Austin Energy’s Residential Solar Rate

Leslie Libby
Austin Energy
Project Manager
Austin Energy - Overview

Austin Energy Service Area

Austin Energy Customer Profile

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>Customer Total</th>
<th>Customer Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>368,700</td>
<td>89.10%</td>
</tr>
<tr>
<td>Commercial</td>
<td>43,489</td>
<td>10.40%</td>
</tr>
<tr>
<td>Industrial</td>
<td>80</td>
<td>0.10%</td>
</tr>
<tr>
<td>Other</td>
<td>1,601</td>
<td>0.40%</td>
</tr>
<tr>
<td>Total</td>
<td>413,870</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
## Projected Overall Generation Portfolio

### Megawatt Capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>Coal</th>
<th>Nuclear</th>
<th>Gas</th>
<th>Biomass</th>
<th>Wind</th>
<th>Solar</th>
<th>Renewable Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>602</td>
<td>436</td>
<td>1497</td>
<td>112</td>
<td>849</td>
<td>36</td>
<td>27.5%</td>
</tr>
<tr>
<td>2014</td>
<td>(602)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>1000&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27.3%</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
<td>150</td>
<td></td>
<td>25</td>
<td></td>
<td>31.6%</td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
<td>100&lt;sup&gt;3&lt;/sup&gt;</td>
<td>25</td>
<td>29.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td>100&lt;sup&gt;3&lt;/sup&gt;</td>
<td>25</td>
<td>30.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td></td>
<td>100&lt;sup&gt;3&lt;/sup&gt;</td>
<td>30</td>
<td>31.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td>35</td>
<td></td>
<td>25</td>
<td></td>
<td>32.7%</td>
</tr>
<tr>
<td>2020</td>
<td></td>
<td></td>
<td></td>
<td>75</td>
<td>34</td>
<td></td>
<td>35.0%</td>
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<tr>
<td>2021</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td></td>
<td>35.0%</td>
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<tr>
<td>2022</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td></td>
<td>35.1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>436</td>
<td>2,497</td>
<td>112</td>
<td>1,137</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

1) Potential sale of FPP
2) Gas Plant Purchase up to 1000 MW
3) Wind Contracts totaling 322 MW expire 2016-2018
2020 Utility Scale Solar Goal 175 MW
  - 30 MW PPA at Webberville

2020 Distributed Solar Goal 25 MW
  - Residential – 7.0 MW
  - Commercial – 1.4 MW
  - Municipal and Schools – 1.0 MW
  - TOTAL – 9.4 MW
Installed Cost of Distributed Solar

Installed Cost ($/Watt-DC)

- Residential
- Commercial
- Municipal

FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11 FY12
Residential Rebate $2.00/Watt

Average Installed Cost $3.75/Watt

- SEIA Q2 2012 Report - Austin had the lowest installed cost in the nation ($3.88/W-DC)

FY04-FY12 Participation - 1918

FY13 Participation Goals - 660

Migrated all solar customers from Net Energy Metering to the Residential Solar Rate on October 1, 2013

Residential Solar Rate $0.128/kWh
1. Customer pays for total consumption at applicable residential rate, plus applicable charges & adders as any other residential customer
2. Austin Energy credits customer for solar production at value calculated using “Value of Solar” (2012 VOS is $0.128/kWh)
3. Credits may be applied to all Austin Energy charges
4. Credits roll forward month to month until the end of the year at which time any carry over credit resets to zero
5. Value of Solar Algorithm is reassessed and applied to the Residential Solar Rate annually
**Energy:** PV replaces energy produced by marginal unit in real time; PV value is based on cost of energy it replaces

**Capacity:** PV hourly kW contribution to system multiplied by the capital cost of installing a new gas turbine

**T&D Deferral:** Expense savings due to adding distributed PV which can defer future T&D capital investments; T&D deferral benefit is location-specific

**Loss Savings:** PV produces electricity at point of consumption eliminating need for supplemental energy to cover T&D losses

**Environment:** Based on customer willingness to pay premium prices for green power in Texas
PV Value Results by Component and Configuration

PV System Value (levelized $/kWh)

Horizontal | South 30° | SW 30° | West 30° | West 45° | 1-Axis | 1-Axis 30°

- Energy
- Gen. Capacity
- Environment
- T&D Deferral
- Loss Savings

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Pros
- First step by utilities to recognize that the solar energy value is at least as much as a unit of energy delivered by the utility
- Easily administered

Cons
- Assigns retail value to solar energy – not representative of the true value of solar
- No provision to allow utilities to recover full cost of serving solar customers
- Excess generation is commonly undervalued at the “avoided cost” rate
- Tiered rate structures create variable solar values.
The VOS Approach

Pros

- Decouples solar value from consumption charges
- Decouples solar value from incentives
- Keeps utility whole on cost of service
- Reduces or eliminates class subsidies
- Allows for over production to be more fairly compensated
- Enable rate structures that encourage energy efficiency and conservation
- Annual adjustment prevents over- or under- payment as utility costs change

Cons

- Very complex stakeholder process to identify benefits and develop algorithms
- Customers have difficulty understanding the VOS
Lessons Learned

- Take time to educate stakeholders including:
  - Customers
  - Solar Advocates
  - Local Solar Installers

- Make sure the billing system can handle ALL aspects of the tariff
  - Solar carry over credits were applied to other services such as water and resource recovery
    - Two bills are now sent to solar customers
    - We are considering converting $$ credits to kWh credits

- If accrued credits are wiped out annually, a better time is at the beginning of the Fiscal Year (October 1) rather than January 1.
Contact

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Questions?