

## Description of the Sessions - Draft



**Scaling up Renewable Energy**  
León, Mexico, 7-9 October 2009

jointly organized by  
the Ministry of Energy of Mexico (SENER), and  
the United Nations Industrial Development Organization (UNIDO)

*Wednesday 7 October 2009*

9:00 – 10:00 | **Inaugural Plenary Session**

10:30 – 12:30 | **Plenary Session 1: Energy Poverty, Financial Crisis, and Climate Change**

Energy is intrinsically linked to major contemporary and future global challenges. The energy-related decisions must therefore be made in conjunction with the consideration of issues such as climate change and sustainable development, poverty alleviation, current financial turmoil, security of supply, to quote but a few. Addressing those challenges requires a comprehensive and concerted approach.

The scale of the energy poverty issue is substantive. Nearly one third of the world's population has no access to electricity, and another third has poor access only. Furthermore, about 2 billion people, mainly in Asia and Sub-Saharan Africa, rely on traditional fuels, such as wood, dung and agricultural residues, to meet their daily heating and cooking needs.

The current credit crunch will affect the availability of capital, possibly to the detriment of energy investments. Energy systems are characterized by long-term, relatively sizeable investments and the present situation in terms of credit availability might preclude the energy transition required to face the numerous challenges ahead. On the other hand, some analysts present the current financial turmoil as a perfect opportunity for a shift towards greener investments. Indeed, it is argued that clean energy could be a key element of the response to the financial crisis which, once the economy rebounds, would leave the foundations of a low-carbon economy.

Science is providing compelling evidences of the anthropogenic influence on the global climate, as well as of the predominant role of energy use in this regard. Economic growth leads to an ever increasing need for reliable energy services. Therefore, it is essential to fuel economic and social development in conjunction with the core principles of the sustainable development.

Current energy systems are clearly inadequate to face those challenges. Profound changes are thus to be anticipated in regard to the way Society as a whole produces and uses energy in the short-, medium-, and long-term. Decisions about the pathways to follow are decisive issues of our time. This session is setting the stage of the Global Renewable Energy Forum 2009 by contextualizing the current energy debate in light of major global challenges.

14:00 – 15:30 | **Plenary Session 2: Renewable Energy and Energy Transition**

The magnitude of the change required in regard to energy will have widespread consequences, not only for energy systems, but also concerning trade, business implementation, lifestyle, etc. A transition to a low-carbon economy is not solely a technological issue. Rather, the way our society is functioning and makes business has to be revisited.

Current international climate change mitigation agreements are falling short in curbing the rising curve of greenhouse gas emissions. The succeeding deal must clearly be more comprehensive and ambitious to trigger the magnitude of change required. The current debate revolves not any longer around if emissions should be reduced or not, but rather around the timing of the (optimum) reduction, its magnitude, the allocation of the burden, and the means to achieve it.

Whatever the scheme, renewable energy is likely to play a significant role in the shaping of the energy transition. That said, there is no room for complacency, and this Global Forum presents a unique opportunity for developing common views in regard to the role of renewable energy in the future climate change mitigation architecture.

16:00 – 17:30 | **Plenary Session 3: Renewable Energy Potential – Reality or Utopia**

Business-as-usual energy scenarios paint a bleak picture in regard to the share of renewable energy in the energy mix of the future. Indeed, fossil fuels are expected to largely dominate the energy landscape in the years to come without dedicated policy interventions.

There is a very high potential for renewable energy in most regions, including in Latin America. Yet, the potential does not unfold for the numerous challenges and barriers a widespread deployment of renewable energy faces. Although those barriers have long been identified, the expansion of renewable energy is slow

and fragmented.

On the bright side, significant progress has been made in improving both the technology and the policy framework for renewables. The technology is ripe in some cases and often competitive from a financial point of view. Also, significant experience has been gathered in regard to policies that have proved successful in fostering the deployment of renewable energy.

There are numerous success stories that demonstrate the feasibility of renewable energy deployment at large-scale locally. The lessons learnt should be exploited to replicate and scale up renewable energy where appropriate.

**Thursday 8 October 2009**

**9:00 – 11:00 | Plenary Session 4: Renewable Energy and the Access Agenda**

It is often claimed that energy is a prerequisite to development and the achievement of the Millennium Development Goals. Indeed, although not a vital human requirement *per se*, energy is however crucial to the fulfillment of many basic human needs and services. Beside those critical services, such as cooking and space heating, energy is present in many aspects of human development due to the wide array of services it delivers in the form of light, mechanical power, heat, transport, etc.

It is widely recognized that energy alone will not reduce poverty. This notwithstanding, an access to reliable, affordable energy services plays a critical role for development and represents an essential element to human emancipation. The availability of modern energy facilitates productive activities and economic development notably.

Additionally, the use of traditional biomass for cooking and heating can have serious impacts on people's health. Indoor pollution caused by cooking fires affects mainly women and children as they are the most exposed to the toxic fumes.

Renewable energy allows for reconciling aspirations for development with environmental sustainability. Also, renewable energy features attributes that are particularly well-suited for energizing impoverished, often geographically isolated communities.

What would a pathway to make energy poverty history by 2030 look like? Putting the rhetoric of the developmental benefits of access to energy services in practice remains a challenge for the number of reasons.

**11:30 – 13:15 | Parallel Session 1: Transition to a Low-Carbon Economy – New Technologies**

A transition to a low-carbon economy will require, amongst other elements, a wide array of technologies. Some of those technologies are ripe and commercially available, and others are still at experimental stage.

A widespread deployment of renewable energy comes about with a range of issues that current energy systems are not disposed to deal with. For instance, electricity distribution systems would have to be redesigned and adapted if they were to accommodate a large share of intermittent, decentralized producers such as wind farms and photovoltaic plants.

A new generation of electricity infrastructure will have to be developed. The concept of smart-grids as well as alternatives to prevalent AC distribution systems such as high-voltage direct current transmission are likely to form integrated part future energy systems.

Also, energy storage might play a key role to assist in matching demand and supply. Related to this, hydrogen is a promising technology that can play the key role as buffer to absorb excess production from renewables. Hydrogen produced from renewable sources has the potential to take energy systems to a whole new dimension by providing flexibility and convertibility. Several pilot plants are currently in operation or at planning stage.

Some of the ambitious climate mitigation scenarios require a sharp decline in emissions over the next few years, eventually becoming negative thereafter. Negative emission can be obtained by combining bioenergy with carbon capture and storage, a set up that might prove to be a necessary requirement under stringent mitigation pathways.

Furthermore, more unconventional technologies are under development and present encouraging perspectives. Amongst those are marine technologies and offshore wind farms for instance.

Beside aspects related to energy generation, new technologies are playing a key role in regard to demand-side considerations. Indeed, advanced equipments and systems contribute to curb the ever growing primary energy demand and represent a crucial element of a transition to a low-carbon economy.

**11:30 – 13:15 | Parallel Session 2: Renewable Energy for Industrial Applications**

Industrial development plays a significant role in achieving the necessary structural change to set the economies of poor countries on a path of sustained economic growth. Industry provides a seedbed for entrepreneurship, promotes business investment, fosters technological upgrading and dynamism, improves human skills and creates jobs, thus contributing to reduce poverty.

Productive activities generate income and represent a self-reinforcing mechanism to alleviate poverty. However, growth prospects and enhanced competitiveness are contingent on the availability of affordable and reliable energy supply. On the other hand, industrial energy use is responsible for a major share of anthropogenic greenhouse gas (GHG) emissions. Renewable energy has the potential to support productive activities, while at the same time minimizing GHG emissions.

Renewable energy offers commercially viable options to meet energy requirements for industrial applications. This potential is largely untapped for the numerous challenges and barriers faced. It is crucial to address those in a timely and comprehensive fashion.

Considering the fact that about 80% of the industrial sector's energy consumption in non-OECD countries is for heat production, there are significant opportunities for solar thermal applications for instance. Indeed, solar heat offers great potential to meet the energy needs of industry with proven technology in a sustainable manner.

Another notable example is that of bioenergy. Biomass to heat, combined heat and power, or electricity generation, besides providing reliable and environmentally-friendly energy from local resources, also prompts opportunities throughout the feedstock value chain. Biomass gasification for example, by processing organic material into syngas, offers a flexible option for thermal applications in the industry. It can be used to retrofit existing gas plants and thereby substituting fossil fuel.

#### 15:00 – 17:00 | Plenary Session 5: **Future of Biofuels: Potential and Challenges**

The current debate on biofuels seems to move from the state of controversy to a more constructive dialog that includes concrete proposals as possible ways forward. It is not a question anymore of whether biofuels should be produced or not. Rather, the discussion revolves around how to produce them a way that is consistent with a range of sustainability criteria.

In this regard, substantial efforts are being dedicated to the development of standards that aim at providing guidelines to this fast-growing market. Those standards strive to develop a set of principles and criteria related to the production of biofuels.

It must be noted that the recent sharp increase in biofuel production worldwide was primarily triggered by policy interventions. Governments were enthusiastic about setting up biofuels targets. They however have to face the harsh reality and deal with the issues associated with large-scale biofuels production.

The first generation of biofuels, made from sugar, starch, vegetable oil, or animal fats using conventional technology, is contentious since the feedstocks used could enter the animal and human food chain. The next generations of biofuels, which are still under development, are seen as a more viable option. For instance, cellulosic biofuels can be produced from a variety of non-food crops e.g. waste biomass and crop residues.

*Friday 9 October 2009*

9:00 – 10:15 | **Plenary Session 6: Scaling Up Investments in Renewable Energy**

There is an inexorable move towards setting a price on carbon emissions. The jury is still out however on the form the policy (or set of policies) that defines the price will take. This notwithstanding, the price of carbon is unlikely to be high enough in the near future to provide incentives for a significant and timely shift in investments towards renewable energy. Therefore, complementary approaches are required, at least in the short-term, to allow for scaling up investments in renewable energy.

The investment requirements to respond to the ever growing energy demand in an environmentally-sustainable manner are daunting. Nevertheless, there are important business opportunities in relation to renewable energy provided that the policy framework creates attractive conditions for investors.

The current financial crisis decreases the availability of capitals. However, the current economic circumstances could also present extraordinary conditions if stimulus packages and other public investments are geared towards building the foundation of an economy more in tune with the principles of sustainable development. Indeed, a move away from the predominant, ill-fated fossil-based paradigm might be hastened due to the crisis.

10:30 – 11:30 | **Parallel Session 3: Energy Efficiency**

Both increasing the share of renewable energy and improving energy efficiency will be key in addressing the energy challenges at hand. Improving energy efficiency is one of the most cost-effective measures to loosen the link between economic growth and environmental degradation. Several studies highlight the potential for energy efficiency measures that are financially attractive.

Furthermore, even optimistic scenarios in terms of renewable energy deployment feature an increase of fossil-based energy, at least for another few decades. In other words, the greenhouse gas emissions will likely increase in absolute terms even with rigorous policies encouraging renewables. With this in mind, energy efficiency is a crucial ally to the promotion of renewable energy in order to reduce anthropogenic interference with the climate system. Indeed, energy efficiency measures contribute to intensify the environmental benefits of promoting renewable energy otherwise offset by the increase in fossil fuel energy.

A comprehensive approach in addressing energy efficiency has been the trend in the recent years. Indeed, the formerly prevailing focus on isolated pieces of equipment is replaced by a systemic approach which allows including operational practices for instance. Energy efficiency gains are contingent on well-designed and adequately operated systems.

Also, energy management standards constitute a demonstrated effective policy tool and market-based mechanism to bring about sustainable energy efficiency. They offer a suitable framework for organizations and enterprises to develop energy efficiency goals, plan interventions, prioritize efficiency measures and investments, monitor and document results, as well as to ensure continuity and constant improvement of energy performance. Energy management standards establish a close linkage between business practices for the management of energy and core industry values of cost reduction, increased productivity, environmental compliance and global competitiveness.

At global scale, demonstrated energy efficiency policies and commercially available technologies would allow to significantly curb energy intensity and emissions. The challenge ahead is to find mechanisms to seize the opportunities by realizing the large, yet fragmented, potential of energy efficiency gains.

10:30 – 11:30 | **Parallel Session 4: Institutions and Innovative Financial Mechanisms**

In light of the growing financing gap for adequately addressing the challenge of transforming the energy systems in a timely manner, both governments and private actors seek for innovative financial mechanisms. Creative ideas are necessary to move beyond conventional financial mechanisms in order to leverage the level of funding necessary. Innovative approaches include a new combination or adaptation of existing elements, or the development of pioneering products and processes.

While efficient at mobilizing resources, new financial mechanisms are not without danger in terms of environmental sustainability. For instance, deregulation and privatization lead to investors favoring least-cost options which might not always be the most environmentally-sound, depending on the policy framework and the extent to which environmental externalities are internalized notably. On the other hand, experience with the

public provision and financing has proved disappointing in numerous cases both in terms of quality of services and costs.

The capital requirements of the energy sector are relatively important. It would be unimaginable to generate those through conventional channels, especially in developing countries where the soaring energy demand poses yet an additional challenge. The current financial turmoil is likely to provide further incentives to expand and improve innovative financial mechanisms in the energy sector.

Also, institutions are of utmost importance to the realization of the transition to a low-carbon economy. An adequate institutional framework facilitates private, as well as public-private, partnerships. Through the alignment of policies and regulations, countries have the opportunity to strengthen regional markets thereby encouraging investments in energy infrastructure.

Strategic regional partnerships enhance security in regard to energy matters. They also allow pooling resources to support research, as well as to encourage the development, deployment and transfer of new technologies. Strong regional bounds also facilitate the management of risk by coordinating the response in case of disruption, be it due to external factors or climatic events. National and international cooperation is an effective means to reducing barriers to the broad deployment of renewable energy.

12:00 – 13:30

### **Closing Plenary Session**

The Closing Plenary Session represents an opportunity to sum up the Global Renewable Energy Forum 2009 by drawing the key messages of the event.