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AUSTRIAN DEVELOPMENT AGENCY

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SUSTAINABLE ENERGY FOR ALL

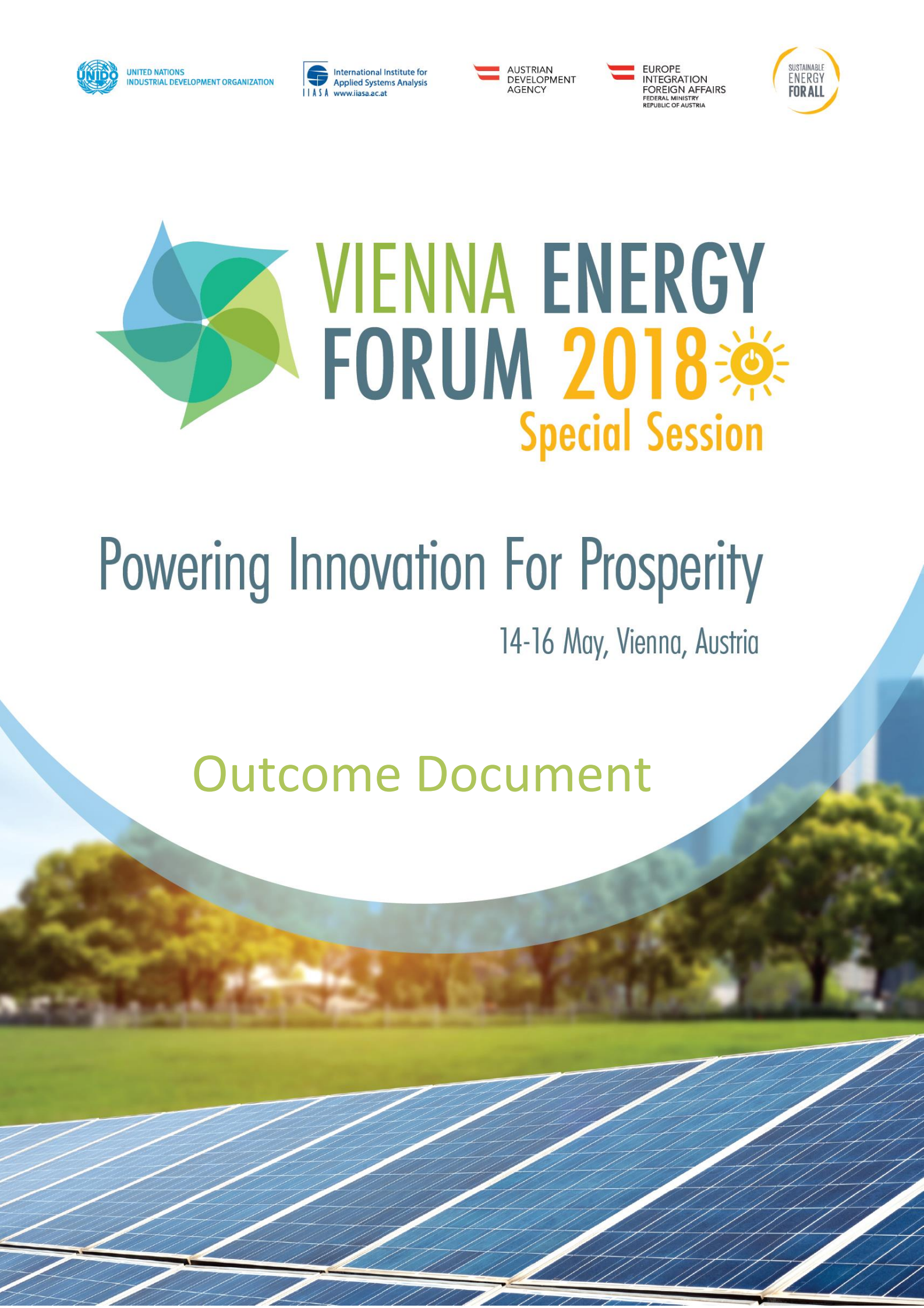
VIENNA ENERGY FORUM 2018

Special Session

Powering Innovation For Prosperity

14-16 May, Vienna, Austria

Outcome Document



VIENNA ENERGY FORUM 2018
Special Session

1. Introduction

1.1. The VEF is a biennial event with its first edition held in 2009, designed to discuss practical solutions for moving towards a global sustainable energy future. Austria's Federal Ministry for Europe, Integration and Foreign Affairs, the Austrian Development Agency, the International Institute for Applied Systems Analysis and Sustainable Energy for All has been successfully cooperating with the United Nations Industrial Development Organization (UNIDO) in organizing the VEF.

1.2. The VEF 2018 Special Session took place at the Vienna International Center in Vienna, Austria, on 14th May 2018 to contribute to the HLPF review of SDG 7. Over 350 leaders from governments, intergovernmental organizations, civil society and the private sector attended plenary sessions, high-level round tables, side events and special events organized around the themes of energy system transformation, climate and clean energy technology and innovation, and delivering prosperity through partnerships.

2. Energy System Transformation

2.1. **Decarbonization, decentralization and digitization** are transforming the energy system. Driven by policy developments and innovations in technology, regulatory and market frameworks, financial instruments, operational and planning practices, and business models, the transformation of the energy system is taking place on three levels that are reinforcing each other: energy generation (SDG target 7.2), access (SDG target 7.1) and use (SDG target 7.3).

2.2. The way energy is generated is **changing from the dominance of grid-connected fossil fuel-based technologies to a diversity of renewable energy-based installations with varying capacity and multitude of producers**. Despite significant advancements in technologies, methodologies and approaches for generation, access and use, **global progress is too slow for achieving SDG 7 targets** on access to affordable, reliable, sustainable and modern energy for all by 2030.

2.3. Given that the industrial sector accounts for about 45 per cent of the global energy consumption, **industry must take a leading role in transforming the energy system**. Cost reductions in renewable energy generation enable the production of fuels, chemicals, high-temperature heat and steam from electricity ("Power-to-X"), boosting the uptake of renewables in the industrial sector and paving the way for a higher electrification of industrial processes. **ISID is a means to ensuring that no one is left behind and targets of all SDGs are timely achieved**. The energy system transformation is both an enabler and an outcome of ISID and imperative for lasting economic growth and prosperity while safeguarding the environment.

2.4. The **energy system transformation offers tremendous opportunities for developing and developed countries**. Depending on their level of industrialization, countries can now either build their emerging industries on renewable energy and energy efficiency solutions or reap economic, environmental and social benefits by switching to clean and efficient energy technologies. Digitalization and decentralized renewable energy solutions can also significantly contribute to increasing affordable energy access in developing countries by empowering energy consumers to

become energy producers and **opening new business opportunities in the energy sector for SMEs and entrepreneurs, including women, youth and marginalized groups**.

2.5. Despite the inspiring progress of some developing and developed countries in advancing the energy system transformation, **most countries still face considerable challenges** in this regard. These challenges include (i) the lack of a **high-level political commitment** to creating an enabling environment for investment in, and development of, renewable energy, energy efficiency and energy services; (ii) relatively high upfront costs of renewable energy and energy efficiency solutions; and (iii) inadequate individual, institutional and systemic **capacity-building**.

The way forward

2.6. To ensure that a paradigm shift from centralized fossil fuel-based energy generation to a mix of centralized and decentralized energy generation predominantly from renewable sources will not only continue, but happen at an accelerated pace to achieve SDG7, it is necessary to put in place: (i) **platforms for dialogue** between stakeholders **to foster innovation for the energy system transformation** and technological advances; (ii) **partnerships for creating and improving an enabling environment** for renewable energy, energy efficiency and energy services; (iii) digital systems to efficiently and securely manage the **integration of high and variable shares of power** from multiple renewable energy producers; (iv) **price-competitive local and grid-scale energy storage systems**.

2.7. To unleash the **vast potential of decentralized energy solutions for the productive use of renewable energy** in rural areas, it is necessary to build or enhance endogenous capacity for (i) developing **policies and regulations**; (ii) conduct **feasibility studies**; and (iii) devising **context-specific business models and innovative financing approaches** to overcome relatively high initial investment costs and make solutions affordable to low-income segments of the population. It is paramount that respective policies, regulations and projects are gender-responsive and ensure **equal and equitable access to, and control over, renewable energy services for women and men**.[1]

2.8. The energy transition could be a catalyst for industrial transformation through a value chain analysis which could determine various sectors that has high need and marketability, whilst enabling greater participation within developing countries. One example could be to discern future industries that are emerging, such as the huge potential of storage batteries and its possible integration in the solar energy sector at a later stage.

2.9. Intergovernmental organizations, such as UNIDO, could continue to contribute to transforming the energy system by empowering stakeholders in developing countries to create and improve enabling environments for locally-developed and owned innovative solutions. Furthermore, engaging citizens and the private sector in the creation and improvement of enabling environments is crucial for ensuring that local needs and circumstances as well as investment risks are considered.

[1] https://www.unido.org/sites/default/files/2015-01/Guide_on_Gender_Mainstreaming_ECC_0.pdf.

3. Climate and Clean Energy Technology and Innovation

3.1. Industrialization has lifted millions out of poverty, created jobs, advanced technology and increased social prosperity in countries around the world. At the same time, industry is responsible for almost 30 per cent of GHG emissions and has been a major cause of environmental degradation. For achieving the SDGs and implementing the Paris Agreement on Climate Change[2], it is **essential that industrial development patterns become more inclusive and sustainable**.

3.2. **Innovative climate and clean energy technologies help align industrialization with the principles of sustainable development** as they contribute to socio-economic growth, job creation, poverty eradication, gender equality and safeguarding the environment. **SMEs in the climate and clean energy technology sector are a key element to establish sustainable industrialisation ecosystems** as they facilitate the use and manufacturing of low-emission products and services, allowing for systemic change. It is also necessary to support SMEs in other sectors in making their operations climate resilient, increasing energy and resource efficiency and reducing their environmental footprint.

3.3. Investment in climate and clean energy technologies in developing countries is expected to become a trillion dollar market over the coming decades, with USD 1.6 trillion of that investment accessible to SMEs.[3] **The emerging climate and clean energy technology market offers attractive economic opportunities** while the urgent need to deploy climate-friendly technologies to mitigate the adverse effects of climate change provides the entire sector with a highly positive investment outlook.

3.4. However, **the sector faces big challenges**: many SMEs dealing with climate and clean technologies have a **high failure rate and limited access to finance due to the perceived risks in their innovation while fragmented government policies are failing to attract investments** into the sector. The lack of technical and business capacity required for the commercialization of innovative climate and clean energy technologies hinders their diffusion to a wider market. In this context, green technology testing, certification and standardisation schemes would be useful to create public and investors' confidence.

The way forward

3.5. To enable the proliferation of climate and clean energy technologies at a scale and pace needed for achieving SDG 7, it is **necessary to put in place a systemic approach to innovation that covers the complete technology lifecycle**, including research and development, demonstration, deployment and commercialization. The systemic approach should address the lack of awareness of policy-makers and consumers as well as facilitate access to early-stage and growth stage financing for SMEs and help de-risk innovative projects to make them bankable.

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[2] https://unfccc.int/sites/default/files/english_paris_agreement.pdf.
[3] https://openknowledge.worldbank.org/bitstream/handle/10986/20684/911600WP0P130900Box385328B00PUBLIC0.pdf?sequence=1&isAllowed=y.

3.6. Policy-makers should help **create an enabling environment for climate and clean energy technology SMEs** by increasing public-sector spending and effective engagement of the private sector to **build a well-functioning ecosystem of entrepreneurship**. It is necessary to have **dedicated and efficient institutions and governance systems and a sound legal and regulatory framework to facilitate the removal of sector-specific barriers**. Governments should help building internal and external markets for SMEs through **introducing technology performance standards, strengthening capacities, removing infrastructural bottlenecks and de-risking investments**.

3.7. For an entrepreneurial ecosystem to thrive, governments should **encourage incubator and accelerator programmes** that provide early-stage technology validation, market development support, professional advice and match-making with appropriate technology and knowledge partners. International organizations such as UNIDO, along with partnerships through governments and the private sector, could facilitate setting-up such incubator and accelerator programmes in developing countries and strengthening of regional and global incubator networks that stimulate cross-learning and partnerships.

4. Delivering Prosperity through Partnerships

4.1. Traditional North-South bilateral and multilateral cooperation have been and will continue playing a prominent role in clean technologies. At the same time, the **development and uptake of renewable energy and energy efficiency technologies is being increasingly spearheaded through South-South and triangular cooperation** South-South, triangular and regional cooperation bolsters the exchange of knowledge, skills and resources between various stakeholders at the local, national and regional levels.

4.2. Partnerships should help **“walk the talk”** by accelerating **technology demonstration, deployment and diffusion,** while creating an enabling environment to **transform innovations to marketable products and services** that are tailored to specific needs of developing countries.