

REPORT:

CLEAN ENERGY IN MEXICO'S CORPORATE, COMMERCIAL AND INDUSTRIAL SECTORS

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INTRODUCTION

Mexico's power sector has recently undergone broad reforms to unbundle the state owned utility, CFE, in an effort to promote competition in the sector, reduce energy prices, and attract investment for clean energy projects.

The government has set an ambitious goal of 35% of clean energy supply by 2024, which will have wide ranging implications for Mexico's energy hungry commercial and industrial (C&I) sectors. Some have already set out on a clean energy pathway and have developed projects for self-supply, while the market for distributed generation on commercial and industrial property continues to grow.

This report aims to provide the reader with a general overview of the current landscape for clean energy in the context of Mexico's commercial and industrial sectors.



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GENERAL OVERVIEW

Prior to the Electric Industry Law of 2014 an important number of large companies and conglomerates in Mexico had entered self-supply agreements. As of December 31, 2016, there are 45 grandfathered self-supply wind, geothermal, solar and small-hydro projects in operation with an installed capacity of 2.6 GW¹. As of last year, wind energy has been the predominant technology used for commercial and industrial off-takers.

Table 1. Commercial and Industrial Self-Supply Generation from Renewable Sources

Energy Source	Installed Capacity (MW)	Authorized Generation Capacity (GWh)	Number of Projects	Average Project Size (MW)
Wind	2,317.85	8,004.57	22	105.36
Hydro	190.95	948.93	15	12.73
Geothermal	52	387	1	52
Solar	43.01	107.75	7	6.14

Source: Zumma with information from CRE

¹ This count excludes projects that are solely for the municipal government market, such as La Rumorosa I (Baja California) and Eólica Santa Catarina (Nuevo León). This list also excludes landfill biogas (mostly with municipal off-takers), sugarcane bagasse (sugar industry) and regenerative brakes.

The self-supply grandfathered permits have remained active. In 2016 alone five projects came into operation with a total of 319 MW, out of which two are solar (IUSASOL 1 and Los Santos Solar 1) and two are wind energy (Ventika I and Ventika II). Some other projects have switched off-takers or have taken steps to move to the new wholesale electricity market. In late 2016, Enel announced it had signed a 10-year power purchase agreement (PPA) with HSBC to supply the company's Mexican operations with energy from Enel's 200 MW Dominica wind project, due to commence supply in mid-2017.

DISTRIBUTED GENERATION

Between 2014 and the first half of 2016, new commercial and industrial on-site solar generation capacity surpassed rooftop residential for the first time in Mexico. Solar distributed generation for commercial, corporate and industrial users was responsible for almost 60% of new capacity in this period, adding 71.88 MW out of 121.32 MW, to the accumulated total installed capacity of over 150 MW of distributed generation. At 146.8 MW solar energy currently accounts for 97.6% of the total distributed generation installed capacity in the country.



Table 2. New distributed generation contracts and installed capacity (January 2014 - June 2016)

Tariff Group	Number of contracts 2014-2016	Installed capacity (kW) 2014-2016
Residential	12,611	48,862
Low Voltage	3,361	21,930
Public Services	106	239
Agricultural	14	337
Medium Voltage	831	49,598
High Voltage	2	352

Source: Marcelino Madrigal, "Potenciando la Generación Distribuida en México: Nuevos Instrumentos de Regulación," January 10, 2017 presentation

“CRE HAS IDENTIFIED OVER 4,300 POTENTIAL QUALIFIED USERS IN MEXICO THAT TOGETHER ACCOUNT FOR OVER ONE THIRD OF ELECTRICITY CONSUMPTION”

Table 3. Market Participants with a Current Contract with CENACE

	Modality	Date of Contract with CENACE
SUMEX	Qualified Supplier	March, 2016
CFE Calificados	Qualified Supplier	April, 2016
Ektria	Qualified Supplier	April, 2016
E2M	Qualified Supplier	November, 2016
Iberdrola	Qualified Supplier	December, 2016
Ammper	Qualified Supplier	December, 2016
Hella Automotive	Qualified User – Market Participant	December, 2016

Source: CENACE

QUALIFIED SUPPLY

Despite having great potential (CRE has identified over 4,300 potential qualified users in Mexico that together account for over one third of electricity consumption), the qualified supply market has had a slow start. As of 22 February 2017, 46 companies have been registered in the qualified supply registry. Of these, the most dominant sector is manufacturing with 19 registered qualified users. Most of the users so far come from three states: Nuevo León, Mexico City and San Luis Potosí. Likewise, the states with the most identified potential qualified users are Nuevo Leon with 11.2%, Mexico State with 11% and Mexico City with 7.8% of the total potential qualified users.

Industry sources claim that only two qualified supply contracts have been signed. Similarly, only one Qualified User Market

Participant user has a contract with CENACE and can trade in the market or sign long-term PPAs with generators.

In February 2017, Acciona and Tuto Energy announced the expansion of the Puerto Libertad (AT Solar I-V) solar project which was assigned 478,260 MWh/year and CELs/year (clean energy certificates) in the second long term power auction. The expansion will add an additional 112 MW for an undisclosed Mexican industrial group. According to Acciona, this would be the first PPA under the 2014 Electric Industry Law.²

Furthermore, CFE Calificados recently announced that they won a bid to supply part of Mexico City's subway operations under a one year contract for 965 GWh/year of energy from clean energy sources.

² <http://www.acciona-mx.com/salaprensa/noticias/2017/febrero/acciona-tuto-energia-amplian-50-proyecto-solar-puerto-libertad-mexico-mayor-pais-339-mwp/>

KEY SECTORS

Two of the most important sectors behind the growth of renewable energy in Mexico are cement manufacturing and retail. Indeed, some of the earliest off-takers of large scale wind power were CEMEX (cement), Soriana (retail) and Wal-Mart (retail). Nine wind farms are responsible for 57% of the installed capacity in the C&I self-supply market, accounting for over 100 MW each.



Project	Installed capacity (MW)	Principal off-taker	Demand of principal off-taker (MW)	Other off-takers	Location
Eurus	250.5	Cemex	539.95	Tec de Monterrey, Gamesa, Rotoplas, Sabritas, L'Oreal	Oaxaca
Bii Hioxo	234	Tiendas Chedraui	165.154	Cementos Moctezuma, Bebidas Mundiales, Unileve, Saint-Gobain	Oaxaca
Dominica	200	Banamex	48.259	Nissan, Delphi, Río Bravo Eléctricos	San Luis Potosí
Eoliatec del Istmo	164	Arcelor Mittal	100.82	Wal-Mart, Continental Automotive, Herdez	Oaxaca
Eoliatec del Pacífico	160	Arcelor Mittal	160	Wal-Mart, Continental Automotive, Grupo Modelo	Oaxaca
Desarrollos Eólicos Mexicanos de Oaxaca 2	137.5	Wal-Mart	137.705	Suburbia	Oaxaca
Ventika	126	FCA México (Chrysler)	61.79	DeAcero, Tec de Monterrey, Cemex	Nuevo León
Ventika II	126	FEMSA (Oxxo)	91.373	Cemex	Nuevo León
Parques Ecológicos de México	101.9	Soriana	115.024	Procter & Gamble, Cementos Apasco, Nissan, Cuauhtémoc Moctezuma, Scribe	Oaxaca

LIST OF CURRENT COMMERCIAL AND INDUSTRIAL RENEWABLE ENERGY OFF-TAKERS IN MEXICO

MATERIALS

Chemicals

- Praxair (wind, hydro)
- Cryoinfra (hydro)

Construction Materials

- Cemex (wind)
- Cementos Apasco (wind)
- Cementos Moctezuma (wind)

Metals & Mining

- Arcelor Mittal (wind)
- DeAcero (wind)
- Peñoles (wind)
- Minera México (wind)
- Cobre del Mayo (wind)
- Minera Roble
- Minera Maple
- Compañía Minera Autlán (hydro)
- Minera Monterde (geothermal)

Paper & Forest Products

- Papelera Veracruzana (hydro)
- Scribe (wind)
- Kimberly Clark (wind)

INDUSTRIALS

Capital Goods

- Industrias Unidas (solar)
- IUSA (solar)
- Procter & Gamble (wind)
- Plamex (solar)
- Apla (wind)
- Envases Universales (hydro)
- Porcelanite (wind)
- Unilever (wind)
- Vidriera Toluca (wind)
- Vidriera Monterrey (wind)
- Rotoplas (wind)
- Saint-Gobain (wind)
- Leoni Cable (solar)
- Forgamex (solar)
- Envases Universales (hydro)

CONSUMER DISCRETIONARY

Automobile & Components

- VW (wind)
- Nissan (wind)
- FCA México (wind)
- Delphi (wind)
- Jatco México (solar)
- Continental Automotive (wind)
- Metalsa (wind)

Textiles, Apparel & Luxury Goods

- Global Denim (hydro)
- Skytex (hydro)
- Fábrica de Textiles de México (hydro)
- Senbis (hydro)
- Hilasal (hydro)

Education Services

- Tec de Monterrey (wind)
- La Salle (solar)
- ITAM (wind)
- Museo del Niño (wind)

Media

- Cinemex (wind)
- MMCinemas (wind)
- TV Azteca (wind)

Retail

- Wal-Mart (wind)
- Tiendas Soriana (wind)
- Tiendas Chedraui (wind)
- Home Depot (hydro,
- Palacio de Hierro (wind)
- FEMSA (wind)
- Elektra (wind, geothermal)
- Suburbia (wind)
- Coppel (solar)

CONSUMER STAPLES

Food, Beverage & Tobacco

- Bimbo (wind)
- Nestlé (wind)
- Propimex (wind)
- Grupo Lala (wind)
- Jugos del Valle (wind)
- Cuauhtemoc Moctezuma (wind)
- Gamesa (wind)
- Sabritas (wind)
- Barcel (wind)
- Herdez (wind)
- Grupo Modelo (wind)

FINANCIALS

Diversified Financials and Insurance

- Citibanamex (wind)
- GNP (wind)

TELECOMMUNICATIONS SERVICES

- Axtel (wind, geothermal)
- Totalplay (wind)

THE GROWING IMPORTANCE OF RENEWABLES FOR LARGE ENERGY CONSUMERS IN MEXICO

The use of renewable energy by corporate users in Mexico has soared since January 31, 2009. On that date, the first self-supply wind generation project came into operation. Since then, some of the main power generators in Mexico (such as Acciona, Enel, and Iberdrola) but also smaller companies (such as Buenavista Renewables) have established agreements with large energy users in Mexico. The interest for a cheaper and cleaner alternative has been a driving force behind new renewable energy capacity in Mexico.

Some corporations have a strong commitment to CSR and environmental policies, and have adopted aggressive renewable energy goals. In 2005 Wal-Mart established a worldwide goal to achieve 100% energy use from renewable sources. 10 years later, 51% of the retail giant's stores in Mexico were supplied with renewable energy. Similarly, Nestlé, Procter & Gamble and Unilever are amongst 87 companies worldwide that have committed to 100% renewable energy supply.³

The biggest impact on Mexico's corporate energy users will come from new clean energy

requirements which come into force at the beginning of 2018. Electricity suppliers (for basic and qualified service), as well as large energy consumers (qualified user market participants), end users that are supplied by isolated supply, and holders of grandfathered interconnection contracts that do not cover the entirety of their energy consumption by clean energies will have to comply with a 5% clean energy certificate acquisition requirement. By 2019 this requirement will rise to 5.8%. The exact nature of how this market will operate is yet to be defined, but will likely be a key pillar of achieving Mexico's stated goals of 35% clean energy by 2024.

After successfully hosting its first two clean energy auctions, the Mexican government has announced an expected date of April 28, 2017 for its third long term power auction, which is expected to be open to other buyers beyond CFE basic supply. Renewable energy has an established history of competitive prices, particularly in the grandfathered permits. The third power auction will signal if the large energy consumers of Mexico are ready for the new electric market.

³ <http://there100.org/companies>

“THE THIRD POWER AUCTION WILL SIGNAL IF THE LARGE ENERGY CONSUMERS OF MEXICO ARE READY FOR THE NEW ELECTRIC MARKET.”

MIREC WEEK 2017 – COMMERCIAL AND INDUSTRIAL ENERGY SUMMIT

Recognising the importance of Mexico's large energy users, Mexico's leading clean energy congress, MIREC WEEK, is hosting its inaugural Commercial & Industrial (C&I) Energy Summit in 2017 on Thursday 11th May. The summit will focus on the critical issues facing the sector, including corporate energy procurement, energy management strategy, clean energy certificates, distributed generation and energy efficiency.

Taking place from 8-12 May at the Camino Real Polanco, Mexico City, MIREC WEEK will be focusing on the C&I sector across all four main conference days, and has already confirmed key speakers including:

- Felipe Calderon, **Former President of Mexico**
- Clint Wilder, *Senior Editor*, **Clean Edge**
- Rob Threlkeld, *Global Manager – Renewable Energy*, **General Motors**
- Ignacio Castro Foulkes, *Sub Director*, **Grupo Mexico Energia**
- Fernando Campos Carmona, *Sub Director of Energy*, **Walmart**
- Jorge Gutierrez, *Head of Energy*, **Grupo Baf**
- Mario Manuel Canales Suárez, *Commissioner for Energy*, **CONCANACO**
- Luis Orea, *Assistant Manager of Sustainable Development*, **PEMEX**
- Victor Cervantes, *Development Director*, **IEnova**
- Eduardo Erhard, *Director of Energy Development*, **Gobierno del Estado de Nuevo León**



The energy summit (Thursday 11 May) will provide an in-depth day for energy managers and 'qualified users' from the commercial and industrial (C&I) sector to meet, discuss and learn about the latest best practice for energy management. As energy technologies evolve, new regulations come into force and the impact of the energy reform becomes real, there is no better time for the C&I sector to review their strategic energy decision making process.

www.mirecweek.com/c-and-i-summit