

ENTSO-E Ten Year Network Development Plan 2012

Regional Group Continental South West (RG CSW) TYNDP and RgIP SCENARIOS

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Overview of Scenarios



YEAR 2020

ENTSO-E Base Scenario (as in SO&AF 2011)

- **EU 2020:** built to meet 20-20-20 EU targets

Top-down



ENTSO-E Base Scenario (as in SO&AF 2011)

- **BEST ESTIMATE (B):** by the TSOs

Bottom-up



VARIANT Scenarios

built upon Scn B

- **NUCLEAR PHASE-OUT:** official, assuming that most of nuclear generation units in Germany will be shut down

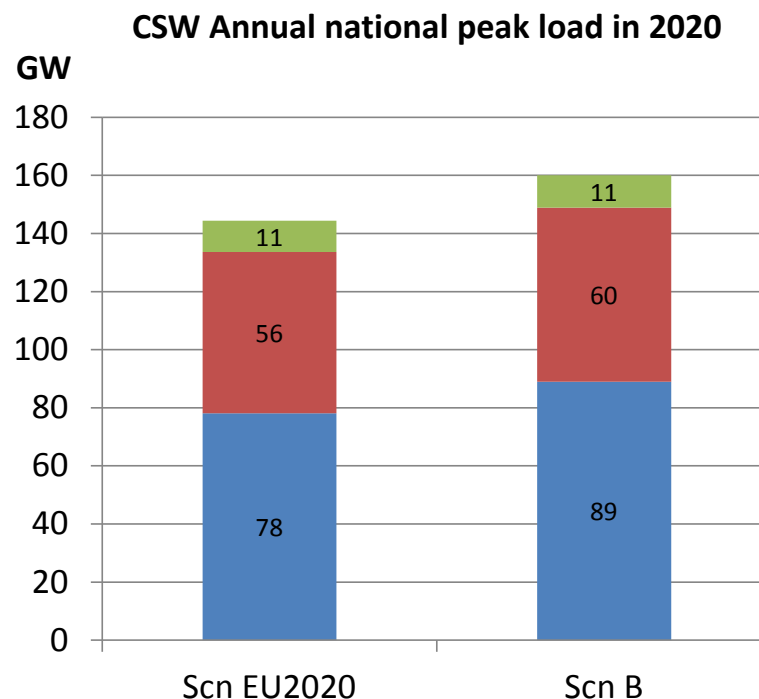
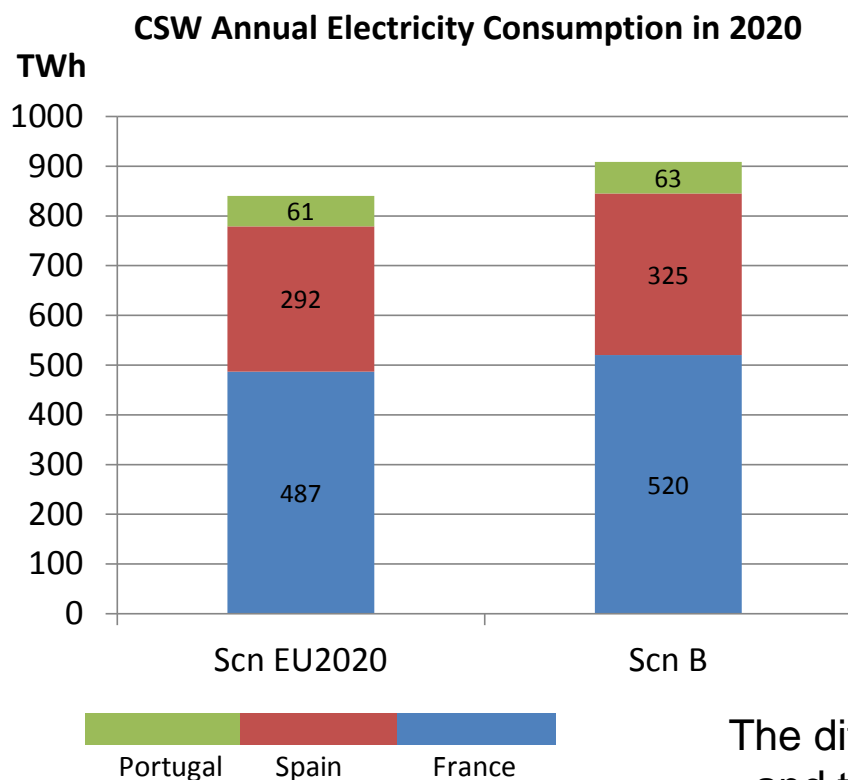
Assumptions

- **LOAD**
- **THERMAL GENERATION**
- **HYDRO GENERATION**
- **WIND AND SOLAR**
- **OTHER MUST RUN UNITS**

- **MERIT ORDER**

Load assumptions

Reductions of annual electricity consumption in Scenario EU2020 (when compared to Scenario B) . In CSW annual electricity savings nearly reach 70 TWh which represent 7,5% of forecasted demand by TSO's in Scenario B.

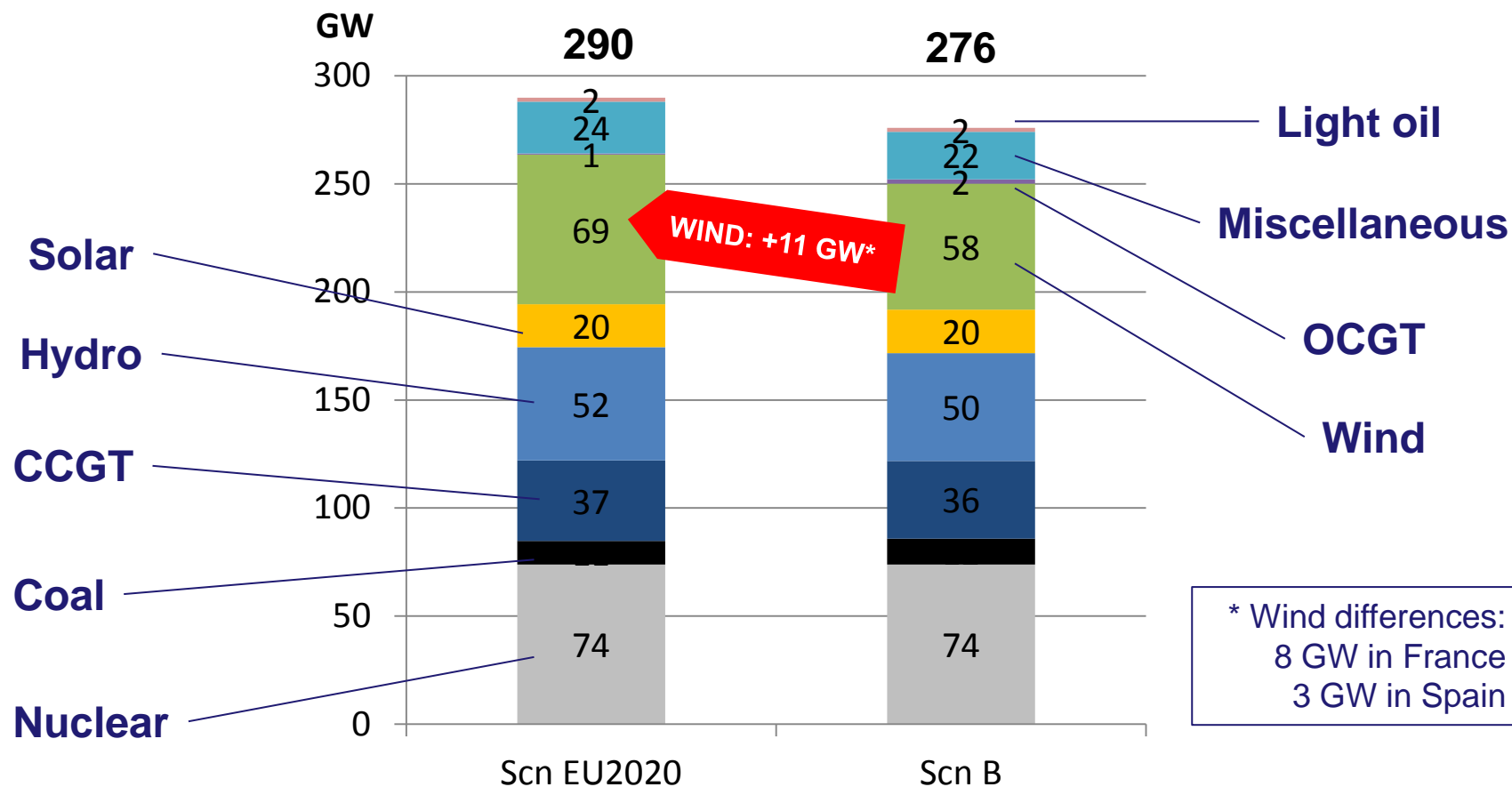


The difference between the synchronous SW peak power and the sum of the national peak is about 1,5 to 3,5 GW

Overview of generation assumptions



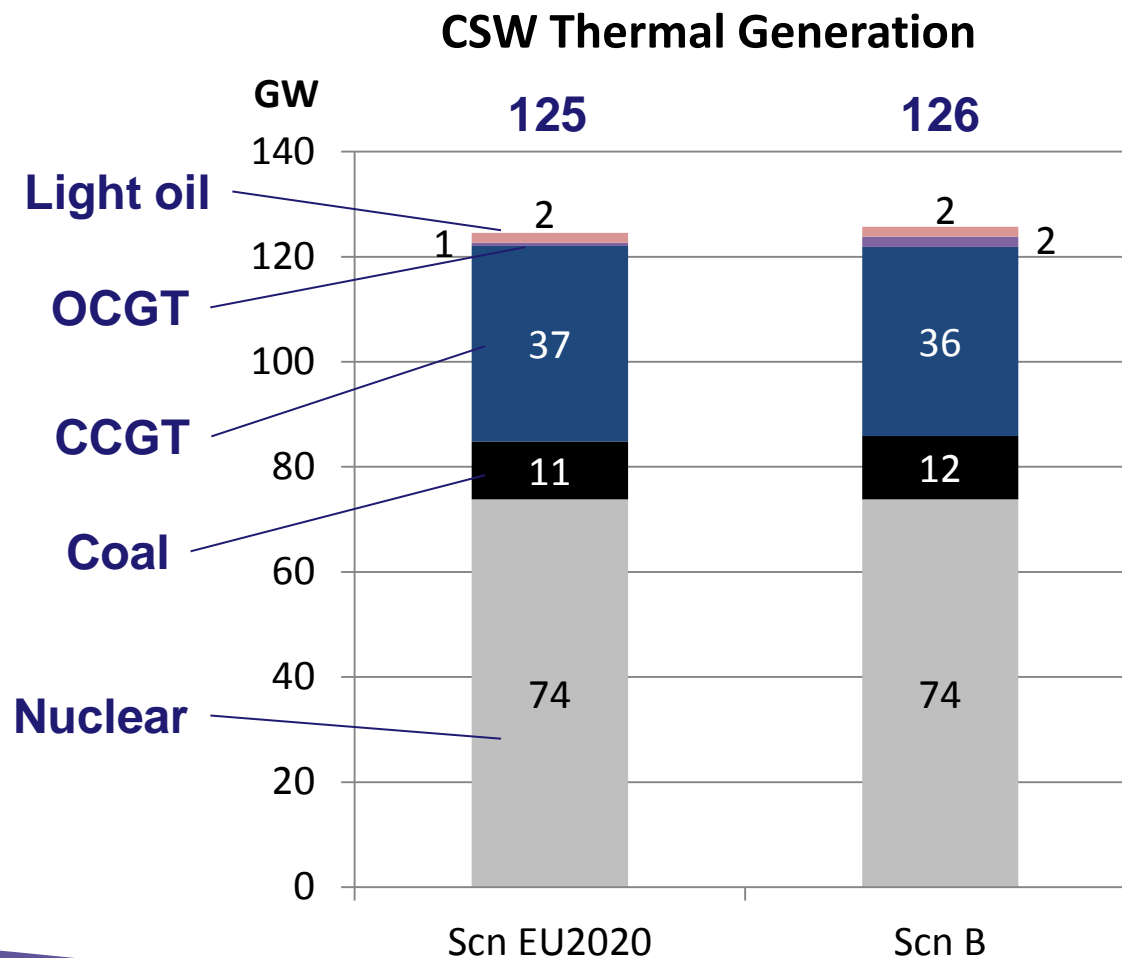
CSW Generation Capacity in 2020



Thermal generation assumptions

The overall thermal generation capacity is nearly the same in Scenario EU2020 and Scenario B, summing up 125 GW.

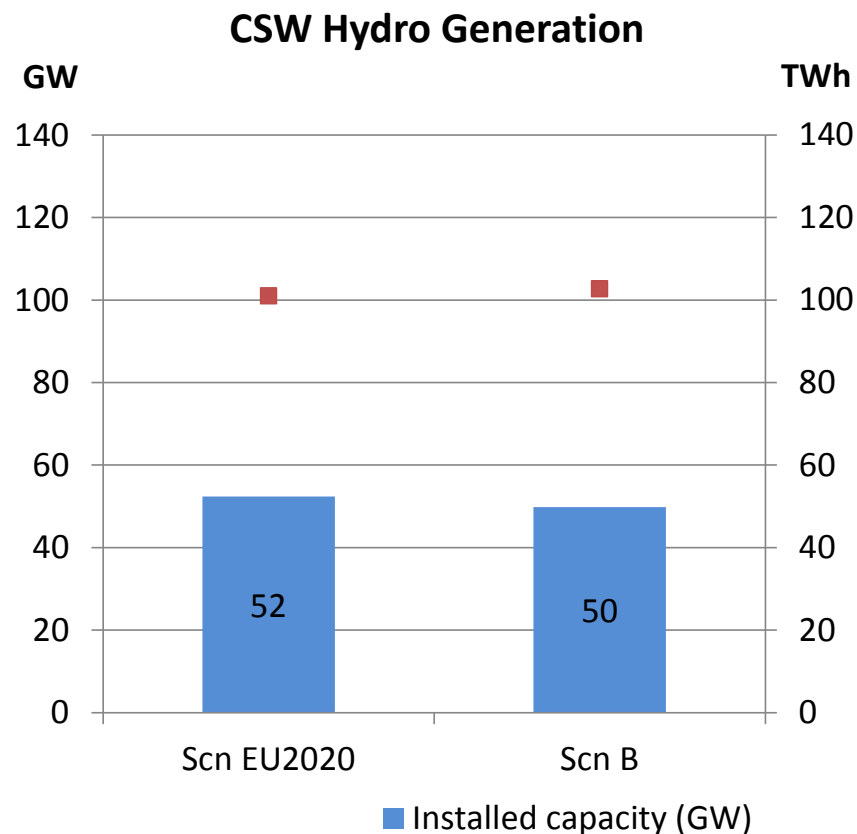
The largest share belongs to Nuclear (59%) followed by CCGT (30%) and Coal (10%).



Hydro generation assumptions

Very similar hydro generating capacity in SW in both scenarios.

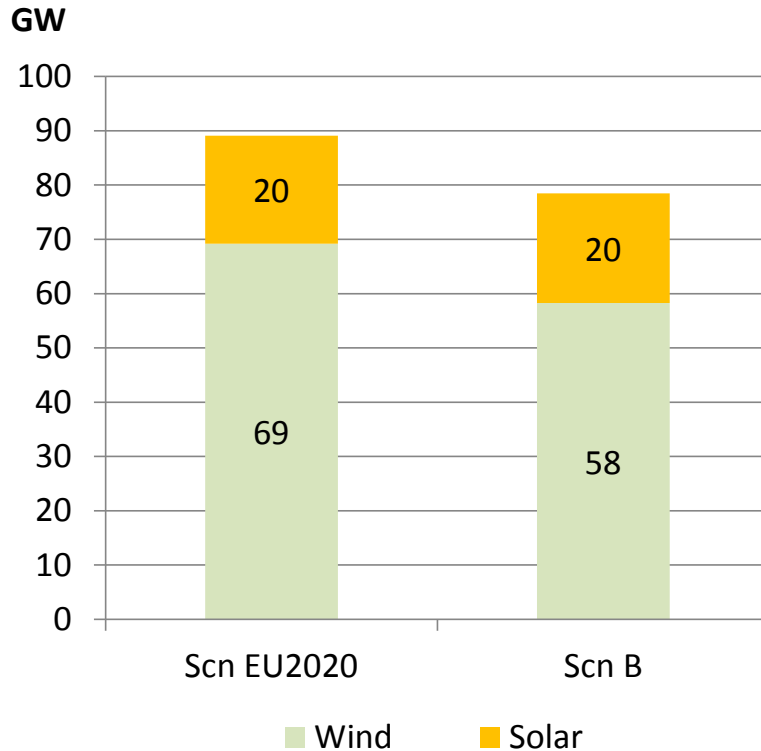
Nevertheless extra new 3000 MW of hydro pumping are forecasted in Scenario EU2020.



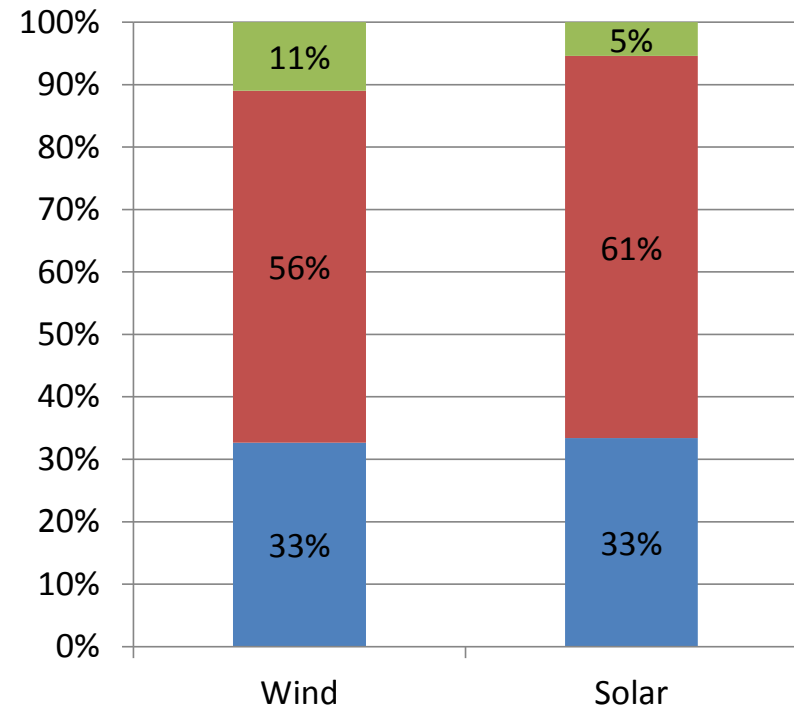
Wind and Solar generation assumptions



CSW Wind and Solar Generation



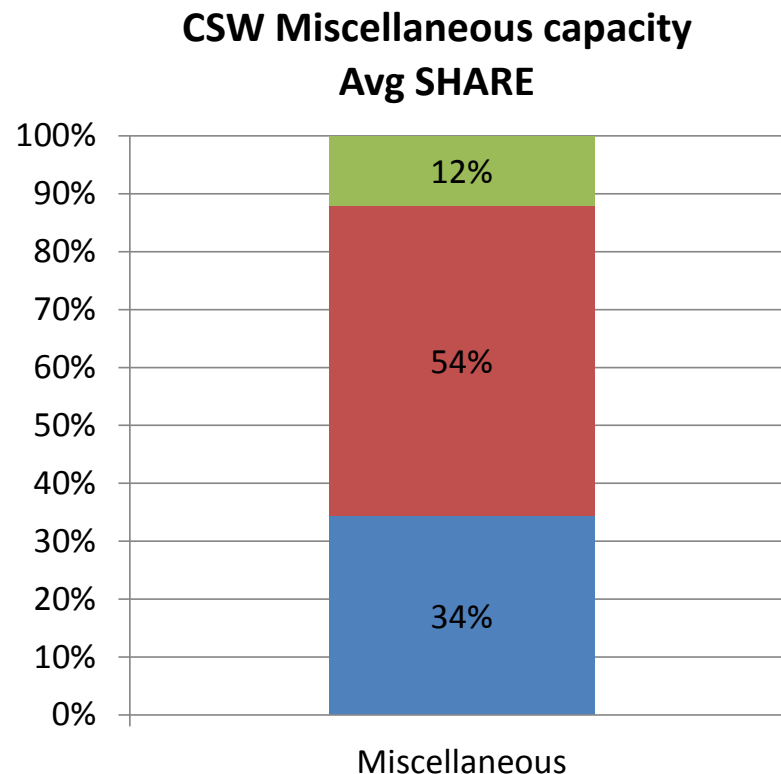
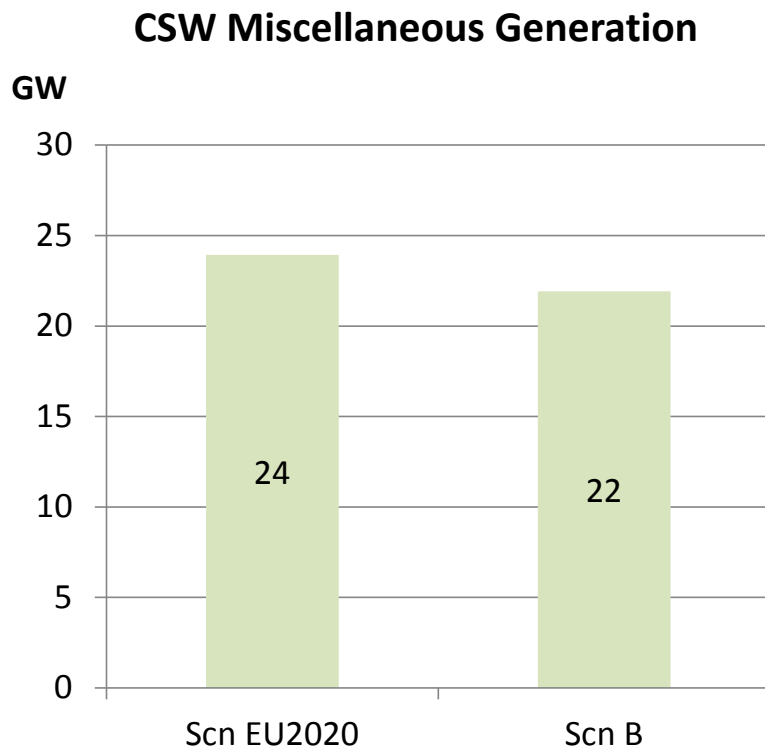
CSW Wind and Solar capacity Avg SHARE



Spain concentrates more than half of both Wind and Solar capacity.
In SW, the wind average load factor is about 25% (20% for the solar generation).



Miscellaneous (non-dispatchable) generation assumptions



The installed capacity of miscellaneous generation do not vary much between scenarios and includes other renewables and distributed generation.
The average load factor is 45%.



Nuclear Phase-out


Following Fukushima's events + Germany's decision to permanently shutdown Nuclear power plants, ENTSO-E decided to perform a sensitive analysis of main scenarios.



Merit order assumptions

Prices of the fuels are taken from the reference scenario of the International Energy Agency in its World Energy Outlook. In Scn EU2020, CO₂ price is higher, and CCGT units are generally cheaper than coal plants, except for the coal with “must-run” conditions.

	Sc. EU2020	Sc. B
Renewables, other non-dispatchable units and must-runs	1	1
Nuclear units	2	2
CCS (Carbon capture and storage)	3	3
CCGTs	4	6
Hard coal power plants	5	5
Lignite power plants	6	4
Oil-fired power plants and OCGTs	7	7



CO₂ price effect

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RG Continental South West

THANK YOU

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