

Keynote Address

by

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at the

**Opening Ceremony**

**2<sup>nd</sup> International Forum on Energy Transitions**

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Your Excellency Mr. Wang Yong, State Councillor,

Your Excellency Mr. Nur Bekri, Administrator of the NEA,

Excellencies,

Ladies and Gentlemen,

It is my pleasure to welcome you to the second International Forum on Energy Transitions, organised by the Chinese government and the International Renewable Energy Agency (IRENA). I wish to begin by thanking his Excellency Mr. Nur Bekri, as well as Mr. Shi Taifeng, Governor of Jiangsu, for generously hosting us once more in the beautiful city of Suzhou.

### ***The energy transition gains pace***

This is only the second year of the transition forum, and already we have started on the route from talking about transition to what we saw on the screen this morning and what we heard from State Councillor Wang Yong, that we are moving to an energy revolution. We have truly seen revolutionary change in the energy systems of the world, which is exactly what we need if we are to meet the challenges facing the world today – challenges for our survival and for the future of sustainability.

The good thing is that we have already seen the pace at of the transition changing. Since we met last year, the global energy transition has accelerated at an

unprecedented pace. This is illustrated throughout all of the renewable energy market worldwide.

The share of renewable energy in the global energy mix has continued to grow steadily. Last year, around 62 percent of all power generation capacity additions were renewable, with this share above half for every year since 2011. In this, China is leading the way accounting for half or more of global wind and hydropower additions, and a third of solar additions.

In 2015, renewables attracted its highest ever volume of investment – USD 330 billion - of which China attracted over one third.

This growth in renewables has accelerated because of drastic cost reductions that we are seeing. Yesterday, in our discussion with the Chinese entrepreneurs I noted that it was their innovation, their commitment and their ingenuity that has been the primary driver for reductions of technology costs worldwide. This year, we have seen best price solar PV projects being offered for around US 3 cents/kWh. Onshore wind prices are approaching US 3 cents/kWh also, and offshore wind below US 10 cents/kWh. IRENA finds that by 2025, average costs for solar PV have the potential to fall further by around 60%. Offshore and onshore wind costs could fall by around 35% and 25% respectively. The era of grid parity for renewables has arrived faster than any of us could ever have expected.

Renewables not only deliver energy in a cost-effective and sustainable manner but also have substantial associated economic benefits. IRENA analysis finds that doubling the share of renewables in the global energy mix by 2030 can prevent

economic losses of up to USD 4.2 trillion annually – 15 times more than the costs – thanks to avoided expenses from air pollution and climate change. In addition, it could generate up to 1.1% GDP growth globally, and put up to 24 million people into work in the renewables sector which is a critical consideration at a time when we are seeing slow economic growth.

### *The climate imperative and global action*

Since we met last year, we have seen the world come together to signal its political resolve to tackle climate change with the adoption of the Paris Agreement, which will enter to force next week. This is a remarkable achievement for the international community acting together. Energy demand and use accounts for two thirds of global greenhouse gas emissions and carbon intensity of energy will need to fall by 90% or more by 2050 if our prescribed climate target is to be met. This is a tremendous challenge, but renewable energy, in our estimation, can deliver half of the emission reductions required to meet the goals of the Paris Agreement - and energy efficiency, used in the right way, can deliver the other half.

China is a frontrunner in addressing these challenges and finding solutions, from its key role in ensuring the early ratification of the Paris Agreement to its recently published national plan for implementing the Sustainable Development Goals.

It is also under China's leadership that the G20 energy ministerial, meeting in Beijing last June, adopted the first ever G20 Action Plan on Renewable Energy, building on the IRENA-led G20 Toolkit agreed in 2015. We look forward to further

progress under the German G20 presidency in 2017 in advancing the decarbonisation of our energy supply and use.

### ***Challenges ahead (I): power sector transformation***

The alignment of policies, markets, technologies and falling costs is spurring an energy transition unprecedented in magnitude and scale. This calls for a long-term perspective to chart the road ahead.

IRENA's REmap analysis shows us that we can achieve a 36% renewables share in the global energy mix by 2030. Power sector transformation, a pressing priority already highlighted in our deliberations last year, is at the heart of efforts required to achieve this. It requires that we turn our attention to integrating high shares of variable renewable power, a challenge which we can meet, but which calls for a comprehensive approach to the use of recent innovations, from technologies, markets and business models.

Part of the solution lies in implementing more of the innovative flexibility options available today, including cross-border interconnections, energy storage systems, demand side management strategies and advanced weather forecasting. During windy days in Denmark, wind power production exceeds its national power demand – and in July 2015 it generated as much as 140%. But this is handled seamlessly, as for example, on 9 July 2015 interconnections allowed Denmark to export 80% of the renewable power surplus to Germany, Norway and Sweden, where the wind power was consumed or stored by pumped-hydro storage systems. A similar development

occurred also in Germany. On May 8, 2016, 95 % of Germany's power consumption was supplied by PV and wind, with exports from fossil fuel plants being absorbed by Germany's neighbours. The issue of interconnections was highlighted by Mr. Wang Yong, and part of the solution to overcoming the problem of curtailment is integrated markets.

Another aspect is innovation in the way we design our electricity markets. As we advance the energy transition, our markets need to send the right price signals, provide a credible, long-term policy framework that enables investment, and reflect the true costs of energy sources, including externalities.

### ***Challenge ahead (II): end use sectors***

It's important to note that we have also yet to scratch the surface of the potential of demand sectors to provide the additional flexibility needed with high shares of variable renewables.

This includes, for example, the electrification of heat demand for the industry, commercial and residential sectors, as well as the deployment of electric vehicles. The global stock of electric vehicles reached 1 million vehicles in 2015 and continues to rise rapidly, led by China, Japan, the US, and several European countries. Electric vehicles can provide services to power grids by balancing demand and supply in the system, while at the same time greening our transport sectors. In space or water heating applications, highly efficient heat pumps with low cost

thermal energy storage can store energy at the customer's location when renewable electricity is abundant.

However, synergies must be actively sought and promoted between renewable power and the electrification of end-use-sectors. This is critical not only to increase the flexibility of the system to accommodate the increasing renewable power supply, but also to accelerate the growth rate of variable renewable power at a global scale. In doing so, we will unlock significant benefits.

### *A bold and holistic long-term vision*

To take the energy transition to the next stage, we need a bold, holistic and long-term vision. We need to think beyond energy supply options and look at the energy supply and demand system as a whole. From this perspective, we need to raise the electricity share in end use while fostering renewable electricity supply. We need to establish an enabling transmission and distribution grid while growing renewable electricity generation.

We need to ensure the highest possible energy efficiency while promoting renewable energy supply.

These are the key challenges, Ladies and Gentlemen, that we have in the energy transition. We believe that this forum, bringing together countries with experience and high level of commitment to energy transition, and strong international commitment to efforts in combatting climate change, including Germany, China,

Denmark, and others together with international organisations, begins to generate the kind of thinking, energy and momentum that we need for this change to really work.

I cannot think of a better setting than here - talking to our Chinese entrepreneurs yesterday and seeing the vitality and imagination they are bringing to the table; hearing from Germany and seeing the transformation of their electricity market and the market-led growth we have seen; and listening to Denmark about the high levels of variable renewable energy that they have integrated – these are all triumphs of imagination, of engineering and innovation, of science, and this needs to be what we take forward to the international community as our commitment to global transformation and to making this change.

We agreed at our last Suzhou forum to establish a global coalition of likeminded countries to support energy transition, and we are looking forward to discussing this with our partners to see how, with the leadership of China, we can advance this ambition, and also how we can set up a centre for technology and expertise together with China here in Suzhou to look at supporting countries in their energy transitions.

These are ambitious endeavours, but as the State Councillor told us, we are in a global energy revolution, and revolution mean revolutionary change. I look forward working with you all in making this a reality.

Thank you very much.