

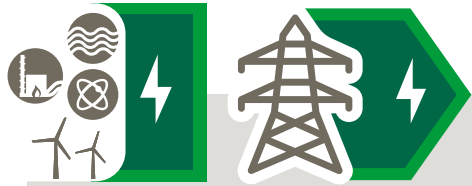
The Swedish Energy Politics

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Regeringskansliet

Sweden's energy supply



Energy systems – electricity system

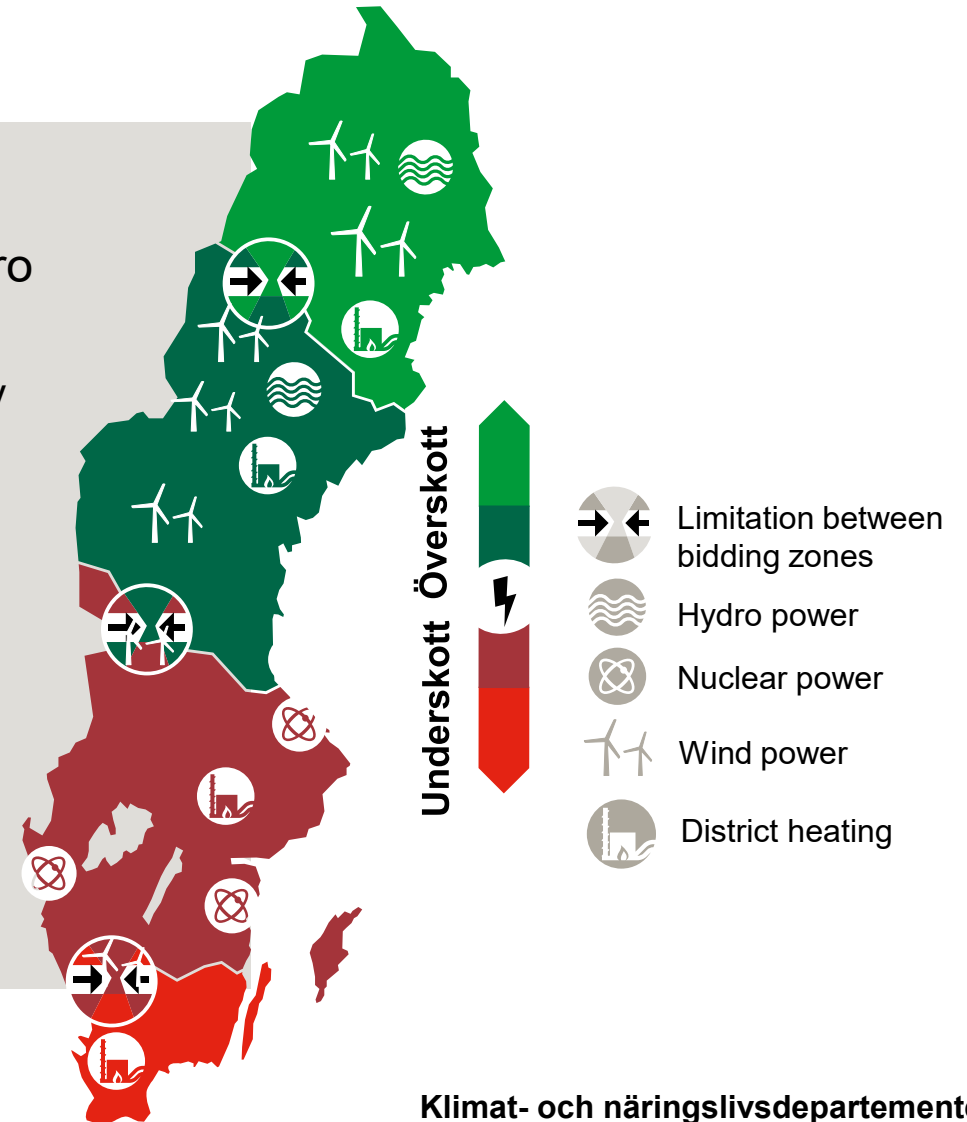
- Nuclear: 6900 MW
- Hydro: 16 300 MW
- Wind: 14 300 MW
- District heating: 6800 MW
- Sun: 2300 MW

Yearly energy consumption almost 140 TWh

Climate target – net zero 2045

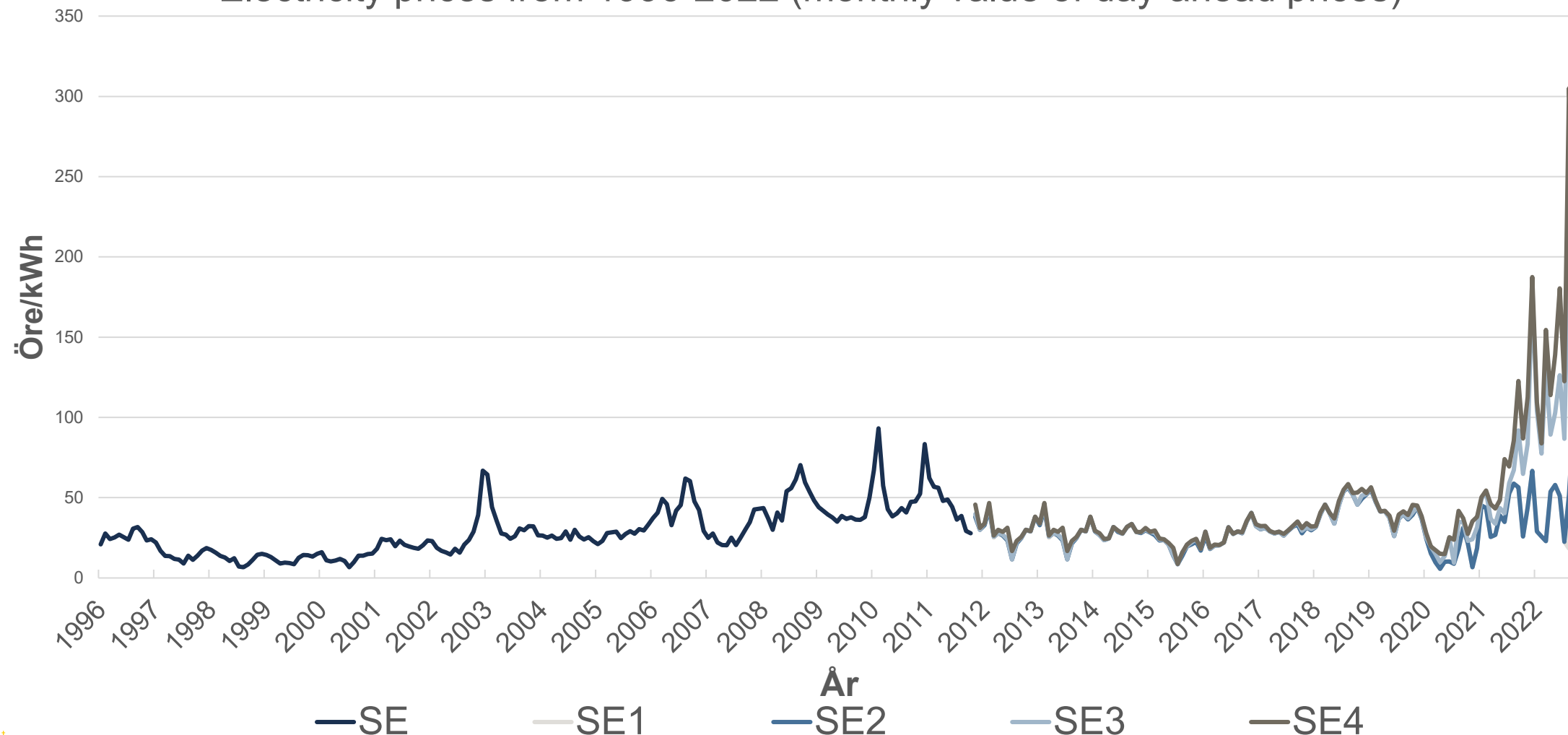
- Increase electricity demand
- Hydrogen
- Electrification and affordable prices
- Sectors coupling

Higher dependency on the electricity system

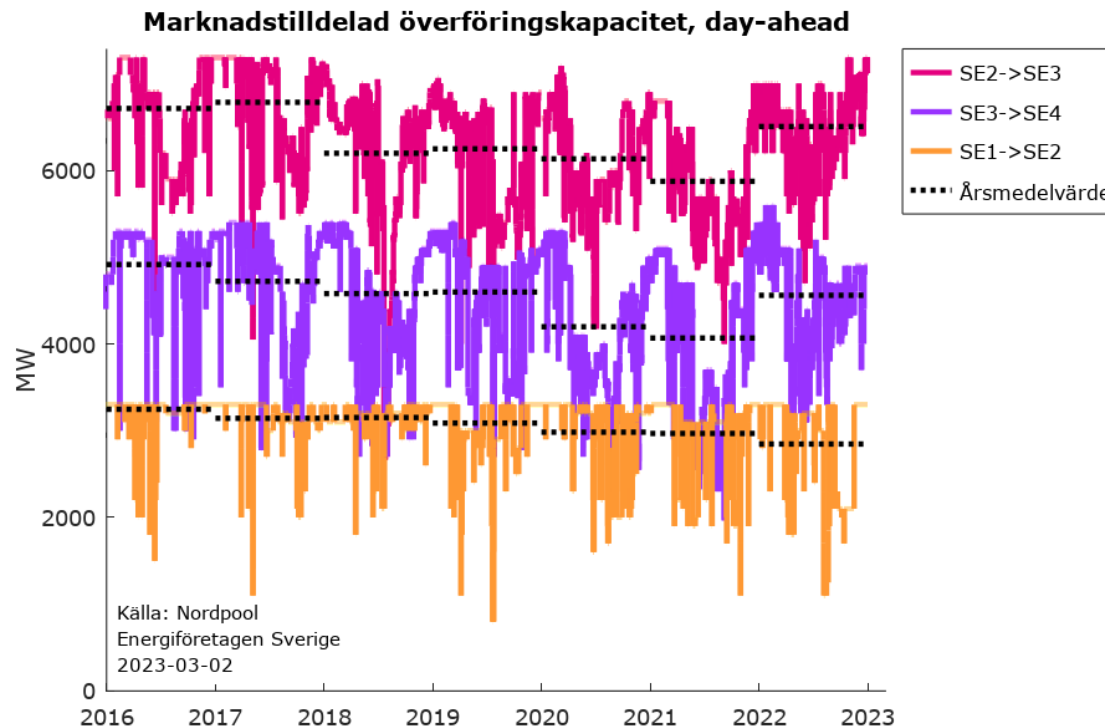


Development of the electricity prices over time

Electricity prices from 1996-2022 (monthly value of day-ahead prices)



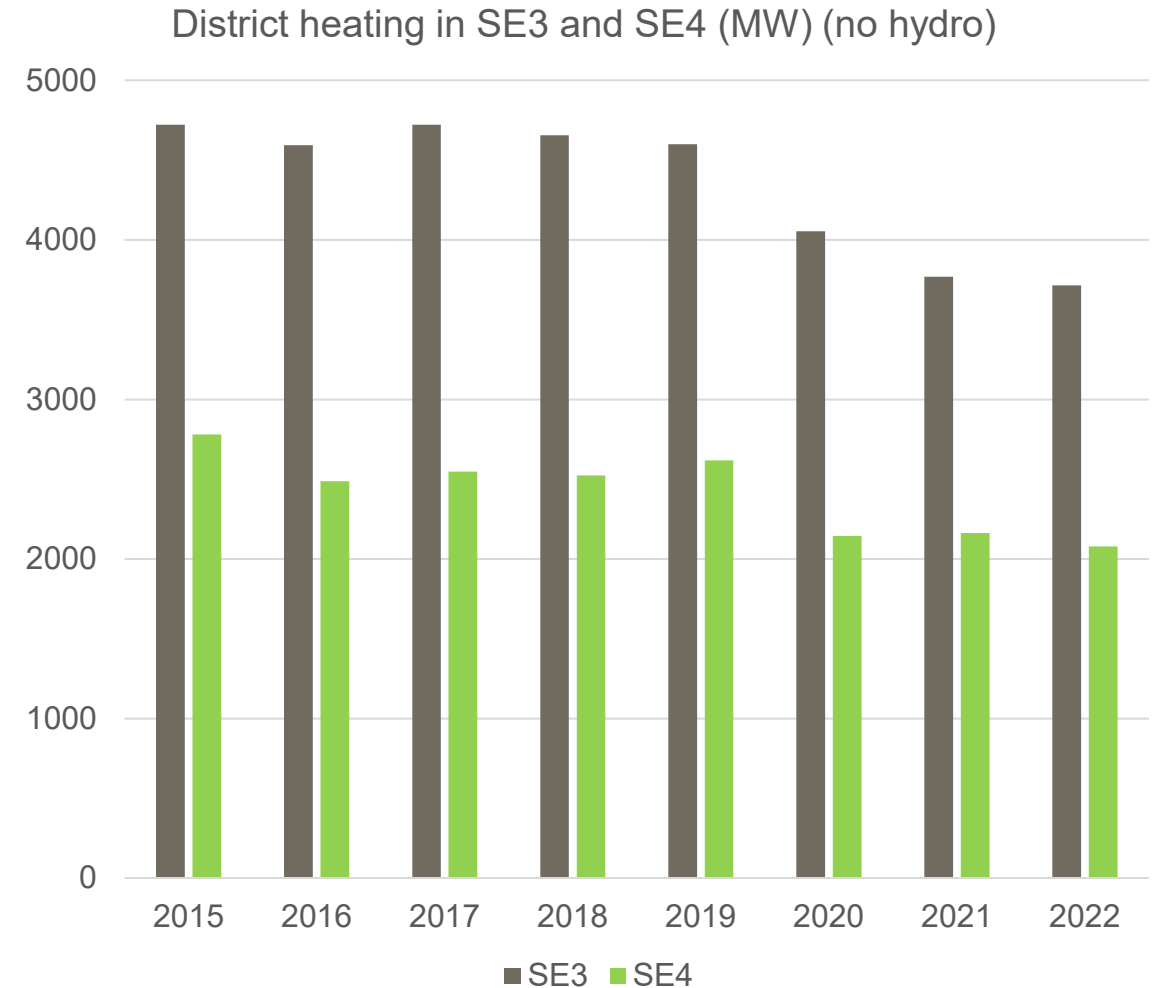
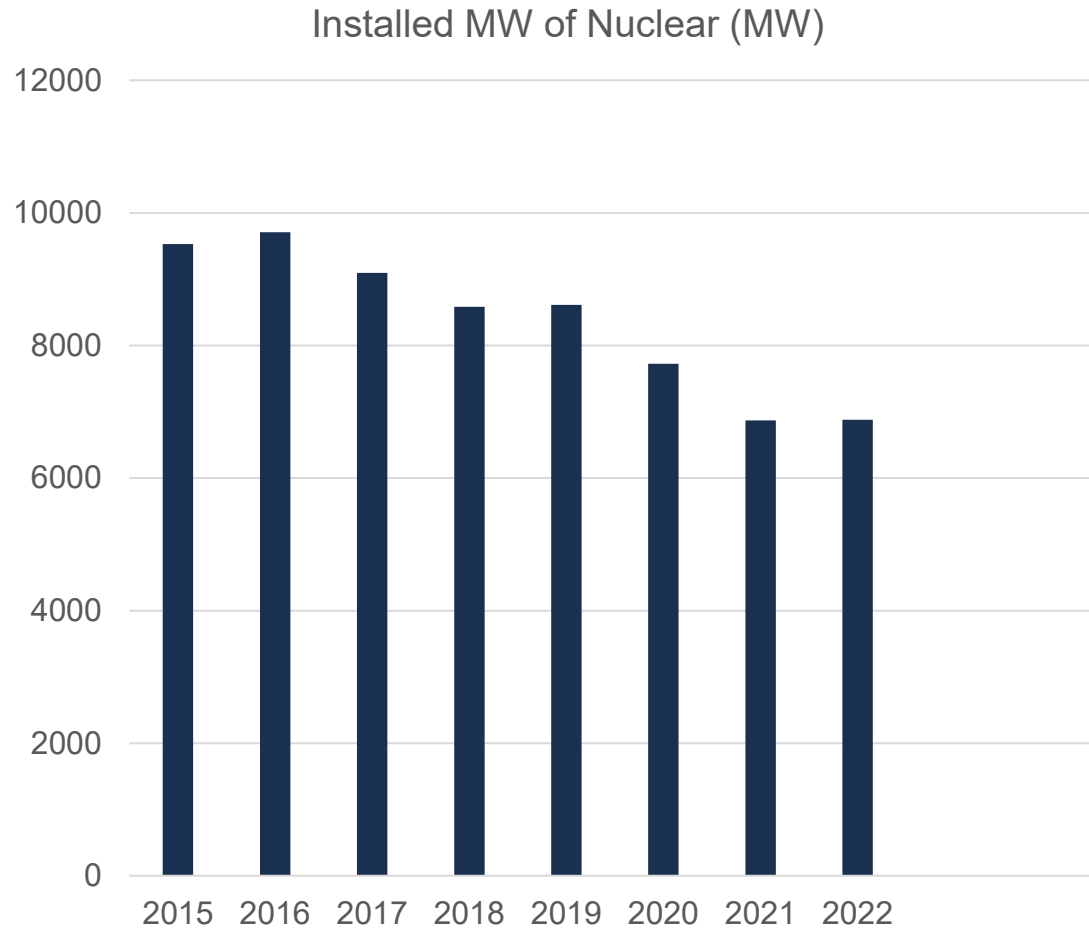
Transmission system capacity



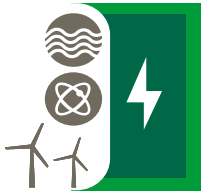
Tilldelad överföringskapacitet från SE3 till SE4. Den 27 juli 2021 togs Sydvästlänken äntligen i bruk. Den utbyggda överföringskapaciteten från SE3 till SE4 steg med det betydligt, men den överföringskapacitet som tilldelades av Svenska kraftnät sjönk.



Declining production capacity in south of Sweden



Sweden's power supply



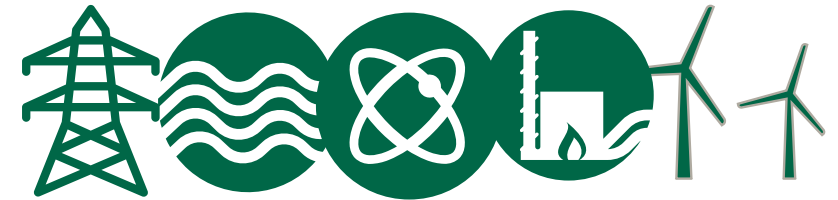
Capacity

- MW vs MWh
- Hard to connect new industries – challenging for the green transition



System operation

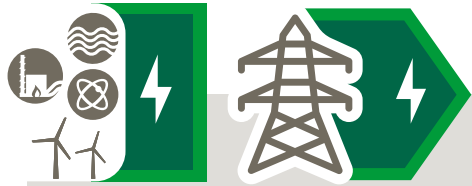
- Congestions and operational security limitations
- Volatile electricity prices



Power system design

- 10 000 MW more power production today than 2013 – but what about the performance?
- Electricity prices and tariffs depends on the power system design

Sweden's future power supply



Planning target

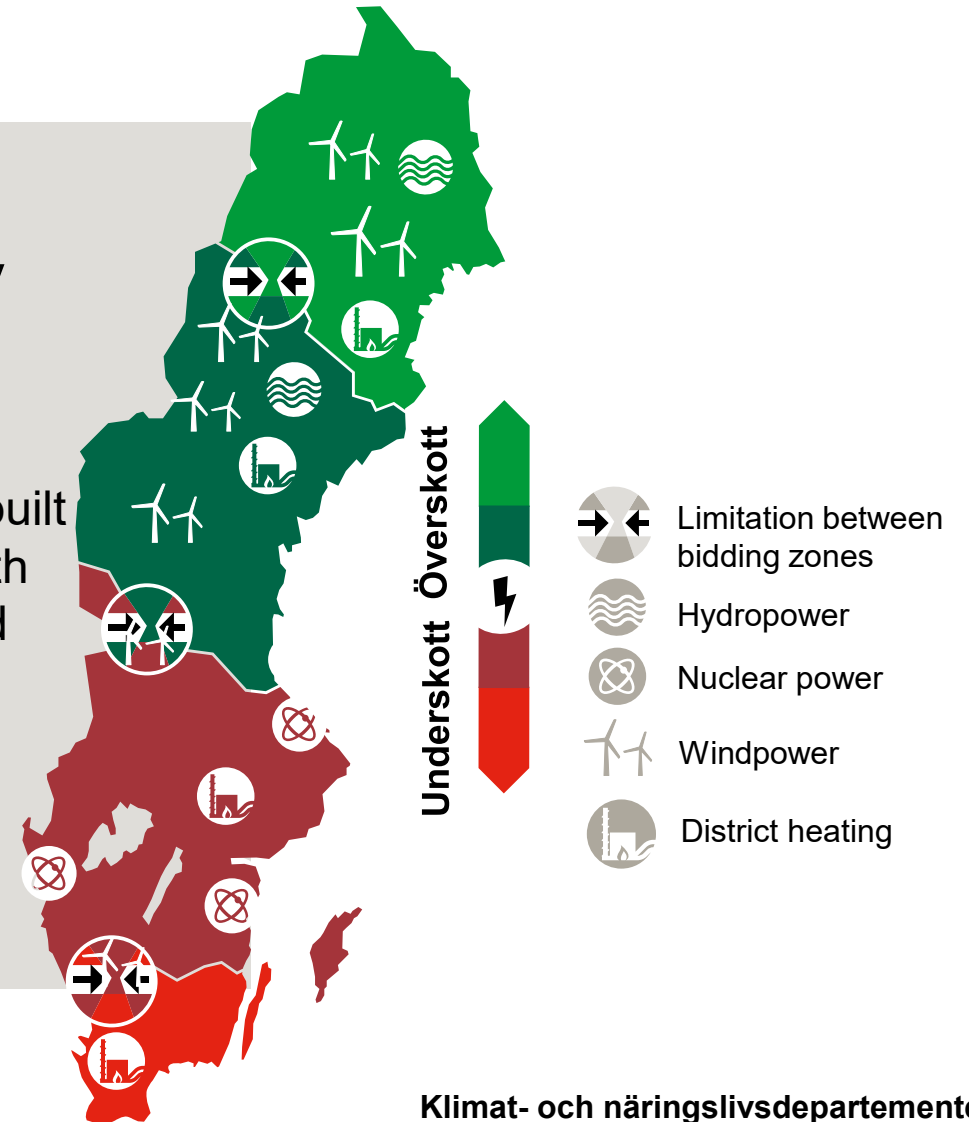
- 300 TWh 2045

- More fossil free electricity production and grid capacity to meet the demand to affordable prices



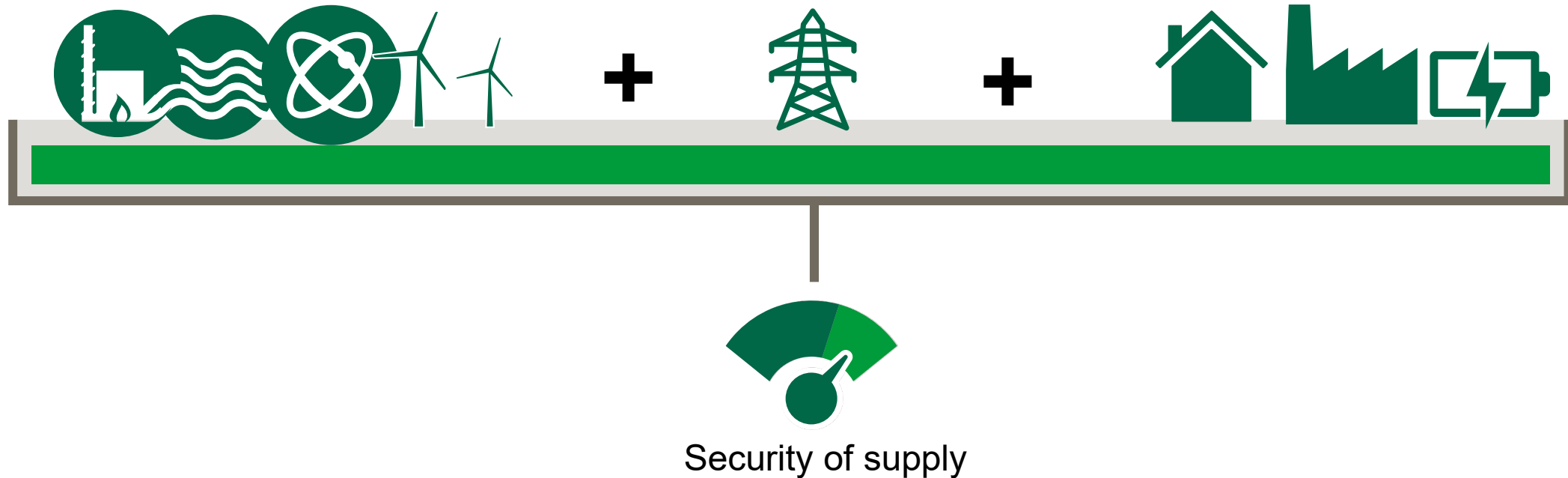
Target for security of supply

- Electricity production and grid need to be built at the right places with the right qualities and functions



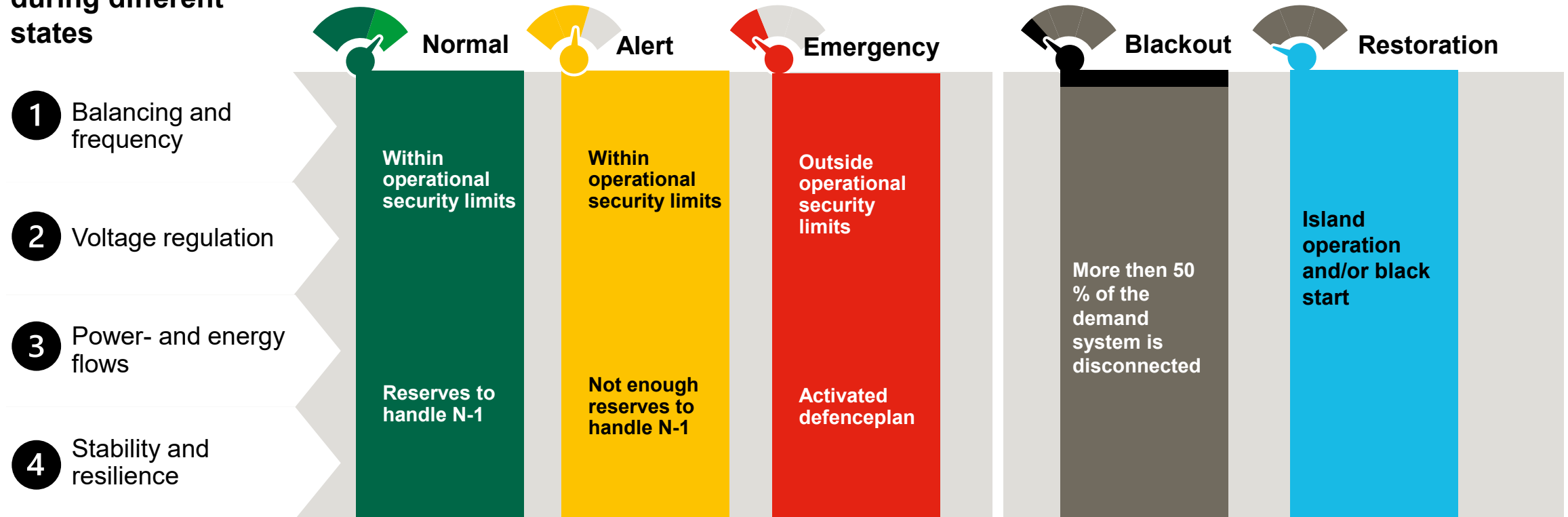
Security of supply

– the performance of the power system



The performance of the system is already defined

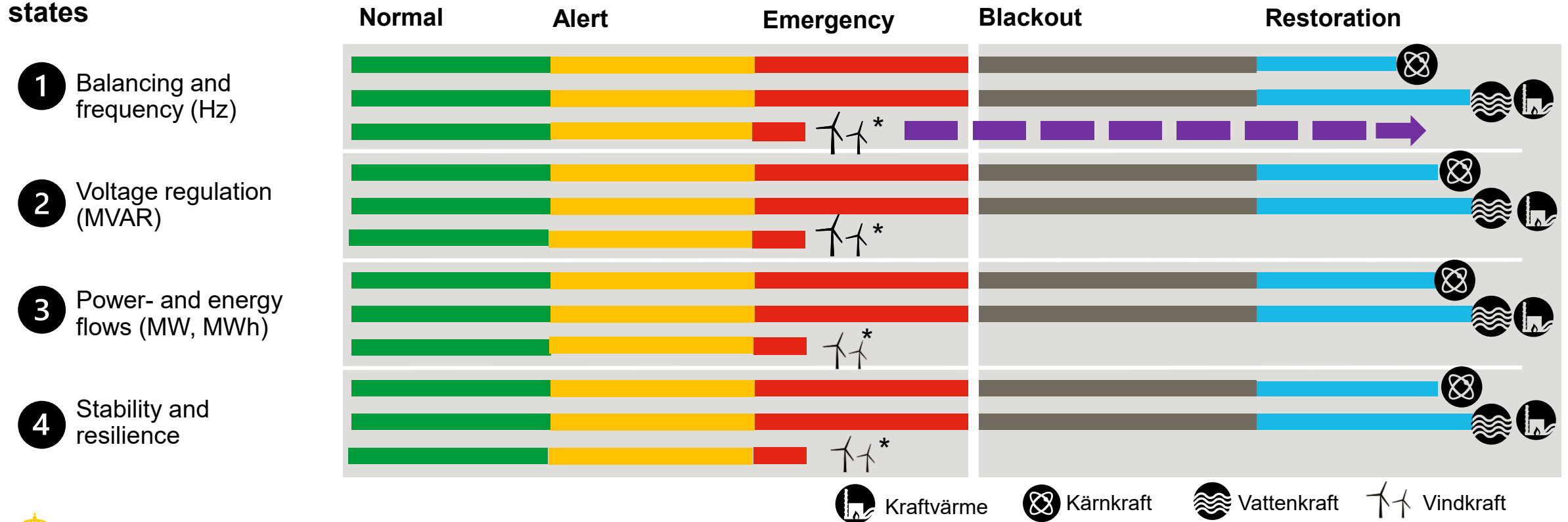
Laws of physics to deliver electricity during different states



The performance of the system

- a simplified picture of the requirements of the system's performance and how different technology usually contributes to system operation in all system states

Laws of physics to deliver electricity during different states



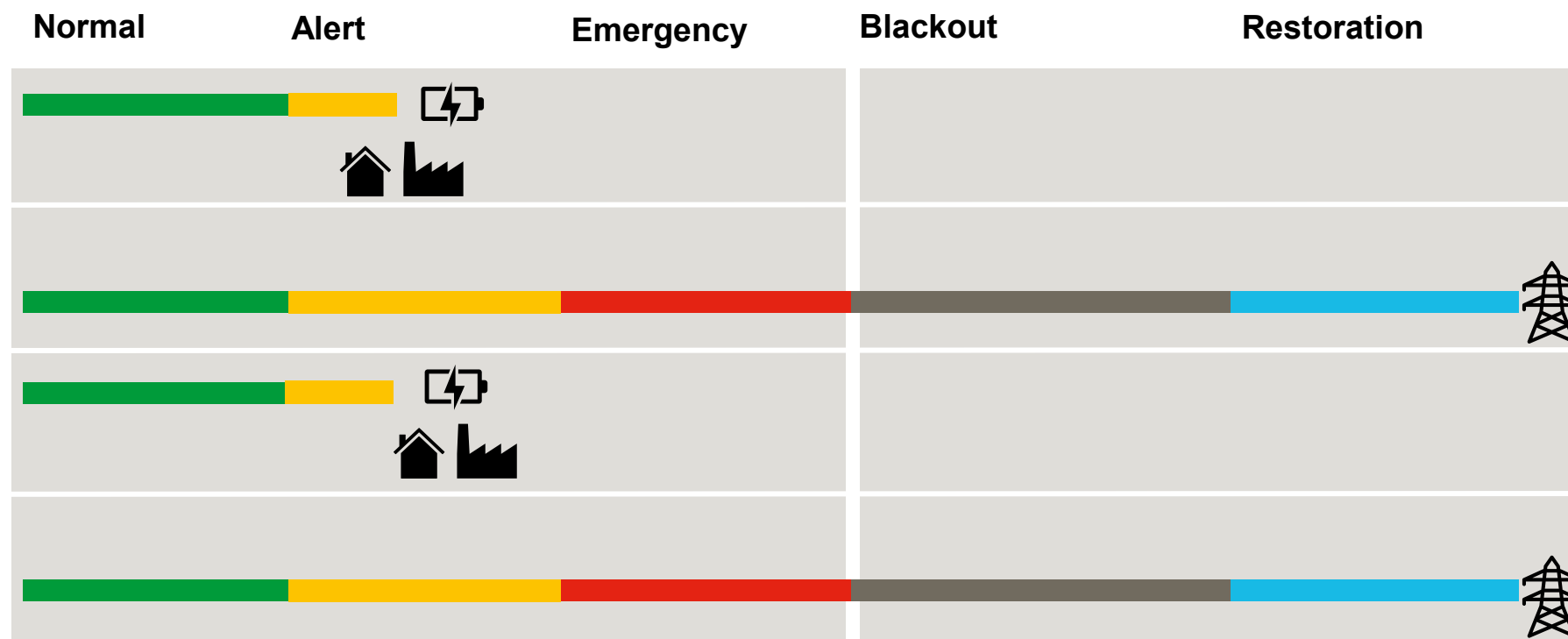
*i vilken omfattning beror på vindförhållanden

The performance of the system

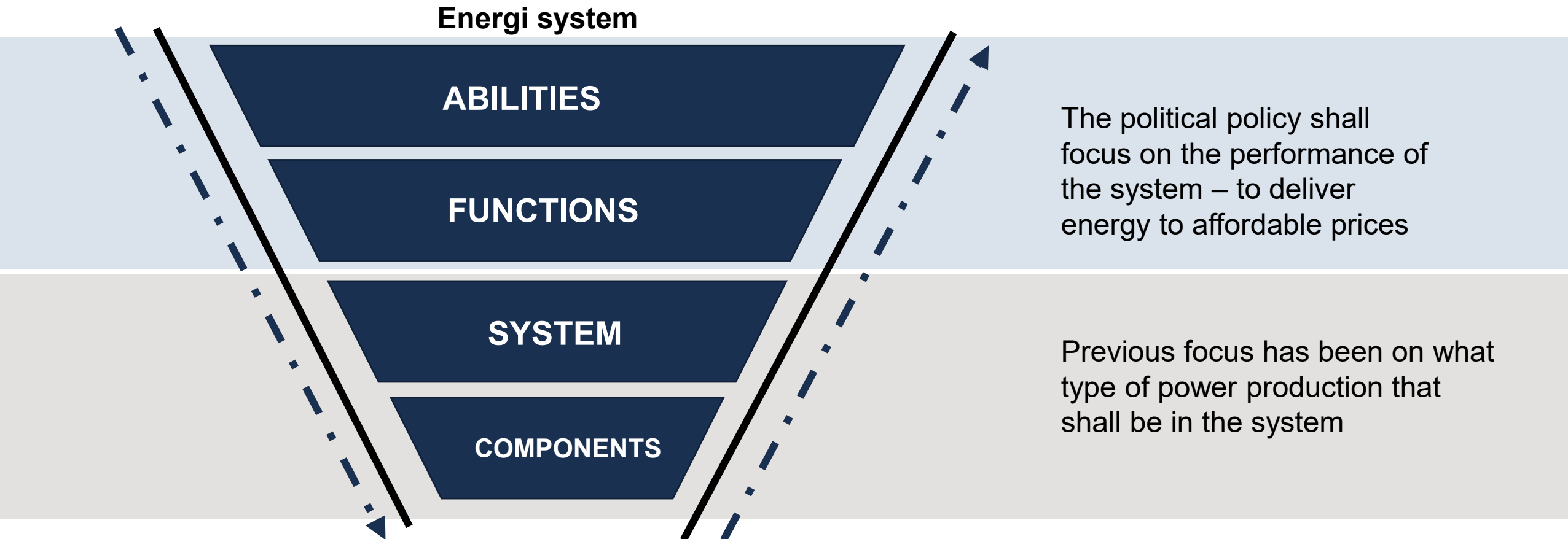
- a simplified picture of the requirements of the system's performance and how different technology contributes to system operation in all system states

Laws of physics to deliver electricity during different

- 1 Balancing and frequency (Hz)
- 2 Voltage regulation (MVAR)
- 3 Power- and energy flows (MW, MWh)
- 4 Stability and resilience



The new approach for the energy politics



Stable, fossil free energy supply to affordable prices – when we need it, where we need it

Goals and Targets

- Planning target to aim for a fossil free electricity system of 300 TWh to 2045
- Target for security of supply, a performance target, to make sure we expand our electricity system with the right qualities
- 100 % fossil free energy production and technology neutrality

Example of tools and incentives

- New inquiry for electricity market design in Sweden
- Licensing and permitting processes
- Inquiry for structures and task of our energy agencies
- Energy planning and energy preparedness
- Energy research and innovation



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