



**City Light Review Panel Special Meeting
"Utility of the Future" July 30, 2015
Meeting Notes**

Date of Meeting: July 30, 2015
Location: McKinstry Innovation Center

Opening:

The meeting was opened at 12:10 p.m. by Jim Baggs, Interim General Manager of City Light. Jim introduced Julie Ryan, Chair of the City Light Review Panel. Jim thanked the attendees for coming and said that this special meeting of the Review Panel is intended for invited participants and the Panel to hear from a variety of speakers on utility trends and to discuss how City Light might better position itself to serve its customers in the future. Julie also thanked the attendees and said the Review Panel is looking forward to hearing from them today as a launch on the next update of the City Light strategic plan.

Utility Panel Discussion

Jim introduced the panel discussion. City Light invited electric utility industry leaders to share their thoughts on programs and ideas being developed or proposed to address the challenges and opportunities faced by utilities going forward. The keynote guests on the Panel were:

- Lena Hansen, Principal, Rocky Mountain Institute (RMI). Ms. Hansen co-developed RMI's Electricity Innovation Lab (eLab), a unique collaboration of leading industry actors to develop and advocate for new solutions to enable greater adoption of economic distributed energy resources.
- Rob Chapman, Vice-President Electric Power Research Institute (EPRI). EPRI was created as an independent, nonprofit organization designed to manage a broad public-private collaborative research program on behalf of the electric utility industry, the industry's customers, and society.
- Arlen Orchard, General Manager & CEO, Sacramento Municipal Utility District (SMUD).
- Lori Singleton, Director Emerging Customer Programs, Salt River Project (SRP), the third largest public power utility in the nation, serving the Phoenix-Metro area.

Mr. Baggs facilitated the discussion.

Ms. Hansen provided a presentation on some of the trends and transformations occurring in the utility industry, including:

- Demand for electricity is flat and may decline.
- Full installation of LED's alone could shave up to 10% of U.S. electricity use.
- Buildings are becoming more efficient (and saving 40-80% of total energy bill).
- Price of solar continues to fall and it will soon be cost competitive with other energy sources in much of the country.
- Cost of energy storage may follow a similar trend.
- Microgrids can help distribution systems become more resilient.
- Innovation is having significant impact on the industry and change is occurring quickly, as compared to traditional utility thinking. Transformations happen quickly.



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- Globally, we are seeing a much greater contribution from renewable energy sources.
- Traditional centralized utility models are misaligned with current trends.
- NY's "Reforming the Energy Vision" is being monitored carefully across the industry. This promoted a distributed energy platform, a significant move away from utility-scale power plants.
- Hawaii is moving to 100% renewables by 2045.
- Grid defection poses a significant risk if not managed. Typical rate design disguises the true marginal cost of service.
- Questions people are asking include:
 - How can we move utility business model to performance-based outcomes?
 - How to leverage power of utility to drive the innovation/new technologies?
 - How can utilities tap into and maximize new sources of value that build the best electricity system of the future?

Mr. Chapman (EPRI) spoke on the vision of an integrated grid and transformation of the power system. He sees the future of the electric utility industry as characterized by increasing and significant uncertainty: to address this, he promotes developing an integrated grid that can maximize benefits of both central generation and distributed energy resources, and through shared ancillary services provide greater flexibility and resiliency. A major goal is for the transmission and distribution systems to become more resilient and controllable as energy loads become more dynamic.

- The Power System Looking Forward includes more flexible generation, transmission and distribution becoming more resilient, consumers becoming energy producers and more dynamic and interactive load.

Mr. Orchard (SMUD) spoke on how technology is changing fast, how the customer experience is evolving, and how he sees SMUD transitioning to a low carbon future. SMUD is working to be highly customer-centric in their planning and actions. Customers want more control and access tools to be able to use energy efficiently. SMUD is investing in efforts to identify and help to meet the customer's expectations and demands. Some of SMUD's recent actions include:

- Mapping out how to manage renewable resources for a more reliable grid
- Changing their rate structure to more accurately manage customer energy usage and send the correct price signals
- Building partnerships to help with the evolution of operations.

Ms. Singleton from Salt River Project (SRP) provided a perspective on their work in emerging customer programs, including solar programs, technology solutions, and energy efficiency solutions. SRP has observed a significant drop in additional solar investment as their up-front subsidy level dropped. Their community solar program allows customers to opt-in to purchasing from a specific solar grid installation. Technology solutions they are working on include:

- Advanced Inverter Project
- Battery Storage Project



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- Electric Vehicle Programs
- Smart Thermostats
- Demand Reduction Solutions
- Home Automation
- Home Energy Disaggregation

After a question and answer session followed by a short break, the group split up into four break-out sessions:

- Role of Emerging Technology** (EV, DG/solar, AMI, storage, controls)
- Customer Expectations/Needs** (Residential, Commercial & Industrial)
- Social Equity Model** (affordability, community solar, energy efficiency/weatherization, community workforce opportunities)
- Bolder Environmental Leadership** (new performance-based models for conservation; carbon reduction; climate resiliency and mitigation; renewables)

Each session was facilitated, and had a note-taker. Each group selected a member to "report out" to the group. A summary of the discussion and report out from each break-out session is presented at Attachment A.

The meeting was adjourned at 4:30 to a reception hosted by McKinstry.



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Attachment A: Write-up of Key Points of Break-out Session Discussion and Report-Outs

BREAKOUT SESSION A: Role of Emerging Technologies

Facilitated by: Saphir Hamilton

Electric Vehicles:

- Interested in the future of EVs - air pollution, reduction, carbon reduction, stormwater impacts. Clean power helps utility with load decline and carbon footprint.
 - 95% pollution from Puget Sound comes from roadways
- Car2Go - in Europe, all electric-based
- EVs have very small impact on load growth
- Positive (good) carbon impact in Seattle
- Rates: need to be careful how structured for EVs
 - Should be outcome based
 - Outcome should be to take it to scale
 - Sharing benefit of solar, EV and waste heat -- you can take it scale
 - TOU rates—fixed charges undermine taking it to scale
 - Utility and distributed energy providers should both benefit
 - Austin Energy - Customer pays for all energy customers uses at retail rate: there is a "value of solar"
- Put a charger in the right of way

Role of utilities engaging with customers on deploying new technology? Particularly when technology is shifting so fast.

- Shifting mindset from a 60-year life cycle to a 6-year cycle.
- Boeing - looking for direction from utilities on what emerging technology is the best option. Need some expertise from utility to help make those decisions.
- High performance building pilot examples. Do not want City Light picking/choosing winners.
- Write long-term contracts. Utility is good at this. Need to leverage the things the utility has.
- Utility has ability to raise revenue to fund pilots. Gift of public fund issue but still can do a lot.
- Use Council policy lever.

How will AMI be engaged? How can we use that meter to generate more customer loyalty. What additional services does this enable?

- Focus needs to be on selling it to the consumer
- Need a great app like NEST to help consumer— not just downloading the rate data.
- Disaggregation of appliances data
- Offer personalized communications to customers – different customer segments:
 - traditional consumers
 - proactive consumers
 - pro-consumers
- Different customers will want different services



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- Identify the services our customers want
- Utility needs to decide if it is the middleman or driving service choices

Actions for 6-year plan

- Governance issue - do we need a new structure (professional board) – to help utility be more nimble?
- Set aside budget for "coping" with tidal wave (Skunk Works)
 - With clear problem statement/ desired outcomes
- Embrace adversaries/disruptors
- Transformative scenario planning: How do you bring a group of people together (including disrupters) to develop the "story" about what Seattle City Light should look like in the future? This can help to develop the problem statement--and then you know where you are working backwards from
 - "Art of Long View"
 - End use thinking"
 - Define where we want to be and make it happen

Impacts of technologies are interactive. How do you shape programs and pricing to leverage the system? How do they tie together in rate design and therefore how you operate the system?

- Must find win/win models -- Not helpful to sit & fight (both sides)
- One party cannot grab all the benefits for themselves
- So much comes down to rate design
- No one technology is a silver bullet: how they integrate is what matters
- Innovate using existing models (eg. Power Purchase Agreement) to encourage third party investment
- Partner
- Investing in Distributed Energy Resources will free up cheap hydro to sell to CA
- Consider climate adaptation

Utilities should not sit back and let the future happen to them.



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BREAKOUT SESSION B: Customer Expectations/Needs (Residential, Commercial & Industrial)

Facilitated by: Karen Reed

What is important to customers?

- Not all customers are created equal.
- NUCOR: we are an energy intensive, trade dependent company. We need:
 - Cost certainty over time
 - Efficiency production of electricity
 - Would like to partner with City Light on demand response / network reliability / load balancing—how can we help?
 - Unpredictable loss of power creates a safety issue for NUCOR
- Sacramento Municipal Utility District has Demand Side Management programs that have big customers drop power on request to help balance load
- Virginia Mason: biggest issue is reliability. After that, would like to see a priority that hospital and medical service provides be the first to come back on line after an outage.
 - Also of interest: demand response; predictable rates; energy use advice
- Residential: want reliability. Short duration of outages. Would love to know when the power is coming back on.
- Municipal Customers: some people think there is a conspiracy that the municipal customers are the last in the cue for having power restored.

Other trends/issues for customers:

- Do they have time to be really thoughtful consumers of energy? Or just want something really simple? Customers are in different places on this question.
- Customers are not a monolith.
- Concern about folks being left out of new technology as technology has an increasing role in how individual customers get benefits.

Suggestions:

- Survey customers, use focus groups.
- Buy third party data to learn about customers.
 - OPower will deploy algorithm to tell you more about customer use data.

Rate of change makes strategic planning difficult. Requires more flexibility—the utility needs to be more nimble.

What about risk?

- Large customers do not have an appetite for SCL taking risks. Prefer reliability, predictability and efficiency.
- NUCOR not interested in doing its own micro-grid.



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What customer issues should SCL consider updating the strategic plan?

- Interruptible rates for high demand users.
 - May need to be linked to NW grid to get benefit
- Reliability for Pill Hill
- Solar power incentives for residential
- Have multiple paths to interface with consumers. Some may read bill inserts—others prefer digital communications. SMUD does a lot of advertising as well.
- After AMI is up: keep up the customer education.
- Consider monthly bills—makes paying easier
- Keep up the strategic plan: rate predictability, 2-year wave updates very valuable to larger customers
- Communication plan for customers: website interactions
- Would like more stability in who our account executive is, and more contact with that person
- Avoid automated voice menus
- Predictable call service times
- Follow-up
- Be an efficient communicator
- Be reliable
- “I don’t worry about City Light: they’re consistent and professional.”
- To determine how to be better at customer service, map your customer experience—identify all the touch points: this exercise will show you how to improve your process—fewer hand-offs, appropriate automation

The challenge is figuring out how to provide new services that you didn’t provide previously, and how you can make these seamless.



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BREAKOUT SESSION C: Social Equity Model (affordability, community solar, energy efficiency/weatherization, community workforce opportunities)

Facilitated by: Paula Laschober

What trends do you see emerging in this topic area over the next 5, 10, 20 years? What are the positive and negative implications of these trends for City Light?

- Affordability in general is the concern. Cross subsidy going the wrong way: Incentives programs in place have typically benefited the more affluent customers.
- Low income households do not have energy efficient appliances, solar devices or EVs.
- Need to work on multi-family building opportunities.
- Focus on the lowest of the low-income.
- Prepay meters are a concern.
- Who pays to subsidize low-income customers? We're better to keep them connected—if disconnected, everyone else pays.
- Trend: increasing base costs. Many can't pay new monthly base charges. Energy charges give low income customers more control.
- Low income customers are not all the same. Policies often target "averages."
- Low income multi-family households have the highest usage because their appliances are not efficient.
- Suggest using a lifeline fee across the board, then 2nd tier pricing for the large "middle class" and 3rd tier price high.
- Need to get building owners (landlords to low income residents) interested in electrical cost savings. Should offer building owners solar subsidies.
- Solar investment: not a good choice financially for low income folks in Seattle, no real rate of return-- but it's environmentally good and a social investment.
 - Homestead model: Utility invests in solar and it stays with low income owner.
- SCL's low income subsidy is much higher than other utilities.
- Low income residents need an easier way to sign up to certify low income. Suggest working with the state. Problem remains about how to help those in subsidized housing.
- What's most effective? Focus on energy efficiency, solar efforts on low income housing. But are administrative costs worth the savings? A more holistic look is needed.
- Focus on the lowest of the low income so they do not get disconnected and stay on the system.
- Affordability - Create job opportunities, for example, employer incentives to hire local and offer apprenticeship programs with resident requirements.
- SCL has good programs for low income customers and higher income customers (solar incentives). But what about middle income customers? There is no money for home efficiency – most are not poor enough to qualify for programs.
- SCL should look to ensure income diversity in its contractors.

As City Light prepares to update its six-year strategic plan, what do you see as the most important issues it should consider within this topic area, and why?

- Focus energy efficiency and solar programs on low income people, in multi-family dwellings. This benefits all customers. Focus on the lowest of the low income.



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- Institute employment programs for low income people to do energy efficiency work and apprenticeships.
- Don't allow base service charges to get too high.
- Direct the benefits of distributed generation (e.g. community solar) to low income customers.
- There is still a lot to be done in energy efficiency—dwelling and appliances -- before worrying about solar.

Other ideas?

- If equity is a goal, is SCLC structured in a way to get there? Is equity commonly defined across the City? Maybe the City could do better to get all City departments on the same page on this issue. Create interdepartmental teams to work on some goal—like a coordinated discount program with SPU/SCL, etc.
- Focus on key issues – define equity and rate structure.
- City Light's involvement with state agencies and others outside the City should be focused to better serve low income customers.



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BREAKOUT SESSION D: Bolder Environmental Leadership (new performance-based models for conservation; carbon reduction; climate resiliency and mitigation; renewables)

Facilitated by: Calvin Chow

What trends do you see emerging in the topic area over the next 5, 10, 20 years?

- **Carbon pricing** to improve energy efficiency and demand response.
 - It will free up hydro resources to reduce carbon and gas combustion.
 - *A **carbon price** is a cost applied to **carbon** pollution to encourage polluters to reduce the amount of greenhouse gas they emit into the atmosphere. Economists widely agree that introducing a **carbon price** is the single most effective way for countries to reduce their emissions.*
- Hope for carbon pricing – but don't wait for it.
- **Fuels:**
 - Decrease fossil fuel use and increase natural gas.
 - Combination of natural gas, wind, solar and hydro strategy to meet future energy needs
- **Hard to predict** the 5/10/20 year trends due to carbon pricing and fuel shifting.
- Continue on the path of **energy efficiency** and leverage **Demand Response capability** to possibly free up the hydro resources
- **Climate impact** needs to be considered for the long-term planning; changes to snow pack.
- **Demand side management**
- Increase use of **electric vehicles** and public charging stations.

Issues for Strategic Plan?

- Continue using Carbon Pricing
- SCL has valuable assets to trade (long on energy), a lot of hydro. We are in a good position on this issue
 - Improved portfolio for buying/selling power to other utilities; keep more for ourselves as needed
 - City Light is energy constrained; not capacity constrained. Sell more to other utilities when at peak capacity
 - Become more efficient so we can leverage this
 - Ensure "spilling" does not negatively impact environment and fish
- Look beyond carbon-neutral and consider a regional approach—use SCL's regional role to do more for climate resiliency, electric vehicles, **push electrification in general**.
- Electrification of Transportation & Other Sectors: how do we push this agenda?
 - goes beyond cars and trucks
 - incentivize charging stations, other options



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- **Improve conservation of Seattle's 3200+ buildings**; especially in Ballard and Northgate. Since City Light can't offer incentives to landlords to improve on their conservation, find a way to "loan" funds to improve building energy efficiency.
 - Restrictions on the use of rate payer funds (e.g. public money)
 - Develop bifurcated funding system (e.g. Green UP)
 - Penalize building owners who waste energy with a higher rate
- **Make energy efficiency mandatory, not voluntary** (evolution of Pay For Performance)
 - Is this a City or state issue? State may need to play a role
 - More dynamic interaction with customers based on how they think
 - Understand the barriers to owner investment (commercial facilities)
- Develop a program for **mid to low income households** to conserve and be energy efficient by **purchasing used electric vehicles from City Light** (e.g. CA program-Charge Ahead).
- **Better technology for monitoring energy use** in residential and commercial buildings.
 - Look at the micro grid option
- **Climate resiliency**
 - Need to look at the resilience of the whole city in a disaster situation and how we will recover.
 - Build resiliency by area as a long range goal. Consider social equity in these decisions.
 - SCL can impact broader City policy.

Other issues, questions or comments your break-out group would like to raise today?

- Incentives, support and options for energy conservation (e.g. solar panels, electric cars, weatherization, etc.) must be offered to low income households. There needs to be more communication to these communities to get them thinking about energy and conservation.
- Integrated energy efficiency engagement over the long term.
- Take energy efficiency beyond just meeting load growth.