

NYSERDA's Residential Market Advisory Group

Meeting Notes from June 17, 2019

Break-Out Session Results

Group break-out sessions focused on visioning exercises on various topics related to the future of clean energy and energy efficiency technologies. Eight groups focused on four topics (two groups for each topic). A summary of major topics of discussion is below.

Topic 1: From Energy Consumers to Prosumers

Framing of the Topic

Definition of a prosumer: a person who both consumes and produces a product.

While prosumer is a relatively new term, coined in the 1980s, it certainly isn't a new concept. Many American households produce at least a portion of their food supply through their own gardens, and some even sell the excess product via roadside stands. But what about prosumers of energy? We are seeing many changes in the residential market, including increased adoption of on-site renewables, the ability to store and access energy through batteries) and an increasing need for utilities to manage the purchase and sale of electricity on a time and locational basis. All these changes have the potential to transform the residential market.

The groups discussed what the future could hold as consumers become prosumers. Opportunities for further exploration in this area include:

- Contractors providing remote technical assistance or troubleshooting
- Giving consumers more control over their energy costs. Applications and smart devices that allow consumers to monitor their energy usage and manage time of use in a simple manner
- A shift from specialized service contractors to general whole-building energy contractors
- Broader access to geothermal with a "Geothermal For All" concept
- Evolution and growth in workforce to meet new consumer/prosumer needs
- Reduced cost to install these technologies so they are more accessible to all; new financing resources
- Greater access to clean energy technologies at the community level and community-shared resources, giving residents more choices in where and how they choose to live
- Building products that produce energy for the house (siding, windows, shingles, etc.)

Topic 2: Efficiency as a Product v. Efficiency as a Service

Framing of the Topic

The transportation for hire industry has seen drastic changes in the last 10 years with the introduction of car sharing services—like Uber, Lyft, and car2go. The car sharing industry is expected to spread even further into suburban and rural areas and grow to an estimated \$11B market in 2024.

Automotive manufacturers, spotting the disruption in their business model, have begun testing subscription and service models. These new business models are transforming traditional car dealers

from selling products in a “one-and-done” transaction to fleet management and subscription service providers. Instead of competing for repeat customers on a 3-5-year cycle, they can now maintain long-term continuous relations with their customers and a steady revenue stream.

The groups discussed what the future could hold in the residential energy efficiency and clean energy industry for a service focused model. Opportunities for further exploration in this area include:

- Preventative maintenance on homes
- Routing annual home check-ups
- Home warranty/payment plans
- Micro power plants tied to grid with no limits on ability to create/supply
- Partnership between utility and HVAC contractors with new forms of billing available; energy equipment are assets, call for maintenance
- Service contracts and leased equipment
- Remote monitoring and troubleshooting
- Suppliers of energy would be in charge of maintenance and create jobs for tech/power companies
- Every room in every house can be automated to control environment; Easy user experience – “Gamification”, create apps
- Smart meters added to households for utility, consumer, and contractor awareness
- Fixed pricing model; more predictability in costs
- Standardization across systems and smart technologies
- New financing approaches that help make the decision for home energy improvements easier

Topic 3: Predicting Consumer Demand:

Framing of the Topic

What will a desirable home look like in the future? What consumers want in a home is constantly evolving—and often—the focus is on design, décor, and lifestyle. But what about bigger shifts in what people want out of their homes? New technologies are transforming consumer expectations for how they can live in and use their home—whether it’s a refrigerator that makes recommendations about what to make for dinner or security systems that allow you see who is at your door even if you aren’t home.

The groups discussed the future of desired home features and how that could relate to the energy efficiency and clean energy sector. Opportunities for further exploration in this area include:

- Energy as a service: homes become self-sustaining, self-enclosed, monitored, pro-active to issues, one-click troubleshooting
- Emphasis on shared services and a community share distribution
- Homes that are multigenerational, sustainable, and resilient
- Devices that tells homeowners what is wrong with the home and how it can be fixed
- Fully sustainable housing
- Car sharing, more alternate transportation

- Increased focus on indoor air quality and healthy homes; self-maintenance/cleaning elements of homes
- Security becoming a greater priority – cyber and personal
- Homes that work for you; “The Jetsons”
- Homes that allow family members to age in place
- More people will work remotely from home and their homes need to be set up for that
- On-site energy generation and storage
- Instant feedback – consumer who want to know everything in real time (usage, costs, etc.)
- Desire for little maintenance
- Improved technologies and systems with interconnectivity

Topic 4: Smart & Connected Homes

Framing of the Topic

New technologies are revolutionizing the way we live—from smart thermostats that allow you to pre-cool your house before you arrive and even give you feedback on the efficiency of your habits, to voice assistants that allow you to order pizza and play music with a simple command. What if your furnace could not only alert you when it was not working properly, but could also call the contractor for you, explain the problem, and set up an appointment for a service call? These are not science fiction—the technologies are here today. A whole generation of consumers is learning to rely on and use technology in brand new ways. The U.S. market has seen substantial year-over-year growth in the number of connected devices in homes, and this trend is expected to continue in the years to come.

The groups discussed the future of smart and connected homes and how that could relate to the energy efficiency and clean energy sector. Opportunities for further exploration in this area include:

- A home that can do your work for you; live like “The Jetsons”
- A single controller, can ask to transition all home devices to low power mode, automates settings/controls for lighting, locks, heating/cooling
- Maintenance reminders “time to schedule your clean and tune”
- Visual feedback on energy consumption patterns, helps to change behavior and performance
- Easier data sharing between energy utilities, consumers, and service providers
- Push notifications from appliances, HVAC, etc.
- Gamification – apps support users in winning something after energy performance goals achieved (people love competition); also be able to see power generation (solar)
- Automated data to contractors
- Security features
- Utility or private centralized ownership of HVAC infrastructure. Customer rents the equipment and service/maintenance is performed by a 3rd party. Similar to how the cell phone industry and calling/data plans are setup.
- Smart sensor network throughout the house in place; Auto notification to 3rd party servicer of maintenance/service needs

- Customers have fixed monthly cost and allocation of energy. If they go over their energy plan limit, fees for extra “service”. Similar to cap on cell phone data

Themes Among All Groups

Over-arching Themes

Several common themes emerged from the break-out groups. These over-arching issues include:

- **There is a need for greater customer awareness and understanding of energy efficiency.** There is work needed to figure out how to best do this. Some suggested more activities for general consumer education and awareness are needed, while others believe the effort should be in changing consumer mindsets. For example, do homeowners need to understand the technical aspects of energy efficiency to make a sale, or should they just come to accept this is part of what every homeowner needs to address (in the way people get annual physicals for their health each year and annual inspections on their cars)? Either way, to address this everyone in the industry must play a part. This topic is recommended to be discussed in more detail in future meetings.
- **Workforce challenges continue to be one of the biggest barriers.** There are current challenges in finding and retaining enough qualified, skilled, and interested staff. There are future challenges to consider as well, with an estimated 50% of the HVAC workforce expected to retire in the next decade. Ideas on how to address this, from getting interest in the K-12 level, to college degrees dedicated to home energy services and management, have been explored. This topic is recommended to be discussed in more detail in future meetings.
- **There is a need to bring in other industries and market actors into these conversations;** even if they are not directly tied to energy. All types of service providers and companies that interact with homeowners should be considered. The group was invited to send along names or companies to be invited to the next step of meetings.