



The future of renewable energy in Mexico

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Conference edition, Mexico City. The second annual conference held by the Institute for Energy Law and the Mexican Corporate Counsel Association (ANADE) looked at the efforts made to encourage investment in renewables in Mexico over the last 10 years – and the obstacles still holding development back. By Lawrence Weiner of LexiForum and Carlos Moran, a partner at Goodrich, Riquelme y Asociados

More than 140 participants from diverse organisations in Latin America, Europe and the US attended the 2nd annual IEL-ANADE conference that evaluated the current and future state of renewable energy in Mexico.

The event was co-chaired by Howard Steinberg, a partner at the New York office of Shearman & Sterling, and Carlos Moran of Goodrich, Riquelme y Asociados in Mexico City.

The panel discussions examined issues related to Mexican laws and regulations; current and past renewables projects; financing; federally sponsored projects and the nation's renewable energy infrastructure. There were also sessions on the role of hydrocarbons in Mexico's transition to renewables, environmental issues and carbon emissions trading, and anti-corruption legislation recently passed by Congress.

In addition to the panels, a series of animated roundtable talks focused on ways to enhance the nation's financing, development and regulatory frameworks.

One of the key topics of the conference was the commitment by Mexico's Ministry of Energy (the Secretaría de Energía or SENER) to have clean energy sources account for 35 per cent of the country's electricity output by the year 2025.

Delegates also heard how better regulation and falling equipment costs are boosting demand for private sector investment in Mexican renewables, particularly in wind power – but that more must be done in regulatory terms to help facilitate the purchase, sale and transmission of grid power by private developers.

Other take-home messages were that natural gas will play a significant role in the transition from hydrocarbons to renewable energy, and that thinking outside the box can provide unusual but simple ways to win over local populations such as ejidatarios (Mexican farmers who are given parcels of land owned by the government to cultivate) and indigenous communities.

The speakers – among them policymakers, developers, lawyers, bankers and investors – were



knowledgeable and enthusiastic, sharing war stories and peppering discussions with lively commentary. They included representatives from the most active governmental entities, financial institutions and developers in the Mexican renewable energy scene, such as SENER, the Energy Regulatory Commission (Comisión Reguladora de Energía– CRE) and the Federal Electricity Commission (Comisión Federal de Electricidad– CFE), state-owned oil company Pemex, and private companies such as Abengoa, Acciona, Siemens Energy and Vestas.

Background

Mexico 's renewable energy potential & the electricity market

As a nation, Mexico has been blessed with high wind, solar and geothermal power potential. The US National Renewable Energy Laboratory (NREL) has estimated that there are about 6,600 square kilometres of windy land that could support approximately 33,000 megawatts of installed generation capacity potential in the southern state of Oaxaca alone. Within that region, an area of around 1,200 square kilometres is ranked as Class 7 – the highest rating for wind potential. Mexico is also one of the world's best locations for solar power generation, and it is noteworthy that it is currently the fourth largest producer of geothermal energy in the world.

Articles 25, 27 and 28 of Mexico's Constitution establish the exclusive authority of the government to provide electric power as a public service, supplying electricity directly to end users. The Federal Electricity Commission, a state-owned enterprise, has a monopoly over the provision of this service.

Since 1992, however, the Law for the Public Service of Electric Power (Ley del Servicio Público de Energía Eléctrica) has allowed private investment in electricity generation methods not considered public services, namely: (i) co-generation; (ii) self-generation; (iii) independent power production (IPP); (iv) small production; (v) exportation; and (vi) importation.

IPP projects are awarded through public procurement procedures conducted by CFE under open tenders. The amount of installed capacity needed, the interconnection point and the duration of the contract (usually 25 years) will be defined in the tender documents (bases). Bidders may propose the technology, design, engineering, construction and location of the facilities. CFE may establish in the tender documents what fuel has to be used by the generation facilities. The tender documents may also include a suggestion for the power plant site (which may be a site to be transferred by CFE to the winning bidder). The winning bidder will be the one offering the lowest power generation price. CFE and the awarded bidder then enter into a power purchase agreement enabling the independent power producer to build, own and operate the generation facilities.

The authority in charge of regulating the electricity market is the Energy Regulatory Commission or CRE, an autonomous entity within the organisational structure of SENER. CRE grants the permits and authorisations required to carry out regulated activities within the electricity sector, such as the aforementioned non-public services activities.



During the administration of president Felipe Calderón, Mexico expanded its installed electricity generation capacity by more than 50 per cent. More than half of that growth was achieved through the construction of combined-cycle natural gas plants, which offer greater fuel efficiency, lower investment costs and shorter construction periods. To a great extent, this growth in combined-cycle plants was a result of a successful independent power projects (IPP) scheme by the government, as well as the Federal Electricity Commission's ability to meet payments to IPP developers, and the fact that no IPP permit to date has been revoked.

As a consequence, fuel oil-based generation has been reduced from 47.9 per cent to 15.1 per cent of total national output, while natural gas-based generation increased from 17.1 per cent to 50.9 per cent. Although combined-cycle plants have helped reduce the use of fuel oil in power generation, about 65 per cent of the electricity generated in Mexico still utilises hydrocarbons as a primary source.

Despite SENER's efforts, renewable energy sources (bar hydro) still represent only a fraction of Mexico's output as compared to traditional generation technologies. After natural gas, the rest of the Mexican power generation source mix is comprised of hydro (15.1 per cent), fuel oil and diesel (15.5 per cent), coal (13.2 per cent), wind and geothermal (2.8 per cent), and nuclear (2.5 per cent).

If hydrocarbon prices continue increasing (a major concern for SENER in 2006 was increased pressure on electricity production costs as a result of higher hydrocarbon costs), and private producers can justify the feasibility of clean energy projects, growing demand will most likely be satisfied from clean energy sources.

In 2006 at the start of President Calderon's administration, the Ministry of Finance estimated that by 2015, Mexico's installed capacity should be in the region of 65,980 megawatts. The goal was achieved ahead of time: by December 2010 Mexico's installed capacity was 62,266 megawatts – out of which 52,945 megawatts was being produced by Federal Electricity Commission projects, and 9,320 megawatts by private permit-holders.

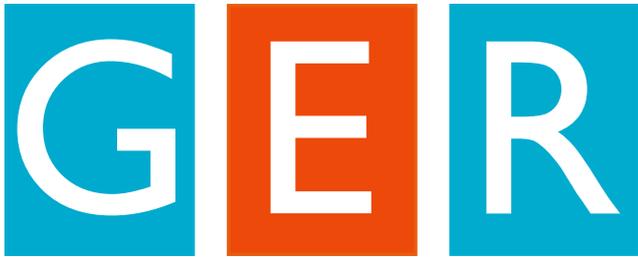
Now, private permit-holders' installed capacity has reached 22,570 megawatts, with 58.7 per cent of that figure provided by IPPs, followed by self-suppliers at 19.5 per cent and co-generators at 13.9 per cent.

Moreover, SENER plans on gaining 37,655 megawatts of additional capacity by 2025. 5,218 megawatts of this amount is currently under construction or will be awarded through procurement; 396 megawatts will be obtained from infrastructure restoration and modernisation; and the remaining 32,041 megawatts shall be obtained from projects yet to be determined.

Conference takeaways: developments of the past decade

Mexico's economic climate

Energy consumption is directly related to economic performance and despite the global economic troubles, conference participants were optimistic for the continued expansion of Mexico's renewable



energy development and steady growth of the nation's electricity sector. They reasoned that the Mexican economy is poised to continue meeting predicted growth rates thanks to several factors, including prudent fiscal and macroeconomic federal policies; massive international trade facilitated by multiple free trade agreements; significant foreign direct investment that makes up over a fifth of its GDP; and the ease of doing business compared to other developing countries.

Fresh regulations and public programmes

The discussions in the conference frequently touched upon the Law for the Use of Renewable Energy and Finance of the Energy Transition (Ley para el Aprovechamiento de Energías Renovables y el Financiamiento de la Transición Energética, or LAERFTE for its initials in Spanish). This legislation, passed in 2008, helped overcome historic resistance to renewables by shifting power to regulators to actively promote wind power and private sector involvement. The law was Mexico's first step in establishing long-term renewable energy goals. It employed a combination of mandates, regulatory changes and incentives to address major impediments such as financing mechanisms, least-cost purchase requirements, intermittency, grid access and sales, insufficient transmission and local resistance.

SENER's 2011 to 2025 document entitled "Works and Investments Program for the Electricity Sector" (Programa de Obra e Inversiones del Sector Eléctrico – POISE) was also referred to. One of its most important statements in the document is that despite the current excess in Mexico's margin reserve, almost US\$100 billion must be invested to achieve SENER's goals.

Speakers also made reference to SENER's Special Programme for the Use of Renewable Energy (Programa Nacional para el Aprovechamiento Sustentable de la Energía –PRONASE), aimed at duplicating the aggregate installed capacity from wind, solar, geothermal and biomass energy sources in Mexico to account for 7.6 per cent (4,500 megawatts) of the total capacity. The programme identifies energy efficiency opportunities in order to generate significant mid- and long-term energy savings through the implementation of guidelines, standards and other actions. Transportation, lighting, construction, air conditioning, industrial motors and water pumps are among the program targeted areas of opportunity.

Panellists also acknowledged the efforts made by Mexico's national development banks, Banobras and Nafin, since these institutions have gradually increased their participation in renewable energy projects.

Innovative financing

In a panel discussion about project finance, speakers praised an amendment to the Tax Law called the Accelerated Depreciation for Investments with Environmental Benefits – a change approved by Congress in 2005 to favour new renewables investment – as an important incentive for both self-generation projects and IPPs.

One banker noted that new laws, regulatory mechanisms and CFE model contracts designed to integrate private and public investment help reduce the government's expenditure in infrastructure, and guarantee



a competitive cost structure for energy generation. Perhaps for this reason, private independent energy production now represents a third of all energy produced domestically. Of particular significance are the Law on Public Private Associations (Ley de Asociaciones Público Privadas), the renewable energy auctions and the open season mechanism.

Panellists and attendees also commended reforms to facilitate fair grid access, such the creation of an energy bank in 2001, where self-suppliers such as wind developers who can not always produce electricity when it is needed to satisfy their associated load demand can “deposit” excess energy generation and “recover” it when they are not producing enough power to satisfy their required demand. This bank supports energy sales and purchases from the grid, more predictable wheeling fees, lower capacity backup fees and net metering for small cell suppliers. It was noted that these reforms will help promote wind development, especially in high-wind areas that support high-capacity facilities.

Developers and financiers also suggested other ways to better leverage Mexico’s considerable renewable energy resources, including permitting the sale of energy to the Federal Electricity Commission at clear, pre-established and preferential rates based on energy type, and integrating residential users into the self-supply regulatory framework. They also suggested generating “guarantee funds” to facilitate access to commercial credit for renewable energy equipment and infrastructure.

Moreover, it was proposed that renewable energy generation equipment should be included in Mexico’s Green Mortgage Programme – a scheme where people are given a mortgage on more favourable terms if they buy energy-efficient homes from developers.

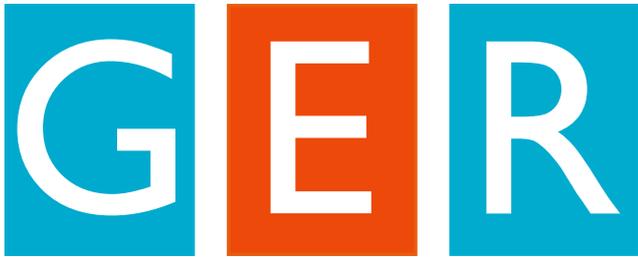
Chronic complaints

Although the panellists by and large commended the Mexican government’s efforts, many questioned whether the nation was ready to “up its game”. Developers, bankers and lawyers expressed frustration at complex and often conflicting regulations that often hinder the purchase, sale and transmission of grid power by private intermittent renewable energy developers.

One speaker vented irritation at the government’s inability to manage environmental consequences related to the construction and operation of power infrastructure that are often “exacerbated by arbitrary decision-making and corrupt practices by agencies vested with the authority to deny or grant permits”. In his view, the opinion of local communities should be taken into account as they are the ones that suffer those consequences.

A panellist in the ethics session mentioned that the new Federal Law Against Corruption in Public Procurement (Ley Federal Anticorrupción en Contrataciones Públicas), as well as new extraterritorial legislation such as the US FCPA and the UK Bribery Act, are changing the operation rules of the game. In his opinion, for energy companies such laws represent a heavier regulatory burden and also an opportunity to put pressure for more transparency in CFE’s procurement procedures.

A local attorney responded that despite recent efforts, “policymakers continue betting on oil” and that



Mexico “urgently needed to reduce its dependency on oil income and promote renewable energy development more aggressively”.

Systematic barriers

Developers also cited several chronic longer-term obstacles that continue to plague Mexico’s renewable energy programme, including the Federal Electricity Commission’s obligation to select the lowest bidder; deficient infrastructure for grid connections; and disputes mounted by agrarian communities (ejidos) that the Mexican courts fail to resolve. They also bemoaned a lack of aligned incentives, robust financial mechanisms, credit availability and subsidies, as well as other economic disincentives, such as, end user reluctance to invest in new technologies, the low cost at which CFE purchases renewable energy, subsidies to high domestic consumers, and the fact that the federal, state and municipal governments have not yet become major clean technology clients.

The sessions showed that wide gaps still remain between what is needed by private investors and what is being provided by government regulators.

Conclusion

Overall, the conference provided a realistic and balanced evaluation of the strenuous efforts made by policymakers, regulators, financiers, attorneys, investors and developers to encourage renewables investment in Mexico over the last decade.

In one session, attendees noted the dearth of Mexican legal talent to expedite new projects, expressing enthusiastic support for a programme to train and certify renewable energy lawyers. The leaders of both IEL and ANADE agreed to further develop this idea. Let’s hope this training program for Mexican energy lawyers gets off the ground.

The 2nd Institute for Energy Law (IEL)-Mexican Corporate Counsel Association (ANADE) conference was held in Mexico City on 17 to 18 May.