

## FINAL

### Solar Working Group Meeting Notes

Nov. 14, 2013

6-8 pm, East Boulder Senior Center

**City of Boulder:** Yael Gichon, Jonathan Koehn, Kelly Crandall, Brett KenCairn, Andrew Barth

**Group Members:** Anne Guilfoile, Bill Ellard, Chad Parsons, Dan Kramer, Jason Wiener, Jim Hartman, John Street, Kai Abelkis, Ken Regelson, Matt Lehrman, Paul Melamed, Phil Wardwell, Puneet Pasrich, R.T. Weber, Todd Stewart, John Johnson, Scott Stevenson, Scott Franklin

The Solar Working Group has a city website available at: <https://bouldercolorado.gov/energy-future/energy-future-solar-community-working-group>.

#### I. Introduction of Staff and Working Group Members

#### II. Ground Rules & Protocols (Handout on Basecamp)

Kelly summarized the ground rules and protocols for community working groups. Key points included participating respectfully, working toward consensus but representing minority opinions, and not distributing materials marked “draft” outside the working group. This working group is anticipated to conduct a portion of its meetings jointly with other working groups (such as Reliability, Resource Modeling, and Financial) in 2014. Please provide feedback or questions via Basecamp.

#### III. Energy Future Project Update

Yael provided an update on the Energy Future project, describing the twin paths of engaging in partnership discussions with Xcel Energy and beginning the process of condemning the local electric infrastructure in Boulder. In August 2013, City Council accepted a third-party review of the feasibility modeling associated with municipalization which found that there were opportunities for a local electric utility to meet the requirements adopted into the City Charter by voters in 2011.<sup>1</sup> At the same time, Council adopted an ordinance that authorizes the city to negotiate to acquire assets of Xcel to operate a local electric utility, and to proceed with condemnation after January 1, 2014, if necessary. In November 2013, Boulder voters adopted a \$214 million limit for purchase of the electrical infrastructure and added provisions to refine the utility’s governance structure. More information is available at [www.BoulderEnergyFuture.com](http://www.BoulderEnergyFuture.com).

#### IV. Energy Future Goals (Handout on Basecamp)

Kelly provided some context for the Energy Future Goals, which City Council adopted in 2011 based on an extensive public process. The handout provided highlights goal areas where local solar could be a path toward achievement. This was provided to help guide the conversation about “guiding principles” or goals related to local solar.

#### V. Purpose of Group (Handout on Basecamp)

Yael discussed the purposes of the Solar Working Group (SWG) from the city’s perspective and sought feedback from the SWG members. The general purposes that have been identified for the SWG include:

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<sup>1</sup> Charter requirements are available at [http://www.colocode.com/boulder2/charter\\_articleXIII.htm](http://www.colocode.com/boulder2/charter_articleXIII.htm).

**Identifying the role of distributed generation (DG), such as solar, in the utility of the future.** A member asked for clarification about the definition of DG, which was explained as generation close to site as opposed to large, centralized power generation (such as coal or gas plants). A member asked if utility-scale solar was part of the discussion. Staff clarified that it could be if the group desired, but the focus is local DG because the city could not build utility-scale solar without forming a municipal utility and this group is intended to be neutral toward whether a municipal utility is formed or not. A member asked if solar thermal could be part of the discussion, and staff responded that if the group has ideas in that area it could be included in the discussion.

**Identifying barriers that currently exist to increasing local solar.** A group member noted that this was particularly important to discuss the future of incentives.

**Providing suggestions related to fair treatment of existing solar should Boulder form a local electric utility.** Xcel filed an application at the PUC in 2012 to treat Boulder participants in its solar and energy efficiently programs differently going forward. The application was dismissed as premature, but the issue will likely come up again. City staff shared some of the questions they had asked Xcel regarding, e.g., how many solar installations are in Boulder and how much in the way of incentives have been provided each year, but Xcel has not provided this data.

Other questions from the group included:

- **Is Boulder setting precedent as a city?** Working group members stated that issues related to the future of the solar industry are not unique to Boulder and are happening in California and Arizona. Boulder is unique because of the local focus, but Austin Energy and European cities are farther ahead. Rates can drive the discussion, as high rates make solar extremely valuable to customers.
- **What is the relation to the Natural Gas Working Group?** Staff are also convening a working group to discuss natural gas extraction and use issues. There will be some crossover of these discussions.
- **Who directed that the SWG be formed?** Staff formed the working group. There are questions about the future for local solar and there are community members who can provide unique input and expertise. We have a strong local solar industry. We want to talk to the people who have the contracts for solar and who are working with the people who sign those contracts to better understand the process and market.
- **Is this designed to focus on municipalization?** Group members suggested that we would have more freedom to develop a new local solar framework under a municipal utility than with Xcel. Staff clarified that the group will be looking at options under a municipal utility and with Xcel—the conversation is not designed to be pro- or anti-municipalization as there are improvements that can be made in either framework. We will have to balance the greater flexibility available under a municipal utility with the opportunity to influence widespread change with Xcel.
- **Will we be helping develop a business model that includes tariffs and pilots different incentives?** It's unlikely that the SWG will get that far in a few meetings but we want to at least develop the concepts that could be refined with additional work.

Members of the SWG then shared what they hoped to get out of the discussion:

- Muni and with Xcel – This group doesn't exist without the muni discussion. I want to see a muni in Boulder. DG can't move forward further with Xcel in town. The docket is a great example of their scare tactics. Interested in seeing this conversation push for muni.
- Want to discuss what is solar PV 2.0. What's the next business models that will work to resolve existing problems either with Xcel or with a muni. There are solutions for problems with Xcel.
- Keep the question open about whether we can do great things with or without Xcel. Example – I want a new way to address the market. The barriers aren't real, they're made up. The cost of capital. There's a certain yield required. If Boulder gets approval for a bond to buy the grid, if that can happen, so what if Xcel stays. We can do a lot with the money we'd spend on the muni. Large incentives. PV is sexy. But saving energy is better. Get the community behind us. See us innovate and inspire.
- Time-sensitive – industry is facing a cliff. If net metering revised or eliminated, we have no way to interconnect the value to the customer who is paying. We'll lose the momentum. Actually need to come up with something workable that we can sell to customers. Need a new market plan that's close to Xcel's territory. We're less than a year away from knowing the fate of net metering. Need a backup plan if it fails.
- Net metering is crucial. Look at this as a long-term thing. Solar is looked at 3, 5, 10, 20 at the most. Let's look at 50 year. Inverters are the weak link, need to find out how to keep them working. Storage – Not just batteries. Parallel generation. European Market going crazy, they're in a deep hole. Parallel generation capacity. They've done a ton of DG but have a ton of coal too. They're losing money.
- This is cool! It's my goal in the health care industry to take Boulder Community Hospital off the grid. Interject the notion that this is about human health. We don't measure the externalities of coal power that people are getting sick because of that generation. How much is a life worth? We're seeing numerous studies that pollution is killing people. In the health care industry, we spend \$2 billion in costs alone. I want this group to create an impedus that other hospitals can follow. Want BCH to be at the forefront and show others. Personally, I also want a solar carport.
- General interest in technical interfaces to the economic side –technoeconomical modeling – we don't have a business model for negative load growth. If we have more DG every year offsetting power coming in, the utility will have negative load growth. This may kill the utility. I want to help create a utility structure with negative load growth.
- The Edison Electric Institute paper draws an analogy between the electric utility industry as it currently exists, and the former AT&T monopoly on telephone wires and telephone technology. Cell phones and cell phone technology represent a “disruptive technology” that made it possible to bypass the AT&T monopoly. AT&T survived because the company recognized the new technology, faced up to it, and adapted to it. In the same way, the utility industry has to face up to the disruptive technology challenge posed by (1) the FERC requirement to open their transmission lines to independent power producers that compete with utility-owned generators, and (2) distributed generation and particularly rooftop/parking lot solar, which produce power very close to the load served. The utilities should be trying to avoid a “Kodak moment” where their rejection of new technology (in Kodak's case, rejection of digital cameras) eventually leads to the bankruptcy of the company. There must be a faction within Xcel that wants to form an unregulated, wholly owned subsidiary and get involved in selling and installing

rooftop solar. The City has said that it may buy power from Xcel for a few years to avoid “stranded costs.” If the City self-generates a large fraction of its power from rooftop solar located within the City, and also pursues an aggressive building efficiency program to reduce its electric load—both of these measures will reduce the power the City has to buy from Xcel, if any.

- Push the future of what’s possible. I want to be totally off the grid and live in the city.
- Need to help the low-income community in everything we do. Solar is being installed on middle and upper class areas.
- How we define the value of solar. Not just dollars and cents. Solar is a valuable resource but it’s not always around. It does reduce. The city needs to express the non-monetary values and the monetary value of solar. Can change the conversation.
- PUC has the authority to stop the net metering, with help from Xcel Energy. It’s allowed by state law, but the issue is how you define what is being net metered. How you’re being compensated. It must make economic sense to keep it going, by Xcel. Xcel wants people to produce and they’ll buy it at a low low cost. Less than they’d pay on the market.
- Regulation issue – How we have a discussion in parallel with Xcel and if the city has a muni. Who has that power? Who regulates? That helps form ideas. Right now, as customers of Xcel, Xcel is regulated by the PUC. Therefore they homogenize their services so all people get the same thing. Creates an interesting dynamic. We are regulated the same. Moving forward, we need to understand what we can do under current regulations and what we’d do without the PUC regulations. Wouldn’t have to be treated the same if not under the PUC’s purvey. Might need some group documentation on what the PUC does.
- Would like to be a pragmatic voice and keep things on the street level. I’m in the industry, so I know what’s going on at people’s homes. Keep out-of-the box thinking going.
- This group needs to show us how we can take solar to the next level to show that it’s not about personal choice but about how the entire community can make large effective changes that create a bigger collective effort.
- Want to update the solar capacity map that was created. How we can make it better. How much solar the city can really do must be known. How can we incentivize battery storage? Want to know how we could do 100 MW of PV in Boulder in 2 years? Maybe it’s 5? I’d like to know both. How the solar industry can self incentivize.
- Help develop Boulder’s DG penetration. Have done this elsewhere. Investor-owned utilities (IOUs) don’t want solar. They don’t understand the cost of localized energy production. Let’s create a solar bank. We can do this here. We can do a microgrid for the hospital behind the meter. We can do it.
- What we can and can’t do legally is what we need to talk about.
- Only barriers are artificial. We can do large-scale solar. The utility is the barrier.
- The roadmap for increasing penetration is available.

**VI. Brainstorm: Solar in a Utility of the Future**

**VII. Brainstorm: Barriers in the Current Solar Marketplace**

The following table consolidates the brainstorming into key themes.

Opportunities	Barriers
<ul style="list-style-type: none"> <li>• Look at technologies that can facilitate more PV, including storage, smart software, etc.</li> <li>• Consider different forms of incentives, such as feed-in tariffs or value-of-solar tariffs. Go beyond net metering. Take it out of the equation. Even if everyone did it, we'd still need fossil fuels.</li> <li>• Look at peak power needs, weather patterns, and other data to be smarter about where solar is deployed—identify ways to pair solar with load to reduce the use of fossil fuels.</li> <li>• Financing is a unique opportunity. People are afraid of debt, even if they know they're saving money right away. Look at opportunities like on-bill financing and property-assessed financing (PACE or ClimateSmart).</li> <li>• Look at what the community can do, in addition to what the individual can do. For example, use city taxation powers, like Nederland with bus passes—tax ourselves and create financing for solar and storage. Building codes are another opportunity (although there is less new construction).</li> <li>• The city can continue to work on soft costs, like permitting, planning, sales and property taxes, and other fees.</li> <li>• Boulder can't impact rate design outside of providing feedback at the PUC, but there could be lots of opportunities related to packaging (like cable), paying tiered rates, prepaid electric bills, and flat fees. We could look at performance-based regulation.</li> <li>• Start on the commercial side, because commercial and industrial customers use 80% of the electricity in Boulder. Biggest opportunities are on the commercial side in part because of large, flat roofs.</li> <li>• Open opportunities for interaction with rural Colorado.</li> <li>• Look for opportunities for "Boulder Solar" – solar that belongs to the community.</li> </ul>	<ul style="list-style-type: none"> <li>• Not everyone has or wants to spend the money; there are competing obligations.</li> <li>• We are moving past early adopters and to people who haven't thought about solar or think they can't do it. Lights come on with or without solar.</li> <li>• We haven't reached saturation with renters, but renters can't always get landlords or property owners involved, so we need more opportunities for off-site solar investment (particularly for low energy users). Solar gardens have not been implemented as flexibly as the legislation intended. Many homes in Boulder are rented and business buildings are leased.</li> <li>• Some disagree that return on investment is the only driving factor for people—if so there would be more energy efficiency. There are education/awareness barriers.</li> <li>• Financing creates concerns about default risk; you can decouple the financial investment from the risk of default.</li> <li>• Concerns that the Public Utilities Commission is trying to regulate what customers add behind the meter, particularly batteries (experience with Pacific Gas &amp; Electric), even though they should not be able to.</li> <li>• Right now we talk about incentives and subsidies, but we should look for market solutions instead.</li> <li>• Ratemaking is already social engineering (it allocates risk and value across customers and market segments). It doesn't currently build in social values. Colorado has one of the least innovative rate structures in the country.</li> <li>• Charging more for energy doesn't work for low-income residents.</li> <li>• Solar doesn't currently impact baseload, although wind and solar together can.</li> </ul>

### **VIII. Next Steps/Next Meeting**

Yael noted that SWG members should feel free to post ideas and documents on Basecamp, and that materials for all levels of knowledge and expertise are useful. Staff will be posting draft notes for review, consolidating the discussion into common themes, and scheduling a December meeting.

Group members suggested possibilities to improve future meetings, including (1) more active facilitation and use name tags for participants, (2) keeping all ideas on the table during brainstorming, and (3) opening the discussion to a worldwide audience via wiki or similar tool. Group members also expressed an interest in sharing some background on current solar in Boulder and on the PUC.