MARKET HIGHLIGHTS

- Exports to Mexico have averaged just over 3.6 Bcf/d this May, a 0.3 Bcf/d (6%) build over April and a 1 Bcf/d (41%) build over last year year to date. Exports along the NET Mexico/Los Ramones pipeline continue to lead overall growth in US exports to Mexico. DOE data shows that exports along NET Mexico rose to over 1.3 Bcf/d in February, a 0.6 Bcf/d build compared to the year prior and 0.3 Bcf/d above Phase I capacity. (Page 8)

- All regions saw power prices rise in May on rising temperatures and demand. The Baja California system continues to have the cheapest power prices in Mexico due to interconnection with the US. May prices averaged $21.02/MWh during peak hours, up 6% from April. (Page 12)

MEXICO ENERGY MARKET FUNDAMENTALS AND PRICES

<table>
<thead>
<tr>
<th>Natural Gas (Bcf/d)</th>
<th>April</th>
<th>May</th>
<th>Month Chg</th>
<th>2016</th>
<th>2015</th>
<th>Chg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>3.8</td>
<td>3.6</td>
<td>(0.2)</td>
<td>3.8</td>
<td>4.2</td>
<td>(0.4)</td>
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<td>Imports from US</td>
<td>3.5</td>
<td>3.6</td>
<td>0.1</td>
<td>3.4</td>
<td>2.4</td>
<td>1.0</td>
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<tr>
<td>LNG Sendout</td>
<td>0.6</td>
<td>0.8</td>
<td>0.2</td>
<td>0.5</td>
<td>0.7</td>
<td>(0.2)</td>
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<tr>
<td>Total Supply</td>
<td>7.9</td>
<td>8.0</td>
<td>0.1</td>
<td>7.7</td>
<td>7.4</td>
<td>0.4</td>
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<tr>
<td>Power Burn</td>
<td>3.8</td>
<td>3.9</td>
<td>0.1</td>
<td>3.7</td>
<td>3.6</td>
<td>0.1</td>
</tr>
<tr>
<td>Other Demand</td>
<td>3.9</td>
<td>4.1</td>
<td>0.1</td>
<td>4.0</td>
<td>3.8</td>
<td>0.2</td>
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</tbody>
</table>

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The Mexico wholesale electricity market has come a long way since power reforms were implemented two and a half years ago, but several key milestones still loom ahead before the market will be fully operational and transparent to market participants.

Speaking at a conference in Mexico City on June 2, Jeff Pavlovic, Managing Director of Electricity Industry Coordination at the Secretaría de Energía (SENER), outlined recent accomplishments and identified remaining challenges to market implementation.

The short-term wholesale electricity market officially went live earlier this year as the Centro Nacional de Control de Energía (CENACE) began publishing day-ahead market and ancillary services prices in January. Mexico also held its first ever long-term electricity auction securing over $2.6 billion of investment in new renewable generation resources and began the second such auction process in May.

CENACE also expanded its information system platform as a key step to increasing market transparency, while three private corporations registered as market participants with signed contracts and seven more companies began the registration process.

Next hurdles:

New market operations and increased participation

While day-ahead market models have been running smoothly, market settlements have been delayed as CENACE just issued its first invoices to the Comisión Federal de Electricidad (CFE), the state-owned power company, in May. CENACE will continue sending invoices moving forward and gradually issue back-dated invoices to reconcile books back to January.

Additionally, implementation of real-time markets has been delayed due to their more complex operation. Real-time market operations are currently in full testing on the Baja California system and are expected to go live in July, said Erith Hernandez, Assistant Director of Market Operations at CENACE. Other regions will begin operation later this year.

CENACE is also in the process of developing a market for Financial Transmission Rights similar to corresponding markets that exist in the United States. FTR markets allow market participants to hedge exposure to congestion prices on the grid, and CENACE has already begun distributing legacy FTRs to existing market participants. The monthly auctions will offer varying contract terms including monthly, rest-of-year, quarterly, and three-year terms.

Outside of the long-term electricity auction, CENACE will also implement an annual capacity balancing market in the beginning of 2017.

A key milestone to boosting market participation by private companies will occur when CENACE’s Business Practice Manual is published in the Federal Register in the next two weeks. These guidelines will establish rules of operation for market participants and add clarity to market operations.

Additionally, efforts to restructure the Comisión Federal de Electricidad (CFE), the state-owned power company, must be completed before all market participants will be on equal footing. Under the reforms, CFE is to be split into five generation-owning subsidiaries, two administrative subsidiaries handling power purchase agreement contracts and legacy interconnection contracts, and two retail subsidiaries for basic retail and qualified retail services.

New boards and CEOs for each company must be named by June 30, but employees will not be legally assigned to individual companies until the end of the year. After that, the companies will be able to share physical space and systems for an additional six months before needing to become completely independent.

New transmission plans aim to improve connectivity and efficiency

SENER released the new 2016 – 2030 PRODESEN, or Program for Development of the National Electrical System, on May 30 outlining new electricity grid investments for generation, transmission, and distribution projects. In the plan, SENER anticipates peak power demand will grow by 3.7% annually to reach 68,792 MW by 2030.

To meet this growth, the bulk of the $131 billion planned investment outlined in the PRODESEN is focused on new generation, but key transmission projects are also aimed at improving connectivity between the regional systems and alleviate congestion around load centers.

In total, the new transmission investment budget jumped from $9 billion in the previous PRODESEN to $15 billion. Up to 28,499 km of new transmission lines are planned in the next 15 years.

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**KEY MARKET EVENTS AND IMPLEMENTATION DATES**

<table>
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<tr>
<th>Rules publishing</th>
<th>June 2016</th>
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<td>Real-time Markets</td>
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<td>Baja California</td>
<td>July 2016</td>
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<td>Interconnected System</td>
<td>September 2016</td>
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<td>Baja California Sur</td>
<td>December 2016</td>
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<td>FTR Markets</td>
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<td>Legacy contracts</td>
<td>December 2015</td>
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<td>Annual Auctions</td>
<td>November 2016</td>
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<td>Monthly Auctions</td>
<td>January 2017</td>
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<tr>
<td>Capacity Market</td>
<td></td>
</tr>
<tr>
<td>Annual Auction</td>
<td>February 2017</td>
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</tbody>
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Key milestones..Cont’d

Priority has been given to improving connection between the Yucatan and the mainland as well as Baja California and the Interconnected System through the Hermosillo region in order to facilitate more integration with western US markets. Over the next two years, 19 projects with an estimated total transmission capacity of 23.4 GW are expected to come online according to the plan.

Another key transmission project to link Baja California Sur with the Interconnected System through Mulege is not planned until 2021.

In addition to the PRODESEN, SENER also released a smart grid development plan in May designed to improve grid efficiency to not only improve service and reduce costs, but also to attract more private market participation.

Transmission and distribution loss rates in Mexico exceed those seen on other grids in the developed world. In 2015, transmission losses stood at 13.1%, down from a record high at 16.1% in 2010. By comparison, the US had average losses in 2014 around 5%, according to data from the Energy Information Agency.

In 2016, loss charges in the Yucatan, Baja California Sur, and other major load centers like Mexico City have averaged as high as $9.50/MWh, or 14% of market clearing power prices.

Second long-term auction underway

CENACE’s long-term auctions are designed to facilitate investment in renewables through sale of energy on 15-year contracts and clean energy credits (CELs) on 20-year contracts. Capacity contracts are open to competition from dispatchable renewables like hydro and geothermal as well as cogeneration facilities and efficient combined-cycle natural gas plants.

“CENACE designed the auctions to favor projects based on location and time of generation instead of technology resisting the use of quotas to secure set amounts of generation from different fuel sources,” Pavlovic said.

In the first long-term auction held earlier this year, the location adjustment factors favored bids located in the Yucatan and Baja California Sur regions by a discount of approximately $20/MWh and $35/MWh, respectively, due to generation shortages in those regions.

As a result, the Yucatan cleared the most offers, claiming 34% of the market. Wind was expected to dominate the auction, but solar projects claimed almost 75% of the winning bids, “Mexico got a better result than if we had used quotas,” Pavlovic said.

For the second long-term auction which was announced April 29 for projects coming online in 2019, most of the mechanics remain the same, but CENACE has revised the location adjustment factors.

The results of the first auction are expected to resolve the generation shortage in the Yucatan, so bids in that region will be subject to a positive adjustment factor. Shortages are expected to persist in Baja California Sur leading to a negative adjustment factor of $26/MWh while the Baja California and Hermosillo regions will have a discount of approximately $3/MWh.

In addition to these changes, CENACE also expanded the auction calendar to allow more time to review offers and auction results at each step following technical issues which resulted in a rerunning of the first round auction.

CFE will submit purchase offers by June 27, which CENACE will review and publish July 4. Those looking to sell supply to CFE will need to offer technical proposals by August 5 with prequalification material due September 13 and final sale offers due September 21. The auction will be run and verified after final sale offers are submitted with results published September 30.

—George McGuirk