

CONTRIBUTION TO IEA ELECTRICITY SECURITY ADVISORY BOARD

Flexibility needs and measures to foster their
development

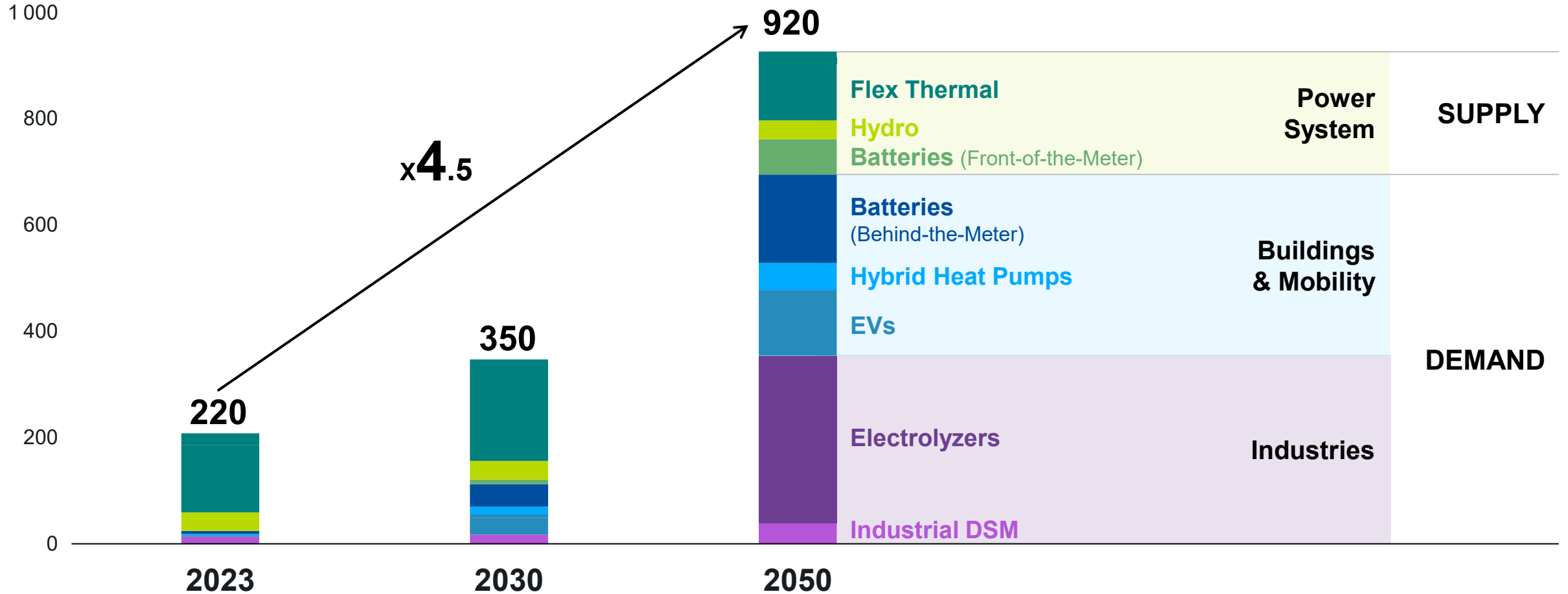
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Power system flexibility capacity must be enhanced, in large part through batteries and demand side solutions

Total Flexible Capacity Mix | Europe-15

GW



Different flexibility sources are needed over different timeframes

Flexibility activation by time horizon | EU15

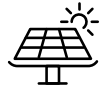
% of contribution

INTRADAY
(hours within a day)

WEEKLY
(days within month)

SEASONAL
(months within years)

**Main Drivers
of flexibility needs**



DAY & NIGHT CYCLE

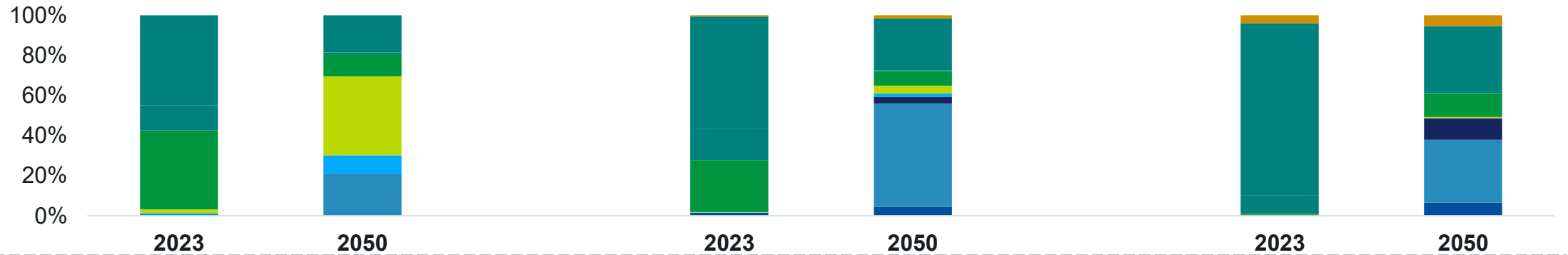


WIND FLUCTUATIONS

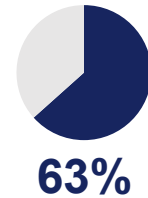


HEATING DEMAND AND HYDROLOGY

**Flexibility
mix**



**Needing
molecule
transport
& storage**



DEMAND

- Industrial DSM
- Electrolyzers
- EVs
- HHP

SUPPLY

- Batteries
- Hydro
- Flex Thermal
- Nuclear

Measures needed to foster efficient flexibility development

1. Transfer dynamic price signals to end-users for part of their consumption
2. Promote sector integration (smart EV charging, Hybrid heat pumps, flexible electrolyzers)
3. Adapt grid fees to unlock the potential of flexible solutions (pumped storage, BESS, hybrid heat pumps)
4. Develop specific support mechanisms for decarbonized thermal assets to provide the necessary seasonal flexibility
5. Ensure that support mechanisms incentivize the participation of RES generation to flexibility
6. Carefully calibrate support mechanisms to remunerate flexibility and capacity contributions of the different technologies