MEXICO INTERNATIONAL RENEWABLE ENERGY CONFERENCE

SEPTEMBER 11TH - 13TH
MEXICO CITY
REN21 CONNECTING THE DOTS: CONVENING MULTISTAKEHOLDERS ON RENEWABLE ENERGY

Index

05. INTRODUCTION
06. A MESSAGE FROM THE ORGANISERS
08. DAY 01
12. DAY 02
33. PRESS CONFERENCE
34. DAY 03
63. FINAL DECLARATION
75. PHOTO GALLERY
A methodical and systematic approach to renewable energy is one of the fundamental priorities of our current environmental, social, political, and economic situation. The speed of our production and business cycles are derived from a contradictory dynamic in which, on the one hand, energy is required for development, while, on the other, traditional means of production and consumption are polluting. Renewable energy provides one way to exit this cycle and ensure clean and affordable energy for all.

REN21 convenes international multi-stakeholder leaders to enable a rapid global transition to renewable energy. REN21 promotes renewable energy to meet the needs of both industrialised and developing countries that are driven by climate change, energy security, development, and poverty alleviation. The overarching goal of REN21 is the promotion of policies that will increase the wise use of renewable energy worldwide. It brings together governments, non-governmental organisations, academic and research institutions, intergovernmental organisations, and industry associations to find tangible solutions, exchange knowledge, and implement actions to increase renewable energy use.

In this context, REN21, along with the Secretariat of Energy of the Mexican government (Secretaría de Energía, SENER), co-hosted the Mexican International Renewable Energy Conference (MEXIREC). MEXIREC was the 7th in the International Renewable Energy Conference series, following on SAIREC 2015 (Cape Town/South Africa), ADIREC 2013 (Abu Dhabi/UAE), DIREC 2010 (Delhi/India), WIREC 2008 (Washington DC/US), BIREC 2005 (Beijing/China), and renewables2004 (Bonn/Germany).

MEXIREC’s agenda, which took place as part of the umbrella event “Dialogues for the Future of Energy, Mexico 2017” (Diálogos para el Futuro de la Energía México 2017, DEMEX), sought to reflect the relevance of a systematic approach to the energy issue in which the generation, and use of renewable energy were analysed from an integrated and multifaceted perspective. To quote Leonardo Beltrán, Deputy Director of Energy Planning and Transition at SENER, the event “reflects the commitment of the Mexican Government to produce 50% of clean energy by the year 2050. MEXIREC is a driving force for the usage and production of renewable energies not only in Latin America and the Caribbean but globally, satisfying our energy requirements in a clean, accessible, and sustainable manner”.

The talks and presentations revolved around five thematic areas: Policy and Finance; Electricity Sector and Infrastructure; Heating and Cooling/Transport; Energy Access/Local Value Creation; and Technology Innovations.

In parallel, a new report, “Renewable Energy Tenders and Community [Em]power[ment]: Latin America and the Caribbean” (Subastas de energía renovable y proyectos ciudadanos participativos para América Latina y El Caribe) was launched. The report examines both the rise of tendering and community power projects in the region and proposes an accession process to reconcile the tension between maximising economic returns and social impact.

Arthouros Zervos, REN21 Chair, maintained that “the economic benefits of renewable energies along with the empowerment of marginal social groups and local communities are some of the most important elements for warranting complete access to energy”. He went on to add that “only by analysing every aspect of energy’s demand and supply is it possible to find ways to satisfy our needs in a clean, economic, and sustainable manner.”

MEXIREC was held 11-13 September, 2017 at Expo Santa Fe Convention Center, Mexico City. It was co-organised by SENER and REN21 and the support of the German government.
A MESSAGE FROM THE ORGANISERS

The global energy transition is well underway, with record new additions of installed renewable energy capacity, rapidly falling costs and the decoupling of economic growth and energy-related carbon dioxide emissions. Innovate and more sustainable ways of meeting our energy needs are accelerating this uptake.

The Mexico International Renewable Energy Conference (MEXIREC) showed how this diversification is occurring, not only in Latin American and the Caribbean but elsewhere in the world. The design of the conference reflected the importance of a systems approach to energy, where the generation and use of renewable energy is looked at from a cross-cutting perspective. This includes social participation, in the form of universal energy access, socio-economic co-benefits and empowerment of marginalised social groups and local communities, supporting infrastructure such as transmission and distribution networks, balancing supply and demand measures, including through efficiency measures, and sector coupling as well as a wide range of enabling technologies.

The conference also reflected the commitments of the Mexican government to a long-term target of 50% clean energy by 2050 and that of the German government to achieve a carbon-free economy within the same time period. MEXIREC also built on the success and outcomes of previous IRECs and marked the 7th conference in this global series following on renewables2004 (Bonn/Germany), BIREC 2005 (Beijing/China), WIREC 2008 (Washington DC/US), DIREC 2010 (Delhi/India), ADIREC 2013 (Abu Dhabi/UAE) and SAIREC 2015 (Cape Town/South Africa).

It was an honor to have you at MEXIREC. It is our hope that it served as a catalyst for renewables both in the Latin American and Caribbean region and globally, helping to meet the energy needs for all in a clean, affordable and sustainable manner.

PEDRO JOAQUÍN COLDWELL
Secretary of Energy | Mexico

RAINER BAAKE
State Secretary at the Federal Ministry for Economic Affairs and Energy | Germany

ARTHOUROS ZERVOS
Chair REN21
## Overview

### Monday 11th September 2017 | Lunes 11 de Septiembre

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 – 16:00</td>
<td>Registration / Registro</td>
</tr>
<tr>
<td>13:00 – 14:30</td>
<td>Side Event Sessions / Eventos laterales</td>
</tr>
<tr>
<td>15:00 – 21:00</td>
<td>Welcome Reception / Recepción de bienvenida</td>
</tr>
</tbody>
</table>

### Tuesday 12th September 2017 | Martes 12 de Septiembre

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00 – 10:00</td>
<td>Registration / Registro</td>
</tr>
<tr>
<td>10:00 – 11:00</td>
<td>DEMEX Opening and Expo Tour / Inauguración DEMEX</td>
</tr>
<tr>
<td>11:00 – 13:30</td>
<td>MEXIREC Opening / Inauguración MEXIREC</td>
</tr>
<tr>
<td>11:30 – 13:30</td>
<td>Ministerial and High-level Panel 1 / Panel ministerial de alto nivel 1</td>
</tr>
<tr>
<td>12:30 – 13:30</td>
<td>Ministerial and High-level Panel 2 / Panel ministerial de alto nivel 2</td>
</tr>
<tr>
<td>13:30 – 15:00</td>
<td>Lunch / Comida</td>
</tr>
<tr>
<td>15:00 – 16:30</td>
<td>Parallel Sessions / Sesiones paralelas</td>
</tr>
<tr>
<td>16:30 – 17:00</td>
<td>Coffee + Tea Networking Break / Café + Té / Interacción entre participantes</td>
</tr>
<tr>
<td>17:00 – 18:30</td>
<td>Parallel Sessions / Sesiones paralelas</td>
</tr>
<tr>
<td>18:00 – 20:15</td>
<td>Cultural Performance / Evento cultural</td>
</tr>
<tr>
<td>20:30 – 22:00</td>
<td>Gala Dinner (Invite only) / Cena de Gala (solo con invitación)</td>
</tr>
</tbody>
</table>

### Wednesday 13th September 2017 | Miércoles 13 de Septiembre

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 – 11:30</td>
<td>Parallel Sessions / Sesiones paralelas</td>
</tr>
<tr>
<td>11:30 – 12:00</td>
<td>Coffee + Tea Networking Break / Café + Té / Interacción entre participantes</td>
</tr>
<tr>
<td>12:00 – 13:30</td>
<td>Parallel Sessions / Sesiones paralelas</td>
</tr>
<tr>
<td>13:30 – 15:00</td>
<td>Lunch / Comida</td>
</tr>
<tr>
<td>15:00 – 16:30</td>
<td>Parallel Sessions / Sesiones paralelas</td>
</tr>
<tr>
<td>16:30 – 17:30</td>
<td>Closing Plenary MEXIREC / Planera de clausura de MEXIREC</td>
</tr>
</tbody>
</table>
11th September

On the first day of activities MEXIREC held a series of side events that highlighted the importance of having rich conversations around the subjects that matter the most. A total of 27 events took place, where organisations involved in the renewable energy sector were able to highlight their work and let everyone know about their goals, future plans, and how they are bringing innovation to the table.

Participants took advantage of opportunities to exchange ideas, and network. Interesting conversations between attendees from 69 different countries from all over the world occurred outside each of the rooms where the side events were held. The overall ambience was one of true involvement and collaboration.

MEXIREC is the first International Renewable Energy Conference to be held in a Latin American country. However, matters discussed were not directed only towards regional issues, but also towards a global approach. The principle of the International Renewable Energy Conference series is that the issue of renewable energy is best addressed when adopting a systems approach to meeting energy needs.

As the end of the day approached, participants gathered around the main hall, where a reception presented the perfect opportunity to break the ice and understand the different ways in which people from around the world are designing future solutions for today’s matters.
**DAY 02**

**Tuesday 12th September 2017 | Martes 12 de Septiembre**

| 07:00 – 10:00 | Registration | Registro |
| 10:00 – 11:00 | DEMEX Opening and Expo Tour | Apertura DEMEX y Recorrido de la Expo |
| 11:00 – 11:30 | MEXIREC Opening | Apertura MEXIREC |
| 11:30 – 12:30 | Ministerial and High-level Panel 1: The role of the energy sector for reaching the Paris Agreement: implementing the NDCs Panel ministerial de alto nivel 1: El rol del sector energético para alcanzar los Acuerdos de París: Implementando los NDCs |
| 13:30 – 15:00 | Networking Lunch | Comida |

**Afternoon Parallel Sessions**

Sesiones paralelas por la tarde

<table>
<thead>
<tr>
<th>Room</th>
<th>Table Sun</th>
<th>Section</th>
<th>A1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Evolution of Regulatory Frameworks to Integrate High-shares of Renewables: Evolución de Marco Regulatorio e Instrumentos de Política para Integrar Altas Participaciones de Energías Renovables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaker(s)</td>
<td>Mr. Guillermo García-Meza, Chairman, Comisión Regulatoria de Energía (CRE); Ms. Pamela Vázquez, Managing Director for Global Government Affairs &amp; Policy, GE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel(s)</td>
<td>Ms. Beatriz Conde, Chief of Natural Resources and Energy Economic, Regional Commission for Latin America of the United Nations (ECLAC); Ms. divis Santa María, Director, Fundación Centrol Ñgeral VERG, DNV; Mr. Richard Baran, Executive Director, 2030 Pathways Platform; Mr. lan van den Heede, Adviser, European Commission, Directorate General for Energy Renovation, Research and Innovation, Energy Efficiency - ENER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room</th>
<th>Table Wine</th>
<th>Section</th>
<th>A1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power Linkages: Electricity Interconnection in North and Central America: Conexiones Eléctricas: Interconexión eléctrica en Norte y Centro América</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaker(s)</td>
<td>Mr. Antonio Beuthe, Manager for Latin America and Caribbean, World Bank; Mr. Brenda Valdivieso, Secretary of Innovation, Government of the State of Morelos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel(s)</td>
<td>Mr. Luis Reyes, Secretary General, National Commission for the Environment (CONAMA); Mr. João Coutto, Subsecretario Nacional de Energía, Secretaría Nacional de Energía de Panamá; Mr. José Leal, Senior Consultant, Latin American Energy Agency (LAIA)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room</th>
<th>Table Water</th>
<th>Section</th>
<th>C1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Renewable-based Heat and Cooling: Calor y Enfríamiento a Partir de Energía Renovable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaker(s)</td>
<td>Mr. Robert Bondy, Senior Researcher, IEA-SA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel(s)</td>
<td>Mr. Cedric Philippe, Senior Analyst, International Energy Agency (IEA)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room</th>
<th>Table Geothermal</th>
<th>Section</th>
<th>D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker(s)</td>
<td>Mr. Ali Al-Jawad, Chief of the Energy Sector, Inter-American Development Bank (IDB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel(s)</td>
<td>Mr. Vladimir Sosa, Coordinador de Programa de Ahorro de Energía del Sector Eléctrico, CEE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OVERVIEW OF PARALLEL SESSIONS

**Room | Session: Biomass**

**Ocean and Marine Energy | Energías del Océano**

**Keynote | Speaker:** Mr. Al Bahrani, Mumtal Director, Caribbean Centre for Renewable Energy and Energy Efficiency (CREECE)

**Moderator | Speaker:** Mr. Hanah Miller, Project Manager, REN21

**Panels:**
- Mr. Gabriel Hilbert Le Bert, Director General, Grupo ENER. Mr. Roberto Urbina, Jefe del departamento de Oceangrafía, Comisión Federal de Electricidad. Mr. Rubén Elías Guadale, Head of Costa and Oceanographic Group, Instituto de Ingeniería de la UNAM. Mr. Rolando Cárdenas Moreno, President, Academia Mexicana de Derecho Ambiental

**16:30 – 17:00 Coffee – Tea Networking Break | Café – Té | Interacción entre participantes**

**17:00 – 18:30**

**Room | Session: Sun**

**Session | A.3**

**Hydropower Energy | Energía Hidroeléctrica**

**Keynote | Speaker:** Mr. Richard Taylor, Chief Executive Officer, International Hydropower Association

**Moderator | Speaker:** Mr. Hunthip Wongsinsuk, Researcher, UNM.

**Panels:**

**Room | Session: Wind**

**Session | B.2**

**Utility of the Future: New business model**

**Planillas Generadoras del Futuro: Nuevo modelo de negocio**

**Keynote | Speaker:** Mr. Giorgio Genoni, Director, LIBERIS Solutions, ENERG / Sweden

**Moderator | Speaker:** Mr. Martin Schipa, Head of Division, Federal Ministry for Economic Affairs and Energy (BMWi), Germany

**Panels:**
- Mr. Andreas Rabold, Manager for Latin America and the Caribbean, World Bank. Mr. Gerado Escobar, Commercial & Energy Manager, Mexico and Central America, ENER. Mr. Kihun Wang, Chairman, Shanghai Electric Power Co. Ltd. Ms. Victor Oria, President, AIHEI, Mr. Lawrence Jones, Vice-President, International Programs, Edison Electric Institute

**Room | Session: Water**

**Session | C.2**

**Corporate Sourcing of Renewable Energy | Compras Corporativas de Energía Renovable**

**Keynote | Speaker:** Mr. Christian Jonkovski, Head of the Clean Energy Ministerial Secretariat, Clean Energy Ministerial (CEM)

**Moderator | Speaker:** Mr. Dymphna van der Lans, Senior Director, WEF

**Panels:**
- Mr. Jonathan Martine, Executive Director, Center for Resource Solutions. Mr. Roba Flamant, Head of Policy Unit and Deputy Director – Knowledge, Policy and Finance, International Renewable Energy Agency (IRENA). Mr. Lauti Brind, Principal, Market Research Group. ENER. Ms. Christel Laphe, Global Director for Climate Change, World Resources Institute

**Room | Session: Geothermal**

**Session | D.2**

**Energy Access with Renewables: How to speed-up connections**

**Acceso a la Energía a partir de Renovables: Cómo acelerar las conexiones.**

**Keynote | Speaker:** Mr. Rafael Vaca, CEO, Eneo

**Moderator | Speaker:** Mr. Gabriela Rivadeneira Acevedo, Senior Energy Specialist, World Bank

**Panels:**

**Room | Session: Biomass**

**Bioenergy | Biomasa**

**Keynote | Speaker:** Mr. Helge Hegseth, Senior Consultant, World Bioenergy Association

**Moderator | Speaker:** Mr. Rafa Adrio, Research Coordinator, REN21

**Panels:**
- Mr. Andrea Herrmann, Deputy Permanent Secretary, Danish Ministry of Energy, Utilities and Climate. Mr. Humberto Jasso, Director General, Camara Nacional de las Industrias Azucareras y Alcoholeras. Mr. Omar Mauro Gennari, President, Red Mexicana de Bioenergía (REMIBIO). Mr. Gustl Gottschall, Global Lead Sustainable Bioenergy Accelerator, Eneo.
12th September

Rather than focusing on specific cases, the first day of parallel sessions aimed to lay a clear path towards understanding the issues behind energy access in general and then moved into how those issues apply to the use of renewable technologies.

Active and attentive crowds enjoyed talks on the adaptability of business models in order to achieve connectivity in marginal communities, as well as their relationship with economic growth and social empowerment. In a global and regional scenario where there is huge disparity between fully connected areas and others without access to the grid, the issue of connectivity and how what it will look like in the future is fundamental for the implementation of renewable technologies.

Efficient regulation mechanisms need to be established as a first step in the implementation of any energy access strategy. Governments need to know how to manage fair and attractive pricing strategies so that the energy markets can prepare for the inevitable arrival of renewable energy.

At the conclusion of a stimulating day of presentations followed by debates and discussion panels, the more than 3,000 attendees enjoyed a taste of the best of Mexican culture and rounded off the evening with a gala dinner.

To what extent should a rigid regulatory system be structured within the context of renewable energy? This is a fundamental question, particularly if we consider that the main mechanism for expanding the use and production of renewably sources of energy comes from public tenders. To this end, the renewable energy sector faces a major problem that, in turn, generates another set of important questions that must be dealt with in the future.

Although public tenders might be effective for expanding the market and making implementation processes more efficient, they do not solve problems such as demand, nor guarantee stability within the energy market. This is because there are recurrent unreliable offers but there is also a downward trend in transaction prices, which does not guarantee an integral renewable energies service. Although tenders alone can promote an incentive to adopt renewable energies, they are not an infallible solution.

Consequently, establishing an effective regulatory framework is necessary. This would consist of providing the tenderer with detailed and in-depth information ranging from growth potential to the inherent risks so that they can secure sufficient funding to satisfy the scope of the service.

Renewable energy public tenders and their regulatory framework must be understood as a complex fabric of information, credibility, and labour separation. Work must be done locally, on a metropolitan or municipal level, but there must also exist centralised national guidelines that allow the making of said regulations.

It is only through mutual understanding and trust amongst tenderers, consumers, and government, that the renewable energy market can offer the necessary services within the global energy panorama.
An integrated electrical infrastructure is vital for meeting the current energy demand. This gives rise to initiatives like the Central American Electrical Interconnection System (Sistema de Interconexión Eléctrica de los Países de América Central, SIEPAC), which is part of the Mesoamerica Integration and Development Project (Proyecto Mesoamérica, PM).

Why strengthen the relationship between growth and electrical interconnection? Because each region, and each country has different abilities regarding production and infrastructure, and the only way that they can meet regulatory and economic requirements is through a coordinated effort.

However, interconnection also entails investment challenges: a good transmission network is needed, and the production links between one generation centre and another must be strong and ordered.

In addition, the geographic, legal, and political boundaries of the interconnection must be discussed. Although the case of Central America, via SIEPAC, has been successful, inter-connections in South America are lacking.

Efforts should not be limited to public and international efforts to achieve both development and energy success goals; today’s high prices could be much lower if regulatory authorities, investors, and regional efforts resolve their differences to achieve full integration.

Therefore, in order for the process to be truly streamlined, an intelligent and strategic design of the different methods and forms of interconnection must be studied in-depth and systematically.
Renewables-based Heating and Cooling

The use of energy for heat generation accounts for more than half of the total consumption of energy, more than what is consumed in the entire electricity sector. The demand for heating systems and their enormous impact on the consumption footprint makes it urgent to meet this need with clean energy, e.g., renewables.

The demand for cooling systems is also increasing: it is expected that the amount of installed air-conditioned systems will grow to 1,600,000 units by 2050.

How should we face these new realities especially in a world in which global warming will cause a considerable increase in demand for those systems? There are several options: for the generation of heat, biomass solar and geothermal are all viable options. Solar energy, is also viable for cooling systems.

Why haven’t these options been tried as solutions? Even if the costs of these renewable energy sources can be competitive in comparison with the fossil fuel costs, there is no established infrastructure in those regions with the greatest need, and there is no political will to implement them.

Therefore, it is the job of those in power to design public policies that create incentives for private companies to implement cooling and heating systems that are both efficient and renewable. The purpose of this is to reduce the costs and to create a viable market for the future.


1.2 billion people continue to have lack access to electricity. Given the consequences and repercussions that electricity access and access to energy services in general has in someone’s life, achieving universal coverage is a fundamental step for economic growth.

Frequently grid-extension is a costly process due to various factors such as distances that need to be covered, low population density, inability of the users to pay utility rates.

Power generation by means of alternative, autonomous and decentralised sources offers a practical and simple solution. Moreover decentralised approaches offer flexibility not only with regards to size but also to costs and technologies used.

That said, along with renewable technologies for power generation, there are also several business models that can help achieve universal access. For instance, the model PAYG is one of those. In 2012, the investments of PAYG solar power companies reached 3 million USD; in 2016 that number rose to 223 million USD, in comparison with 158 million in the previous year.

Under the DESCO (Distributed Energy Service Companies) ‘service-based charging’ model, a client pays regular fees for the use of a renewable energy system that is owned, operated, and stored by a supplier. Under a microfinance and credit model, buyers (e.g. homes and small businesses) take out a small loan from a bank to cover the cost of the equipment for DRE (Distributed Renewable Energy). Microfinancing also allows customers to purchase efficient cookers paid for in instalments.

The improvements in the field of distributed renewable energy show that the old paradigm of energy access through grid expansion is now obsolete. To accelerate the rate of energy access, it is important for those in charge of policies to look towards the future. This way, it will be possible to establish a stable, decentralised market that exists outside the grid and within which economic development can flourish.
The ocean is potentially a great source of energy possibilities: from its currents to the tide, through its thermal and saline gradients. The world’s oceans cover most of the earth’s surface and is as of yet, untapped energy resource.

There are huge opportunities to take advantage of maritime resources, starting by stimulating investment in the generation and distribution of ocean technology, which would in turn result in cost reductions and the transformation of ocean power into an interesting economic market.

Given this context, it is expected that within the next 20 years the development of this market be equivalent to the developments seen in wind power sector over the last few decades. The difference being that the limitations of ocean power processes are not technical but political and financial.

This may be due to the legal, political, and financial barriers, and effect the funding of research and innovation in this field. Furthermore, the lack of experience in ocean power generation leads to a lack of awareness and reluctance to engage in the sector.

Given the geographical features of areas that are surrounded by ocean – be they tiny islands or continents - concerted and diverse efforts on, implementing, and conducting projects related to ocean power can help drive this sector forward.
Worldwide, hydropower is the biggest source of renewable energy, contributing up to 16.6% of the total global production of electricity. It has an annual growth of around 3% and is a factor in meeting obligations under multiple international agreements and goals.

However, it is a source of energy that could be harnessed to a still greater extent. Hydroelectric power provides vast quantities of renewable energy. It also provides valuable grid services that enable a greater and more efficient deployment than other renewable energies.

Its local impact extends worldwide: the South American region tripled its hydroelectric power in just a year and Central America increased its production by approximately 1GW. An interregional system such as the Central American Electrical Interconnection System (Sistema de Interconexión Eléctrica de los Países de América Central, SIEPAC) is an important example that demonstrates how solar and wind energy, along with hydroelectric energy, can increase storage and overall stability.

By means of flexible storage and generation, the role of hydroelectric power in the region, as in the rest of the world, will need to shift to one that is more geared towards system support. To drive this via private investment, a significant additional shift is needed in existing policies and markets.
Renewable energies have an enormous advantage in terms of social impact. Compared with other energy sources, they can provide a greater level of energy security given their flexibility in terms of production and their enormous capacity due to distribution technology; the new electro-mobility systems are a reality that becomes closer and more affordable every day.

Consequently, it is crucial that we take the necessary steps in order to avoid losing affordability and to meet demand. This can be achieved by assuring the advantages of its flexibility: it is increasingly common to find energy mobility systems (e-mobility), while private sector participation is greatly incentivised given the increasing profit margins.

Furthermore, renewable energies are not only desirable on account of the current energy landscape, but they are also a necessity given our changing environmental climate, which will have particular impact on future generations.

The amount of energy that is distributed, coupled with inflexible generation processes, is unable to meet the needs of an entire city or massive network. As such, in these situations a hybrid model using traditional mechanisms is required. However, the kinds of distributed generation and infrastructure of renewable energies cannot be exclusive of urbanised and rural settings.

The energy revolution of future generations depends, fundamentally, on a much more efficient response mechanism to meet the demands for affordable new methods of renewable energy generation. It also depends on understanding energy security as a key mechanism for economic growth and for the fight against the effects of climate change.
The corporate sector is central to the energy transition. The adoption and commitment of many multinationals to use 100% renewable electricity or energy has been a key driver in pushing renewable energy uptake.

Apple has installed 4GW of renewable energy across its facilities. Meanwhile, Microsoft announced that by 2018, 50% of their energy sources would be sourced from hydro, solar, or wind.

Helping to expand these corporate commitments across multiple markets sends an important message to governments and other companies about the growing demand for renewable energy, which is becoming more and more cost competitive. Increased investments will also help further reduce costs and support countries to achieve their renewable energy goals.

For this reason there must be transparency in the prices, costs, regulations, and implementation mechanisms throughout the world. Any problem concerning access to information poses an obstacle to future investments as currently many corporations have commitments based on predictive models rather than on the latest data.

Uncertainty about the effects of climate change coupled with the social, economic and political presence of multi-national corporations presents an opportunity for changing how energy is produced and consumed.

The presence of civil society brings an additional element. Consumer pressure coupled with marketing strategies of certain brands are raising awareness of and commitment to renewable energy.

However, there are still some challenges in increasing corporate purchases of renewable energy, mainly due to a lack of knowledge of its benefits.
Traditional thinking around improving energy access has been via grid extension. However, the possibilities offered by renewable energies have been shown to be flexible and efficient enough to accomplish this task. Most renewable alternatives are compatible with local economic, geographic, and social needs, and therefore offer access to electricity to those that have been beyond the reach of the grid for technical and/or economic reasons.

It should not be surprising that solar photovoltaic systems have turned out to be one of the areas with greatest growth within the energy industry. Today they account for 94% of every sale related to distributed systems.

The general success of off-grid solar systems has been encouraged by key players within the private market that are developing innovative PAYG models, a trend that began in East Africa and that has now expanded to other regions. In 2016 more than 100 companies throughout the world focused on solar lanterns and kits for solar home systems (SHS).

There is undeniable potential for private and local initiatives to offer viable alternatives to grid-based connectivity. However, it is necessary to have the necessary legal and structural flexibility to encourage private investments in these markets to flourish. These support structures are needed to ensure access to clean, affordable energy services including transport, heating and cooling.

It is important to keep in mind that the access to, and development of, technologies beyond the grid are not occurring fast enough to meet the objectives of the Sustainable Development Goals for 2030. These goals will be easier to meet as long as secure access for investment can be provided and market flexibility can be offered.
Bioenergy is one of the most misunderstood sectors in the renewable energy sector. This lack of understanding ranges from its relevance in providing energy services to how to measure biomass’s contribution: simply put, bioenergy is the largest source of renewable energy in the world. It accounts for 14% of the global contribution of 19% of renewable energy to total world energy.

Another important tension lies in its relationship with sustainability. This sector has suffered a lot of scrutiny, which has led to unstable policies resulting in investment losses.

For this reason, many initiatives within the industry face major obstacles when trying to implement new developments. A clear example of this are biofuels for aviation, which have rarely been adopted when compared with their commercial and ecological potential.

If we are committed to a 100% renewable energy future then bioenergy needs to be looked at seriously. Bioenergy can be used for storage and is not intermittent; as such it does not require expensive storage options such as batteries.

New players, investors and practices are needed to make the industry competitive and to raise awareness that bioenergy is a viable resource to tackle climate change.

MEXIREC is the first of the IREC conference series to take place in Latin America. The timing of the event couldn’t be more appropriate, given the political, social, economical and energy transformations that are developing.

Back in 2004, when REN21 started, it was difficult to imagine that, only 13 years later, 60% of the world’s additional capacity would come from renewables. And that some of today’s leaders in renewable energy deployment, Brazil, China, India, would not have been considered.

Mexico is a case in point. New reforms, dubbed the Mexican Energy Revolution has spurred development in-country and provided momentum to activities elsewhere in the region. Developments include an increase in private investment, inter-connections and a growing share of renewables in the overall energy mix.

New job and investment opportunities in the sector have emerged especially in developing countries. At the same time, tenders have have emerged as a leading policy instrument to promote renewable energy deployment. In 2016 at least 34 countries worldwide held renewable energy tenders.

The foundation for a clean energy future was laid at COP21 with the Paris Agreement where the world commitment to limiting temperature rise to below 2C. Today renewables make up 19.3% of the world’s total final energy consumption with various scenarios predicting a rise to 80-100% by 2050.

Serious discussions are taking place about a 100% renewable energy future. This is a clear indicator that we are already on the path to a clean energy transition with renewables. Nonetheless we must bear in mind that we still have a long way to do and that we can/ must do more faster.
DAY 03

10:00 – 11:30
Morning Parallel Sessions

Room: Edison
Session | Session A.2
Scaling-up Large-scale Renewable Energy Investments
Amplificación de la Bovinización en Energía Renovable a Gran Escala

- Keynote | Octavo: Mr. Mike Eckhart, Managing Director and Global Head of Environmental Finance, Citigroup
- Moderador | Moderador: Mr. Adrián Salazar Capón, President, Asociación Mexicana de Energía Renovable México (AMEM)
- Panel: Panelista: Mr. Alejandro Sicilia-Escalante, Power Sector Research Manager, Inter-American Development Bank (IDB)
- Mr. Ariel Tapia, Chief of the Energy Sector, Inter-American Development Bank (IDB)
- Mr. Juan Carlos Beltrán-Gálvez, Director del Centro de Energía, IDAM, Mr. Victor Schwab, Vice President, Deutsche Investitions-und Entwicklungsgesellschaft (DIEG)

Room: Edison
Session | Session B.1
Energy Infrastructure: From bottleneck to backbone
Infraestructura en Energía: Del casillero de bala a la columna vertebral

- Keynote | Octavo: Mr. Thorsten Herbst, Director General, Federal Ministry for Economic Affairs and Energy (BMWW), Germany
- Moderador | Moderador: Mr. Martin Aguirre Nuño, Subdirector de Promoción Sectorial, SENEROCENTRO

Panel: Panelista: Mr. Peter Jorgensen, Vice President, Energinet DK, Mr. Mark Lucas, Senior Vice President and Chief Reliability Officer, North American Electric Reliability Corporation (NERC), Mr. Stephen Singer, Senior Advisor Global Energy Policies, Climate Action Network International (CANi), Mr. Paolo Franci, Head of Renewable Energy Division, International Energy Agency (IEA)
- Mr. Marcelo Medrano Martínez, Comisionado, Comisión Reguladora de Energía (CRE)

Room: Edison
Session | Session B.2
Sustainable Mobility: Renewable energy transport solutions
Movilidad Sostenible: Soluciones en Transporte con Energía Renovable

- Keynote | Octavo: Mr. Karl Peel, Research Director, Partnership on Sustainable Low Carbon Transport (SLoCaT)
- Moderador | Moderador: Gustavo Madero, Coordinador Regional de Cambio Climático, Programa de las Naciones Unidas para el Medio Ambiente

Panel: Panelista: Mr. Carlos López, Senior manager, SANDUS, Mr. Bernardo Baranda, Director Regional, Latinoamérica, IFTP, Mr. Luisa Paredes, Subsecretaria de Planeación, Secretaría de Movilidad de la Ciudad de México (SUMP), Mr. Mariano Pecora Oyamburu, Director de Ingeniería de Ford Motor Company

Room: Edison
Session | Session C.1
Geothermal

Room: Edison
Session | Session C.2
Energy Transition and Local Value Creation | Transición Energética y Creación de Valor Local

- Keynote | Octavo: Mrs. Rabia Tawadh, Head of Policy Unit and Deputy Director – Knowledge, Policy and Finance, International Renewable Energy Agency (IRENA)

Panel: Panelista: Mr. María Asunción, Chief of Staff, California Energy Commission
- Mr. Marius Béji, Chairperson, Institute for Sustainable Energy Policy (ISEP), Ms. Kasia Chmielarska, Senior Programme, Legal III, Council on Energy, Environment and Water (CEEW), Mr. Fernando Alberdi Ortega, Director General, Industrias Paine, Mr. Hector Martínez Sotelo, Jefe de la Unidad de Comercio Internacional y Fomento de Capacidades de Innovación y Excentricidad, Secretaría de Energía, Nicaragua, Mr. Javier Jiménez Rico, Director de Vientos para México, V2TAZ

Room: Edison
Session | Session D.1
Solar Energy | Energía Solar

- Keynote | Octavo: Mr. César Piñol, Senior Analyst, International Energy Agency (IEA)

Panel: Panelista: Mr. Erika Salazar Sáenz, Executive Director, Unidad de Desarrollo Sostenible, PROMEXICO
- Mr. Luis Gómez, President, ESTELA Solar, Mr. Jesus Armando Del Río Puntilla, Director, Instituto de Energías Renovables, UNAM, Mr. Mohammed Al-Awadi, Joint Secretary, Ministry of Power Energy and Mineral Resources, Bangladesh, Mr. Steve Muma, President, Global Solar Council, Mr. John O’Donnell, Vice president, Business Development, Glasspoint Solar

11:30 – 12:00
Coffee – Tea Networking Break | Café – Té / Interacción entre participantes
13th September

MEXIREC’s last day of activities beckoned the world’s energy players to adapt and adopt renewable and efficient energy. Through the Parallel Sessions participants learnt that geothermal energy is an extraordinary energy asset, being both clean and providing baseload. Also, that uptake is happening even if there is little government regulation to push it forward as a clean energy source.

Another important issue arose through discussion on windpower solutions that can meet principle energy requirements and provide back-up.

Discussion on solar PV focused on its feasibility an industry energy input, one that can provide distributed energy with the same strength and dynamism as it creates new job and commercial opportunities.

The efficiency of solar and wind are key in successfully transitioning to high shares of renewable energy; rapid uptake of these technologies is a must if we are to maintain our temperature levels below 1.5 degrees C. Is renewable energy a utopia? Such a question cannot be answered in general terms since energy and its related themes are situation-specific. The transport sector is one of the biggest players and must engage more fully in the transition given its share of final energy consumption.

Many of the larger cities in the world are committed to a renewable energy future due to their current emission levels. However, local and regional differences however make total transformation difficult. This is why we must adopt a systemic approach to addressing these issues since local actions can help shape and inform the larger panorama of energy use. It is necessary to deal with storage, infrastructure, and growth strategies in order to succeed, being as they are central for many energy users ranging from multinational organisations to geographically unique locations such as islands and archipelagos.

MEXIREC’s closing event came with the reading of the Conference Declaration by Ambassador Irene Giner-Reichl. The audience received the declaration with a warm round of applause which marked the end of the programme.

Rainer Baaker, Germany’s State Secretary at the Federal Ministry for Economic Affairs and Energy, took a moment to thank the Mexican government for the warm reception throughout the three days. REN21’s Chair, Arthouros Zervos conducted the closing of MEXIREC and the final farewell came from Efraín Villanueva, SENER’s Director of Clean Energies.

“IT IS MANDATORY TO DEAL WITH STORAGE, INFRASTRUCTURE, AND ENLARGEMENT STRATEGIES IN ORDER TO SUCCEED”
The elements required to scale-up large-scale investments in the renewable energies sector essentially consist of the same group of requirements that are part of any other related industry:

- To be able to rely on predictable cash flow, i.e., fixed, and recurrent.
- To have a reliable, legal, regulatory framework, and institutional adherence to the rule of law.
- To have an adequate infrastructure for supporting the generation, distribution, and consumption of energy.
- To have a stable environmental and social outlook in order to carry out production processes.

An analysis of these basic needs is essential in a scenario where barely 15% of renewable energy funding comes from public institutions, while the rest must be provided by the private sector. This implies not only a boost for performance, but also the risk-return profile of an investment and its ability to generate stable and long-term returns.

Along with the basic steps for the creation of an optimal scenario, there must be adequate regulations and support for the next steps in the process. The lack of resources in the first stages of project development and financing of new technologies remains a bottleneck. Meanwhile, the implementation of innovative capital market instruments, such as green bonds and profits, are known to increase available funding by opening up opportunities to new kinds of capital providers.

What will our energy sources look like in the near future? Will they work based on centralised systems, or on renewable, decentralised, and autonomous energy? Experts claim that major centralised generation plants will be obsolete and that generation of photovoltaic energy, for example, is a clear symbol of how this energy need can occur.

There are many ways in which decentralised mechanisms can be used to provide for an entire network. What is definitely true is that decentralised energy will depend on a greater distribution of smaller, intelligent energy storage units that allow consumers and providers to actively decide how much, what type of energy, for what purposes and at what point they use it, considering real-time price signals.

This then leads to discussion about appropriate business models and the different ways economic resources are distributed regarding these new forms of energy production, be they private or public.

Regardless, there is a need for a significative change in the business models of traditional public services. A key element of this will be a greater emphasis on services, on the model of cost structures implemented by public institutions, and the ways in which the relevant tenders take place.

This gives rise to fundamental questions about the future of our energy: who should create and manage the required infrastructure? Given these new situations, how autonomous should consumers be? Only time will tell.
In order to transform the dynamic between the transport sector and fossil fuels, we urgently need to alter our own social conduct towards urban transport. It is imperative to follow the following steps:

- Reduce commuting distances through integrated urban land use planning, implement transport demand management, use logistics planning or increase the use of telecommunications.
- Change the modes of transport from high to low intensity energy-use.
- Improve the energy efficiency of transport modes and technologies related to vehicles, as well as the general infrastructure of transport.

Furthermore, there are now four viably successful solutions for the decarbonisation of transport: bio-combustibles, electricity-based hydrocarbons which are used in conventional combustion engines, electric vehicles (EV), and fuel vehicles, both with renewable energy.

The problem with biofuels however, is one of perception and execution, particularly in terms of sustainability and effectiveness. Therefore, further investigation is necessary regarding the possibilities of natural gas for cargo vehicles, to promote the construction of more and better railway lines, and more strict regulations for the emission of fuels.

In addition, there is already a solution available for urban citizens: electric cars and bicycles, along with pushbikes and walking. Buses and trucks can use renewable electricity or biofuels, although they are hampered by concerns with regard to loads, distances, and grid infrastructure.

We can begin to approach a reality that is not only desirable, but also necessary: cities with zero carbon emissions.
Universal energy access is the axis of future development, social improvement, and climate stability. This is because the potential in terms of creating domestic value for renewable energy sector is tangible. Opportunities can be found throughout different sectors of the value chain from project planning, manufacture, installation, grid connection, operation, and maintenance, all the way to disposal. Value can also be created in adjacent sectors, such as issuing public policies, financial services, education, research, development, and consultancy.

In this context, issues of energy transformation, accessibility, and economic growth are closely related. The following questions need to be asked: what efforts should governmental and intergovernmental agencies be making to provide universal access? What are the steps Latin America should be taking? Which models of power generation are the most efficient when trying to achieve universal access?

IRENA (the International Renewable Energy Agency) estimates that employment potential within the renewable energy sector is 13.5 million jobs under normal conditions, this would rise to 24.4 million of direct and indirect jobs if participation in this sector were to double. Despite these estimates, it is fundamental to consider the complexity of factors and facts surrounding energy development and transformation.

Despite the fact that opportunities are being taken and costs are being significantly reduced, particularly in Latin America, gender perspectives, inequality, health conditions, and governmental regulations are of tremendous importance if there is to be an adequate approach to the issue of transformation and accessibility.

In the renewable energy market, solar power has had and continues to have significant commercial success. However, its advantages as an off-grid energy producer have not been well presented.

For instance, by the end of 2016, just over 300 GW were generated and that in the last few years there has been an exponential decrease in cost reduction. This is why, last year, solar PV power became the major source for new additions to the global energy system.

The picture is in many senses encouraging: solar technologies are adequate to support decarbonisation of all end-use energy sectors. Furthermore, they can play an important role in achieving the terms of the Paris Agreement or of the Sustainable Development Goals.

The flexibility of solar power generation and distribution is notable: it can be implemented 20 times as fast as any other system, and it can be adapted to any sector or industry. As public and private transport systems are increasingly electrified, solar power can contribute to this sector.

Most end-use energy from the heating sector can be met by solar thermal power technologies, especially in emerging markets such as Africa and Latin America. This is an important contribution given that the energy consumed in the heating sector is currently twice that of the electricity sector.

To achieve this goal, governments must have their priorities clear; free up the market and provide both a legal framework and a commercial infrastructure that is attractive enough to promote aggressive investment.

In this context, issues of energy transformation, accessibility, and economic growth are closely related. The following questions need to be asked: what efforts should governmental and intergovernmental agencies be making to provide universal access? What are the steps Latin America should be taking? Which models of power generation are the most efficient when trying to achieve universal access?

IRENA (the International Renewable Energy Agency) estimates that employment potential within the renewable energy sector is 13.5 million jobs under normal conditions, this would rise to 24.4 million of direct and indirect jobs if participation in this sector were to double. Despite these estimates, it is fundamental to consider the complexity of factors and facts surrounding energy development and transformation.

Despite the fact that opportunities are being taken and costs are being significantly reduced, particularly in Latin America, gender perspectives, inequality, health conditions, and governmental regulations are of tremendous importance if there is to be an adequate approach to the issue of transformation and accessibility.

In the renewable energy market, solar power has had and continues to have significant commercial success. However, its advantages as an off-grid energy producer have not been well presented.

For instance, by the end of 2016, just over 300 GW were generated and that in the last few years there has been an exponential decrease in cost reduction. This is why, last year, solar PV power became the major source for new additions to the global energy system.

The picture is in many senses encouraging: solar technologies are adequate to support decarbonisation of all end-use energy sectors. Furthermore, they can play an important role in achieving the terms of the Paris Agreement or of the Sustainable Development Goals.

The flexibility of solar power generation and distribution is notable: it can be implemented 20 times as fast as any other system, and it can be adapted to any sector or industry. As public and private transport systems are increasingly electrified, solar power can contribute to this sector.

Most end-use energy from the heating sector can be met by solar thermal power technologies, especially in emerging markets such as Africa and Latin America. This is an important contribution given that the energy consumed in the heating sector is currently twice that of the electricity sector.

To achieve this goal, governments must have their priorities clear; free up the market and provide both a legal framework and a commercial infrastructure that is attractive enough to promote aggressive investment.
Scaling-up Distributed Renewable Energy Investments

Current energy investment is increasing, but it is not sufficient to meet the Millennium Development Goals (MDGs) and other energy targets in the immediate future. As public finances become increasingly tighter, public institutions now need to act more as catalysts and aids to the private sector.

It is clear that governmental regulations are fundamental. For this reason, some markets, like solar PV, have grown significantly in the last few years, given an increase in affordability and availability of equipment. This has also allowed small local appliance installers to offer loans that are newer and better in comparison with other financing services or other established players.

Nonetheless, there is still a lot to do, especially regarding smaller players and their new products and innovations. The high cost of capital leads to the high cost of products and services, making them less affordable for low income customers. As such, risk tools are required to enable better access to long-term and affordable financing for developers.

Despite significant progress over the past ten years, investment in decentralised renewable energy has always been a challenge and remains far below what is needed. More effort is required to achieve the necessary scope.

In order to achieve the above, use should be made of private or state-owned institutions - such as micro-financing, cooperative banks, or local banks - which have more affordable rates and are more flexible regarding repayments. These financing mechanisms have been extraordinarily effective for the distribution of renewable energies with a global impact but on a local level.
Energy storing technologies are not only useful in cases of energy shortages but can also reduce the inequalities between supply and demand, making resource use and its impact on the economic market more efficient.

There is a large range of options for storing energy, choosing one depends on the energy features of the area and on power generation: efficiency, download time, service life, charge per kW. Likewise, there are clear examples of storage methods that can be useful in terms of cost regardless of the context. For example: Pumped-storage hydroelectric plants are the cheapest and safest option, accounting for 96% of the current global storage capacity. In contrast, thermal energy storage can either be thermal or electric (by conversion), and preserves heating and cooling for later use.

The challenge is then to address the specific needs where the demand for storage is concentrated. In 2016, initiatives for demand and innovation were focused on batteries for electric cars, which exploited the grid’s ancillary services market, the energy security market, and reduced costly investments in archaic infrastructure.

In this context, the main discussion focuses on whether storage technologies will replace some parts of the electric grid, or whether they will support the integration of large amounts of variable solar and wind energy. The question remains open because there are so many options and no concrete answers. However, a solution is necessary.

Megacities are constantly growing. Given the expected social and economic impact they will have in the next few years, they have a key place in the discussion on sustainability and renewable energies.

However, these issues are not front and centre on many public agendas. This may be due to the fact that some renewable technologies are easier to use in an urban environment; or may be because there is no consensus among the experts on whether or not centralisation in the cities will prevail.

Regardless of the current obstacles, there are multiple ways in which cities could decrease their carbon footprint. For example, by recycling the heat excess generated by industrial processes in order to meet the thermic demand; or by reducing investments in infrastructure through the integration of local services.

Regarding movement, it is imperative on the one hand to embrace the use of alternative public transport on a large scale; and on the other hand, to use transport vehicles equipped with alternative and efficient technologies.

As in the case of cars, active participation of civil society in urban planning is essential for increasing public acceptance, participation, and progress towards sustainable energy and infrastructure goals.

However, given the nature of a city and its possibilities for using alternative energy sources, the discussion of these issues is still gradually taking place, since transport, waste, water, and energy are discussed separately.
Currently, renewable energy tenders (competitive tenders) are the preferred means to accelerate investment and commercial mechanisms within the energy sector. In the last decade, the number of countries that have awarded tenders has increased from 6 in 2005 to 67 in 2016, the same year in which tenders were awarded in 34 countries.

In terms of renewable energy, the horizon looks interesting, although it is clearly separated according to preferences. Most of the tenders awarded were for solar energy, followed by wind power and geothermal energy, particularly in countries with pressing needs to reduce implementation and generation costs.

The reason for this is that tenders have proven to be successful in the reduction of renewable energy costs given the nature of pre-bid planning by investors on the one hand, but also because cost reduction creates much more accessible and immediate market prospects.

It is clear, then, that a flexible regulatory framework that encourages transparency and predictability with regard to the results of tender awards is the ideal context within which to conduct them. This is a direct product of public accountability not only regarding tender design but also regarding local content sectors, job creation, skill development, and local business development. When tenders are well designed, they can also provide training for socially marginal groups and local communities.

Usually, these goals are reached by imposing qualification requirements or by introducing selection criteria. Public policies that aim at developing local capacities through education and training can have an impact in the long term by increasing the reliability on local technologies and decreasing the need for introducing talent from the outside. But there is a tension between minimising supply costs and adhering to social objectives that may be difficult to monetise. For tenders that have minimum or non-existent local requirements, increasing the participation in global tenders might help accelerate the growth of the renewable energy market and result in lower prices. On the other hand, a country might choose to give up on the opportunities of internal development in order to promote employment, local chain values, and know-how.

The fundamental question is: How can we combine offers with local structures in such a way as to avoid a negative impact on local initiatives and situations?
Ever since the technological potential of windpower was developed, it has enjoyed a constant growth with regard to its existing capacity and its efficient generation. Its production has now reached more than 500 MW and can be found in more than 100 countries.

So, what are the challenges to come in a sector that is in constant development? For starters, there is a lack of commitment from civil society concerning governmental relationships. Civil society, and the pressure it can bring to issues of transformation is a central agent of change within the energy debate.

Wind power has not only environmental advantages, but also a defined social impact: it is the energy source that can most easily provide for security systems and replenishment, at the same time as having an implementation potential that is relatively fast.

However, this is not enough. The governments of countries with productive potential must create an institutional space that is sufficiently large as to incentivise aggressive investment. In these kinds of projects, the investment of several partners is necessary.

Markets will ultimately respond to constant and more accurate information. For that, it is necessary to not only have the necessary productive support to promote investment, but also a system of connectivity that is increasingly closer to universal access.

While it is true that in the energy debate it is impossible to separate the social and economic characteristics of a region in order to plan energy strategies effectively, the case of islands is particularly interesting: their geographical isolation implies that the advantages of interconnection are harder to obtain and as such, residents pay some of the highest prices for energy in the market.

Renewable energy offers a practical solution for these environments. Even if the isolated nature of insular systems implies that there is little possibility of balancing variable renewable energies through grid interconnections, these challenges can be overcome with control systems, demand management, and energy storage. Hybrid renewable energy technologies can offer solutions, combining variable renewable energies with hydroelectric energy, or using diesel as a backup.

In addition to this, islands usually benefit from autonomous procedures, making management and investment protocols, for example, more flexible. This is the reason many SIDS (Small Island Developing States) are amongst the first to support renewable energy technologies. For SIDS, overcoming their dependency on fossil fuels not only reduces expensive imports, but also increases their energy safety and encourages socio-economic development in the form of business opportunities.

For this reason, it is common to find islands that function entirely on 100% renewable energy generation mechanisms. However, it is important to bear in mind that these islands usually represent small populations and that their influence on international lobbying can be minimised; in addition to this, they usually have reduced labour capital and rigid business models given their social conditions.

Islands can be used as a laboratory to test approaches and challenge pre-defined thinking. It is important to have mechanisms of transparency and regulation strong enough to attract investments which may be scaled up on a global level over the medium to long-term.
A systems approach, by definition, deals with local and immediate levels of consumption, but also with energy management and generation. Therefore, the clearest example of a systemic model consists of the way in which cities or municipalities invest and connect both energy and mobility systems.

To achieve international goals on energy and the climate, renewable energy must be used in all energy end-use sectors. For example, heating and cooling systems, and transportation.

Consequently, we should consider the electrification of the heating and cooling sector with renewables and electrification of the transport sector including renewable electricity for e-mobility and the use of renewable-generated electricity to produce synthetic fuels.

Alongside electric cars, which can be used as storage mechanisms, there are other technologies that require a relatively small amount of energy to replace the use of fossil fuels. District heating and cooling along with enabling technologies such as heat pumps offer sector coupling.

Generally speaking, the merging of different sectors and systemic solutions must generate an important source of synergies. In the case of renewable energy, this implies balancing supply and demand, as well as a wide range of enabling technologies.

Consequently, the systemic approach should become the norm in energy planning and infrastructures, and in the financing and development of public policies that help all parties to achieve the established goals.
The use and development of new forms of renewable energy is on the rise. At the same time, the idea of achieving a 100% clean energy supply has been around for decades, and seems closer now, where the world now adds more renewable power capacity annually then it adds in net new capacity for all fossil fuels combined.

Furthermore, several studies show that there is enough energy potential to satisfy the global demand for energy with renewable alternatives. What is now a reality is that these renewable alternatives can cover at least 39% of our energy requirements by the year 2030, and almost 100% by 2050.

However, the current deployment of these energies, despite the projections, does not seem to be advancing fast enough. This is partly because the most complicated transition to 100% renewable energy depends on the transport and heating/cooling sectors. Moreover, there is an undeniable resistance to adopt these energy alternatives at a political and institutional level.

Another fundamental issue is access: globally there are 1.2 billion people that lack access to electricity and double that with no access to clean cooking fuels. Meeting the needs of this segment with traditional methods has turned out to be extraordinarily expensive. Nonetheless, acknowledging that meeting these needs with renewable energy still seems to be an unacceptable conclusion by many decision makers.

What is true is that to comply with the Paris Agreement (COP 21) most fossil fuels must be left underground. So if we wish to reach a fully decarbonised energy system, these challenges must be overcome by working together. The dynamics of the energy sector are changing, but for the sake of our climate, the main question remains: at what rate must the transition be made?
The cornerstones for a true energy transition are both renewable energy alternatives and energy efficiency. It is even said that efficiency is the first renewable energy, for an efficient use of available resources can turn out to be less expensive than the generation of additional power.

Recent years have seen that successful implementation of efficiency parameters have successfully saved an amount of energy equivalent to that produced by China, Europe, and India combined. However, the demand for energy has not only not changed in the last 15 years, but will increase in the future owing to increasing global demand. Therefore, we have several fronts upon which to work to achieve maximum efficiency with what already exists:

For starters, improvements in energy efficiency within the energy generation sector can be enhanced by a change in the energy matrix, by greater efficiency in generation technologies, by the combination of heat generation and electricity, and by the reduction of transmission and distribution losses.

With regards to construction, energy intensity per square meter has improved, but not enough to compensate the sustained trend towards a doubling of surface areas. In industry, energy efficiency improvements have mostly depended upon changes within industrial processes. It is also important to determine whether current capacity is being fully exploited. Energy efficiency in transport can come from a specific transport mode or from a shift between modes.

There still remains a considerable space for public policies that could boost energy efficiency in different end-use sectors. Cities, for instance, accommodate more than half of the global population and represent 65% of the global energy consumption.

The increase in energy efficiency (EE) also improves energy safety, supports economic growth and competitiveness, and reduces poverty and helps mitigate climate change. Therefore, it should be an integral part of any energy discussion.
Within a context in which energy demand is generally high, but the demand for renewable energy is even higher, geothermal energy is relegated in terms of perception and use. Currently, approximately 26 countries use geothermal energy to generate electricity and for many of them it is an important source of renewable energy in their energy matrix.

Little is known about the competitive prices of geothermal energy, which can provide a baseload and is stable, flexible, and safe enough to secure a significant part of the energy supply.

Then, why is it that geothermal energy hasn’t progressed as a renewable source? For starters, its upfront capital costs are high. In addition, its exploratory phase is risky and other kinds of renewable energy are considerably less expensive.

Nonetheless, we should not dismiss its benefits: a geothermal plant can provide energy 24 hrs a day, and its potential is not diminished after years of being installed. Plus, it can be more than a direct source of energy as it can support other generation sources thus reducing carbon emissions by up to 80%.

Further more, geothermal can off-set the use of fossil fuel-based cooling and heating systems. As such, it is important to offer investors reliable information, based upon which they can understand the benefits of geothermal energy in a long-term context, where risks are mitigated, and providing the existence of a strong institutional and public framework, interesting investment opportunities can be created.
The following MEXIREC Declaration outlines key elements to enhance the energy transition with renewables in Latin America and the Caribbean. Conference participants endorsed this Declaration, acknowledging the efforts of the Government of Mexico to keep sustainable development and energy transition with renewable energy as the central axis of its Energy Reform of the electric power sector.

Ministers and Government Representatives from 44 countries as well as representatives from the private sector and civil society including NGOs, academia, business and industry as well as international organisations, participated in the Mexico International Renewable Energy Conference 2017 MEXIREC (11 – 13 September 2017 in Mexico City), with the aim of up-scaling and mainstreaming renewable energy for a global sustainable energy transition. MEXIREC, the seventh meeting in the series of the International Renewable Energy Conferences (IRECs), builds upon successful outcomes of SAIREC 2015 (Cape Town/South Africa), ADIREC 2013 (Abu Dhabi/UAE), DIREC 2010 (Delhi/India), WIREC 2008 (Washington DC/US), BIREC 2005 (Beijing/China) and renewables 2004 (Bonn/Germany).

1. With a view to a successful outcome of the 23rd Conference of the Parties under the United Nations Framework Convention on Climate Change (UNFCCC), participants underlined the central role of renewable energy and energy efficiency in global endeavours to mitigate climate change and their contribution to the global solutions in keeping anthropogenic induced global warming well below the dangerous 2 degree Celsius threshold, aiming at less than 1.5 degrees C of global warming.
KEY ELEMENTS TO ENHANCE THE ENERGY TRANSITION WITH RENEWABLES IN LATIN AMERICA AND CARIBBEAN AND GLOBALLY
Furthermore, MEXIREC is a building block of international endeavours to implement the Sustainable Development Goals. Access to sustainable, affordable, reliable and modern energy services is a key prerequisite for realising cross-sectoral benefits and reaching the targets of other linked goals. In line with this, the MEXIREC also gives effect to the UN Decade on Sustainable Energy for All (2014-2024) and aims to strengthen the work of the regional SEforALL Latin America and Caribbean Hub which is hosted by the Inter-American Development Bank (IDB).

We the delegates at MEXIREC acknowledge with satisfaction the dynamic development that renewable energy has seen over the last years. Due to the rapid cost reduction, in particular of solar and wind energy, renewable technologies in an increasing number of markets have become the technology of choice. Together with energy efficiency, they are the central pillars for any sustainable energy transition; they create economic and job opportunities; they improve air quality and mitigate climate change; they can contribute to heightened food and water security and gender equality; and enhance energy security, human health as well as sustainable development in general.

As documented by REN21’s Renewables 2017 Global Status Report, the global energy transition is well under way. In 2016, there were record new additions of installed renewable energy capacity and rapidly falling costs, particularly for solar PV and wind power. According to the IEA, the world witnessed a decoupling of economic growth and energy-related carbon dioxide (CO2) emissions for the third year running. These developments are accelerating the paradigm shift away from a world run on fossil fuels. However, the share of renewables in total final energy consumption is not growing quickly enough to reach the Paris objectives, while progress in the transport and heating and cooling sectors lags well behind the tremendous growth in the power sector.

We state our conviction that climate commitments can only be reached if energy systems are transformed to cope with a significantly increased share of renewable energy. In this transition, energy efficiency should take the role of a “first fuel”. Furthermore, sustainable patterns of consumption should be widely adopted and energy needs of all have to be met. In this respect, we strongly support enhancement of institutional capacities to integrate holistically the climate and energy nexus and encourage the accelerated implementation of the National Determined Contributions (NDCs).

We stress the urgency of pressing ahead in order to make universal access a reality by 2030, providing 1.2 billion people with access to electricity. The scale of the challenge requires that all approaches, including grid and off-grid solutions are taken into account and adopted based on national appropriateness and efficiency principles. Rural and urban as well as household, social and industrial demands can best be met with a diverse technology mix that takes full advantage of the abundant renewable energy potential. Furthermore, as of today 2.7 billion people lack access to clean forms of cooking energy. We also continue to be committed to working towards addressing this need speedily and effectively and to achieve the universal access target.

We acknowledge that SIDS (Small Island Developing States) are highly exposed to the negative environmental impacts associated with fossil fuel consumption and climate change and that renewable energy has the potential to play the key role in enhancing energy security in SIDS and assisting them to achieve their sustainable development goals.

IN ORDER TO MAKE THE GLOBAL TRANSITION TO RENEWABLE ENERGY HAPPEN RAPIDLY, WE STRONGLY SUPPORT THE FOLLOWING CRUCIAL ELEMENTS:

Prioritising renewable energy globally: The world is richly endowed with renewable energy resources – which should rapidly be developed in support of a low-carbon and eventually a carbon negative future. Today, renewable energy technologies are viewed not only as tools for improving energy security and mitigating and adapting to climate change, but are also increasingly recognised as investments that can provide direct and indirect advantages for states and society by reducing dependence on imported fuels; improving local air quality and public health; advancing energy access and energy security; propelling economic and social development; i.a. by creating jobs.
Building a smarter, more flexible energy system: The use of variable sources of renewable energy and the fostering of both centralised as well as decentralised and community-based generation are innovative and sustainable ways of meeting energy needs - through better-integrated sectoral system planning and operation, the adoption of new business models, and more use of enabling technologies such as information and communication technologies, storage and electric vehicles.

Securing financial resources: A key constraint to the effective execution of both small and large-scale renewable energy projects is the lack of resources for project preparation and development – from concept to financial close and execution. In addition, most major energy projects require long term finance with repayments linked with project revenue generation. In developing countries the revenue generation can be insufficient to support energy infrastructure projects, inter-regional transmission and renewable energy projects. Innovative financial tools and mechanisms including loan guarantees should be deployed to mitigate such challenges. The newly created Green Climate Fund should also provide a new finance stream for renewable energy deployment. A special challenge to be addressed is how to raise equity for domestic and local investors in emerging economies and developing countries, such as local communities or cooperatives. Work on better understanding climate-related financial risks should be pursued.

Prioritizing renewables in regulatory frameworks: Costs for renewable energy have already decreased significantly, yet sustainable energy will only become available for all if we continue to scale up both grid-connected and off-grid renewable energy deployment to set in motion a virtuous cycle of cost-reduction followed by even more significant scaling up. Consistent, and sustained and long-term policies at all levels are important to provide investment security and impact favourably on technology deployment. Supportive, reliable and predictable market and policy frameworks, transparent, cost-effective, and market-based procurement policies, a level playing field, providing access to affordable long-term finance, all will help increase further uptake of renewable energy. The integration and mainstreaming of renewable energy into national and regional strategies for economic and social development, development of national climate policy, agriculture, industrial development, education, health and family welfare, will further provide more opportunities for scaling-up.
Catalyzing the engagement of the corporate sector: More and more companies are committed to use renewable energy sources for their operations. We encourage action to scale up these corporate commitments across multiple markets.

Upgrading Research and Development: We strongly reaffirm the importance of investments in research, development and deployment (RD&D) and of international cooperation in RD&D for more cost-effective and advanced energy technologies. In many countries, investments in targeted research and development in the energy sector are much lower than in other comparable sectors of the economy and incommensurate with the scale of the task at hand.

Emphasizing the role of decentralised energy supply: Especially in developing countries where energy infrastructure is still missing, decentralized energy supply plays an important role. Off-grid and mini-grid systems, as well as hybrid systems for transition periods play a crucial role in enabling access to energy through renewables in rural areas.

Promoting renewable energy in cities: We further recognize the role that the integration of renewable energy in urban planning can play in improving infrastructure and enhancing quality of life in cities globally.

Fostering integrated planning: The energy sector does not operate in isolation; infrastructure such as power lines, pipelines, water, and transport are interdependent. Integrated planning is critical to sustainability and further development of our economies and societies. Furthermore, uptake of renewable energy requires reliable, secure, and efficient transmission infrastructure which can be achieved through regional interconnectivity enhanced by integrated planning and harmonised regulatory policies. A nexus approach that integrates policies, especially regarding energy, water and food security, can help to identify synergies and avoid conflicts.

Advancing the design of national and regional markets: Pricing mechanisms and tariffs to incentivize critical investments are crucial, including the phasing-out of fossil-fuel and nuclear subsidies, as well as implementing robust carbon pricing in order to ensure a reliable, cost-efficient and effective market and system integration of increasing shares of renewables, guaranteeing the highest possible degree of supply security, while keeping the cost down for consumers and industry.

Acknowledging the role of national and regional parliaments: The transition to a post-fossil fuels world will benefit considerably from the support of parliamentarians ready to use their political capital for the promotion of renewable energy. Furthermore, we emphasise the leadership role of non-state actors such as corporates, non-government organizations, academia, workers, faith groups and indigenous groups in advancing an inclusive and just global energy transition, while ensuring transparency in the process.

Promoting social justice: As we decarbonise the energy sector, rights of workers employed in sectors that have to change must be safeguarded and their needs properly addressed.

Stressing the significant contribution of women: We emphasize the importance of involving women in all stages of sustainable energy development, keeping in mind that lack of access to modern energy services places a particularly heavy burden on poor women.

Advancing regional trade and energy resource development: We encourage enhanced support from development partners for scaling up regional energy trade and developing of renewable energy resources. We note the urgency to support regional strategies and complete key regional transformational projects that will secure sustainable, efficient and affordable energy supply based on economies of scale and diversification of the energy mix at the power pool level and other associated structures.

Promoting community involvement in the energy transition: We acknowledge that community-driven renewable energy projects offer an unrealised opportunity for shared benefits and local development, in developing and in industrialized countries alike, and particularly in Latin America and the Caribbean. We encourage governments to develop a comprehensive approach to promoting community-driven projects as outlined in the REN21 report Renewable Energy Tenders and Community [Em]Power[ment] which was launched at MEXIREC.
Clean Energy Corridor Initiatives: We highlight the importance of Clean Energy Corridor initiatives such as the Central America Clean Energy Corridor, jointly developed by IRENA, the Central America Integration System (SICA) and the Central American Electrical Interconnection System (SIEPAC) to explore possibilities to expand renewable power flows, and the North American Renewable Integration Study (NARIS), jointly developed by Mexico, United States and Canada, as a tool to facilitate the accomplishment of 50% clean power generation goal in North America. With 46 million people and an economic growth of 5% per annum, Central America has rapidly growing energy needs. Although over 60 percent of the region’s electricity comes from renewable energy sources, there is still a significant dependency on fossil fuels, derived largely from imports.

Regional cooperation: We stress the importance of regional centers as created by UNIDO and its partners – as a powerful way to simultaneously address the challenges of energy access, energy security and climate change mitigation and welcome the recent establishment of a renewable energy and energy efficiency center for the Caribbean (CREEE) as well as the planned establishment of a center for the Central American region (SICREEE).

International cooperation: We emphasize the role that international cooperation plays in fostering renewable energy, energy efficiency and modern and sustainable energy access globally and in Latin America. A proactive international cooperation to advance diffusion of effective transformation strategies and to increase the skills in various fields by facilitating staff exchanges and peer learning opportunities between regulators, policy makers and other relevant stakeholders is imperative for energy system transformation.

Host Country Mexico

We acknowledge the efforts of host country Mexico to strengthen sustainable development and energy transition with renewable energy as the central axis of its Reform of the electric power sector. Particularly, the enactment of the Energy Transition Law, which harmonizes Mexico’s climate change and clean energy frameworks, as well as the successful results of the first two long-term energy auctions that resulted in commitments for wind and solar capacity additions of nearly 4.9 GW over the next 3 years and at very competitive prices, besides the creation of the Universal Energy Access Fund and the efforts for increase the investments in research and development through the operation of the Mexican Centers for Energy Innovation (CEMIE). These actions contribute to the energy transition worldwide.

Furthermore, we acknowledge the Sustainable and Energy Efficiency Programme at the sub-national government level in Mexico (PRESEM), and the publications of a web platform that provide accurate information about the potential and the most competitive zones for deploying renewable energy projects, and we are pleased of the announcement of the upcoming release of a one-stop shop permitting process in Mexico, that will make it easier, more cost-effective and it provides transparency and accountability to invest in clean energies.
We recognize Mexico’s efforts to establish policies in the National Strategy to promote the use of cleaner technologies and fuels which establish a strong partnership between power, heating/cooling and transport sectors, due to the fact that Mexico has megacities and a well-developed automotive industry. This should be seen as an opportunity to promote renewable energy based electric mobility in accordance with the EV30@30 Initiative from the Clean Energy Ministerial.

We express our sincere and deep appreciation and thanks to the people and the government of Mexico for successfully organising this conference and for their hospitality and generosity.