Keynote Speech

by

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at the

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Excellencies,

Ladies and Gentlemen,

I am delighted to be here and to speak at this Luncheon on “Future Energy”. One of the core themes of the Forum is “Energy for a Better Life” and I think this is central when we speak about future energy. This is a time of fundamental change energy sectors worldwide. The energy of the future will be increasingly renewables-based. It will be smart, digitalised and decentralised. And it can be an energy future that is sustainable, prosperous and inclusive. It can further foster sustainable economic growth and job creation, while meeting growing energy demand and tackling climate change.

Over the last decade, renewables have brought disruptive change to the global energy landscape. Fuelled by continuous technological advances, enabling frameworks and plummeting costs, renewables have created unprecedented opportunities to rethink the way our energy systems operate. Since 2010, the average costs of utility-scale solar PV and on-shore wind energy have fallen by an impressive 73% and 23% respectively. And we project these cost declines to continue. Last year alone, a record-breaking 167 GW of renewable energy capacity were added globally, making it the sixth year in a row in which additional power generation capacity from renewables outpaced conventional sources.

The host of today’s conference, China, had a key role in the acceleration of renewables deployment worldwide. As a producer of over 60% of all new solar panels in the world, it has been instrumental in the cost reductions for solar energy. As a leader in investments in this area it accounts for around a third of capital renewables investments. It is also contributing to innovation in the renewables sector and holds almost 600,000 patents in this field. And in 2017, China added a total of 53 GW of new solar capacity and 20 GW of new wind installations in the country. It is also home to some of the largest renewable energy projects in the world, including the Tengger Desert Solar Park, the world’s largest solar PV plant, with 1,547 MW of power generation capacity, and the world’s largest floating solar installation. But it is not only China, countries across the globe, from rich to poor, are raising their ambitions and are deploying renewables at a rapid pace and beyond expectations. In fact, an increasing number of countries and regions are reliably operating their systems with high shares of renewables. Germany covered its power demand twice this year with 100% renewable energy and is consistently operating with a high share of renewables in its energy mix. Portugal has likewise broken the 100% renewables mark. In 2017, Costa Rica’s electricity was powered entirely using renewable energy for 300 days. Argentina has also turned around its energy system in a short time with an upsurge of renewables that is continuing to grow rapidly. This shows us that energy systems powered by renewables are not a distant possibility, but an existing reality already today. With the rapid technological advances in geothermal energy and ocean energy technology there is a large untapped potential for countries to harness. It is worth noting, that it is not only states driving this change, but also local governments and companies. The Chinese province Qinghai Province provided 100% renewable energy for its 5 million citizens for seven continuous days. And an increasing number of companies have adopted 100% RE targets including Google, Ikea, Apple, Facebook, Microsoft, Coca-Cola, Nike, and GM. According to our Corporate Sourcing analysis companies in 75 countries actively sourced 465 terawatt hours of renewable energy in 2017, an amount close to the overall electricity demand of France

Beyond this, access to renewable energy solutions is transformational for people and communities in many energy poor areas, directly improving their ability to generate income, improve their health and strengthen water and food security. Since 2011, the number of people served by off-grid renewables globally has expanded six-fold, reaching some 133 million people in 2016.

While this is truly remarkable, much more remains to be done. The *IPCC Special Report on 1.5° Pathways* released last week was a timely and important reminder of the urgency to decarbonise our economies. The report, which is based on the analysis of over 6,000 scientific studies, highlights the need to adopt pathways that limit global temperature increase to 1.5 degrees to avoid catastrophic and irreversible climate change impacts. In this regard, it calls for a large-scale transformation of the global energy system and a rapid energy transition fuelled by renewable energy sources.

This message mirrors our findings. IRENA’s analysis shows that renewable energy and energy efficiency combined provide the most cost-effective pathway to achieve 90% of energy-related emissions reductions required to meet the well below 2 ° objectives of the Paris Climate Agreement. To attain this, renewable energy needs to increase to two-thirds of Total Final Energy Consumption by 2050. The share of electricity consumed in end-use sectors would need to double from approximately 20% in 2015 to 40% in 2050. By 2050, the share of renewables in all countries should exceed 40% and in many 60%. And for this to happen, renewables would have to be scaled up at least six times faster than in recent years. This may seem very ambitious, but one of the lessons of the energy transition to date – and from my experiencing heading IRENA for eight years and speaking to decision-makers, innovators and entrepreneurs – is that we should not underestimate what is possible with vision, ambition, determination and resourcefulness in the area of renewables.

But the energy transition is not only about decarbonisation. It is about reaping the vast economic and social benefits that arise from transforming our energy system. When looking at the costs and benefits of such a transformation, it becomes clear that there is a compelling economic case for it. The additional costs of comprehensive long-term energy transition would be around 1.7 trillion USD annually in 2050. However, just gains in human health and lower CO2 emissions would generate savings of USD 6 trillion annually by 2050 - an amount over three times larger than the additional cost of decarbonisation. Moreover, the energy transformation stimulates new additional economic activity. Across the world economy, GDP can grow to be 1% higher than the business-as-usual case in 2050. The cumulative gain through this increase will amount to USD 52 trillion from now till 2050. While there will be fewer jobs in the fossil fuel industry, holistic policies can create many more employment opportunities in renewable energy and energy efficiency resulting in a net gain of 11 million jobs. Importantly, the benefits of the transformation go well beyond GDP and include social and environmental benefits such as health benefits from reduced air pollution. Our findings point to a 15% improvement in welfare in 2050 compared to the current trajectory.

Ladies and Gentlemen,

We find ourselves at a critical juncture. We are faced with an opportunity to move from an energy transition to an energy transformation that is not only about energy, but about fundamental economic, industrial and societal paradigm shifts. It allows us to make crucial progress towards achieving the goals of the Paris Agreement and the UN Sustainable Development Goals. And it can help us move towards geopolitics of abundance, peace and cooperation.

Such a transformation is challenging. But I am very optimistic. I just attended the 2018 IRENA Innovation Week last month, with some 350 leading experts and decision-makers from 70 countries. And I was truly inspired by the game-chaining innovations in technologies and the operation of renewable energy systems that are on the horizon or have already arrived.

We are witnessing exciting advances in battery storage, one of the most critical enabling technologies for operating grids with high shares of renewable energy. In June, China’s largest electric vehicle maker BYD started operating a battery plant for EVs in Qinghai province. The company said that the 24 GW plant, when it is in full operation next year, will be the world’s biggest in terms of production capacity. We are also seeing positive developments in decarbonising end-use sectors including transport and building. Sale in electric vehicles is growing rapidly and an increasing number of countries are banning the future sale of fossil fuel vehicles, including Norway, China, Germany, Ireland and the UK. That being said, continued innovation and significant changes in charging and grid infrastructure and storage are needed to accelerate this development. Progress is also visible in the heating and cooling sector, especially for instance in the uptake of heat pumps. Underlying many of these developments is the incredible potential of digitalisation, which is essential to optimising energy systems and unlocking flexibilities. Particularly new technologies, such as blockchain and artificial intelligence offer exciting possibilities - from improved efficiencies to reduced transaction times and costs, to improved generation and demand forecasting. It is to be welcomed that in 2017, global investments in smart technologies rose by 6.5% to USD 49 billion, but to harness this potential more needs to be done. China is among the leading countries in taking advantage of digitalisation and my friend Lei Zhang from Envision will tell you more about the ground-breaking work they are doing on using the Internet of Things in areas such as smart transportation, vehicle to grid (V2G), and smart city solutions. Envision is at the forefront of innovation on the energy system of the future.

Looking ahead, the energy transformation will require a multi-faceted approach and a broad coalition of stakeholder to advance the energy transformation. In this regard, I would like to highlight five key action areas:

1. *First, we need to actively plan and foster a power sector that integrates higher shares of renewables and decarbonise end-use sectors where progress is lagging behind*. This includes long-term system planning, a shift to more holistic policy making and more co-ordinated approaches across sectors and countries.
2. *Second, we need to strengthen system wide innovation.* In this context, innovation needs to go beyond technological advances to span new approaches to operating energy systems, market design as well as new business models.
3. *Third, we need to align our investments and socio-economic structures with our vision of the energy transformation.* Mobilising finance is particularly crucial in this context.
4. *Fourth, we need to consider proactive and just transition policies that ensure that the costs and benefits of the transition are fairly distributed.* A just transition should create structures on the micro and macro level that provide alternatives to individuals and regions trapped in fossil fuel dynamics through new economic opportunity, education and skills trainings and adequate social safety systems.
5. *Last, but not least, international cooperation is crucial.* In this regard, ambitious efforts such as the Belt and Road Initiative have the potential to accelerate the renewable energy transformation and contribute to building a sustainable energy future.

Ladies and Gentlemen,

The energy future of tomorrow depends on the energy decisions that we are making today. Leadership at all levels is needed. The renewables-based energy transformation offers us the opportunity for a “better life”. It is technically feasible, economically attractive and socially beneficial. It is up to us to seize this opportunity, build on the strong and continuously growing momentum of renewables deployment and press ahead. In light of this, I hope you all will be inspired by the discussions and the insights at this meeting.

Thank you.