

**Keynote Address**

by

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at the

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Meeting and 1<sup>st</sup> Stakeholder Forum**

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Your Excellencies, Distinguished Guests, Ladies and Gentlemen,

- Let me begin by thanking the host country, Vietnam and Ministry of Industry and Trade, for the excellent hospitality and arrangement for this meeting. It is a great honour to represent IRENA at this important meeting today, and I would like to thank Vietnam Energy Partnership Group for the invitation.
- IRENA attaches great importance to our collaboration with the Southeast Asia, including Vietnam, which is guided by ASEAN-IRENA MoU and Joint Action Plan signed last year during the ASEAN Ministerial meeting in Singapore. We have already achieved significant progress in implementing this action plan by designing and delivering several impactful initiatives jointly with ASEAN Member States, including regional workshop to accelerate RE investment which was hosted by MoIT last May in Da Nang.
- In my keynote today, I would like to focus on what is the status of the energy transformation, globally but also more specifically in Asia and Vietnam. What are the trends we are seeing? What is the role of distributed RE, especially solar PV? And what are key issues we need to tackle to get there?
- Let me start with the encouraging news: the energy transition is taking up speed. A renewable-powered future is unfolding as we speak. And Asia is at the forefront of this drive.
- Our latest global renewable generation capacity statistics show that over 170 gigawatts were added in 2018. The majority of this is from wind and solar. As in recent years, Asia accounted for most of this growth. In 2018, it was responsible for 39% of the global share.
- Looking at the broader trend, we see that for the seventh year, the net additional power generation capacity of renewable sources exceeded that of non-renewable sources.

Ladies and gentlemen,

- These remarkable capacity additions are driven by the strong business case for renewables. In many parts of the world today, including here in the region, renewables have become the lowest-cost source of new power generation.
- Globally, over three-quarters of the onshore wind and four-fifths of the solar PV project capacity due to be commissioned in 2020 should produce cheaper electricity than any coal, oil or natural gas option. Crucially, they are set to do so without financial assistance.
- Southeast Asia too. Recent auction prices for solar in Malaysia secured bids below the price of gas power in the country, and last year the Philippines' utility Meralco received a record low solar PV bid for the region at US 4 cents per kilowatt hour – a tariff that would have set global records just a few years ago.
- Yet, we need to do more. This is of particular importance to the Asia-Pacific region which includes some of the most climate vulnerable countries. These impacts would not only affect the impressive growth we have seen in many countries here, it could have also devastating impacts on people and their well-being.
- Accelerated deployment of renewables, combined with deep electrification and increased energy efficiency, can achieve over 90% of the energy-related carbon dioxide emission reductions needed by 2050 to set the world on an energy pathway towards meeting the Paris Climate targets. Among all low-carbon technology options, accelerated deployment of solar PV alone can lead to significant emission reductions of 4.9 gigatonnes of carbon dioxide (Gt CO<sub>2</sub>) in 2050, representing 21% of the total emission mitigation potential in the energy sector.
- Achieving the Paris Climate Goals would require significant acceleration across a range of sectors and technologies. By 2050 solar PV would represent the second-largest power generation source, just behind wind power and lead the way for the transformation of the global electricity sector. Solar PV would generate a quarter (25%) of total electricity needs globally, becoming one of prominent generations source by 2050.

- This entails increasing total solar PV capacity almost six-fold over the next ten years, from a global total of 480 GW in 2018 to 2 840 GW by 2030, and to 8 519 GW by 2050 – an increase of almost eighteen times 2018 levels. Thanks to its modular and distributed nature, solar PV technology is being adapted to a wide range of distributed and off-grid applications and to local conditions.

Ladies and gentlemen,

- The deployment of rooftop solar PV systems has increased significantly in recent years, as has distributed storage, in great measure thanks to supporting policies, mainly net metering and fiscal incentives, and falling costs. For example, behind-the-meter storage business models allow consumers to store the electricity generated by rooftop solar PV and consume it later when needed or sell it to the grid.
- Innovative business models and cost competitiveness of solar PV are driving the reductions in system price. The deployment of rooftop solar PV systems has increased significantly in recent years, in great measure thanks to supporting policies, such as net metering and fiscal incentives which in some markets make PV more attractive from an economic point of view than buying electricity from the grid- PV-hybrid minigrid, virtual power plants and utility PPA. The competitiveness of distributed solar power is clearly evident amid rising deployment in large markets, such as Brazil, China, Germany and Mexico, however important differences remain between countries, which highlight the further improvement potential.
- In 2018 distributed-scale solar PV capacity additions amounted to approximately 43 GW. China represents the leading solar market not only in Asia, but also in the world, with distributed plants contributing 47% of the capacity installed in 2018. Distributed solar has been growing in India as well, where installed rooftop capacity reached 6 GW in 2018, representing the addition of over 2.5 GW over the previous year. This increase, however, is marginal when compared to utility-scale installations in India, which represented 82% of cumulative installed capacity, while distributed represented just 10%. As such, policy support is required to intensify off-grid and rooftop installations across the country.

- Another player in the region is the Republic of Korea, which has made the expansion of distributed power production a policy goal for its energy planning. This is to overcome issues related to its mountainous terrain, which makes the development of large utility-scale PV plants difficult. The national energy plan aims to increase distributed power generation to reach 18.4% of total generation by 2030, compared to the current 11.2%.
- In Latin America, Mexico has witnessed strong growth in installed solar capacity, also thanks to a boom in distributed solar – it currently has more than 100 000 solar roofs on homes and on industrial and commercial buildings. The competitiveness of distributed solar is supported by its low installation costs and savings of up to 95% per month on the electricity rates paid by users.
- Distributed solar PV has grown significantly in Brazil as well, where newly added capacity amounted to 390 MW in 2018, mainly due to the increasing competitiveness of the net-metering regulation throughout the country. According to the Brazilian Solar Energy Association, this growth is expected to more than double in 2019. Globally investment in small-scale distributed solar PV systems (smaller than 1 megawatt [MW]) amounted to USD 36.3 billion in 2018, a decrease of 15% from 2017 levels. Whilst Germany, Australia, India, Japan and the Netherlands remained significant markets at over USD 1 billion each, the United States, which is the biggest market for small-scale solar, witnessed a decrease of 15% year on year to USD 8.9 billion
- Early this year, IRENA has been working on the Global Atlas [SolarCityEngine](#), – a web based solution built to support home owners, businesses and municipal authorities in evaluating the prospects for electricity generation using rooftop-mounted solar photovoltaic (PV) Systems.
- The broader context of this work is energy planning in cities where approximately 60 to 80% of global energy is consumed. Typical challenges in cities today range from ageing infrastructure and high consumer prices, mainly in developed cities, to efficiency and reliability, mainly in developing cities. With greater awareness of the

substantial carbon footprint of cities, policy makers seek actionable mitigation measures.

- The first version **SolarCityEngine** will progressively be expanded to model different solutions adapted to different city contexts. The **SolarCityEngine** relies on a 3-D city rooftop footprint built from ultra-high-resolution tri-stereo satellite imagery and a rooftop adapted solar irradiation model. This solution delivers outstanding results at a fraction of the cost of alternative solutions and can be adapted and easily scaled for new cities. The SolarCityEngine also has an internal architecture that ensures the simplicity of operation and transfer to Municipal authorities in cities.
- It is not the first time that such automation software has been built. Google Sunroof, Mapdwell and InsunWeTrust are a few examples of prior solutions. These solutions however, have been built with significant budgets, and the business and financing models are adapted to the regulatory settings of the developed economies they serve. The **SolarCityEngine** would be the first built at significantly lower cost and deployed in a developing city (*Kasese, Uganda*).
- We would like to share with you this software solution which is accessible at:  
<http://solarcityengineuat.irena.org/>

Ladies and gentlemen,

- To effectively manage large-scale VRE deployment, flexibility must be harnessed in all sectors of the energy system, from power generation to transmission and distribution systems, storage (both electrical and thermal) and, increasingly, flexible demand (demand-side management and sector coupling).
- If accompanied by sound policies, the transformation can bring socio-economic benefits. The solar industry would employ more than 18 million people by 2050 (of which 14 million would be employed by solar PV) four times more than the 2018 jobs total of 4.4 million (3.6 million – solar PV). To maximise outcomes of the energy transition, however, a holistic policy framework is needed. Deployment policies will

need to co-ordinate and harmonise with integration and enabling policies. Under the enabling policy umbrella, particular focus is needed on industrial, financial, education and skills policies to maximise the transition benefits. Education and skills policies can help equip the workforce with adequate skills and would increase opportunities for local employment. Similarly, sound industrial policies that build upon domestic supply chains can enable income and employment growth by leveraging existing economic activities in support of solar PV industry development.

- Realising the socio-economic benefits of the energy transformation and ensuring a just transition will require for governments to adopt holistic policies. Yet, such a focus will bolster public acceptance for such a course. It will allow decision makers to go beyond the urgent need to tackle climate change, to creating more prosperous and sustainable societies.
- IRENA stands ready to work with you on enhancing ambition and building a sustainable energy future. Over the years, the Agency has undertaken analysis on renewables and energy transition. Building on this, we will focus more strongly on empowering action on the ground in support of Member's strategies and ambitions.
- We will increase the work at sub-regional clusters. This will allow us to provide targeted inputs to countries with common interests. We will place a strong emphasis on supporting developing countries, especially in Asia and Africa, as well small island developing states.

Your Excellencies, Ladies and Gentlemen,

- The energy transformation is both technically feasible and economically attractive. Its benefits significantly outweigh its costs. Affordable, secure and environmentally sustainable energy will be crucial for Vietnam's development over the coming decades to fulfill their economic growth and tackle climate change.

Thank you.