**Keynote**

by

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at the

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Your Excellency, Heiko Maas, Federal Minister of Foreign Affairs

Your Excellency, Federal Minister for Economic Affairs and Energy, Peter Altmaier,

Excellencies,

Ladies and Gentlemen,

To me it is a great pleasure to be here. This is the fourth Berlin Energy Transition Dialogue and I have been to all four of them. As the head of IRENA, it is absolutely appropriate because the idea of IRENA itself was born here in Germany and the Energiewende is part of our DNA. And we are always pleased to engage every year in the extraordinary discussions which happen here with this multiplicity of stakeholders. For us, Germany’s leadership has been instrumental in developing a vibrant international framework to promote renewable energy with IRENA at its heart. I look forward to working closely with you and the 180 countries that we are actively engaged with as we take the global energy transition to the next level.



I would like here to express my appreciation for the two speeches made by Ministers Maas and Altmaier. As new ministers in this field, their continued dedication to the Energiewende and to this Dialogue is truly impressive. I have known Peter Altmaier for quite a while now, and he is an absolutely appropriate appointment because the personal reservoirs of renewable energy he seems to possess are truly quite remarkable!

Ladies and Gentlemen,

We are facing an unprecedented period of global change which is affecting all facets of our societies at astonishing pace. Established economic and trade systems are under pressure, technology is disrupting existing economic and social structures, and extreme weather conditions and natural disasters are a regular reminder of how climate change is impacting our planet.

And similar forces are also reshaping the energy sector. In less than a decade, renewable energy has moved from the sidelines to the centre stage of the global energy landscape thanks to supportive policy frameworks, technological innovation and rapidly decreasing costs. In 2017 alone, a record-breaking 167 GW of renewable energy capacity were added globally, making it the sixth consecutive year in which additional power generation capacity from renewables outpaced conventional sources. By 2020, we expect all currently available mainstream renewable energy technologies to be cost-competitive with fossil-fuels in most parts of the world. Few would have envisioned such a remarkable progress just some years ago. We are truly in the midst of revolutionary change in our global energy system.

Ladies and Gentlemen,

Today we are presenting the findings of our new *Energy Transformation – Roadmap 2050* report which fleshes out how the potential of renewables can be further harnessed to address some of the most pressing social, economic and environmental challenges. Building on results presented last year, the roadmap shows in greater detail how decarbonisation of the energy system to meet climate objectives, through renewables and energy efficiency, is both technically feasible and economically attractive at the country and regional level.

Consistent with our previous findings, renewable energy and energy efficiency combined provide the most cost-effective pathway to achieve 90% of reductions required to meet the well below 2 degrees objectives of the Paris Agreement. To attain this, renewable energy needs to increase to two-thirds of Total Final Energy Consumption (TFEC) by 2050. And for this to happen, renewables would have to be scaled up at least six times faster than in recent years. 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%, with very few exceptions. In parallel energy efficiency has to be scaled up to bring energy demand almost back to current levels, and I am sure my friend Fatih will talk much more about that. With the rapid progress are seeing today, we feel this scenario is achievable with political will and informed decision making.

However, the energy transition is no longer just about accelerating the deployment of renewable technologies, it is increasingly about how renewables can fuel economic growth, create employment and prosperity at large in an age of economic constraint. In this regard, our *2050 Roadmap* includes new in-depth examination of the socio-economic benefits of energy transformation which outlines in detail the economic case that underpins it.

In terms of costs and benefits, the energy transformation makes compelling economic sense. The additional costs of comprehensive long-term energy transition would amount to USD 1.7 trillion 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.

In addition, 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. Renewable energy jobs would reach nearly 29 million in 2050. Importantly, the benefits of the transformation go well beyond GDP and include social and environmental benefits such as health benefits from reduced air pollution and reduced climate impacts. Our findings point to a 15% improvement in welfare in 2050 compared to the current trajectory.

At the regional level, the outcome of the energy transition depends on regional ambition and socioeconomic structures. Despite fluctuations in GDP and employment, welfare will improve significantly in all regions. 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 in the energy sector.

It is crucial that we take a proactive, broad and inclusive approach to harness the benefits of the energy transformation and consider it against the backdrop specific socio-economic context in which it is taking place. As the energy transformation moves forward, we need to ensure it is just and fair across countries, regions, sectors and communities.

Ladies and Gentlemen,

We are already witnessing strong evidence across IRENA’s global membership that the momentum of the energy transformation is strengthening. Renewable energies are penetrating power systems to unprecedented levels. Earlier this year, Germany briefly covered around 100 percent of its electricity use with renewables. Last year, the United Kingdom went for a full day without coal, and more of its electricity was produced by wind and solar than by nuclear power. In 2017, China added 53 GW of new solar capacity, doubling its existing capacity. Power systems with high shares of renewables are no longer a hypothetical future, but a growing and tangible reality. And we see this in many of the countries you are representing.



Even the world’s largest oil producing countries are taking bold steps to scale up renewables. Saudi Arabia and Japan’s SoftBank just signed an agreement for a 200 GW solar power by 2030. These trends have become commonplace in our host country, the United Arab Emirates For instance, last September, Dubai awarded a bid to build the world’s largest concentrated solar power (CSP) plant, as part of the country’s strategy to generate 44 per cent of its power from renewable energy by 2050. The plant will be delivering energy at an impressive 7.3 US cent per kilowatt-hour (kWh). The importance of these developments cannot be understated: even those countries whose economies have been largely dependent on oil see a key role for renewables in the energy transition in the future.

Finally, local governments, cities and major corporations are increasingly relying on renewables to meet their energy needs and power their businesses. California, which could be by itself the 6th largest economy in the work, recently announced that it would meet its 2030 renewable energy power generation target of 50% ten years ahead of schedule. And a few weeks ago, news came of the single largest corporate purchase of solar power in the United States by Microsoft which will be adding 315 MW of electricity as part of its 100% renewables strategy. And, Apple just announced that its global facilities are powered with 100 percent clean energy while Google is on track to purchase enough renewable energy to match the electricity that it consumed over the next year.

The energy system that is emerging is not only more decarbonised but also more digitalised and decentralised. Big data and blockchain technologies are revolutionising it. Sector coupling is gaining greater ground. Off-grid renewable solutions are tackling energy access and we estimate around 146 million people worldwide now use off-grid renewables. We are no longer just transitioning from one energy source to the other but are confronted with a need to fundamentally rethink the design of energy systems and the socio-economic structures that underpin them. We are moving from a ‘transition’ to a ‘transformation’ that is not just about energy but about a long-term economic, industrial and societal transformation that is key for the future of employment and prosperity at large, and for a climate safe world. But more action is needed to accelerate this momentum. We must accelerate progress in the three focus areas of: innovation in decarbonising end use sectors, modernising our grid infrastructure- and I am very pleased to hear that Peter Altmaier is giving so much prominence to this issue - and to unlocking investment from the financial sector with new enabling tools.

Ladies and Gentlemen,

While the technology and economic aspects of the energy transition have been often examined, there is one issue which has not received much attention: how an energy transformation based on renewables impact relations between countries. By enhancing energy security, independence and access, renewables have the potential to move us away from the geopolitical dynamics of scarcity and conflict that characterised the energy system of the past, to ones seeking to foster greater development, peace and international cooperation. Last January, at the 8th IRENA Assembly, we launched a *Global Commission on the Geopolitics of Energy Transformation,* to better understand these dynamics and how they could unfold in the coming years. This Commission, composed of eminent government and business leaders, will hold its first meeting alongside the BETD, which has the distinctive feature of bringing together both energy and foreign policy communities. I would like to express my appreciation to the governments of Germany, Norway and the United Arab Emirates for their support to this initiative.

To conclude, I would like to thank the organisers for putting together once more an engaging agenda which captures the most important trends and challenges facing the global energy transformation. It is impressive to see this Forum grow in relevance, diversity and level of engagement each year in terms of knowledge sharing and exchange of experiences. As IRENA, we want to work with you all present here to move this transformation forward and to achieve a climate, safe, resilient and sustainable energy future. I wish you fruitful deliberations.

Thank you very much