sustainable Connected

Summary of the comments received

- About 60 comments via the consultation tool.
- Letters answering to the consultation

- Acknowledging improvements from last TYNDP
- Relevant comments on:
  - Demand
  - CO2 Price
  - Nuclear
  - More harmonization on:
    - Load management
    - CCS
- Some of the comments seem to be caused by a lack of understanding in the objectives of the Visions

Market Simulation Results from all Visions (old & new quick run V4)



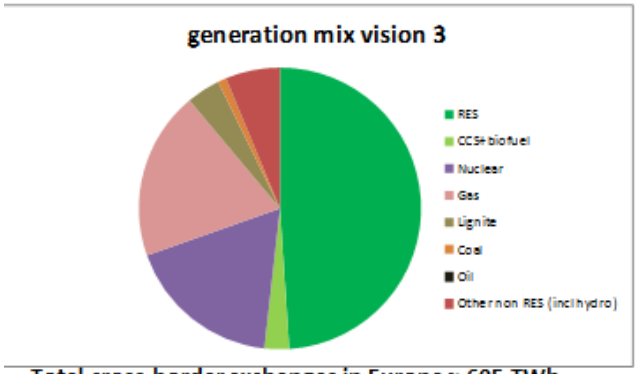
- RES penetration: 59%
- CO2 reduction (vs. 1990 level): 77%

Remedial actions from SDC

- Total cross-border exchanges in Europe ≈ 800 TWh
- Load including pumping 4324 TWh

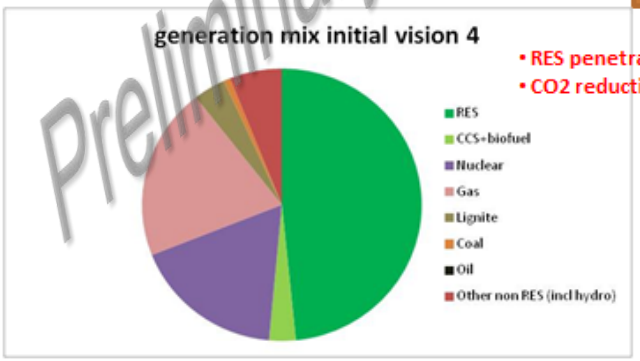
Preliminary results

On track for energy roadmap 2050



- Total cross-border exchanges in Europe ≈ 605 TWh
- Load including pumping 4167 TWh

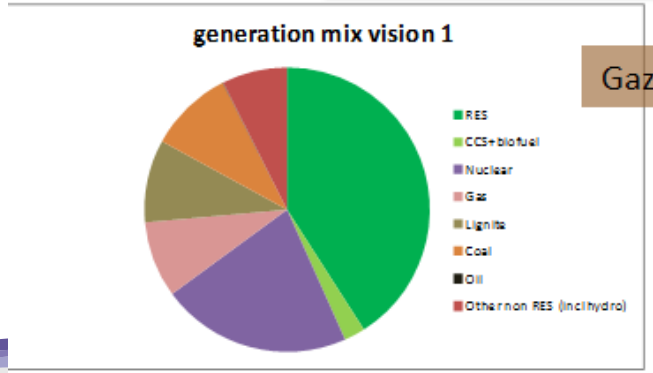
Gaz scenario



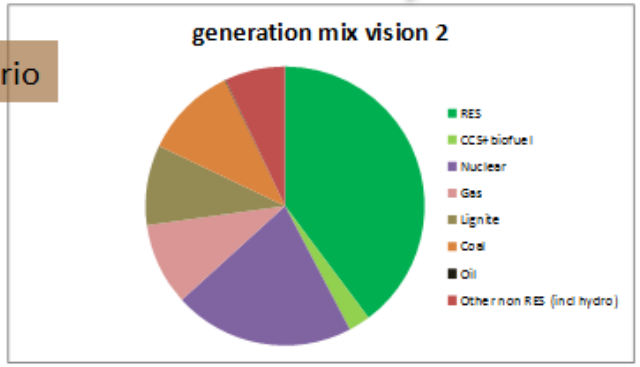
- RES penetration: 49%
- CO2 reduction (vs. 1990 level): 62%

- Total cross-border exchanges in Europe ≈ 735 TWh
- Load including pumping 4288 TWh

High degree of integration of the internal electricity market



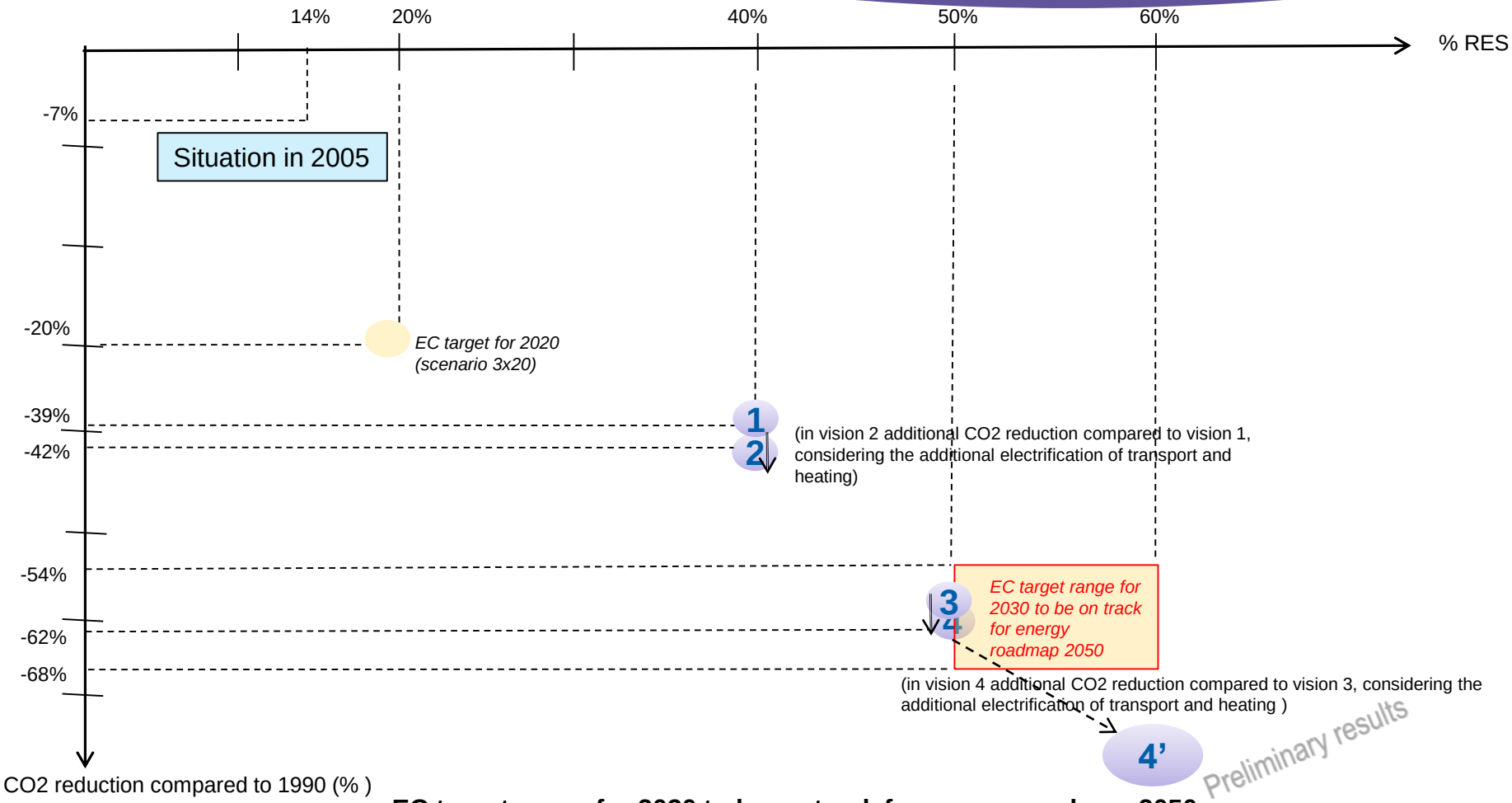
Gaz/Coal/Lignite scenario



- Total cross-border exchanges in Europe ≈ 660 TWh
- Load including pumping 3610TWh

- Total cross-border exchanges in Europe ≈ 757 TWh
- Load including pumping 3712TWh

A Bridge towards the Energy Roadmap for 2050



EC target range for 2030 to be on track for energy roadmap 2050:

- **Visions 1 and 2 are not on track for both indicators (but ok against Current Trend Scenarios)**
- **Visions 3 and old 4 are in the range for CO2 reductions (-62%) / slightly inferior for RES integration (vs. Decarbonisation Scenarios)**
- **New Vision 4 gets beyond required CO2 reduction (-77%)**

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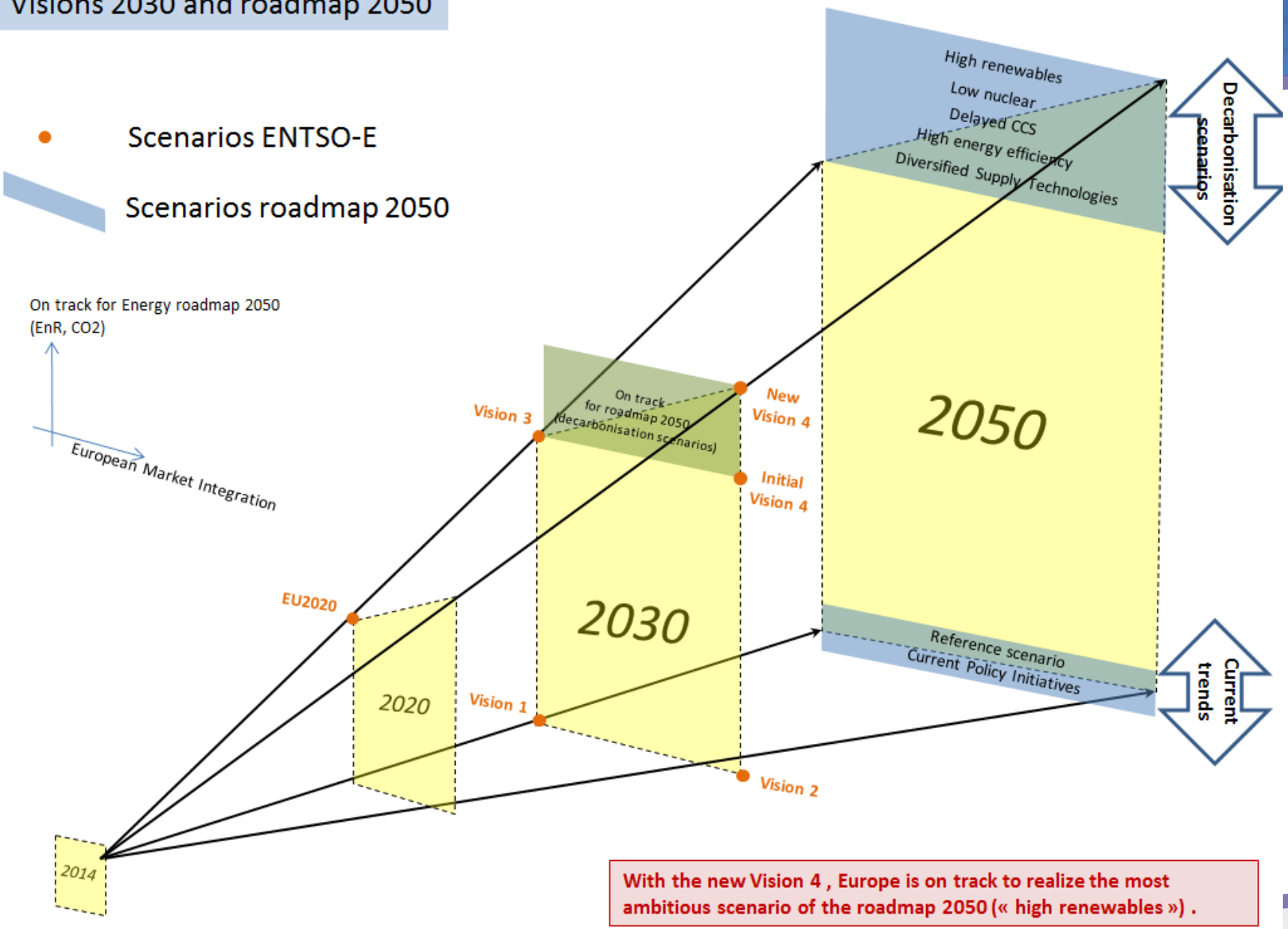
Visions 2030 and roadmap 2050



With the new Vision 4 , Europe is on track to realize the most ambitious scenario of the roadmap 2050 (« high renewables ») .

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Demand growth is too much for Vision 4 and energy efficiency is not well reflected:

In Vision 4, where there is a combination of high RES, high demand and high amount of inflexible generation, the system would not be cost-effective.

While this argument might be right we must also acknowledge the fact that Vision 4 is supposed an extreme scenario where there are favorable financial conditions.

Therefore, the increase in demand through electrification would enable savings in other sectors.

- It should be borne in mind that energy efficiency has been taken into account while constructing the basic load curve which shows a default of -0.5% of growth rate annually. However, due to the high default penetration of EV (15%) and heat-pump (9%), which was determined based on stakeholders' inputs, the total demand shows an increase of 1.2% CAGR (Compound Annual Growth Rate).

This discrepancy can also be explained by a lack of analysis to work out a more precise impact on efficiency gain coming from technological breakthrough and paradigm shift, which is something we should improve for the next TYNDP.

Solar and CO2 price

Contrasting opinions on Solar installed capacity

- The total installed capacity of 340GW is already very optimistic according to some other stakeholders. This value is also much more than we is stated from the different NREAPs.

- The assistance from stakeholders on how to distribute PV would be appreciated.

High CO2 Prices:

Some criticized that the IEA 450 ppm scenario is outdated and that the CO2 price which we use is too high.

We took our values for 2035 from WEO 2011:

According to the latest version of the IEA WEO version 2012, the CO2 prices which we assumed (31 EUR/ton and 93 EUR/ton) are still compatible with what they forecasted:

Nuclear and CCS:

This point is related to the first point on demand growth. The criticism is that we have too much inflexible generation in our high RES scenario. However, from the last IEA WEO the expected nuclear contribution to the generation mix is high in the 450 ppm scenario:

- Nuclear, besides RES (48% for EU27 for the 450ppm scenario), is a necessary and viable option for the required CO2 emission reduction.

We agree that we should harmonize our methodology for as many aspects as possible and we will improve in the next scenario building exercise.

- For TYNDP 2014 the base data on generation capacities were provided by TSOs, we harmonized the CCS installation for Vision 4 by adding CCS to the new hard coal and lignite units. For the other Visions we decided to keep the values provided by the TSOs, which explain the different views for different countries.