



**Nordic Energy
Research**

Nordic Views on New Energy Storage Technologies

Hans Jørgen Koch
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What we do

- We are the platform for cooperative energy research and policy development under the **Nordic Council of Ministers** – the intergovernmental body between Denmark, Finland, Iceland, Norway and Sweden.
- We fund R&D to promote a sustainable future
- We contribute to policy-making





“The aim of the Nordic countries is to be carbon neutral and to demonstrate leadership in the fight against global warming.”

These were the words of the Nordic prime ministers in their declaration at a summit in Helsinki on 25 January 2019 as part of active Nordic climate cooperation under the auspices of the Nordic Council of Ministers.

“The Nordic countries are working together to raise the ambition, and we would like to **lead by example** and encourage all other parties to improve their Nationally Determined Contributions under the Paris agreement, so that we can get closer to the 1.5 degree target. Nordic countries are sending a signal to the rest of the world that we are very committed to the 1.5 degree target. **We are going to improve and update our NDCs** under the Paris agreement and in all our international connections we are willing to raise the issue of climate change and the fight against it so that we encourage other parties to improve their performance.”

Kimmo Tiilikainen

Minister of the Environment, energy and housing, Finland. January 25, 2019.

norden.org/en/news/stepping-nordic-climate-co-operation



Climate targets



Sweden – net zero emissions by 2045



Finland – carbon neutral 2035



Denmark – 70% reduction CO₂ 2030



Norway – carbon neutral in 2050



Iceland – carbon neutral before 2040

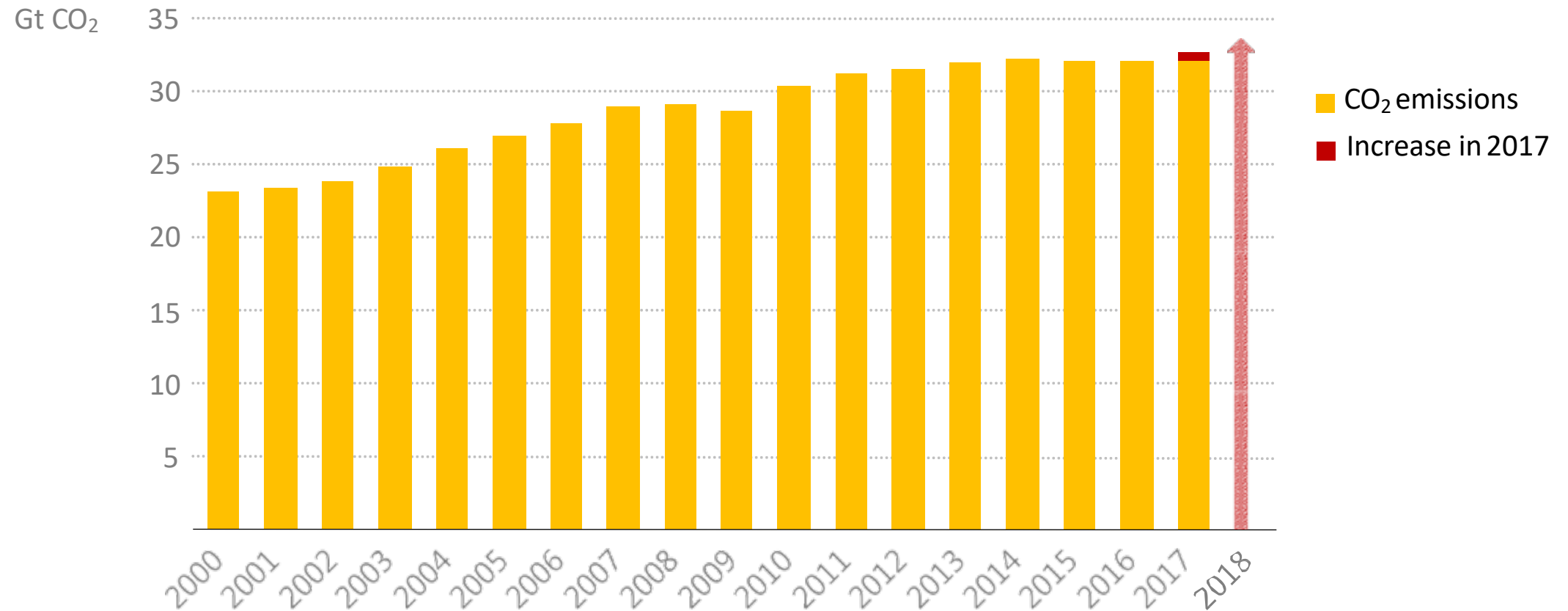


EU – Cut greenhouse gas emissions by at least 40% (of 1990 levels) by 2030



Global emissions are set to increase in 2018 - again

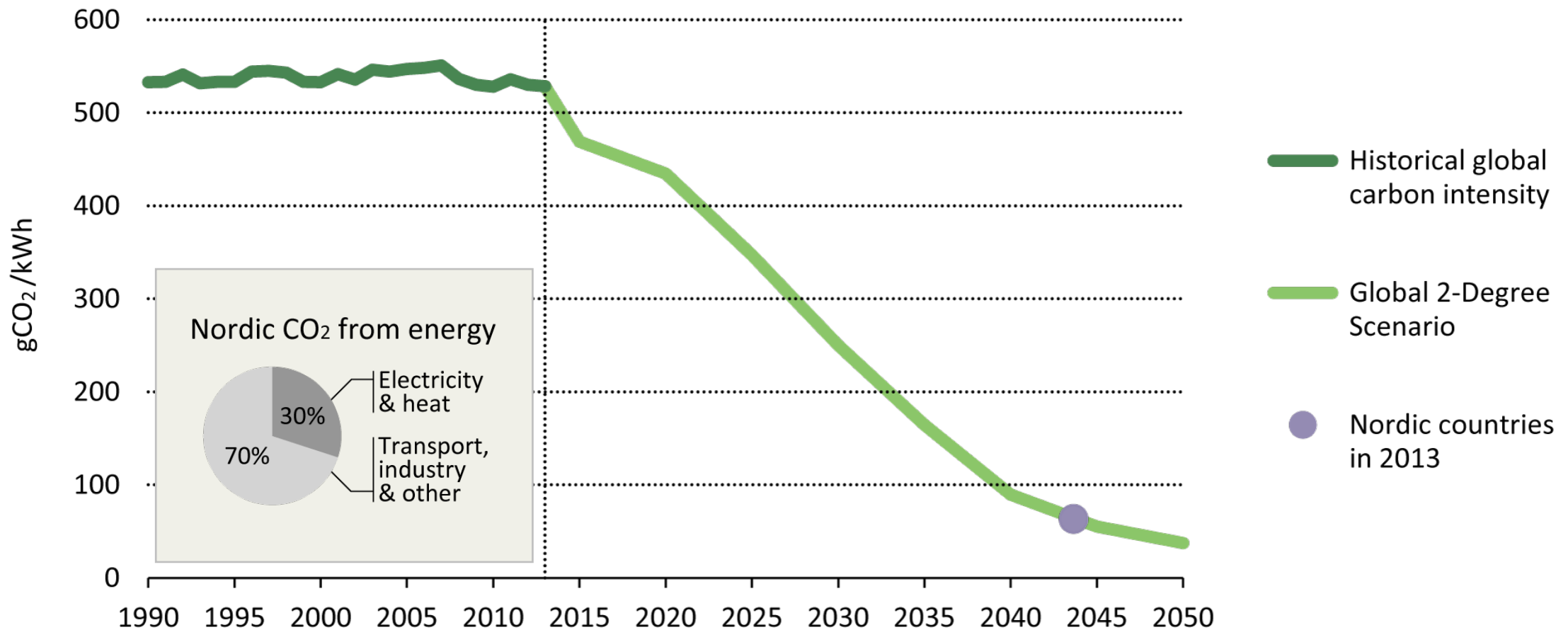
Global energy-related CO₂ emissions



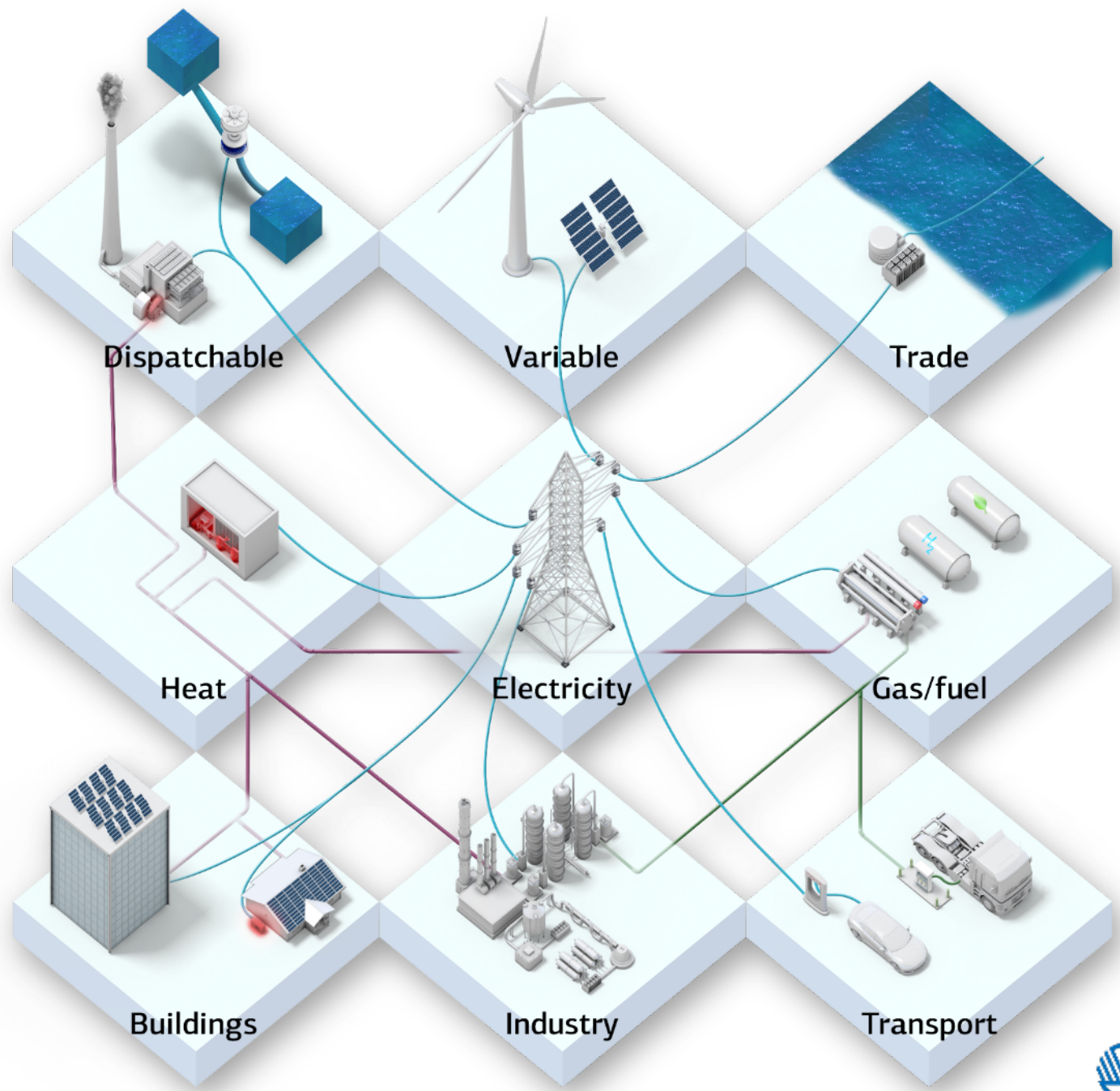
Despite need for early emission reduction, the world is not moving towards the Paris goals but rather away from them

25 years ahead on electricity decarbonisation

Global carbon intensity of electricity (gCO₂/kWh)



Supply System Demand Storage



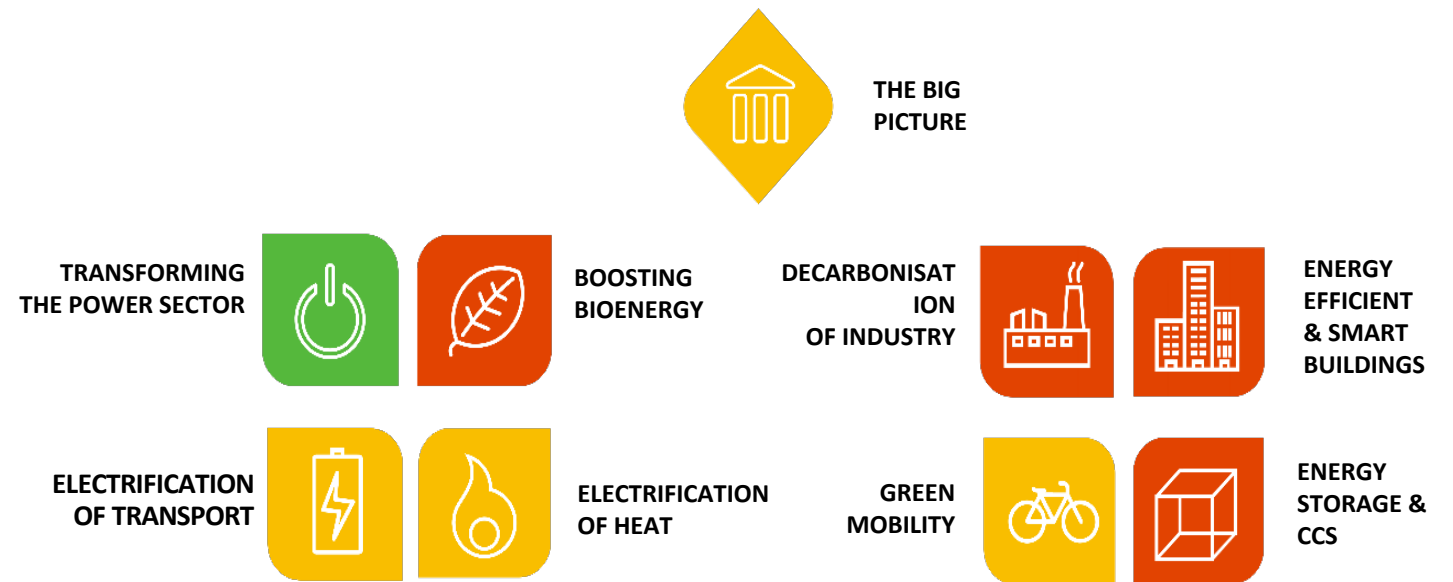
Tracking Nordic Clean Energy Progress

The progress so far, and challenges remaining

Red – Not on track / Insufficient steps

Yellow – Greater effort is required but critical steps are being addressed

Green – On track / Sufficiently promising efforts and impact



Following up on the Ministers' goals

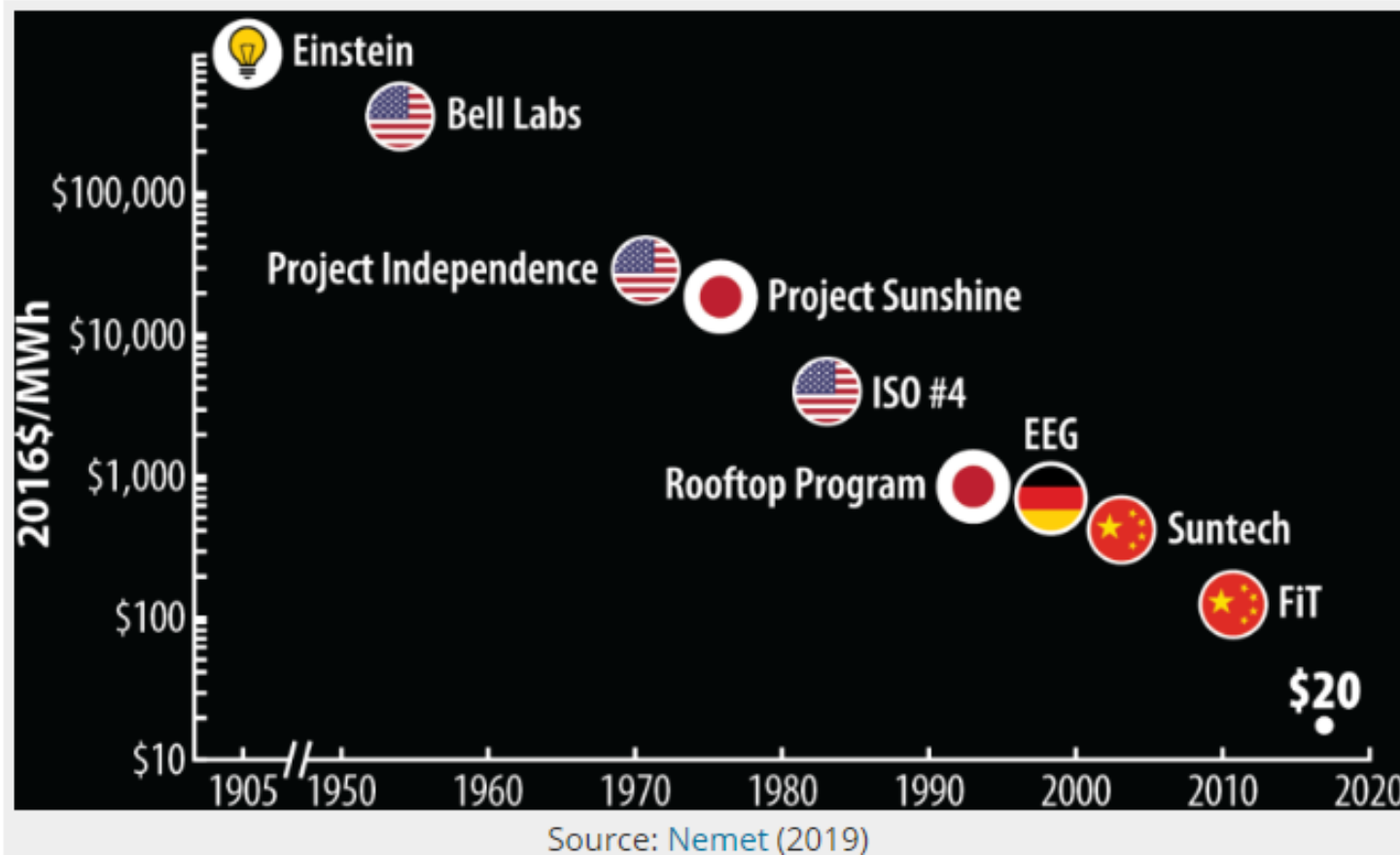
- Nordic scenarios to follow up on Prime Ministers' declaration on energy issues
- To be concluded at the end of 2020
- Defining the most cost-effective ways to jointly achieve the ambitions Nordic energy and climate targets.
- Describing lessons learned from best practices in Nordic and other countries.
- Non-prescriptive



“Can other technologies replicate Solar PV price reductions?”

energypost.eu/can-other-technologies-replicate-solar-pv-price-reductions/

One of the most remarkable trends in energy economics over the last 50 years is the tremendous reduction in solar photovoltaic (PV) prices. The figure below charts prices on a log scale. In words, it shows that **prices in 1970 were about 1,000 times higher than they are currently.**



Prices for solar are 1,000 times lower, but it took 50 years...



Nordic Energy Co-operation: Strong today – stronger tomorrow

BY JORMA OLLILA

At the moment, the Nordic Region is a world leader, but the individual countries may prove to be too small to cope with the international competition. The question, then, is can we afford not to work together?

 Nordic Council
of Ministers

Jorma Ollila
Former CEO of Nokia



The Nordic Region

Nominal GDP in million USD, 2013 (UN)

1	United States	16 768 050
2	China	9 181 204
3	Japan	4 898 532
4	Germany	3 730 261
5	France	2 806 432
6	United Kingdom	2 678 455
7	Brazil	2 243 854
8	Italy	2 149 485
9	Russian Federation	2 096 774
10	India	1 937 797
11	Canada	1 838 964
12	Nordic region	1 721 389
13	Australia	1 531 282

Denmark



Thank you for your attention!

Hans Jørgen Koch, CEO

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