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VIENNA ENERGY FORUM 2015

Sustainable Energy for Inclusive Development

FORUM REPORT AND KEY MESSAGES

18-20 June 2015 at the Hofburg Palace, Vienna, Austria

UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
EUROPE INTEGRATION FOREIGN AFFAIRS FEDERAL MINISTRY REPUBLIC OF AUSTRIA
IIASA International Institute for Applied Systems Analysis www.iiasa.ac.at
AUSTRIAN DEVELOPMENT AGENCY
SUSTAINABLE ENERGY FOR ALL

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FOREWORD

Sebastian Kurz - Federal Minister for Europe, Integration and Foreign Affairs, Austria

This year‘s Vienna Energy Forum with its record participation confirmed Vienna’s role as an international energy hub. We were delighted to welcome not only high ranking officials, but also a great variety of representatives from the global civil society and from business communities, and we are especially proud of our certificate as a “green event”. All this shows us the way to go forward.

LI Yong – Director General, United Nations Industrial Development Organization (UNIDO)

The Vienna Energy Forum 2015 clearly demonstrated that sustainable energy is a key foundation for inclusive and sustainable industrial development and is inextricably linked with achieving the Sustainable Development Goals and combating climate change.

Kandeh K. Yumkella – Special Representative of the UN Secretary General and Chief Executive Officer, Sustainable Energy for All (SE4ALL)

We need to transform the world’s energy systems by taking a fresh, joined-up approach that can fuel development, and at the same time combat climate change.

Pavel Kabat - Director General and Chief Executive Officer, International Institute for Applied Systems Analysis (IIASA)

The Vienna Energy Forum illustrated clearly and once more that the energy futures are a fundamental prerequisite for the sustainable development futures across most of the economic and social sectors. It is my hope that the nations who agree on the adoption of the Sustainable Development Goals in New York and the climate mitigation targets in Paris will recognize the key role of synergies in the energy domain.

Martin Ledolter – Managing Director, Austrian Development Agency (ADA)

Energy is the economy‘s nervous system and paramount for development, which is why the Austrian Development Agency’s goal is to provide more and sustainable energy supply particularly to countries in Sub-Saharan Africa, the Carribean and the Himalaya-Hindu Kush-region.

FORUM REPORT

Background and Objectives

2015 provides a unique opportunity – and perhaps the last for a very long time – for transforming the global development agenda and global energy system for decades to come. Three major global debates will culminate this year with crucial decisions that are bound to have a major impact on policy making throughout the world:

- The 3rd International Conference on Financing for Development in Addis Ababa in July
- Adoption of the Sustainable Development Goals at the United Nations General Assembly in September
- 21st Conference of the Parties (COP21) of the UN Framework Convention on Climate Change in Paris

The Vienna Energy Forum 2015 took place against this important historical background. The program of the conference was carefully crafted to give an opportunity to a diverse set of stakeholders to address the challenges that will need to be overcome to take advantage of this crucial historical juncture and to explore the key areas that need to be tackled so that these transformations can happen.

The Vienna Energy Forum 2015 reaffirmed that sustainable energy is the golden thread that connects the Post 2015 Development Agenda and Climate Action. Building on the findings from the VEFs held in 2009, 2011 and 2013, as well as the overarching goals of United Nations Sustainable Energy for All (SE4All) initiative, the VEF 2015 provided a high-level platform for thought leaders, policy makers and energy practitioners to engage in a multi-stakeholder dialogue on pivotal sustainable energy issues connected to inclusive development, including partnerships, finance, policy, technology, capacity building and knowledge management. The VEF 2015 also considered the impact of global drivers such as population growth and urbanization, as well as regional approaches including South-South cooperation and nexus issues linking energy to water, food and health.

This report is not intended to be a comprehensive record of the Forum, but rather it provides a description of the main topics discussed. It also captures the key messages and recommended actions that emerged from this rich and vibrant set of discussions.

The Forum

The Vienna Energy Forum (VEF) 2015 brought together around 1,700 participants from more than 80 countries, including 25 ministers, high-level dignitaries, policymakers, experts and representatives from the private sector and civil society under the theme “Sustainable Energy for Inclusive Development”. Over the two-and-a-half day conference, delegates were addressed by more than 100 eminent speakers in a series of ministerial gatherings, high-level panels, plenary and parallel sessions.

Organized by the United Nations Industrial Development Organization (UNIDO), the Austrian Federal Ministry for Europe Integration and Foreign Affairs, the International Institute for Applied Systems Analysis (IIASA), the Austrian Development Agency (ADA), and the UN Sustainable Energy for All Initiative (SE4All), VEF 2015 sought to address the following key questions:

• What are the main benefits of sustainable energy to inclusive development and productive capacities?

•What are the main drivers of the increasing energy demand across sectors and how can these be addressed in an integrated way?

• How can we strengthen the potential of sustainable energy so that it results in concrete actions supporting the Post-2015 Development and the Climate Agenda?

• What are the areas of greatest potential in energy efficiency, and what can be done to accelerate action and investment in energy efficiency, the 'hidden fuel' that has some of the most promising prospects to advance the goals of climate security and sustainable growth?

• Which innovative financing mechanisms can we use to promote renewable energy systems? How do we scale up investments in renewable energy technologies to meet the SE4All goals?

• How do we energize multi-stakeholder partnerships, private sector involvement and regional cooperation to promote sustainable energy for all?

• How can the nexus perspective be operationalized to support integrated approaches to energy, water, food, ecosystems and human health?

Sustainable Energy for Productive Capacities

This session explored the policy framework required to establish a foundation for developing countries and economies in transition to facilitate the development of productive capacities of their economies. As productive capacity building will be a key element to fostering inclusive and sustainable industrial development (ISID), the panelists discussed new and innovative partnerships as a means of achieving this.

The provision of affordable, reliable, and sustainable energy is essential for the development of sustainable economies, as it advances and strengthens productive capacities that promote job creation and income generating opportunities for both women and men in local communities and cities. Furthermore, in the context of climate change and energy security concerns, it is imperative that a significant portion of the concomitant energy demand should come from sustainable and renewable sources.

Given the huge financial and technical cooperation requirements for the productive capacity agenda, neither the countries alone, nor business-as-usual practices are sufficient; hence, there is a need for innovative, renewed and strengthened partnerships.

Best practices on sustainable energy policies such as national energy conservation laws, energy management standards, building codes, and energy conservation funds and soft loans were highlighted. In addition, national financing mechanisms and subsidized loans for energy projects were presented. Throughout the panel, the need for institutional mechanisms, capacity building, a coherent policy framework for innovative financing mechanisms, access to technologies, and multi-stakeholder partnerships were emphasized.

Ending Energy Poverty

This session focused on key challenges in achieving universal access to modern energy and discussed enabling factors, as well as concrete strategies required to end energy poverty globally.
The last decade has witnessed significant progress towards combating energy poverty but the challenge remains, especially in view of continuing population growth. Today, approximately 1.2 billion people – almost one fifth of the world's population – live without the access to electricity needed for day-to-day activities and survival; worldwide, 2.8 billion people still rely on traditional energy sources for cooking and boiling water. Since women and girls bear the primary responsibility for fetching firewood, cooking and other domestic work, they are disproportionately affected by energy poverty across developing countries.

As we stepped into the Decade of Sustainable Energy for All (SE4All), the international community has committed to achieving universal access to modern energy by 2030, recognizing the importance of eradicating energy poverty for achieving inclusive and sustainable development. Access to modern energy is not only seen as central to resolving today's most pressing challenges, especially with regard to economic growth and improving human wellbeing, but is also a justice and human rights issue. Ending energy poverty is feasible but nonetheless challenging; therefore, attention must shift to transforming targets and statements into concrete actions through sustained, concerted, and decisive actions by the entire international community.

To achieve this, adequate, innovative and affordable solutions are needed, whether on- or off-grid, for Small Island Developing States (SIDS) or rural communities, requiring the involvement of both the private and public sectors. In particular, panelists critically discussed the policies and partnerships needed to meet internationally agreed targets, factors that can be influenced to reduce the funding gap, adequate technologies and their scaling up, the role of gas, LPG and other modern liquid fuels, the role of civil society and the private sector, the importance of sound planning, considering also the energy-water-food-health nexus, and potential opportunities to accelerate international cooperation to overcome extreme energy poverty in the most seriously affected regions.

Business Models and Smart Policies for Scaling up Renewable Energy

In this session, panelists shared insights and best practice examples on inclusive policy frameworks and business models for the scaling up of renewable energies that offer the right balance between risks and returns. Such solutions should be based on stable, predictable and agile policy frameworks that de-risk capital-intensive investment in renewable energy. Complementing this, new policy commitments should create a coherent policy framework in which existing resources are shifted to incentivize scaled-up investment in renewable energy, generating multiple economic, social and environmental benefits.

The utilization of renewable energy can support countries in becoming less dependent on energy imports, creating jobs for both women and men, promoting technological innovation, mitigating climate change and contributing to inclusive and sustainable development. Renewable energy sources provide an opportunity for countries to embrace a low carbon pathway powered by innovative, smart and locally relevant energy solutions.

However, the potential of renewable energy continues to be limited by a lack of financial incentives in high-risk markets with high transaction costs, and uncertainties of the resource base and energy price. This is combined with inadequate policies and regulatory frameworks, including complicated and lengthy planning/operational permits that result in a market environment fraught with uncertainties. In order to make renewable energy businesses viable in the long term, it is vital to create an enabling market environment that promotes innovative business models and smart policies that include both financial incentives and technology transfer.

The panelists particularly highlighted the unprecedented growth in markets and investments in the renewable energy sector in recent years mainly due to conducive government policies. Policy emphasis should now shift from thinking about how to provide financial support to how to provide the right conditions to allow low cost generation. They stressed the need to shift the focus towards provision of energy services rather than simply provision of kWhs.

Regional Strategies for Sustainable Energy and Best Practices

The session explored the added value of regional cooperation and partnerships in the context of the upcoming Post-2015 energy, climate and development architecture. The panelists urged the international community to strengthen regional capacities to create the needed economies of scale in the renewable energy and energy efficiency sector. Until recently, however, the regional approach remained largely underutilized, becoming the missing link in major international climate and sustainable energy implementation processes (e.g., CDM, NAMAs, SE4All). The importance of cross-border cooperation to address the existing barriers for the creation of renewable energy and energy efficiency markets and industries in least developed and small island developing states was highlighted. Well-aligned regional methodologies, tools and standards can enhance and scale-up national efforts in this field and help to reach economies of scale.

Several examples and lessons learned of ongoing regional energy initiatives and programs were presented. The representatives of the Economic Community of West African States (ECOWAS), the Government of Uganda, the Southern African Development Community (SADC), the Secretariat of the Pacific Community (SPC), the Caribbean Community (CARICOM) and SIDS DOCK gave an update on the status of the various regional sustainable energy centers in operation or under establishment. The centers are part of the Global Network of Regional Sustainable Energy Centres, coordinated by UNIDO with financial assistance of the Austrian and Spanish Governments. The representative of the European Union pledged financial support for the centers in Africa, the Caribbean and Pacific. The potential role of the regional centers to strengthen the implementation capacities of SE4All was discussed.

Sustainable Energy and Climate Change – Road to COP21

Two major events will make 2015 a landmark year that will influence the development agenda for decades to come: the United Nations Summit to adopt the post-2015 development agenda in September that will take decisions on the Sustainable Development Goals (SDGs) and the UNFCCC Conference of the Parties (COP 21) that will take place in December. This session explored the implications of these historic negotiations and their pre-requisites for success.

Three areas have been identified as being essential to guiding the global community on the way to a low carbon trajectory and a more sustainable development overall. These are leadership, policy and financing – areas that are also shaping the four pillar approach adopted by the French Presidency to create a genuine climate alliance at COP21 in Paris. Within the first pillar a legally binding agreement is to be achieved. The second pillar concerns national contributions towards greenhouse gas emission reductions in the form of Intended Nationally Determined Contributions (INDCs), which 46 countries have already submitted. The third pillar focuses on implementation, and specifically, financing. Without financing, a vacuum will form as policies alone cannot achieve the necessary changes; they are, in fact, the route to channeling finance. The fourth pillar centers on the Lima-Paris Action Agenda, that is, the actions taken by non-state actors to contribute to achieving climate neutrality in the long-term.

Individually, none of these pillars alone can aim to achieve a 2°C trajectory. A holistic approach, through a more ambitious desire and greater confidence for a climate agreement is necessary to spur mutual political, economic and social interests to simultaneously meet this trajectory and achieve a low carbon development pathway. Moreover, it has been acknowledged that Paris is not the end of the road. There is scope for increasing ambition to reach climate neutrality as soon as possible. Continued efforts with regards to implementation and ambition will be crucial to ensure the road from Paris is successful and the negotiations were not in vain. Heightened engagement from a variety of actors, including the outcomes of the recent G7 summit on the topic of climate change, the release of the Pope Francis' Encyclical on the Environment, and initiatives from the private sector, are positive signs in this regard.

The panelists also highlighted that the Climate and the SDG agenda are deeply integrated. It will take credible policies, financing and leadership to achieve the transformation that is necessary to put the world on a pathway that will assure that our future opportunities are not undermined.

The Multiple Benefits of Energy Efficiency

In light of the upcoming landmark events for the development agenda, particular emphasis has been placed on the significant potential of energy efficiency for the mitigation of GHG emissions. This session explored this potential, while also delving into the wide spectrum of benefits from sustained improvements in energy efficiency, particularly in the economic and social realms.

According to estimates of the International Energy Agency (IEA), energy efficiency measures can contribute some 40% of the CO2 abatement needed by 2050 to achieve emissions reductions consistent with the agreed-upon target to limit increases to 2°C. However, other equally important benefits are often overlooked and are not as systematically assessed as others. A recent report, also by the IEA , is designed to address this shortcoming in the literature, explaining the choice of the words 'multiple benefits' rather than the usual co-benefits or ancillary benefits, to capture a reality that is often overlooked: "investment in energy efficiency can provide many different benefits to many different stakeholders." The panelists presented their country experiences, and discussed why, on a global level, the full potential of Energy Efficiency has not yet been harnessed. Energy Efficiency policies and technologies remain the most promising option to mitigate emissions, however, this path also remains the most challenging, with many technical and knowledge barriers for its adoption. Energy Efficiency has to become accessible to all countries and economic sectors to deliver its expected environmental, economic and social benefits. Countries should consider including Energy Efficiency actions in their INDC pledges.

Sustainable Cities - An Integrated Approach to a Global Challenge

This session aimed to identify aspects essential to making cities part of the solution in the Post-2015 Development Framework. The focus was on the energy efficiency challenges and opportunities related to urbanization, as well as on the diverse roles of stakeholders in energy intensive sectors where there is significant potential for local and national public and private investment to make a difference towards livable and sustainable cities.

Mega cities, towns and other urban areas, consume three quarters of the energy produced and are responsible for a similar share of CO2 emissions, and therefore have a crucial role to play in mitigating climate change and must be considered in the climate mitigation framework. Critically, they also need to provide adequate services, safety and good quality of life to growing urban populations. This is particularly relevant in the developing world where rapid economic growth, industrialization and urbanization are straining urban infrastructure and services to their limits. In recognition of the urgency of this issue and the need for cooperation and knowledge sharing, a number of regional, south-south and triangular partnerships have been developed.

Specifically, the panelists discussed the key role to be played by local authorities, and how the efficient management and use of resources, data and technologies are pre-requisites for sustainable and livable cities. The panelists presented areas of intervention, including the role of citizens' behavior, and presented existing initiatives such as the District Energy in Cities Initiative, the Global Initiative for Resource Efficient Cities, and the EU Covenant of Mayors Initiative. They recognized the need for co-designing solutions with all stakeholders involved, integrating sustainable energy solutions into overall local development goals, and driving change for sustainability through coherent policies and measures, as well as regulatory frameworks in support of energy efficiency. Panelists also presented some of the technologies available, such as district heating and cooling, both with great potential to save energy and money and create jobs.

Energy Efficiency for Competitive Industries

This session explored the reasons why energy efficiency is often overlooked as a driver of competitiveness and discussed how energy efficiency can complement and benefit companies' strategic decisions and behavior in the market.

Over the past four decades, industry has steadily improved its energy productivity and energy efficiency has certainly played a significant role, but substantial economic opportunities remained untapped: the IEA estimates that existing best-available energy efficiency practices and technologies allow for economically feasible energy savings in the range of about 25% to 30%. Against this background, companies compete with one another for access to resources and market share, and adopt strategies to increase their profitability and overall performance.

Highlighting on the one hand, the multifaceted benefits of Energy Efficiency for competitiveness, the panelists also mentioned the challenge of translating such benefits into an attractive value proposition for decision makers in industry, and to better quantify/size the opportunity. They pointed out the need to adopt strategies that can catalyze the institutionalization of energy efficiency to ensure continuity as well as change industry culture towards energy consumption and use. Implementation of Energy Management Systems is a best practice example of how to integrate energy efficiency into industry operation practices. While experience shows that energy efficiency can thrive in different sectors and market contexts, even in the absence of dedicated supporting policies, the panel concurred that to scale up and accelerate the penetration of energy efficiency in global industry, the establishment of conducive and supporting policies will be required. The COP 21 in Paris could create momentum for Governments to take stronger actions.

Addressing the Knowledge Gap through Research Networks

The session addressed the importance of scientific knowledge and data. Each panelist contributed by highlighting some of the key challenges concerning the availability of, and access to, information necessary in achieving the three ambitious goals of SE4All on energy access, energy efficiency, and renewable energy.

Several studies have concluded that the three objectives of SE4All are achievable if the necessary investment, political will, and appropriate policies and institutions are in place to make them happen. Therefore, providing policy- and decision-makers with reliable information and data is critical for the success of SE4All, as well as for other global frameworks, such as the Sustainable Development Goals (SDGs). For instance, there is an urgent need to improve the quality, coverage and availability of data, such as gender-disaggregated data, to ensure that policies and interventions are inclusive for all.

Throughout the session, the need for a joint effort to identify reliable and unbiased data sources and analysis was emphasized through various means, including rebuilding the local knowledge base and research capacity in developing countries. Furthermore, these data need to be made accessible in a form that is comprehensive and useful for the users through appropriate and unbiased extraction and analysis of the vast amount of unprocessed information from dispersed sources. Research and capacity building is essential in making reliable and unbiased scientific information available that is pivotal in having game-changing policy decisions as well as having a greater impact on the ground.

Public Private Partnerships for Energy Efficiency

This session focused on Pubic Private Partnerships (PPPs) as mechanisms to tackle market failures and expand the reach and delivery of government and public sector services and initiatives, particularly where lack of financing is a key barrier to investment in energy efficiency. Although cities, states and regions around the world have been leaders in driving energy efficiency policies and practices within their jurisdictions, there remains a need for stronger collaboration between the private and public sector. While the latter has the task of establishing policy and regulatory frameworks, the private sector must play a larger role in driving technology standards, financial solutions and targeted incentives to accelerate improvements. Furthermore, international organizations and governments provide technical assistance for enhancing enabling environments, while financial institutions (both private and public, including IFIs) provide finance, as well as de-risking the investment environment.

For a successful PPP, firstly, a clear understanding of the roles of the different partners is essential. Community consultation and participation is equally important. Barriers can be overcome by packages of education, tools to support decision-making, planning, and funding options/support. Good policy and regulatory regimes are also key. International organizations can act as an important bridge builder between the public sector and private business, in both providing PPP expertise and translating mutual cultures and mind-sets. The panelists mentioned several measures that can be effective in promoting the development and uptake of energy PPPs, for example (i) clear political messages to tackle energy efficiency improvements by governments; (ii) proper regulations to promote the use of Best Available Technologies (BATs); (iii) public cooperative finance provision by governments and international organizations to reduce the risk caused by the incremental increase of initial investment for the use of BATs; (iv) acceleration of permit procedures, and (v) harmonization of tax regimes. The panelists highlighted the role of National Appropriate Mitigation Actions (NAMA's), Minimum Energy Performance Standards (MEPS), and the wider concept of Corporate Social Responsibility (CSR) for the promotion of PPPs.

Sustainable Transport

This session focused on the development of sustainable transport in the context of moving towards a low carbon energy system, attaining greater economic competitiveness, energy security and social equity, as well as the challenges posed by trends in urbanization from an environmental, social, and economic point of view. By 2025 the planet will have 37 megacities (cities with a population of over 10 million) and by 2030, up to 60% of the world population will live in cities. Being a key issue in cities, the transport sector is at the crossroads of various city issues, such as economic competitiveness and attractiveness, energy security, and social equity. Sustainable transport is vital for maintaining high air quality, reducing energy-use and greenhouse gas emissions, and enabling inhabitants to commute easily and according to their requirements. This requires policy-makers and transport planners to understand and incorporate the varying transport needs of women, men, and youth into policy frameworks. In their discussion the panelists highlighted that further innovation with regards to low-emission transport technologies, improved systems planning, and enabling legislation and regulations on zoning and vehicle performance were vital to accelerate the transition to sustainable transport systems.

Approaches to sustainable transport systems could include, among others, the promotion of fuel efficiency, more efficient railways, electric mobility, shared mobility, the use of information and communication technologies (ICT), as well as intelligent transport systems (ITS).

Strategies for public and private sector financing need to be in place to incentivize and enable the transition. While the future of vehicles lies in increased electrification and increased vehicle and fuel efficiency, the greatest opportunities exist in developing countries, given the rapid growth in their vehicle stocks.

The panelists underscored that efficiency of transport systems must be assessed throughout the life cycle and should account for energetic, economic and environmental performance.

Finally, the panelists made a call to give higher priority to transport in the context of the SDGs process and the COP 21, recognizing the role of transport systems for greater prosperity and higher quality of life, as well as their contribution to global fuel demand and corresponding emissions.

Post 2015 Development Agenda: SDG Summit and Beyond

In this session the panelists explored the main challenges for the multilateral system in the implementation of the proposed Sustainable Development Goals and suggested how these, and the broader crosscutting themes of the SDGs, can be addressed in a manner that ensures adequate and inclusive tracking of progress.

It is evident that a strong and effective multilateral system is of vital importance in the implementation of these goals. Of key importance for monitoring successful implementation is the improved availability of and access to data and statistics, disaggregated according to the characteristics relevant to the goals in the different global, regional and national contexts.

Throughout the discussion the panel emphasized that strong international and multilateral partnerships were needed for capacity development and technology transfer. Furthermore, the importance of innovation, the need to determine the enablers of diffusing technology and sharing best practices between stakeholders were stressed. The panel also emphasized the interdependency of the SDGs, notably the dependence of industrialization on sustainable energy. They drew attention to the importance of having a vision and goals for accelerating progress and sharing and replicating best practices.

Success stories from Ethiopia and Rwanda were cited, highlighting ways to transform economies and empower people through sustainable and inclusive industrialization. The World in 2050 Initiative was introduced in this session, which aims to identify possible pathways to achieve sustainable global development within planetary boundaries. Attention was drawn to the scenarios in the Global Energy Assessment to illustrate that all the SDGs need to be looked at in conjunction in order to ensure multiple benefits.

New and Innovative Financing Mechanisms for Sustainable Energy

This session explored the potential of new and innovative financing mechanisms for achieving sustainable energy development, and more specifically to meet SE4All's stated targets for energy access, energy efficiency and renewable energy.

According to an analysis by SE4All the current rate of investment falls short of the required efforts necessary to achieve the energy system transformation needed to stabilize GHG emissions in line with the 2°C ceiling agreed upon by the international community. Currently, public sector investments and incentives for the private sector, combined with improving technology costs, are gaining momentum, but it is clear that these will not be sufficient. In particular, perceived risks, some specific to sustainable energy and others related to emerging markets or financial mechanisms, are acting as constraints to the long-term investment growth trajectory. To overcome these barriers, new and innovative financing mechanisms and instruments for sustainable energy are needed that are tailored to the various types of investors of the public and private sector from both OECD and emerging markets. The panelists concluded that appropriate local policies and regulatory frameworks were the leading drivers, on a regional level, to "de-risk" investments. Rather than devising new schemes, smart blending ("blending 2.0") was needed to integrate, bundle and upscale existing schemes, and to foster collaboration between different parties (finance sector, project developers, industry, end-users and government). Local capacity building was needed to transfer the right know-how to design projects. Tools of accreditation and quality infrastructure needed to be in place to lower transaction costs such that local commercial banks can tap into loan packages and consumers' confidence is boosted. The panelists also held that there was a need for awareness campaigns towards target audiences to overcome the lack of knowledge about the opportunities for energy savings and renewable energy. Finally, non-financial and financial services needed to be combined in a smart way.

Integrated Approaches for Energy – Water – Food – Health Nexus

Set within the overall theme of the VEF2015, "Sustainable Energy for Inclusive Development," this session provided a multi-stakeholder platform to discuss integrated approaches for the energy–water–food–health nexus, illustrating the complexity of sustainable development issues for the post-2015 era. There is increasing global recognition and acceptance that the energy-water-food-health nexus is at the core of the post-2015 development agenda, where sustainable growth has become increasingly imperative to address climate change and the needs of billions of people without access to basic services.

Currently, 1.2 billion people lack access to electricity and some 2.8 billion people rely on traditional energy sources for cooking and boiling water, leading to health and economic burdens that predominantly fall on women and girls. These are more or less the same people that lack access to adequate food, clean drinking water and safe sanitation/hygiene.

The intricate links between water, energy, and food, and related dimensions such as gender, ecosystems, climate change, health and livelihoods, present not only challenges but also the opportunities to achieve sustainable development in the post-2015 era within the static planetary boundaries. Nexus should be viewed as a reconciler between the 17 proposed Sustainable Development Goals, or 169 targets, that otherwise might hinder each other.

The main messages emerging from this panel were that it is vital to create an incentive for businesses to be part of the nexus approach; enabling polices are needed to allow the monetization of social and environmental issues within the nexus. Furthermore, capacity must be built through education for sustainable development. Finally, a systematic view should be taken to see how the nexus works globally, nationally, regionally, and locally.

CONCLUSION

Much has been accomplished since the first Vienna Energy Forum held in 2009 under the theme "Towards an Integrated Energy Agenda Beyond 2020". The report from that meeting highlighted the need for the development of a set of energy goals for the future, a focus on the gains that could be made through energy efficiency, the need for increased financing for energy research and development, rapid diffusion of sustainable energy technologies, and greater global support and coordination for sustainable energy. At that time the idea of sustainable energy was in its infancy and many of the recommendations were aspirational, starting from a very low baseline.

Although many of the topics addressed at VEF 2015 were similar to those originally discussed in 2009, these recent discussions have reveled that much has happened in the intervening period. In September 2011, the UN Secretary-General launched Sustainable Energy for All as a global initiative that would mobilize action from all sectors of society in support of three interlinked objectives: 1) providing universal access to modern energy services; 2) doubling the global rate of improvement in energy efficiency; and 3) doubling the share of renewable energy in the global energy mix. These goals have fed directly into the development of the energy Sustainable Development Goal (SDG 7). SE4All has generated significant momentum since its launch. Both developed countries and more than 85 developing countries have partnered with SE4All to advance the three objectives on the country level. Over 50 High Impact Opportunities (HIOs) have been identified, with a wide range of stakeholders undertaking actions that will have significant potential to advance Sustainable Energy for All. Governments, the private sector, and multilateral institutions alike are mobilizing resources in support of the initiative's three objectives.

For the first time since industrialization we are witnessing a decoupling of economic growth with greenhouse gas emissions. In the past five years economic growth across OECD countries has averaged seven per cent yet greenhouse gas emissions have fallen by four percent. According to the UNFCCC, 2014 was the first year that global growth increased while emissions stayed flat. This is a critical achievement on the pathway towards sustainable inclusive development that will allow economic development across the developing world without significant climate impacts.

In many countries the rapidly decreasing cost of renewable energy technologies now means that renewables are cost competitive with fossil fuels. Innovation in the sector is at an all time high with US$ 270 billion invested in 2014 – the highest of any form of energy investment. Significantly, investments in renewable technologies increased by almost 40% across developing countries in 2014. Overall global power generation from renewables, excluding hydropower, grew by 17% between 2012 and 2013. There are now almost 750,000 electric vehicles on the world's roads with over half of these being bought in 2014. The number was less than 2000 in 2009. Tesla's recently announced new battery storage systems for domestic and commercial use are predicted to match the rate of uptake of Apple's first iPhones. Many developed countries are now experiencing decreasing energy demand per capita. Over the past decade in the United States, the population growth rate has been more than double the rate of growth in energy consumption, primarily through increases in domestic and commercial energy efficiency.

According to the IEA, hundreds of millions of people have attained modern energy access over the last two decades, especially in China and India. Rapid economic development, increasing urbanization, and ongoing energy access programs in several developing countries have been important factors in this achievement. Taken together, these achievements are quite significant over such a relatively short period and momentum is continuing to grow.

Sustainable energy is no longer an aspiration but is rapidly becoming a reality – a reality that can, and will, play a fundamental role for achieving inclusive sustainable development and addressing climate change over the coming decades. Sustainable energy is the golden thread that connects the Post 2015 Development Agenda and Climate Action.

There is still, however, much to be done. The following key messages from the VEF 2015 will hopefully provide more impetus to meet the challenges ahead.

KEY MESSAGES

01

The Forum recommends the adoption of the Sustainable Development Goals at the UN General Assembly in September (as recommended in the report of the Open Working Group on the SDGs). The key to the success of the global development debates of 2015 is a major scaling up of action on the ground.

This is particularly crucial with regard to the sustainable energy agenda, without which development will simply not progress. Key to this effort is the scaling up of investments in all the three goals of Sustainable Energy for All. These will never be achieved without the proper policy and regulatory frameworks to provide the incentives, the enabling environments, and certainty for investors to engage heavily in this common effort.

The VEF continues to support the three goals of Sustainable Energy for All of: providing universal access to modern energy services; doubling the global rate of improvement in energy efficiency; and doubling the share of renewable energy in the global energy mix and endorses the draft SDG 7 to "ensure access to affordable, reliable, sustainable, and modern energy for all" and SDG 9 to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". However, given the fundamental role of energy across all dimensions of society, meeting these energy aspirations will deliver multiple societal benefits and have widespread positive impacts for sustainable development.

Actions: More tangible actions are required that result in more kilowatt hours. As such the VEF calls for: (i) at least 100 jurisdictions from around the world, where sustainable energy for all is a challenge, to prepare sustainable energy action plans; (ii) industries from the most energy intensive sectors to introduce Energy Management Systems; and (iii) at least 100 businesses to commit to double their energy efficiency gains by 2030. Most importantly, all these actions need to result in millions of new connections for those now deprived of modern energy services.

02

Climate action is inextricably linked to sustainable development. One cannot succeed without the other. The convergence of three major global fora in 2015 – the third international Conference on Financing for Sustainable Development, the UN Summit on the adoption of the Post 2015 Development Agenda, and the 21st session of the Conference of the Parties to the UNFCCC – is a rare opportunity to take advantage of the synergies between these two agendas in ways that have never existed before.

The current efforts to link these two global challenges even more closely, with an accompanying effort to ensure that they are properly funded, supported by a strong leadership, and complemented with strongly facilitated action on the ground, give cause for optimism. However, it is also a warning that without these three key elements in place - proper funding, a strong leadership, and scaled up action on the ground - this unique and rare opportunity will be squandered with major consequences for the future of humanity.

The VEF fully endorses the objective of keeping the increase in global mean temperature below 2ºC above pre-industrial levels acknowledging that that this will require a peak to be reached in greenhouse gas emissions immediately and reach near-zero or negative emissions in the second half of the century. This will require the rapid scaling up and deployment of all available and new sustainable energy technologies including renewables, clean coal, battery technologies as well as carbon sequestration. Further innovation will be necessary across the whole sector and investments will need to increase substantially. Hand in hand with these transformative changes, the decarbonization of energy systems, from global to place-specific levels, must become an accepted development goal, while major global initiatives must be undertaken to achieve universal clean energy access during the next decades.

Action: The two linked themes of climate and development need to be supported by the three pillars: strong leadership, facilitated action on the ground, and scaled up investments. These are prerequisites for the intensified action required to keep global mean temperature increase below 2°C and for the successful implementation of the Sustainable Development Goals. COP 21 will be an opportunity for the international community to witness concrete commitments from all stakeholders.

03

Two thirds of the energy efficiency potential will go untapped unless effective policies and measures are put in place to allow the necessary action and investments to accelerate in the years to come.

Two of the greatest opportunities for targeted action on energy efficiency are in transport and in cities. Transport and cities account for approximately two thirds of the energy use and greenhouse gas emissions globally. Not exploiting this potential is tragically ignoring a major solution to the climate and development challenges of our century. It is estimated that tapping into this potential could provide one of the most effective measures against climate change while providing multiple social and economic benefits such as economic growth, energy security, health benefits, and jobs. The business sector, particularly small and medium enterprises, has an important and leading role to play in this area. The World Business Council for Sustainable Development, representing almost 200 of the world's biggest companies, can, and does, provide a role model for the business sector in showing that energy efficiency (and sustainable energy solutions more broadly) not only makes environmental sense, but also good business sense. It is also critical that governments provide the necessary frameworks and incentives, not only to business, but also consumers, to ensure increasing efficiency. Targeted energy efficiency measures have the potential to reduce global energy-related emissions by 1.5GT by 2020, generate some US$ 250-325 billion worth of savings per year, reduce air pollution, mitigate climate change and potentially deliver 50% of the emissions reductions required to put the world on a 2°C pathway by 2020.

Action: The VEF endorses the Global Fuel Economy Initiative campaign which aims to secure engagement of 100 key countries in improving the fuel efficiency of light duty vehicles by 50% by 2050. Stronger action, and concrete and visible commitments by jurisdictions and businesses, with regard to assessing the potential in each of their remits, are required. They should prepare concrete action plans and roadmaps for action and announce these at the COP 21.

04

To meet the energy efficiency and renewable energy potential, scaled up action and investments are needed in targeted areas such as cities, and in key sectors such as industry, transport, power generation, lighting and buildings, where the impact and potential benefits are greatest.

Improving energy efficiency has been a continued focus of the VEF since its first conference in 2009. At that time, and still today, increasing energy efficiency across the whole energy spectrum, from exploration, through generation and supply, to end-use, was, and is, regarded as the "low-hanging fruit", as the technologies required to have a significant impact on greenhouse gas emissions and therefore climate change, are already available at increasingly reduced costs. Important opportunities exist to increase energy efficiency in areas and sectors, such as buildings, transport, lighting, appliances, district energy, energy intensive industries, and the power sector. To accelerate action and realize untapped improvement potential, determined global efforts, particularly in financing, are needed, guided by evidence based roadmaps for action.

Action: Recognizing the immense potential that exists in cities as well as other high impact sectors, the VEF calls for more concrete action and commitments in these sectors specifically, recognizing that in many of these, action would need to be strongly supported by national level policies, legislation and standards. The SE4All Accelerator Platform should link more closely with major city initiatives such as the Covenant of Mayors and Compact of Mayors and unite forces to bring a large number of subnational leaders to COP 21 to announce their commitment on energy related topics including buildings, power and transport.

05

The nexus between energy, climate, transport, food, water, and health is inseparable and an essential contributor to social progress and human well-being. It needs to be approached in an integrated manner for adequate solutions.

Billions of people still suffer from a lack of adequate energy, water and food. The interconnectedness of energy, climate, transport, water, food, and health combined with increasing scarcity and risk, require integrated strategies and solutions scaled up from the local to regional and global level to improve efficiency, cost effectiveness, human benefits and sustainability. Current approaches are predominantly fragmented resulting in lost opportunities to leverage synergies and avoid major conflicts.

No longer can governments and policymakers afford to focus policies and resources on single issues or single-sector issues. Integrated strategies and solutions are needed to meet multiple objectives simultaneously. Given that energy is central to every economic, environmental, security and developmental issue today, promoting and deploying sustainable energy solutions within a framework of integrated policy options will be a prerequisite for achieving inclusive sustainable development within planetary boundaries.

Providing sustainable energy solutions to meet multiple objectives such as climate change mitigation, eliminating energy poverty, increasing productive capacity, etc., will also have significant impacts (both positive and negative), for water, food, security and health. In turn, each of these sectors will impact (again both positively and negatively) the energy sector. There is a growing and urgent need for research aimed at understanding these complex interactions to ensure the most effective solutions are deployed and that limited resources are invested effectively and efficiently.

Action: A future Vienna Energy Forum should focus exclusively on the theme of nexus, specifically addressing the linkages among key SDGs and their contribution to the development and climate agendas, with an emphasis on better analysis and policy and institutional reforms, which are urgently needed.

06

A greater effort is needed to strengthen synergies of the three goals of Sustainable Energy for All: access, energy efficiency and renewable energy.

A fragmented approach to the three key sub-goals of SDS 7 (and SE4All) is an obstacle to building linkages to other key SDGs such as health, food, water, gender, industry, and others. A well performing and efficient energy system strengthens the opportunity to provide energy access to those now deprived of affordable and reliable energy. Renewable energy is not only a major source of energy access to those living in isolated rural areas but also a contributor to the much needed transformation of energy systems for addressing climate change, health and energy security. Provision of modern energy access, including electricity and clean cooking fuels, will also inter alia: increase productive capacity and economic growth; provide better health outcomes through reductions in both indoor and outdoor air pollution, and greater provision and access to health services; raise education standards, and help mitigate the impacts of climate change. In fact, there are very few areas in the sustainable development agenda where sustainable energy will not play a significant role.

Action: These and innumerable other linkages need to be properly researched and documented to improve understanding, facilitate action and assist policy makers throughout the world.

07

Much of the potential for greater impact in climate and development action goes untapped, because of weak regional cohesion and a lack of synergy between national and sub-national efforts. Hence, regional approaches, such as Regional Centers and initiatives on Renewable Energy and Energy Efficiency and cohesive policy actions are required to lower transactional costs and to promote economies of scale for regional markets and investments.

Cities and sub-national jurisdictions are emerging as key platforms for action, but these will be fully successful only to the extent that they are strongly supported and linked to national strategies and policies. Similarly, stronger regional and sub-regional cohesion and coordination also emerged as key pre-requisite for successful global action particularly in climate change and natural resource use. More broadly, fostering cooperation between relevant stakeholders, whether state and non-state actors, is key to accelerate climate and development action on the ground.

Action: The role of regional institutions in promoting regional cohesion and knowledge sharing needs to be strongly supported and given proper recognition. There needs to be a greater focus on vertical integration – national and subnational – as a key component for local, regional and global impact.

08

Sustainable energy and women's empowerment are mutually reinforcing goals. The empowerment of women to become agents of sustainable energy will be key to achieving truly inclusive and sustainable development.

Energy poverty impacts women disproportionately especially due to domestic dependence on biofuels, traditional gender roles, and the related health problems. In addition to addressing such energy poverty challenges, evidence shows that access to sustainable energy can provide opportunities for women's economic empowerment and advance gender equality. For women to be key agents of sustainable energy, they need to be empowered and fully engaged at all levels of decision making processes. Therefore, SDG 5 on women's empowerment and SDG 7 on sustainable energy must be tackled jointly through an integrated approach that promotes women's transformational roles in providing innovative energy solutions. Sustainable energy is the golden thread connecting the sustainable development agenda with climate action; gender equality should be the intertwining thread that weaves all components stronger together.

Action: Increased financing and policy action are required to accelerate gender mainstreaming of energy interventions, and women's empowerment through sustainable energy solutions. Availability of gender disaggregated indicators will be important for monitoring and evaluating all sustainable energy initiatives.

SPECIAL EVENTS AND SIDE EVENTS

Special events

» Energy Leaders' Voices

This format provided a platform for pioneers in the field of sustainable energy and inclusive development to share their success stories, their visions and experiences.

» Launch of the UNIDO-GGGI Global Green Growth Report (UNIDO, GGGI, PERI)

The presentation of the report "Global Green Growth: Clean Energy Industrial Investment and Expanding Job Opportunities" demonstrated the net-gains in job creation by making investments in the clean energy industry.

» Launch of the report 'Beyond Connections: Energy Access Redefined' (World Bank and partner organisations)

During the presentation of this new report a new multi-tier framework for defining and measuring access to energy was outlined.

» Launch of the Global Tracking Framework (World Bank, IEA, and partner organisations)

The presenters of the SE4All Global Tracking Framework charted the course to achieve universal energy access, double the use of renewable energy and improve energy efficiency.

» Networking Event: Women for Sustainable Energy (UNIDO)

UNIDO invited distinguished guests to this event to speak on strategies to strengthen and promote the energy gender nexus, reaffirming UNIDO and its partners' strong commitment to gender mainstreaming.

» Clean Energy Ministerial: Progress on Implementation, Path Forward (US Department of Energy)

This event shared the outcomes from the Sixth Clean Energy Ministerial (CEM6) held in Mérida, Mexico, discussed the value of the CEM as a forum for efficiently helping countries achieve their national climate and clean energy goals, and highlighted actions taken at CEM6 to address some of the critical technology and policy challenges.

» Launch of the REN21 Renewables 2015 Global Status Report (REN21)

In its tenth edition, this report provides a comprehensive overview of renewable energy markets, industries, investments, and policy developments worldwide, including sections on heating and cooling and on distributed renewable energy for developing countries, as well as on the contribution of renewables in climate adaptation efforts.

» Climate School (Verbund, National Park Hohe Tauern Carinthia)

Selections from the Climate School's teaching programme were showcased by the National Park Rangers, demonstrating how climate change can be made understandable for children and young people.

Side events

» Nexus - Integrated Solutions for a Sustainable Future (IIASA, GEF, UNIDO, and ADA)

This session focused on highlighting research and practical work in integrated solutions to meet nexus challenges.

» Supporting Development and Climate Through Energy Efficiency Improvements (SE4All)

The side event provided the audience with an update on the progress of the SE4All Global Energy Efficiency Accelerator Platform to date, its campaign for scaling up action leading up to COP 21, and a review of what is needed to achieve success.

» Business Partnerships to Foster Effective Cooperations (Advantage Austria)

This session showcased successful, innovative business models to improve energy supply in developing and emerging countries. Companies, experts from international aid institutions and NGOs discussed various forms of cooperation.

» CTCN and Climate Technology Facilitation- Blending Targeted Technical Assistance with Appropriate Financing (UNIDO)

This session gave an opportunity to thought leaders to exchange views and experience on issues pertaining to climate technology facilitation. Panelists discussed mechanisms dedicated to assist developing countries in their climate technology transition.

» Evolution and Diversification of Renewables Globally: Results from REN21's Renewables 2015 Global Status Report (REN21)

This session presented and discussed the Renewables 2015 Global Status Report with a special section on the contribution of renewables in climate adaptation efforts in anticipation of the Paris climate talks in December 2015.

» Energy Efficiency, an essential driver for urban development in Africa (AEEP, European Commission DG DEVCO)

This session discussed the current status of energy efficiency initiatives in Europe and Africa to identify viable options that are applicable and scalable for African urban development. The session also contributed to mapping stakeholders in energy efficiency, and provided valuable inputs in terms of monitoring and tracking progress in the sector.

» Green Building Concepts and Policies (GFSE, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, ADA, AEA)

This event explored the technical/architectural as well as the policy challenges for greening the building sector. The panelists exchanged experiences and discussed requirements and framework conditions for comprehensive solutions.

» The Role of the Private Sector in Renewable Energy Development (REEEP, SNV)

This event explored the impacts that have already been achieved on the ground in developing market solutions and how the impact intelligence of these experiences can be collected, distributed and replicated.

» Energizing the SAMOA Pathway – Launch of the SE4All Network of Regional Sustainable Energy Centers for Small Island Developing States (SIDS) (UNIDO, SIDS DOCK, GFSE, SPC, and CARICOM)

This session focused on the status of the SIDS DOCK process and the network of regional sustainable energy centres for SIDS in the Pacific, Caribbean, Africa and Indian Ocean. It also explored the potential role of the south-south triangular partnership in the context of the emerging post-2015 energy, climate and development architecture and the Decade of Sustainable Energy For All (SE4All).

» New Partnerships for Rural Electrification (EUEI PDF, Alliance for Rural Electrification, European Commission DG DEVCO)

This session brought together practitioners from the public and private sector, financiers and development partners to take stock of challenges and opportunities in terms of business models, policy and regulatory frameworks, as well as financing and other support instruments for promoting investment in rural electrification. It also focused on innovative business and financing models that are capable of accelerating and leveraging investment.

» Clean Energy Technology Entrepreneurship and Innovation for Inclusive Growth (UNIDO)

This event explored the potential of entrepreneurship in cleantech innovations to access and leverage on high value-added markets, shifting technology development trends towards developing and emerging economies.

» Mutual Linkages of Sustainable Energy, Gender Equality and the Empowerment of Women (UNIDO, ECREEE, ADA, SNV, ENERGIA the International Network on Gender & Sustainable Energy, ESMAP)

This session discussed Gender Equality and the Empowerment of Women (GEEW) in the context of the forthcoming UN Summit on the Post-2015 Development Agenda, and the Paris climate change summit.

» How to Secure Successful and Sustainable Capacity Development (RENAC Germany, UNIDO)

The workshop helped broaden the understanding of the importance and dimensions of capacity for sustainable energy supply, highlighted the aspects and key factors for successful capacity development. Furthermore, the workshop developed ideas with the audience on how successful sustainable capacity building could look like.

» Measuring Energy Access – Applying the Methodologies of the Global Tracking Framework in the Field: A Discussion on Monitoring Experience (GIZ, KfW)

This event discussed ways to harmonize programme-based monitoring systems with the Global Tracking Framework developed under SE4All and vice versa. Participants were introduced to methodological approaches and lessons learnt from the field for various types of projects and programmes, and deliberated on how to make them compatible. In addition, the crucial issue of data sources as well as capacity building for energy access monitoring were discussed.

» UNIDO Energy Management System Implementation in Industry (UNIDO)

This event highlighted the significance of energy management and energy efficiency as a key driver for inclusive and sustainable industrial development, and a substantial opportunity area to support the achievement of the SE4All goal on energy efficiency, while mitigating climate change. Further, the event provided examples demonstrating EnMS as the preeminent best practice for sustainable energy efficiency in industry, achieving multiple benefits including substantial cost reductions.

» Result Based Financing: Experience of the Energizing Development Partnership (EnDev)

EnDev is globally piloting a results-based financing (RBF) approach in the field of energy access. This side event aimed at providing a reality check of RBF as a market development instrument in the field of energy access based on experience of different stakeholders.

Supporting partners:

CONSUS GROUP

REEEP

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Uniting against Poverty

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Biogas Mobility Cooperation by CIBiogás and Spirit Design

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