

Ladies and Gentlemen,

[sheet 1]

Thank you for the invitation and giving me the opportunity to present some thoughts on the future of the North Sea from the perspective of the Dutch ministry of Economic Affairs.

[sheet 2]

- The IPCC report about global warming of 2018 and the World Energy Outlook that was published last week by the IEA both convey a strong message. The world is nowhere near reaching the climate goals stated in the Paris Climate Agreement.
- That means that the world has to speed up. As we speeding up with our goals and policy for 2030, agreed upon in the Dutch Climate Agreement.
- The North Sea plays an crucial part in reaching our climate goals. Especially Offshore Wind Energy.

[sheet 3]

- The Dutch approach to offshore wind energy is a success story: pivotal in driving the offshore wind energy costs down all over the world. Our last tenders were even subsidy free.
- But we haven't even started yet...
- We have almost finished our work for the 2023 road map. The tender for the site Hollandse Kust (Noord) will be published in a couple of weeks. For those wind farms it is up to the developers now. Amongst whom the company of Mrs. Van Loon.
- The Borssele wind farms will be completed next year. They will supply 5% of our total electricity demand. Preparations by the developers for de Hollandse Kust Zuid wind farms are well under way.
- In 2030 40% of our electricity demand will be supplied by our wind farms. Total share of renewables will then be 70% of electricity demand. This is a substantial contribution to the Climate Agreement goals.
- More offshore wind farms will be build after 2030. In one of the BPL scenario's for 2050 even 60 GW offshore wind, 5 times as much as planned for 2030.

[sheet 4]

- Ramping up the supply of green electricity from offshore wind farms gives us some interesting challenges that we have to incorporate in our approach.
- Developing wind farms only is not enough anymore. We need an integrated approach.
- For instance, linking growth of electricity demand to our ambitions for offshore wind farms. Or actually to our total ambitions for renewable electricity supply.
- Balancing supply and demand is necessary to make sure that the business case for developers remains viable. Otherwise they will not build offshore wind farms.

- That means for example, that we have to monitor our success rate in encouraging industry to electrify industrial processes with our SDE++ subsidy scheme.
  - And we have to work close together with industrial partners in our joint innovation programs on cost reduction and upscaling of electrolysis for making green hydrogen.
  - Green hydrogen which can be used for heating or as feedstock.
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- Another challenge we face is the intermittency of offshore wind energy.
  - When a large part of our electricity is intermittent, more interconnection of national electricity grids is needed to facilitate import and export of electricity between countries.
  - In one of my next sheets I will give you an example of an innovative way of interconnection linked to the offshore wind farms that we are looking into.
  - Of course developing energy storage capacity is another way for dealing with intermittency. Energy storage pilots and demonstration projects are financially encouraged with our innovation instruments.
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- Our TSO TenneT, has explained to us that extra Gigawatts on top of the road map 2030 will lead to congestion on the onshore electricity grid. To mitigate this, we need to develop policies to make sure that energy from offshore wind farms will be used in industrial clusters in coastal regions.

[sheet 5]

- When talking about the future of the North Sea we have to be aware that this is one of the busiest seas in the world. The map shows a lot of activities taking place on the Dutch continental shelf, now and in the future.
- When planning offshore wind farms, we are taking all these stakes in account. There is an North Sea Agreement in the making, negotiated by government and other relevant parties like representatives from fisheries and NGO's, to ensure coexistence of these activities.
- And of course, these activities do not end at our national borders. Therefore strengthening our cooperation with our North Sea neighbours even further is becoming more and more important.

[sheet 6]

- In 2016 the North Seas Energy Cooperation ten countries in the North Sea region (and the European Commission) signed a political declaration, reaffirming their commitment to this voluntary cooperation with the aim of securing a sustainable, secure and affordable energy supply for the North Seas countries.
- Different support groups have been working on different topics, such as maritime spatial planning and environmental impact assessments, discussing support schemes and tender design and aligning technical standards.
- Countries and Commission have been working on a new declaration and new work programme over the past few months. There will be an additional focus on cross-

border projects and on a more long term vision on the North Sea including sector coupling.

- There are two specific cross-border offshore wind projects that have stemmed from looking at the North Sea from an international and more future-proof point of view and I would like to present them to you briefly.

[sheet 7]

- There are two specific offshore wind projects that have stemmed from looking at the North Sea from an international point of view and I would like to present them to you briefly, so you can get an idea of the potential of international cooperation for actual offshore project development.
- The first one is the project called 'WindConnector'.
- Our Minister asked our TSO TenneT to look into the possibilities and costs and benefits of a 'WindConnector': an interconnector from future Dutch wind farm IJmuiden Ver to the UK.
- TenneT is analysing two different options:
- An interconnector from IJmuiden Ver directly to the UK mainland; and
- An interconnector from IJmuiden Ver to a British offshore windfarm nearby.
- The first results of these analyses show strong cost reductions improving socio-economic and commercial cases compared to a standalone interconnector.
- A 'WindConnector' could increase the efficiency of use of offshore wind connections by facilitating cross border trading flows
- It could also reduce environmental impact and increase efficiency of onshore grid integration by sharing onshore stations and export cables

[sheet 8]

- Another project that I would like to mention here as an example of what could happen when you look at the limited North Sea space with a more integral approach is the North Sea Wind Power Hub.
- The North Sea Wind Power Hub is a concept being studied by a consortium of electricity and gas grid operators (TenneT NL and GER, Energined.dk, Gasunie and Havenbedrijf Rotterdam).
- As you can see on the screen it is a hub-and-spoke concept combining grid connection for offshore wind farms with interconnection between North Sea countries.
- The concept provides higher utilization and lower costs through combined transmission and interconnection, at the same time facilitating sector coupling through power-to-gas conversion.
- It is the result of international cooperation across stakeholders, including grid operators, industry and policy makers.
- To conclude: The future of the North Sea is full with green energy for a fossil free society. It is a future full of opportunities and cooperation to make the energy transition happen. And it's a future full of engineers to make it all work!