Options for Community Renewable Energy in Albany

Purpose

The City of Albany’s Sustainability Committee drafted this memo to provide city staff and council background and guidance on recent developments in community-scale renewable energy.

Background

The Albany City Council adopted the Climate Action Plan (CAP) in April 2010. The CAP is comprised of polices and measures that, when implemented, will enable the City to meet its target for greenhouse (GHG) gas emission reductions. Albany’s adopted target requires the community’s GHG emissions to be reduced by 25%, or 17,450 metric tons of carbon dioxide equivalent (MT CO2e), below 2004 baseline emission levels by 2020. In 2004, the City and community of Albany generated 69,830 MT CO2e. Almost two-thirds of these emissions resulted from residential, commercial, and industrial building energy consumption. Therefore, emissions from energy should be a primary target of City efforts to reduce emissions.

In fact, according to the CAP Emissions Inventory, of the 2004 baseline 8.5% (5,929 MTCO2e) of total emissions were from residential electricity use and 12.4% (8,641 MTCO2e) was from Commercial/Industrial electricity usage. Therefore, switching Albany’s electricity consumption to 100% renewables would almost achieve the CAP goal on its own.

The good news is that Albany has electricity choices and our impact on the environment is largely within our own control. There are three primary avenues for Albany as a community to increase the portion of renewable energy supply we receive:

1) Community Choice Aggregation
2) Community Renewable Energy Development
3) Utility Green Pricing

Each involves a choice being made by the individual resident or business. This brief will provide a summary of each.

Community Choice Aggregation

Community Choice Aggregation (CCA) allows communities to procure electric power on behalf of customers within their boundaries. CCAs aggregate the buying power of individual customers within a defined jurisdiction, which can be leveraged toward securing alternative energy supply contracts. Under a CCA, PG&E would continue to provide delivery of the power and customer billing. Customers would have a choice to continue to purchase power directly from PG&E by opting out of the CCA.

CCAs procure power from their desired mix of electricity resources, and can thus locally control the percentage of renewable energy resources. PG&E is under a state mandate to deliver at least 30% renewable resources by 2020, and CCAs are bound to that requirement as well. PG&E’s current supply...
is about 20% eligible renewables\(^1\). A CCA has greater freedom to move beyond that requirement, and some CCAs are delivering 100% renewable energy (though it comes at a premium price).

Marin County (Marin Clean Energy) and San Francisco (CleanPowerSF) have CCAs. Sonoma County, Santa Cruz, Monterey, and several other California communities are moving forward with CCA activity. Marin Clean Energy offers 50% or 100% renewable options, while CleanPowerSF is 100% renewable energy. Both of these CCAs have rates that exceed PG&Es rates, though MCE’s rates are closer to PG&E’s while CleanPowerSF has a large premium. Richmond City Council recently voted to join Marin Energy Authority’s Marin Clean Energy CCA program – giving electric customers in Richmond the choice to participate in a 50% or 100% renewable energy option. Participation rates are high (approximately 80% for customers given the option) due to the opt-out approach. CleanPowerSF has not yet started serving customers, but plans to do so in late 2013.

The City of Albany worked with the East Bay Municipal Utility District (EBMUD) to conduct a pre-feasibility analysis of an EBMUD CCA to potentially serve Albany and other East Bay communities. That is not moving forward. Alternatively, Albany could elect to join CleanPowerSF or Marin Clean Energy, should those CCAs be willing to accommodate Albany customers.

**Pros:** delivers substantial greenhouse gas benefits, may save customers money in the long run, gives local control of power supply

**Cons:** requires major capital investment, may increase electricity rates, likely will not create local jobs


**Community Renewable Energy Development**

Community renewable energy programs allow customers to purchase a share of a renewable system developed in the local community and receive the benefits of the energy that is produced by their share. These programs give all residents and businesses access to solar even as renters or if they live in houses that have too much shade, for example. Currently, 75 percent of California’s residents and businesses could not install solar even if they wanted to, since they lack the proper rooftop conditions or are renting their property. Imagine owning a share of a utility-scale solar and/or wind development on Albany Bulb, for example, and receiving a generation credit on your PG&E bill for your share of ownership.

This type of program is typically offered by a utility, with the debit (to pay for the share of the system) and the credit (from the generation of electricity) appearing on the customer’s bill. In fact, such programs to a large extent can only exist with the cooperation of the customers’ electric utility through a service called “virtual net metering”, and at this time PG&E does not offer such a program.

\(^1\) “Eligible renewables” excludes large hydro. Large hydro comprises about 18% of PG&E’s supply.
California’s SB 43, the shared renewable energy self-generation program, currently under consideration, would allow for group purchased renewable energy installations.

**Pros:** puts renewable energy development into the local community, creates local economic and environmental benefits, provides the benefits of renewable energy to customers who cannot install their own systems on their homes or businesses, creates economies of scale for local renewable energy projects.

**Cons:** tends to be small-scale, limited subscription opportunities.


**Utility Green Pricing**

Green pricing is an optional utility service that allows customers an opportunity to support a greater level of renewable energy. This is a voluntary option and costs a premium. Supply for the program is typically done through the purchase of Renewable Energy Certificates (RECs), which provide a revenue stream that project developers can tap. RECs represent the environmental benefits of a megawatt-hour of renewable energy generation. A REC is created when a qualifying renewable energy facility generates a MWh of electricity, and each REC has a unique serial number and is tracked. RECs are also used to demonstrate compliance with the state mandated renewable energy requirement, so buying RECs reduces supply in the market and puts the burden on utilities to build more renewable energy facilities.

The purchase of the RECs appears as a line item on the customer’s utility bill. PG&E announced they are planning to launch a green pricing program in 2013, though it is more likely to be launched in 2014 and would likely use RECs from western states. It is expected to cost residential customers on average about $6.00 each month for 100% renewable energy.

**Pros:** no capital investment required, you can use the purchase to reduce your carbon footprint

**Cons:** participation rates tend to be low (around 2% for most utilities), some question whether REC sales result in additional renewable energy supply coming online, would not fund local projects.


**Individual Action**

In addition to the community-level options described above, individuals can install on-site solar photovoltaic (PV) systems on their roof. Costs for PV have come down considerably in recent years. With today’s low interest rates, solar financing programs can install residential systems with no money down. However, the “soft” costs of PV are still substantial. In fact, the Lawrence Berkeley National Lab recently released a report entitled “Why Are Residential PV Prices in Germany So Much Lower Than in
the United States?” with the conclusion being “due primarily to differences in soft costs” such as permitting.

*Solar Friendly Communities* assembled 12 Best Practices: A Roadmap to a Solar Friendly Community. The City of Albany could consider adopting some or all of these practices to reduce the soft costs of solar, making Albany a more appealing market for solar.

**Conclusion**

Of these options, CCA would likely result in the greatest increase in renewable energy supply for Albany residents and businesses. This is because of these options, CCA is the only opt-out approach. In the other options, customers must elect to take action and pay a premium. While willingness-to-pay surveys show that customers have a great interest in and hypothetical willingness to pay more for renewable energy, experience with utility green pricing programs shows that average participation rates in such programs is in the single digit percentage.

Should Albany elect to take no action, our electric power will likely become cleaner over time due to the state Renewable Portfolio Standard (RPS) and AB32, the California Global Warming Solutions Act. The RPS requires utilities and other load serving entities to increase procurement from eligible renewable energy resources to 33% of total procurement by 2020. AB32 will impose a cap-and-trade regime for carbon emissions of the electricity sector in California. Under AB32, statewide emissions are to be reduced by 2% each year through 2015 and 3% each year from 2015 to 2020.

**Expected Carbon Reductions from the Residential Sector in Albany***

<table>
<thead>
<tr>
<th>Tactic</th>
<th>Expected Participation Rate</th>
<th># of Participants</th>
<th>Reduction per Participant**</th>
<th>Total Annual Reductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCA at 50% renewable energy</td>
<td>80% (approximate rate in Marin)</td>
<td>14,831</td>
<td>1,320 lbs</td>
<td>19,576,920 lbs or 8,880 metric tons</td>
</tr>
<tr>
<td>Community Solar (assuming customer matches 100% of their electricity)</td>
<td>2%</td>
<td>370</td>
<td>2,644 lbs</td>
<td>978,280 lbs or 443.7 metric tons</td>
</tr>
<tr>
<td>Green Pricing (assuming customer matches 100% of their electricity)</td>
<td>5% (national average is 2%)</td>
<td>927</td>
<td>2,644 lbs</td>
<td>2,450,988 lbs or 1 111.7 metric tons</td>
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</tbody>
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*Assumes carbon reduction of 661.20 lbs/MWh as reported in the EPA’s Emissions & Generation Resource Integrated Database (eGRID).

**Assumes average annual electricity usage of 4 MWh per residential meter. Also assumes that each MWh of renewable energy reduces 661 lbs, or each 50% green MWh reduces 330 lbs.

**Next Steps**

Sustainability Committee recommends bringing a representative from Marin Clean Energy to present to Sustainability Committee and perhaps to City Council. This would inform City of Albany about what
Marin Energy Authority is providing to Marin County and Richmond, and answer questions about the costs and benefits of Community Choice Aggregation for Albany.