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# Nordic Electricity Market Forum

## November 28, 2019

# Nordic Grid Development Plan

*by Nordic Planning Group*



# History

- Back in 2009, Nordel grid planning cooperation was replaced with ENTSO-E system development: pan-European level, Baltic Sea level.
- The Nordic council of ministers tasked in December 2016 the Nordic TSO's with presenting a Nordic Grid Development Plan (NGDP) 2017. It presented the status of ongoing investments and identified corridors to be studied further.
- Grid Planning was also part of a larger "Solutions"-package and NGDP2019 was continuation of this work.



# The role of joint grid plans

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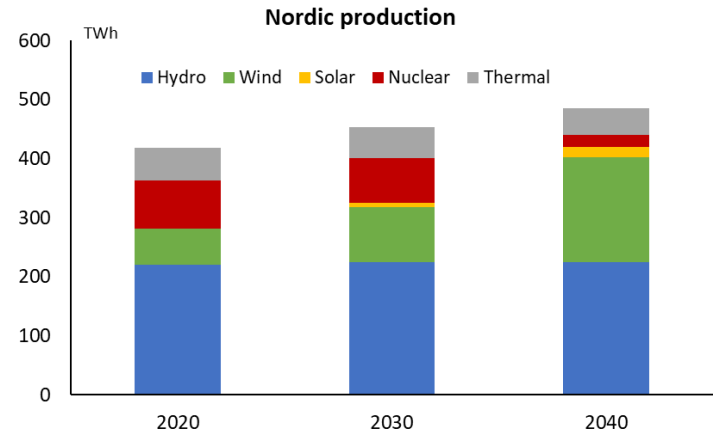
- We are four individual countries with different
  - Natural conditions
  - Legislation/regulation
  - Energy Systems, production sources and loads
  - Political goals and priorities.
- Even though Nordic TSOs prepare grid plans in cooperation, all the grid investments are still decided on national basis.
- This means that the cross-border investments require clear Nordic political backing and solving of cost sharing issues.
- The joint planning process can help in making these decisions.



# NGDP is based on one Nordic perspective

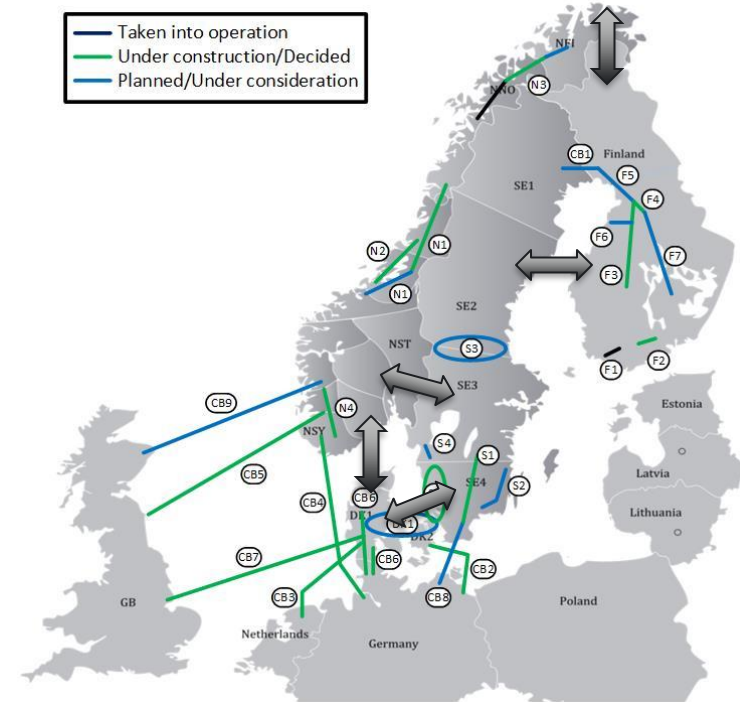
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- As much as possible, we build on existing national and European work and create:
  - joint Nordic reference scenarios i.e. forecasts for the power system 2030/2040
  - a set of relevant sensitivities to be studied
  - a common set of input data and models
  - a common cost-benefit approach
- We share knowledge/best practices and jointly develop our planning methods
- We coordinate the stakeholder involvement



# Nordic Grid Development Plan (NGDP 2019)

- Nordic TSOs are preparing for future challenges with a large project portfolio: in total, we plan to invest some €15 billion until 2028
- In addition, five corridors have been studied
- The studies are still in different phases but preliminary, all of these projects show Nordic benefits - however these are mostly realizing in the 2040 scenario
- We received some stakeholder comments:
  - More transparent planning process is needed, e.g. a top-down approach must be shown
  - Less price areas are hoped for



# How do we continue our work

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- The Nordic Grid Development Plan will be updated every second year, as part of a larger cooperation described in the report “The way forward – Solutions for a changing Nordic power system”. The next NGDP will be published 2021.
- It is the ambition of the Nordic TSOs to further improve the cooperation:
  - reporting on the ongoing and planned investments of Nordic significance
  - creating updated scenarios for the overall power system development
  - continuing the interconnector studies, e.g. grid studies
  - having a more top-down approach, e.g. investigating the overall need for more grid capacity north-south in the whole Nordic region.
- We need more stakeholder involvement in order to be able to deliver value for producers, consumers and society as a whole.

# Planning the future power system

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- In order to achieve a clean energy system, the Nordic power system will undergo large changes towards 2040:
  - Electricity consumption will increase, e.g. data centers and electrification of transport, heating and different types of industry processes
  - Controllable power production will decrease at the same time that the amount of renewable power production will increase strongly and become dominant.
- This means that we need to invest in new transmission grid but - at the same time - major reinvestments within the existing grid are required
- In addition to building new transmission lines, we also need to create right price signals for the market participants and to find new methods for balancing the system – in many cases joint ICT solutions are required
- Although the task seems to be getting more complex, we also see new possibilities arising, such as more demand response and sector coupling