

## Key results in the scenarios

|  | LowEff  | MediumEff | HighEff |
|--|---------|-----------|---------|
| <b>Gross electricity generation in 2050 [TWh]</b>              | 6,151.4 | 5,978.5   | 5,865.0 |
| Installed generation capacities in 2050 [GW]                   | 2,711.8 | 2,613.1   | 2,535.2 |
| <b>Cross-border transmission network capacity in 2050 [GW]</b> | 722.1   | 686.9     | 674.7   |
| <b>Total cumulated cost (2020–2050) [bn EUR]</b>               | 8,089.6 | 7,963.2   | 7,720.7 |
| <b>Total cost difference compared to LowEff [%]</b>            | -       | -1.6%     | -4.6%   |

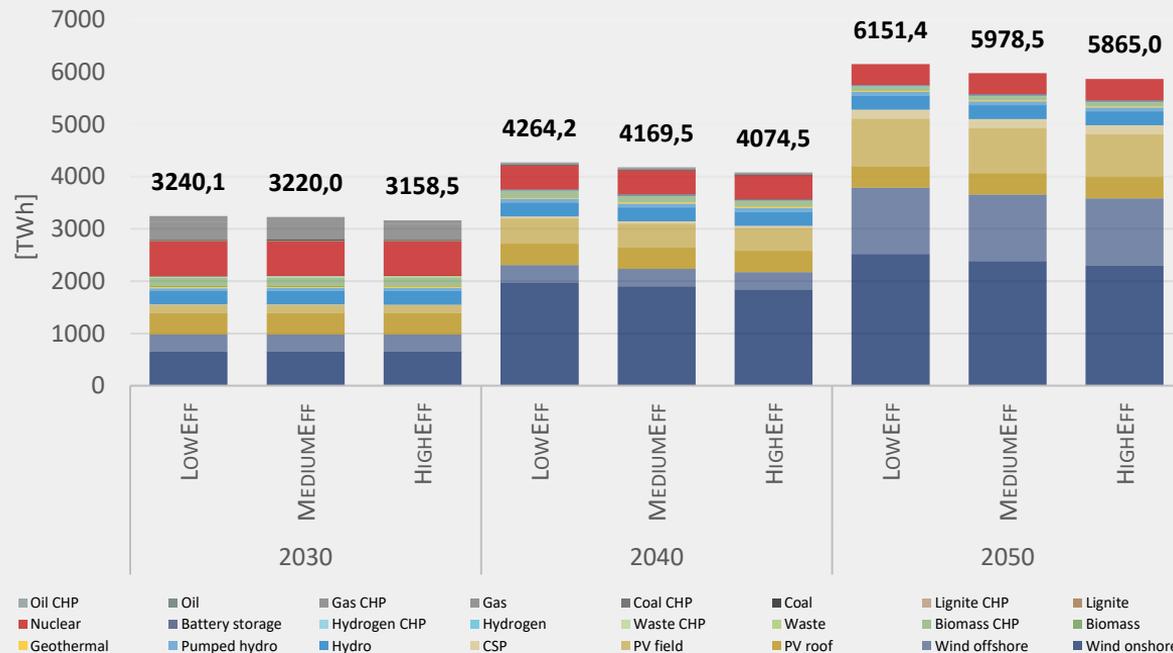


**Electricity supply**

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# Electricity generation



## Results

- Electricity generation dominated by variable renewable energies in 2050 (90-93%)
- -286 TWh (-5%) in HIGHEFF in 2050 vs. LOWEFF
- Note: No CCS; fixed nuclear; fixed hydro

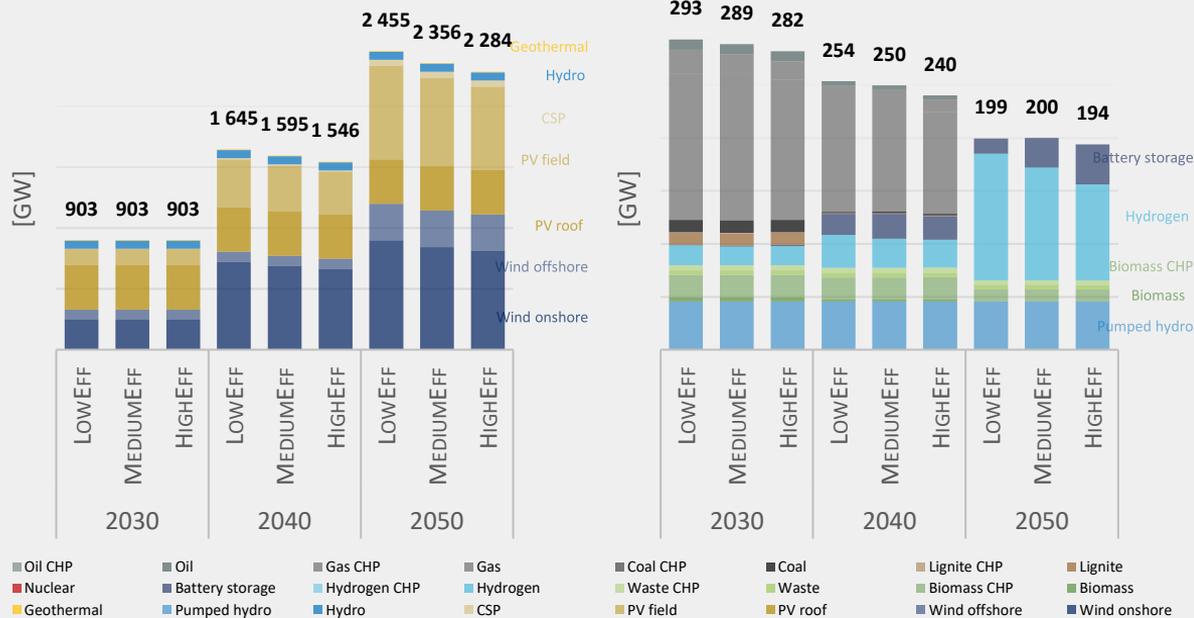
## Key message

Electricity supply for net-zero emissions requires massive generation from variable renewables

Gross electricity generation by technology in EU-27 [TWh]



# Electricity generation capacities



Installed electricity generation capacity by technology in EU-27 [GW]

Note: Nuclear not shown

## Results

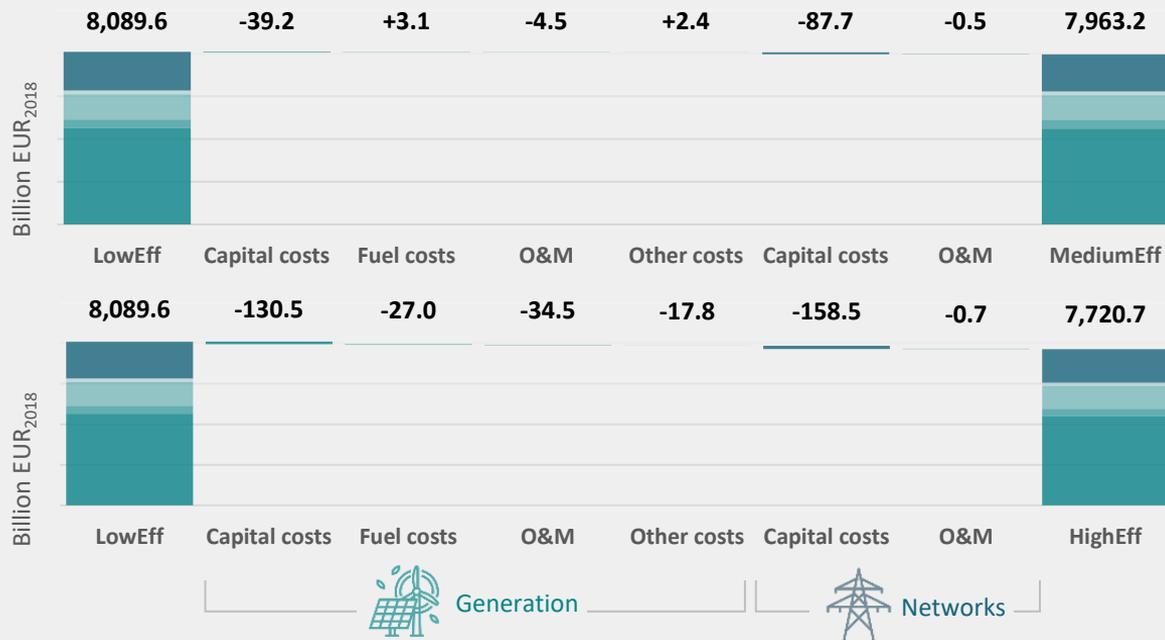
- Building sector energy efficiency corresponds to lower installed capacities (especially for wind onshore, PV roof, hydrogen)
- Dispatchable generators needed to deal with variable renewables

## Key message

Wind & solar are the backbone of electricity supply by 2050. Lower demand clearly requires less generation capacity.



## Cost balance within the electricity supply sector



Analysis of cumulative differential costs compared to LowEff for EU-27 (2020–2050)  
[bn EUR]

### Results

- Substantial reductions in capital and fuel costs
- Overall: reduced cost in MediumEff (-126 bn EUR) and HighEff (-369 bn EUR) by 2050

### Key message

Energy efficiency in buildings reduces the cost of electricity supply in terms of both generation and networks