Mexican Law Review
New Series
VOLUME IX
Number 1

A SNAPSHOT OF THE MEXICAN CLEAN ENERGY OBLIGATIONS SYSTEM

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Abstract. *This article explains the main features of the Clean Energy Obligations Market ('CEOM') and the relevance of the brand new Energy Transition Act (the 'Act'), both enacted as part of the Mexican Energy Reform of 2013. The CEOM is designed to incentivize the sustainable growth of renewalable energy capacity by requiring qualified consumers and suppliers to obtain clean energy certificates that represent electricity produced from renewable sources (wind, solar, tidal, geothermal, biofuels, etc.). Although similar mechanisms have been successfully implemented worldwide, they did not achieve success overnight. This article briefly analyzes these mechanisms to highlight certain key aspects that policymakers, in Mexico and elsewhere, should bear in mind when implementing systems like the CEOM.*

Key Words: *Mexican Energy Reform, Clean Energy, Emissions Trading Systems.*

Resumen. *El presente documento aborda las principales características del Mercado de Obligaciones de Energías Limpias (el 'Mercado'), así como la injerencia de la nueva Ley de Transición Energética, como una política central de la Reforma Energética de 2013, en México. El Mercado pretende incentivar el incremento en la capacidad de energías limpias exigiendo a los consumidores calificaos y suministradores obtener certificados de energías limpias, los cuales corresponden a electricidad producida a través de fuentes renovables (tales como fuentes eólicas, solares, mareomotrices, geotérmicas y bioenergéticas). Mecanismos similares han sido implementados de forma exitosa en diversos países, sin*

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embargo, su éxito ha sido el resultado de un esfuerzo constante. El presente provee un breve análisis acerca de los aspectos clave que tanto reguladores como legisladores, ya sea en México o en otras jurisdicciones, deben procurar para implementar de forma exitosa sistemas como el Mercado.

Palabras clave: *Reforma Energética, Energías Limpias, Sistemas de Comercio de Emisiones.*

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The Mexican Energy Reform, enacted in August 2013, is expected to significantly expand the nation's electricity sector, resulting in a greater diversity of energy sources and more clean electricity. The Electricity Industry Law ('EIL') and Regulations; the Energy Transition Act (the 'Act'); and the Guidelines for the issuance of Clean Energy Certificates ('Guidelines') include provisions developed to regulate the formation of a new Clean Energy Obligations Market ('CEOM').This initiative, at least in theory, represents another step in a gradual but steady switch away from the typical Mexican 'command and control' approach to policymaking.

The CEOM has two main objectives: first, to incentivize the use of clean energy as a means to diversify Mexico's energy portfolio.[1] Although it is *not* the intent of this article to explain the benefits of energy diversification, it is worth noting that greater quanitity and diversity of energy sources enable countries to better withstand adverse events, environmental restrictions and price volatility.[2] Second, this new mechanism helps promote sustainability and slow climate change by increasing the rates paid by major electricity users in accordance with the Polluter Pays Principle ('PPP').[3]

[1] As of 2012, renewable energy generation capacity amounted to less than 10% of total electricity generation. About 60% of this amount was from a single renewable energy: wind. See *Balance Nacional de Energía 2014*, *http://www.gob.mx/sener/documentos/balance-nacional-de-energia* (last visited Feb. 28, 2015).

[2] Ken Costello, Diversity of Generation Technologies: Implications for Decision-Making and Public Policy, vol. 20, no. 5, *The Electricity Journal*, (2007), at 11-21.

[3] Both international agreements ratified by Mexico and national law embrace the Polluter Pays Principle. Remarkably, the Principle 16 of the United Nations Rio Declaration Relative to Environment and Development, and Article 15, section IV of the General Law of Ecological Balance and Environmental Protection, interpret this principle in two ways: (i) polluters should bear the cost of their polluting activities; and (ii) environmental protection should be incentivized.

According to the EIL,[4] the only clean energy sources eligible for Clean Energy Certificates ('CECs') are wind, solar, tidal, geothermic, biofuels (including alga and compost), methane and waste combustions, carbon capture storage, hydrogen exploitation (under certain parameters), hydropower, nuclear[5] and combined heat-and-power. Users of low carbon technologies in certain industrial processes or facilities that involve eco-friendly technology (i.e., waste, water and atmospheric emissions management and control) are also entitled to earn CECs.

I. CEOM Features

What types of entities should acquire CECs?

The new law and regulations require the acquisition of clean energy certificates by: (a) suppliers; (b) qualified users who are active in the electric market; (c) end users who generate their own power; and (d) users who receive electricity through an interconnection agreement under the laws in place prior to the reform.[6] As with the international standard, one CEC will be awarded for each "clean" megawatt-hour (MWh) produced.

Who is eligible under the new provisions?

- Clean energy power generation plants (i.e., wind farms, solar plants, hydroelectric or geothermal projects) that begin operations after August 11, 2014.
- Clean energy power generation plants owned by CFE that began operations before August 11, 2014 and that have implemented an expansion project to increase production.
- Clean energy power generation plants whose capacity was not included in an interconnection agreement under the rules in effect prior to the reform.

In accordance with the new law, Purchasers will be required to obtain CECs in proportion to their annual energy consumption; i.e., the number of CECs needed depends on how much electricity they use. This proportion

[4] Article 2, § XXII.

[5] Although the development of nuclear energy is debatable, it should be noted that Mexico currently lacks any legislation that promotes this energy source. At this point, there is only one nuclear plant in the whole country, in *Laguna Verde*, Veracruz. Major renovation is currently planned to increase capacity. CNN Expansión, *México analiza sumar dos reactores nucleares en Veracruz, http://www.cnnexpansion.com/economia/2015/09/24/mexico-estudia-anadir-dos-nuevos-reactores-a-central-nuclear (last visited Sep. 25, 2015).* Note that the emissions trading systems in jurisdictions analyzed in this article do not consider nuclear power to be clean energy.

[6] According to the Act, power stations are facilities and equipment that allow Final Users to access the electric grid in a particular place.

(and other parameters) shall be determined on a yearly basis three years prior to the compliance period. The first compliance period will be 2018; as of April 2015, the Clean Energy Quota was pegged at 5% of total electricity use.

Although it is unclear how much the CEOM, along with other initiatives, will increase the nation's production of renewable energy, the Mexican government is determined to reach 35 percent of total electricity generated from clean sources by 2025.[7]

Pursuant to the Market Rules and Guidelines, CECs will be subject to registration, purchase and exchange;[8] and their price will not be fixed by government decree but treated as negotiable instruments subject to the laws of supply and demand. Under the proposed Rules, CEC title holders will be entitled to sell CECs from different energy sources at different rates; and any person or entity shall be able to transfer the certificates, either independently or at yearly public auctions. Since their purchase is considered a commercial transaction, they will be subject to the principles of commercial law and principles.

In order to prevent market fluctuations and duplication, CECs will be immediately liquidated once purchasers have fulfilled their obligation, in effect nullifying the instrument's transferability. For this purpose, a Registration System will be operated and updated by the Energy Regulatory Commission ('CRE'). Note that if an electricity market participant fails to meet its quota —fixed at the beginning of each year by the CRE— it will be forced to pay an administrative fine in accordance with provisions set forth in the EIL.[9] These sanctions will be revised and assessed periodically to ensure that purchasers have adequate incentive to buy CECs instead of simply paying fines.

Based on the above, purchasers may choose to defer liquidation of up to 25% of their obligations for a period of up to 2 years.[10] The only exceptions to this rule are set forth in the Act's transitory articles, in which deferment may increase to 4 years and up to 50% of obligations,[11] with the deferred obligations increasing at 5% annually until final liquidation. Once a CEC is issued, it will remain valid for a period not exceeding 5 years.[12]

Clean energy markets already exist in several parts of the world. The following section highlights some similarities and differences between these markets, and how they relate to Mexico's electricity sector. It is the author's hope that Mexican policymakers, in preparation for their own clean energy trade system, take note of the challenges faced by these nations. Worth mentioning is that the CEOM allows the use of CECs in foreign systems, subject

[7] Ciro Di Constanzo, *México es líder en energías renovables*, Excélsior, Jan. 22, 2015, at *http://www.excelsior.com.mx/global/2015/01/22/1004035*.

[8] Bases del Mercado, § 12.

[9] Fines up to $743.00 USD per every CEC not submitted can be claim from the Purchaser.

[10] The Purchaser shall notify the CRE about the deference; otherwise, the former will be likely to be sanctioned for breaching its EIL obligations.

[11] Article 22.

[12] Guidelines, article 16.

to approval by the Ministry of Energy[13] and the establishment of CEC registration criteria to allow their use internationally and prevent their duplication or any other abuses.

Despite its promise, the CEOM faces serious challenges. Firstly, the Act establishes that the CRE is responsible for managing and updating CEC Registration. This task is essential to the proper functioning of the CEOM, since it verifies registration and helps avoid duplication or ownership mistakes.

Secondly, the Mexican authorities will have to properly balance CEC registration targets and grants. The targets, set by the Ministry of Energy, should increase steadily to motivate both consumers and suppliers to purchase CECs at prices that incentivize the growth of clean energy. In addition, the CRE shall issue CECs without improper restrictions, to provide financing for legitimately qualified clean energy generators.

Despite these challenges, the author believes that the CEOM mechanism is far more effective than a command-and-control system that requires the installation of clean energy capacity or the imposition of a flat tax. In sum, the CEOM regime facilitates the flexible exchange of CECs and provides a cost effective system for generators, qualified users and suppliers. In practical terms, the clean generation of 1 MW of electricity can be cheaper for a given generator (e.g., CFE), whereas for an unexperienced qualified consumer (e.g., factory) that generation can imply a disproportionate effort.

Voluntary schemes like the CEOM are also preferred by regulators,[14] as they facilitate verification of CEC purchases and eliminate the need to monitor facilities to ensure compliance. (with capacity requirements, expenses and bureaucracy efforts related to tax collecting to fund such growing of capacity)

The CEOM is key to achieving Mexico's stated goal of installing 35% renewable energy capacity by 2024, as set forth in the Act´s Third Transitory Article. As of June 30, 2015, the nation's total installed renewable energy capacity was 16,953.2 MW, representing about 25.3% of total capacity.[15]

II. United States

The two most notable emissions trading systems in North America have been implemented in the states of California and Texas. California in particular has been developing clean energy initiatives since the 1970's; among their milestones are the 2006 California Global Warming Solutions Act, which requires that 33% of energy supplied by public and private entities, including power plants and individual suppliers, be from clean energy sources by

[13] EIL, article 121.

[14] Stuart Bell *et al*, Environmental Law, 249-263 (2013).

[15] Secretaría de Energía, *Prospectiva del Sector Eléctrico 2015-2029*, *https://www.gob.mx/cms/uploads/attachment/file/44328/Prospectiva_del_Sector_Electrico.pdf*, p. 18 y 19 (last visited Jan. 16, 2016).

2020. This policy includes the grant of Renewable Energy Credits ('RECs'),[16] marketable certificates that are similar in many ways to CECs. The rules for acquiring and exchanging RECs are set forth in the Renewable Portfolio Standard ('RPS') framework.

Under this regime, RECs can be marketed through a bundled scheme that includes the sale of electrical energy. A similar instrument used in Mexico is the "Electricity Coverage Contract", which requires that consumers buy a minimum amount of electricity or associated products (including CECs) in a given period to ensure baseline energy demand.

A key difference between Mexico's CEOM and California's RPS is that the latter requires *all* players in the energy sector to accredit clean or renewable energies, including power generators. Although power generators in Mexico must reduce emissions pursuant to standards issued by the Ministry of Environment ('SEMARNAT'), they are not required to obtain CECs.[17] In both cases, however, certificates shall be used to verify clean energy use.

According to a recent study, partially sponsored by the California Air Resources Board, California is on course to achieve its carbon reduction goals by 2020 and 2030; and also expected to meet its 2050 standards.[18] Although the latter assumes the implementation of additional policies and technologies, the RPS framework is among the policy initiatives with the highest potential impact on carbon reduction.[19]

Texas has also shown been relatively successful in promoting clean or renewable energies. The state leads all other U.S. states in wind power generation, which comprises 76% of its entire renewable energy portfolio;[20] and is number two for the combined use of clean or renewable energy, right after Oregon (which mostly relies on hydropower).[21]

In 2002, Texas enacted renewable energy legislation[22] that requires 10,000 MW to come from clean energy sources by 2025. This goal, already attained

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[16] Center for Energy Economics, Bureau of Economic Geology, The University of Texas at Austin, *Lessons Learned from Renewable Energy Credit (REC) Trading in Texas*, (July, 2009), *http://www.beg.utexas.edu/energyecon/transmission_forum/CEE_Texas_RPS_Study.pdf.*

[17] Secretaría de Medio Ambiente y Recursos Naturales, *http://www.semarnat.gob.mx/*, (last visited Feb. 16, 2015).

[18] Jeffery Greenblatt, Modeling California policy impacts on greenhouse gas emissions, vol. 78, *Energy Policy*, (2015), at 158-172.

[19] Other significant policies aimed to reduce carbon impact include building and transportation standards, as well as the phasing out of coal and hydrofluorocarbons programs.

[20] Texas Wide Open For Business, *The Texas Renewable Energy Industry*, *https://texaswideopenforbusiness.com/sites/default/files/11/13/14/renewable_energy.pdf*, (last visited Feb. 13, 2015).

[21] Department of Energy, *Renewable Energy Production by State*, *http://energy.gov/maps/renewable-energy-production-state*, (last visit Feb. 12, 2015).

[22] See Center for Energy Economics, Bureau of Economic Geology, The University of Texas at Austin, *supra* note 16.

in 2010, laid the groundwork for an integral policy that encompasses a carbon market and mechanisms to support clean energy generation.

In all three entities —Texas, California and Mexico— producers are issued a certificate for every megawatt/hour produced through clean energy. In Texas, energy producers must purchase certificates to verify that pre-determined amounts of energy derive from clean sources. Aside from the carbon market, the state's success has been attributed to the Production Tax Credit, which grants credits to energy producers for every clean energy megawatt/hour generated.[23]

III. Australia

Since half of all carbon emissions in Australia derive from electricity generation, clean energy technologies are of paramount importance.[24] The Climate Change Law defines the mission of the Clean Energy Regulator, the agency charged with managing and regulating carbon emissions and clean energy, as follows:

- Reduce carbon gas emissions to help decrease greenhouse gases.
- Provide incentives to clean energy investors to install new facilities and clean energy sources.
- Manage schemes under its field of competence, including mechanisms to regulate clean energies and carbon emissions.[25]

With regard to the latter, the Renewable Energy Target ('RET') has been key, as it requires that 20% minimum of the nation's electricity supply come from renewable sources by 2020. This goal shall be achieved through investment in both large scale power plants and smaller renewable energy sources, esp. solar photovoltaic and household water heating systems.[26] Under the RET, suppliers must acquire certificates to verify that a certain percentage of their electricity comes from clean energy sources.

Just as in the other jurisdictions mentioned here, these certificates are granted for each megawatt/hour produced through clean or renewable sources. Depending on the type of power generation, the Australian regulator issues two types of certificates:

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[23] Guidelines, § III-4.

[24] Scott Valentine, *Braking wind in Australia: A critical evaluation of the renewable energy target*, vol. 38, *Energy Policy* (2010), at 3668-3675.

[25] *Clean Energy Regulator*, About Us, *http://www.cleanenergyregulator.gov.au/About-us/our-work/Pages/default.aspx*, (last visited Feb. 16, 2015).

[26] See Texas Wide Open For Business, *supra* note 20.

1. Large-scale generation certificates, granted to "accredited participants;"[27] and
2. Small-scale technology certificates, issued to independent producers with low-capacity generators.[28]

Low-capacity generators are those employed by individuals to produce their own energy and deliver the surplus to the grid.

These certificates, once issued and validated, are treated as a form of currency, transferable to third parties at negotiable prices. Large-scale generation certificates are usually sold to liable entities (electricity retailers) who must relinquish a given number of yearly certificates to the Clean Energy Regulator through auction.[29]

In spite of its major promise, the RET has certain downsides. A Carbon Pollution Renewable Scheme was supposed to cover gaps left by the RET through additional rules and procedures that were never enacted by Australia's Congress. As a result, the RET alone cannot level the playing field between clean and traditional energy producers. The shortcomings of the RET and its regulations include: (a) side and pervasive incentives in the power generation that favor polluting sources such as coal; (b) lack of a compliance period that extends beyond 2020 to pay back investments; (c) lack of an ambitious target cap that exceeds the nation's current goal of 45,000 GWh; and (d) excessive support for small-scale generation, hampering larger investments in more efficient clean technologies such as wind power.[30]

IV. European Union Emissions Trading System (ETS)

The ETS system, implemented by the 28 members of the European Union and three European jurisdictions outside the union,[31] is the oldest and most progressive cap-and-trade mechanism, as it includes both the power generation sector and other high carbon emitting industries. In contrast with the Mexican, U.S. and Australian mechanisms, the ETS encompasses not only energy generation but also a wide array of industrial and commercial activities, including agriculture, waste management, manufacturing and transportation. As such, the ETS is the world's most comprehensive emission trading system.

The benchmarks established for the third phase of the ETS are especially ambitious. In 2013, the cap on power plant emissions was reduced by 1.74%,

[27] Clean Energy Regulator, *Large Scale Generation Certificates*, *http://ret.cleanenergyregulator.gov.au/Certificates/Large-scale-Generation-Certificates/about-lgcs*, (last visited Feb. 16, 2015).

[28] Clean Energy Regulator, *What is an STC?*, *http://ret.cleanenergyregulator.gov.au/Certificates/stcs*, (last visited Feb. 23, 2015).

[29] Clean Energy Regulator, *Creating and Registering Large-Scale Generation Certificates, http://ret.cleanenergyregulator.gov.au/For-industry/Power-stations/Large-scale-generation*, (last visited Feb. 23, 2015).

[30] See Scott Valentine, *supra* note 24.

[31] Iceland, Liechtenstein and Norway.

and will be adjusted yearly in the same proportion. According to the European Council, "in 2020, greenhouse gas emissions from these sectors will be 21% lower than in 2005."[32] Since the ETS amounts to almost 45% of the EU's total greenhouse emissions, it is perhaps the most effective cap-and-trade system ever implemented.

Despite these notable achievements, however, the ETS had significant growing pains. In the first phase, so many allowances were granted for industrial and regulated generators that, by the end of 2007, certificate value was driven close to zero, without any incentive to cut emissions or invest in green technology. The second phase modestly increased benchmarks established in the first phase but, thanks to the economic crisis and international community's failure to meet Kyoto's goals, drove down carbon fuel prices which made also the outcome of the second phase fruitless.

The system's third phase is far more ambitious, as industrial facilities must now make a major effort to cut emissions and/or purchase certificates to maintain operations. The results of this phase will be properly assessed at the end of 2020. Some milestones include:

1. The elimination of national grant allowances, now replaced by a single European-wide cap system;
2. Elimination of free-allowances allocation, as auctioning is now the general rule;
3. Inclusion of non-regulated sectors and gases; and
4. An innovative funding mechanism that supports new renewable energy projects through the NER 300 Program.[33]

The NET 300 Program shall be "funded from the sale of 300 million emission allowances from the New Entrants' Reserve,"[34] with the goal of financing select renewable projects deemed likely to cut carbon emissions and generate green jobs in Europe. In sum, the NER 300 Program appears to be an efficient and effective way to incentivize the growth of clean energy production, the main goal of any emissions trading system.

V. Conclusions

As we can see, clean energy and emissions trading systems have evolved over the last several years, mostly through trial and error. Mexican authorities would be wise to learn from these attempts in order to better develop their

[32] European Council, *The EU Emissions Trading System (EU ETS)*, *http://ec.europa.eu/clima/publications/docs/factsheet_ets_en.pdf* (last visit Feb. 10, 2015).

[33] European Commission, *NER 300 Programme*, *http://ec.europa.eu/clima/policies/lowcarbon/ner300/index_en.htm*, (last visited March 4, 2015).

[34] *Id.*

own rules and guidelines, especially at this latter stage. They should also revise provisions in order to (a) minimize inconsistent and negative incentives for 'dirty' fuels; and (b) create funding mechanisms for clean energies.

If the rules for suppliers and large consumers set by CEOM are too permissive, they will result in failure, i.e., no change in energy consumption practices or increased renewable energy production. This will also hamper investments that could facilitate a switch from traditional sources of electricity to more efficient and cleaner technologies. Conversely, an overly restricted market for Purchasers may make the Mexican market less attractive for industrial facilities and investors, indirectly threatening the CEOM's effectiveness.

Another factor that may hinder success is poor regulatory performance of the Ministry of Energy and the CRE. For this reason, flexible and cost effective regulation of electricity market participants and large consumers requires a careful study of other jurisdictions and emissions trading systems. Ideally, the CEOM would emulate the third phase of the ETS, with (a) ambitious targets to incentivize clean energy production; and (b) a trading system that encompasses more carbon consuming industries.