New paradigm ahead: 5 tips for rising to the transportation electrification challenge

By Bryan Jungers

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What if you could build a new grid and utility from the ground up? Would it look anything like what we currently have? Probably not. And yet we need to bring this vision to our work today as utilities plan for a modern grid that can support electrification, decarbonization, and equity goals for the economy and society.

6 lessons from transportation electrification's past to guide its future

We need to learn from prior experiences deploying charging infrastructure and early utility efforts to design and implement customer EV programs.

Read more in Bryan's article 6 lessons from transportation electrification's past to guide its future, published by Utility Dive.

Read the article

For the first time, it's clear that R&D on combustion engines can't get us to the promised land of radically reduced emissions no matter how hard some wish to the contrary. Volkswagen marketed a clean and efficient combustion engine and was almost sued out of existence. Remember Dieselgate?

As we plan for the future, we need to prepare for one that looks very different from the present. Likely, your utility is running EV programs—incentives, EV-specific rates, and outreach and education initiatives—making

direct investments in EV charging infrastructure and conducting capacity planning that supports future growth in EV adoption. And you're probably evaluating additional EV programs as part of your portfolio that will roll out over the next year or so.

But this isn't enough.

A piecemeal approach is insufficient to address the scale and pace of change that's required and grows bigger and faster every year. There's a ton of funding available through the 2021 Infrastructure Investment and Jobs Act and other federal and state programs. This is not the time for baby steps. This is big money. Let's spend it—wisely.

5 tips for rising to the challenge

I've written extensively about transportation electrification (TE) planning; identifying just five things to ensure its success feels like boiling the ocean. But I know the topic can be overwhelming, so to keep it simple and set the stage for future success and exploration, here are my top five considerations for your consideration.

Make a holistic plan

The success or failure of EVs will be tied directly to the effectiveness of our planning. Unfortunately, most of the plans I've seen (and I see a lot of them!) fall short, mostly due to a lack of two things: vision and holistic integration. That's not to say that these plans don't have a lot of good aspects because they do.

But holistic planning includes stepping *way* out of your comfort zone. This is your chance to (re)build your utility from the ground up—to meet the future you've contributed to rather than react after the fact.

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Conditions will never be better than they are today to do the hard work. There's never a good time to do hard things. Take a step back and identify the "why"—not just the "what" or "how"—of transportation electrification. Think big and never lose sight of your "why."

If you need help along the way, I highly recommend the E Source TE Insights tool to help you with your EV planning efforts. TE Insights can help you better understand how utilities are allocating their EV budgets, find EV language that can support your own filings, and more. Learn more about how TE Insights can help you navigate by checking out our recent blog post TE Insights: A new tool for tracking transportation electrification plans, programs, and spending.

Get your supply and demand sides on the *same* side

Communication, transparency, and data are critical to the planning process, especially when it comes to supply- and demand-side planning. Utilities, in general, aren't great at these three things. For example, demand-side management teams struggle to understand EV ownership in their service areas because it hasn't been a priority. Likewise, on the supply side, distribution planners and engineers are responsible for grid capacity information, but it's rarely shared.

Getting the right information to the right people at the right time isn't possible in an organization that simply fulfills orders from regulators and boards of directors. With transportation electrification top of mind, now's the time for utilities to break down internal silos and advocate for what's needed. Talk to one another. It's critical to success.

Don't forget to swim upstream

You can react to what happens upstream or you can influence it. EV manufacturers are making decisions every day that affect utilities. Utilities are vested in managed charging, charging infrastructure, vehicle-to-grid (V2G) standards, and power quality requirements. But they aren't collaborating with OEMs (or other utilities) on these issues.

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Closer to home, on the distribution side, individual utilities can work with local or regional auto dealerships to get a better sense of where EVs are today within their service areas. As you plan for future EV load requirements and their impact on the distribution grid, it's imperative to understand today's EV landscape.

So, will it be ROI or additional unplanned expenditures? Your choice.

Get ready: Batteries are coming

Utilities are transitioning from serving stationary loads to becoming fuel providers for the clean energy economy. Today, this primarily means powering EV batteries, but every year we add more stationary battery storage systems to the grid as we integrate more renewables.

As such, it's important to note that stationary battery storage will forever and fundamentally change the grid. Costs continue to come down as installed capacity grows. E Source expects that by 2025 there will be 111 gigawatt-hours (GWh) of capacity that will grow to 500 GWh by 2030.

Don’t get overwhelmed with your EV planning

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

Some states are likely to lead the way:

- New York offers subsidies
- California has state-mandated requirements
- Texas makes money providing peaking power

As the full cost of installing a battery power plant drops, the rest of the US will follow, and storage will be a foundational part of our grid infrastructure. Batteries will buffer solar insolation lows, wind doldrums, and volatile gas pricing. And ultimately, they’ll replace peaker plants. It’s a lot to prepare for.

It’s crucial for utilities to get accurate information about energy storage technology and the complex dynamics at work in the battery market. But how can utilities accurately plan resources in this tumultuous market without appropriate market intelligence? Don’t risk making assumptions in your forecasts. An E Source Battery Next membership can help you prepare for what’s ahead.

Standardization will be key at every level

Mobility is its own ecosystem, and there are many moving parts—OEMs, charging equipment, utilities, government agencies, fleets, communications, and more. Perhaps the most visible example of a challenge related to standardization is Tesla’s agreement to open its charging networks to rival EV makers.

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It’s one thing to juggle different charging device types; it’s another thing entirely if you have to work around multiple approaches at a component or software level. Many important conversations are already happening. The Federal Highway Administration and the US Department of Transportation recently set new standards for DC fast chargers. At the state level, organizations like the California Mobility Center are working on grid-friendly EV charging. This is a great opportunity for utilities to proactively shape the conversation. They can choose to be part of these conversations and initiate them as needed.

The when—not if—of transportation electrification

We do a lot of forecasting at E Source, but the most important forecast to remember when planning for TE is

that it *will* happen. This isn't a scare tactic; it's reality. I'm in the business of helping utilities figure out what's next and what to do about it, and I'm looking forward to the work we'll do with our new Mobility practice.

Changing market dynamics, new policies, and incentives will continue to influence many of the *details* of how transportation electrification evolves, but what isn't changing is that it's a coming certainty. While the planning window isn't exact, it's limited and closing fast. The time to prepare is now. Unlike in the past, we have many more resources to work with—from an influx of funding to more-sophisticated data modeling and even the plans of peer utilities—that will make TE planning more efficient, effective, and impactful.

As an industry veteran and a motivated human, I remain optimistic that we can meet the challenges ahead. With some vision and planning, we'll get there. What "there" looks like is ultimately up to us.

The story doesn't end there! Check out my article 6 lessons from transportation electrification's past to guide its future, published by Utility Dive, for even more information.
