Chicken soup for the grid: Distilling complex utility concepts into relatable stories

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May 10, 2023

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In the quest for an equitable energy future, utilities are increasingly required to collect feedback from diverse stakeholders about planning, decision-making, and outreach. Stakeholders need a base level of understanding to weigh in on what are likely foreign concepts, like integrated resource planning, community-based renewable energy resources, microgrids, demand response, and energy efficiency. But utility communications on these subjects are often crafted with a regulatory or technical audience in mind, creating a need for cultural interpretation to achieve shared understanding, meaningful feedback, and equitable results.

Are you ready for an equitable energy future?

Fill out this short form to start a conversation about your needs and how we can help.

E Source manages equity groups and facilitates equity discussions across multiple forums. What we've learned over the years is that it takes a lot of humility and trust to get utilities to let go of technical perfection and shift to storytelling. *Simplify the message* is the most often requested action from utility equity stakeholder groups who often feel lost in jargon and struggle to understand what the impact is supposed to be in the equity space. While the utility talks about planning for decades in advance for state or multistate service areas, equity groups deal with community-based needs and require local context, actions, and results.

Taking a step back and crafting a relatable narrative can help bring these two positions together. In fact, as I considered this, a nostalgic memory came to mind as the perfect analogy.

Chicken soup for the grid

Has a loved one ever made you chicken soup when you were sick? Or have you made soup for someone else when they're down? If so, you're familiar with the comfort and care that chicken soup can provide. You may also remember a certain book series created on that very concept.

Chicken Soup for the Soul is an iconic series that has provided emotional nourishment and encouragement to navigate life's tough spots for years. Perhaps we need chicken soup for the grid to bridge the understanding gap between stakeholders and the utility through simple stories.

Let's try it, shall we? Grab your apron and let's begin.

Why does the grid need chicken soup?

The core issue in equitably transitioning to a clean energy future is one of grid health. The US grid's body and backbone are old and not in great health. The grid needs some chicken soup.

In addition to grid health, the core problems in meeting renewable energy needs are in design and logistics.

Design. The grid was designed around massive power plants near people and a one-directional transmission and distribution system that delivers power to your doorstep. It's been around for a hundred years, under attack from weather and vegetation, and in need of an upgrade.

Logistics. Unlike fossil fuel–powered plants, renewables often need to be located far away from where people are. Solving the problem is kin to transplant surgery in complexity and cost. Renewable generation needs to be sited in areas most conducive to it, then transmitted to areas of the nation that have people. Because a lot of this infrastructure doesn't exist and would need to be built across multiple states, it will be incredibly costly and unclear who will foot the bill.

(Meal) planning for demand

Whether it's utility or meal planning, you first need to determine demand. When meal planning, you need a head count before you shop for ingredients or think about a seating arrangement. It's no different when making sure a community has enough energy for everyone's needs. That's where the grid comes in: it's your table, the seats around it, and the meal you serve your guests.

When meal planning, you need a head count before you shop for ingredients or think about a seating arrangement. It's no different when making sure a community has enough energy for everyone's needs.

It's your job as host to make sure no one goes away hungry, so you need to plan for the greatest number of people who might show up. Grid planning in some locations, such as California, is difficult because some people RSVP and some don't. Some show up uninvited. You have to estimate and account for every possible scenario.

In utilityspeak, *demand* is how many people might show up and eat; *peak load* is the maximum amount of food they'll consume.

Demand response

The utility scale of meal planning is like running a restaurant and trying to satisfy hungry patrons. Keeping in mind that these are patrons who may show up at random times and vary in their appetites and ability to pay. Restaurants plan the menu, shop for ingredients, and cook the food with these variables in mind, anticipating individual taste and appetites as well as the overall quantity needed, and deliver the meal just in time.

When utilities plan for demand, they supply to meet the peak (the maximum number of customers using energy at any given time) (**figure 1**).

Figure 1: Chart of a typical dinner rush at a restaurant

Overall demand was 90 meals over the span of one day, but demand peaked with 50 meals at 6:00 p.m. during the dinner rush.

One way restaurants balance customer flow and available supply is by offering a happy hour. Customers get a special price on menu items when they come to the restaurant during traditionally slower times (for example, 3:00 to 6:00 p.m.), which helps spread the demand to put less pressure on the kitchen staff (**figure 2**). Demand response is the utility version of happy hour. Customers get an incentive for using (or not using) power at a particular time to lessen the strain on the grid.

Figure 2: Happy hour's impact on the dinner rush at a restaurant

Happy hour spreads out the overall demand to help the kitchen manage delivery.

Planning for future demand

My mother-in-law taught me how to make Hungarian chicken noodle soup, which is funny because she's Croatian (a story for another day). This soup is magical because it's made with love. But the next most important ingredient is something called Vegeta, created by the Bosnian Croat scientist Zlata Bartl. This is a critical part of the soup's magic—even more so than the chicken. It's similar to powdered bouillon, but there's no substitute for Vegeta. I've tried. It just doesn't taste the same.

Utilities need to follow a specific process when planning and shopping for energy needs. This is known as integrated resource planning.

When a utility is looking at its ingredient list, it has pretty precise requirements because of the transition to clean energy. Fossil fuels (like salt) are coming out of the recommended diet with renewables (healthier alternatives) replacing them.

When I shop for Vegeta, I can't go to just any store like El Super, Vons, Ralph's, or Safeway. I need to specifically shop at Alpine Village in Torrance, California, which is 17 miles from my home one way. That's the only place to get it, and it's worth the trip.

Similarly, utilities need to follow a specific process when planning and shopping for energy needs. This

is known as integrated resource planning. And it needs to be done years—even decades—in advance to get the best price and the right mix. After all, you can't make chicken soup with an egg. It has to become a hatched, full-grown chicken.

Aside from renewables (solar, wind, hydropower, bioenergy, and brown and green renewable natural gas, for example), other parts of the ingredients list include:

- Fossil fuels (coal, oil, gas, etc.)
- Hydro (water)
- Nuclear

Integrated resource planning is like planning a dinner party

If you're planning the dinner party of the century, you need to know:

- How many people will show up
- How much will everyone eat
- What's the best recipe to make that takes into account dietary restrictions

You have to be careful not to overspend and make sure no one goes home hungry. And don't forget sourcing and shopping for the right ingredients.

With integrated resource planning, unlike a dinner party, it's a process that might take years or decades to get right.

Meeting the demand

Once you have all your ingredients, you need to account for the proper time to prep, cook, and serve the guests, even if the table stretches far and wide. Yes, I'm describing distribution system planning, which begins where integrated resource planning leaves off to deliver energy to the customer.

Distribution system planning is looking at the table from an entirely different perspective, kind of like the experience of enjoying the soup.

In distribution system planning, utilities have the energy resources that are trucked in from far locations over big power lines, but eventually, they get to the point where that energy needs to flow into neighborhoods and into dwellings. It's kind of like serving the soup from the stock pot in individual bowls. Most people won't be able to slurp directly from the stock pot. And let's say you're giving out the soup at a food outreach. It's best to put it into a to-go container instead of soup bowls so it can travel.

Distribution system planning is looking at the table from an entirely different perspective, kind of like the experience of enjoying the soup. Is the table set properly? Do people have enough elbow room? Are there soup tureens and ladles in ideal locations so people can safely serve themselves? What about the temperature? You don't want people to burn their mouths or have a cold bowl.

Lots of planning goes into delivering energy to customers. There needs to be extensive planning so people have enough power and redundancies in place in case a circuit trips. And what about incorporating renewable energy and the fact that the grid was built to flow only in one direction? All of

these things need to be sorted out in distribution system planning.

Until we *eat* again

Here is the recipe I recommend to meet your diverse stakeholder needs:

1. *Focus on their appetite and aptitude.* Stakeholders don't need to become utility experts to give an opinion. Giving them all the details on how utilities plan, or how tough the job is, or how complex it is will likely create frustration, confusion, and distrust. Instead, think about bite-size pieces of content they're likely to be familiar with.
2. *Serve tapas, not a five-course meal.* Tapas provides small plates of tasty items, allowing the diner to direct the culinary experience. Instead of telling stories in a linear way (like a five-course meal that starts with one dish that must be consumed before going to the next), tell stakeholders a short, simple story to get the point across. Let them ask questions so they can direct their learning.
3. *Pack a "to go" bag.* Are there details you're just dying to get across? Give them access to deeper stories at their leisure. Create multimedia elements that stakeholders can access on their own time and at their own pace to meet them where they are.

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