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Will the grid collapse?

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SVP R&D Statnett
Oslo, 02.02.2018

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Possible reasons for grid collapse

- Heavy icing
- Hurricanes / falling trees
- Outage of production units, or critical components

- But most probably: complex cascade effects

Possible reasons for grid collapse

Heavy icing

Hurricanes

Outage of production units, or critical components

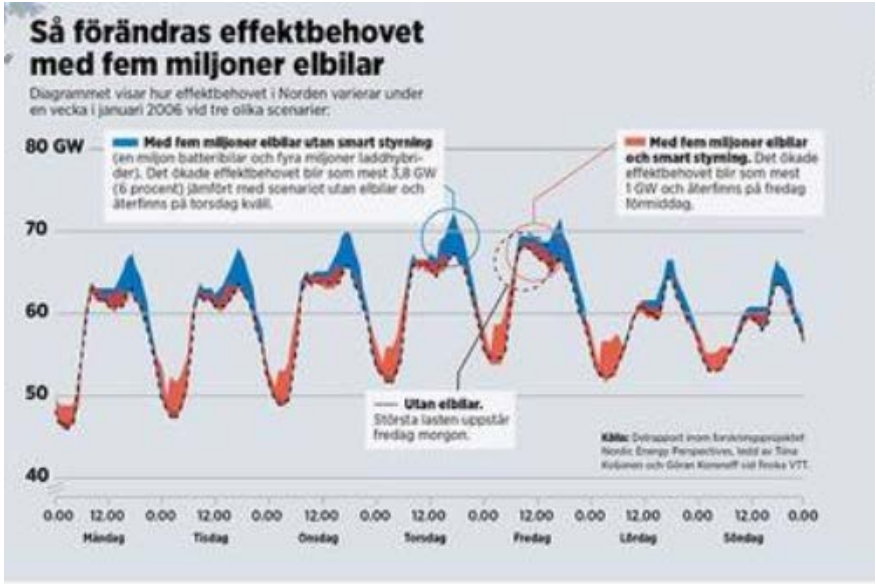
But most probably: **complex cascade effects**

What about Evs?
Can they make the grid collapse?

- Grids are run according to the N-1 principle, so naahh…

Power change caused by 5 M EVs

- Big difference between power and energy
  - 6% increase of power without smart charging control of EVs*
  - 1,6% increase of power with smart charging control of EVs*



* Nordic Energy Perspective + Ny Teknik

Don't underestimate the Power of Innovation

- Innovations in:
  - Technology – bitcoin, smart chargers, batteries
  - Market models – such as power pricing
  - Change from consumer to prosumer and active consumer
  - Infrastructure – mobile charging on the road
  - Social behavior – environmental awareness

will facilitate the use of EVs

Take away

- **EVs will not cause a collapse of the grid** on a Nordic level
  It might lead to some local challenges, but most of them can be solved with innovations and smart grid development
- **Innovations** in technology, market models, consumers, infrastructure and social behavior **will facilitate the use of EV**
- **Difference between power and energy**
  - 6% increase of effect without smart charging control of EVs*
  - 1,6% increase of effect with smart charging control of EVs
- **Avoid charging your EV thursday evening!**

*Nordic Energy perspective calculated for 5 M EVs

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