Accessing Environmental Markets to Achieve Corporate Sustainability Goals

Midwest AESP Chapter

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Werner Electric, Cottage Grove, MN, February 6, 2020
7450 95th Street South
Cottage Grove, MN 55016
Agenda

Background
REC 101
Voluntary Markets
Thermal & Electrification
Future State
Background

Mission: M-RETS validates the environmental attributes of energy to serve as a trusted centralized gateway to environmental markets.

Independent non-profit with a stakeholder board.

M-RETS tracks in all states and provinces.
Why do certificate tracking systems exist?

**Generate.**
Streamline credit management and prevent double counting

**Compliance.**
Provide regulators with an independent, easy to use, and reliable source to verify compliance

**Liquidity.**
Provide a mechanism to manage holdings, effectuate transactions, and maintain claims
Registries

**GATS/GIS = Generation Attribute/Info**
- Track all generation and emissions attributes for generation in order to provide emissions labeling for LSEs

**RETS, RECS . . . = REC tracking systems**
- While they can accommodate registration of any type of generator, in practice only track renewable generation.
Verification + Validation Role

- M-RETS is a tracking system in an EM&V role
- M-RETS is not a policy decision-making body
- Once authorities make policy decisions, M-RETS can insert software code or utilize manual checks to assist with compliance reporting.
- M-RETS does this through:
  - Operating Procedures
  - Board of Directors
  - Regulator Group
  - Subscriber Group
  - Other advisory groups
Renewable Energy Certificates

MWh Renewable Energy = 1 Whole Certificate

Certificate No. 999-MN-01-2013-XXXXXXX-1-45,000
- Certificate Type
- Fuel Type
- Location
- Vintage

- Renewable Portfolio Standard Markets
- Voluntary Markets
- Power Markets (ISOs)
What does a REC look like?

243-MN-06-2015-Id12332x-1 to 3119

- M-RETS Generator ID
- State in which generation is located
- Month
- Year
- Unique Identifier for batch
- Number of RECs in batch

• This serial number refers to 3119 RECs that were all issued at once, batches can be split
REC Markets

MRETS DOES NOT SET REC PRICES OR OPERATE A TRADING PLATFORM!

Compliance Market

• Volatile Pricing
• REC supply and demand are functions of the RPS rules, design, economy, and resource.
• Geographic eligibility and delivery requirements can constrict supply and create a viable market—e.g. SREC’s.
• Life of an eligible REC—banking and vintage eligibility
• Wholesale electricity price
• Retail load
• Variable nature of wind and solar output can impact REC supply

Voluntary Market

Green claims” drive the demand in the voluntary market.
• At the consumer level in the U.S. they are regulated by the Federal Trade Commission.
• Other “ethical” issues surrounding what claims can be made outside marketing.
# Annual Generation Data (MWH)

<table>
<thead>
<tr>
<th>Generation Type</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Avg Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biogas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.78%</td>
</tr>
<tr>
<td>Biomass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.60%</td>
</tr>
<tr>
<td>Hydroelectric Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.45%</td>
</tr>
<tr>
<td>Municipal solid waste</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.30%</td>
</tr>
<tr>
<td>Solar</td>
<td>1,099</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>125.29%</td>
</tr>
<tr>
<td>Waste Heat Recovery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.97%</td>
</tr>
<tr>
<td>Wind</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.68%</td>
</tr>
</tbody>
</table>
### Industry Trends

<table>
<thead>
<tr>
<th>Green Power Option</th>
<th>Sales (MWh)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility green pricing</td>
<td>8,850,000</td>
<td>885,000</td>
</tr>
<tr>
<td>Utility renewable contracts</td>
<td>2,788,000</td>
<td>15</td>
</tr>
<tr>
<td>Competitive suppliers</td>
<td>18,133,000</td>
<td>1,691,000</td>
</tr>
<tr>
<td>Unbundled RECs</td>
<td>51,744,000</td>
<td>192,000</td>
</tr>
<tr>
<td>CCAs</td>
<td>8,882,000</td>
<td>2,726,000</td>
</tr>
<tr>
<td>PPAs</td>
<td>21,271,000</td>
<td>273</td>
</tr>
<tr>
<td>Community solar</td>
<td>80,400</td>
<td>4,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>111,748,000</td>
<td>5,499,000</td>
</tr>
</tbody>
</table>

### Table 4. Estimated Green Power Sales (millions of MWh), 2012–2017

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility green pricing</td>
<td>6.0</td>
<td>6.9</td>
<td>7.0</td>
<td>7.5</td>
<td>8.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Utility contracts</td>
<td>0.0</td>
<td>0.2</td>
<td>0.5</td>
<td>0.7</td>
<td>2.1</td>
<td>2.8</td>
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<tr>
<td>Competitive suppliers</td>
<td>11.6</td>
<td>14.5</td>
<td>16.2</td>
<td>15.4</td>
<td>16.0</td>
<td>18.1</td>
</tr>
<tr>
<td>Unbundled RECs</td>
<td>31.0</td>
<td>31.4</td>
<td>36.0</td>
<td>42.5</td>
<td>45.5</td>
<td>51.7</td>
</tr>
<tr>
<td>CCAs</td>
<td>3.0</td>
<td>8.1</td>
<td>7.7</td>
<td>7.4</td>
<td>8.1</td>
<td>8.9</td>
</tr>
<tr>
<td>PPAs</td>
<td>2.2</td>
<td>2.7</td>
<td>5.1</td>
<td>6.6</td>
<td>7.9</td>
<td>21.3</td>
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<tr>
<td>Community solar</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.01</td>
<td>0.08</td>
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<tr>
<td><strong>Total</strong></td>
<td>54.0</td>
<td>64.0</td>
<td>73.0</td>
<td>80.0</td>
<td>88.0</td>
<td>112.0</td>
</tr>
</tbody>
</table>

*Source: M-RETS*
Geography of demand

Figure 41. Unbundled RECs: Number of customers (left pane) and green power generation source (right pane) by state

Figure 44. The geography of green power customer demand:

https://www.nrel.gov/docs/fy18osti/70174.pdf
Voluntary REC Pricing Trends

![Graph showing REC Price Trend over years from 2012 to 2018 with a significant drop in 2017]
24/7 Renewables & Hourly Data

- In 2017 Dominion Virginia filed for a “Continuous Renewable Generation Tariff” where the utility would supply renewables 100% of the time.
- Companies are looking to offer products to C&I customers.
Digitalization is blurring the distinction between generation & consumption
RNG Tracking System Goal

A web-based tracking system that both supports existing markets and establishes robust new markets through:

- **Increased market transparency**
- Higher level of integrity and assurance
- Increase liquidity (both exchange-based and OTC)
- **Scientifically validated carbon values to facilitate GHG reduction claims**
Winter, Decarbonization, & Electrification

Midcontinent ISO (MISO) region during recent cold weather events

Chicago, IL daily temperature minimum & range
degrees Fahrenheit

MISO daily peak electricity load
megawatthours

Midwest natural gas consumption
billion cubic feet

Source: U.S. Energy Information Administration, based on NOAA, MISO, S&P Global Platts
Renewable Thermal System

# Certificates

<table>
<thead>
<tr>
<th>Active</th>
<th>Retired</th>
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<tbody>
<tr>
<td>7,845 RTs</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Account</th>
<th>M-RETS ID</th>
<th>Project</th>
<th>Fuel Type</th>
<th>Vintage</th>
<th>Location</th>
<th>Quantity</th>
<th>Serial Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>My biogas account</td>
<td>T1111</td>
<td>My Biogas generator -- active</td>
<td>Biogas</td>
<td>11/2016</td>
<td>ND</td>
<td>6200</td>
<td>11111-ND-11-2016-13500</td>
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<tr>
<td>My biogas account</td>
<td>T1111</td>
<td>My Biogas generator -- active</td>
<td>Biogas</td>
<td>12/2016</td>
<td>ND</td>
<td>1000</td>
<td>11111-ND-12-2016-11515</td>
</tr>
<tr>
<td>My biogas account</td>
<td>T1111</td>
<td>My Biogas generator -- active</td>
<td>Biogas</td>
<td>09/2018</td>
<td>ND</td>
<td>500</td>
<td>11111-ND-09-2018-11516</td>
</tr>
<tr>
<td>My biogas account</td>
<td>T1111</td>
<td>My Biogas generator -- active</td>
<td>Biogas</td>
<td>08/2018</td>
<td>ND</td>
<td>100</td>
<td>11111-ND-08-2018-11517</td>
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<tr>
<td>RTs account 2</td>
<td>T1111</td>
<td>My Biogas generator -- active</td>
<td>Biogas</td>
<td>10/2018</td>
<td>ND</td>
<td>45</td>
<td>11111-ND-08-2010-11518</td>
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</tbody>
</table>

[Details]
RT batch details

Serial Numbers  11112-ND-08-2018-11526-1 to 600

<table>
<thead>
<tr>
<th>Account</th>
<th>ID</th>
<th>Project</th>
<th>Fuel Type</th>
<th>Vintage</th>
<th>Location</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTs account</td>
<td>14D14EA3-136B</td>
<td>RNG Project 1</td>
<td>Renewable Natural Gas</td>
<td>08/2018</td>
<td>ND</td>
<td>600</td>
</tr>
</tbody>
</table>

Carbon Pathways

<table>
<thead>
<tr>
<th>Name</th>
<th>Tool Name</th>
<th>Carbon Intensity</th>
<th>Date Range</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNG LCA #1</td>
<td>GHGenious</td>
<td>0.25</td>
<td>2018-01-01 - 2020-01-01</td>
<td>t2n-1248_report.pdf</td>
</tr>
</tbody>
</table>

Eligibilities

No eligibilities available
Why M-RETS?

Well-Established Relationships.
M-RETS maintains strong relationships with many state regulators

Industry Credibility.
A long track record in commodity tracking among clean energy stakeholders

Proven Platform.
Using the M-RETS platform saves high initial startup costs and ensures a stable rollout

Responsiveness.
In-house development staff

Business Model.
501(C)(4) status allows M-RETS to focus resources on maintenance and improvements

Accepted Practice.
Similar market structures and complimentary processes between RECs and RNG justify using a system already trusted by regulators and market participants
THANK YOU

Contact: ben@mrets.org