Changing Dynamics in the Voluntary Market

Renewable Energy Markets Conference
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## Purchasing Options are Expanding

<table>
<thead>
<tr>
<th>Existing and emerging purchasing methods</th>
<th>Value proposition</th>
<th>REC treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility green pricing</td>
<td>• Match all or part of electricity consumption with renewable energy</td>
<td>Purchaser keeps RECs</td>
</tr>
<tr>
<td>Competitive supplier</td>
<td>• Meet corporate sustainability goals</td>
<td></td>
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<tr>
<td>Unbundled Renewable Energy Certificates (RECs)</td>
<td>• Provide location for renewable development</td>
<td>Purchaser does not necessarily keep RECs</td>
</tr>
<tr>
<td>On-site renewables</td>
<td>• Potentially lower electricity bill</td>
<td></td>
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<tr>
<td>Power purchase agreements</td>
<td>• Meet municipal GHG reduction targets</td>
<td></td>
</tr>
<tr>
<td>Community choice aggregation</td>
<td>• Support local solar development</td>
<td></td>
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<tr>
<td>Community solar</td>
<td>• Potential price hedge</td>
<td></td>
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<tr>
<td>Large customer renewable energy tariff</td>
<td></td>
<td></td>
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<tr>
<td>Direct project investment/crowdfunding</td>
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Voluntary Market Increases to 62 Million MWh

The overall voluntary market continues to exhibit strong growth, with the largest increase coming from the competitive markets.

*Voluntary sales for 2011 are estimated as the mid-point of 2010 and 2012 sales.*
Voluntary Supply Dominated by Wind

In 2013, 75% of the supply for the voluntary market came from wind. Solar energy provided approximately 2.5% of supply for utility green pricing programs.
CCAs supported 9 million MWh of renewable energy; 2.4 million customers participating. Some CCAs are interested in sourcing more local supply.
• **Sales by utility green pricing programs increased 15% between 2012 and 2013.**
  
  - Some of our Top 10 programs saw large increases in sales. Other programs still losing customers and sales.
    - PGE increased sales by 26%
    - Austin Energy increased sales by 16%.
    - CPS Energy increased sales by 14%.
    - TVA was new to our Top 10 list with nearly 200,000 MWh in sales.
A Few Utilities Offering RE Tariffs; Success Remains to Be Seen

- Duke, NV Energy, and Dominion Virginia have created renewable energy tariffs for large customers
- Action underway in Oregon to establish a renewable energy tariff; per House Bill 4126
- Tariff rates typically include fees and administrative charges, plus the cost of the renewable energy resource
- Subscription rates TBD
### Utilities Using Mix of Unbundled and Bundled RECs; Contract Length Varies by Procurement Mechanism

<table>
<thead>
<tr>
<th>Contract length</th>
<th>Unbundled RECs</th>
<th>RECs bundled with electricity</th>
<th>Owned by utility</th>
<th>RECs produced by utility consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤1 year</td>
<td>46%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2-5 years</td>
<td>52%</td>
<td>0%</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>2%</td>
<td>5%</td>
<td>&lt;1%</td>
<td>4%</td>
</tr>
<tr>
<td>11+ Years</td>
<td>0%</td>
<td>95%</td>
<td>&gt;99%</td>
<td>77%</td>
</tr>
<tr>
<td>Percent of total procurement</td>
<td>55%</td>
<td>36%</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Voluntary retirments in ERCOT increased slightly in 2013, when retirements for previous years are included. In 2013, 7.4 million MWh were retired for 2013 and 7.5 million MWh were retired for previous years.

Source: ERCOT, 2008-2014
Strong Growth for Community Solar

- Community solar is a popular niche within the voluntary market, and a number of additional programs are planned. The installed capacity to date is still quite small ($\approx 40$ MW) in the context of the larger green power market.

- Large scale community solar programs are under development in California, per AB 43.
The largest 70 information and communications technologies (ICT) companies purchased 8.4 million MWh of RE in 2013. Data centers alone account for ~2% of U.S. electricity use.
Voluntary REC prices started to rise in mid-2013 after years of decline; September prices more than $1/MWh. The increased price may be due to tightening in the Texas market. By fall 2014, prices had declined to under a dollar, with a few trades less than $0.80/ MWh.

Source: Marex Spectron 2014
Summary

• Green power market totaled 62 million MWh in 2013, up from 48.6 million MWh in 2012.
• Approximately 5.4 million customers are purchasing green power; 2.4 million of those are participating in CCAs.
• Utility green pricing sales and competitive market sales increased by 15% and 25%, respectively, while the unbundled REC market saw very modest growth and was nearly flat.
• REC prices in 2013 increased to >$1/MWh; have since declined.
• Community solar continues to expand.
• ICT sector makes up more than 10% of voluntary market; is procuring in innovative ways.
Full report available:


http://greenpower.energy.gov

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