

First Person—“Timely and in the Public Interest”

The Story in Brief

Sheryl Carter is co-director of the Natural Resources Defense Council’s (NRDC) Energy Program and an EPRI Board member. In this interview with *EPRI Journal*, she discusses EPRI’s public interest R&D role, R&D priorities, and policymaking in a rapidly changing industry.

EJ: How do you view EPRI’s role in the electric power industry?

Carter: We’re facing a lot of challenges over the next 40 years and important goals we need to achieve—combatting global warming, modernizing the grid, addressing energy equity and affordability. We can make a lot of progress with the solutions we have in hand, but we need many new ones as well. Research fills the pipeline with those solutions. NRDC is a firm believer in research and development. We do not invest nearly enough in R&D, either by government or industry. Other countries invest much more. EPRI fills a critical role working with the industry to help provide the real solutions needed on the ground, as well as looking more broadly at the public interest for customers and the environment.

EJ: Can you point to recent examples of EPRI research that supports the public interest?

Carter: One great example is the whole “Integrated Grid” package of work. We’re seeing big changes in the industry. On the customer side, you’ve got technologies such as rooftop solar, electric vehicles, and demand response, and on the industry side you’ve got increased large-scale renewables coming into the system with a more variable generation shape. The need to integrate these demand- and supply-side options has opened up a huge opportunity and many challenges. EPRI stepped in to address this issue with not just the industry, but also with technology providers and other stakeholders. It has provided a tool to utility commissions around the country to help them begin to assess what true integration could look like. That is both timely and in the public interest.



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EJ: What are the top three areas for EPRI to focus its R&D over the next five years?

Carter: One is energy efficiency. This is the cleanest and cheapest solution we’ve got, and we need to keep working to find increasingly efficient applications for electricity use. This is not necessarily just finding new technologies. It’s figuring out how to better target energy efficiency to specific uses such as air conditioning that might make a difference on peak demand. It’s also about better targeting efficiency in certain geographic regions to help relieve load in constrained areas, and ensuring that it is incorporated more fully into resource planning at all levels.

Number two: One potentially important way to decarbonize our economy is beneficial electrification—switching to electric alternatives of everyday technologies, such as automobiles, forklifts, and furnaces, when it reduces overall emissions and impacts at lower cost than fossil alternatives. Electrification is going to be increasingly important as our supply becomes cleaner, and EPRI has a big role to play there. Its work on heat pumps is a good start. But to be successful, EPRI must address the perception that electrification is just about load building. While EPRI works on these technologies, it needs to focus on the case that electrification is an overall environmental and efficiency improvement. NRDC and EPRI recently completed the second phase of [research](#) to help make the case to public utility commissions and other agencies that electric vehicles are a win for both the environment and the electric industry.

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The third area is additional work on an integrated grid. EPRI has put together The Integrated Grid concept paper and a benefit-cost framework, which have been great contributions. I want EPRI to carry the integrated grid concept one step further—not just work on integrating the distributed technologies we have now, but figuring out how to take fuller advantage of the benefits they can provide. This involves strengthening the case that these technologies have a role to play to support the grid, and providing explicit guidance about what requirements they have to meet to benefit the grid and customers.

For example, for distributed rooftop solar, the case has been made that we need smart inverters. Germany found out after the fact that this was important. Now we need to know what smart inverters need to do to provide services to the grid, as well as have the grid provide services to the customer. EPRI has already done some work in this area, but more specific guidance is needed. Under what conditions would smart inverters provide benefits? What kinds of enabling technologies are needed to reduce the costs and increase the benefits? How do the answers to these questions vary depending on geographic location? This can equip regulators, utilities, providers, and customers to tap the capabilities of the technologies, help the overall system, and get the choices they want.

EJ: The electric power industry is changing rapidly, and no one knows exactly what the grid infrastructure or the customer will look like in 10 years. How does NRDC approach the task of identifying effective policies when the future is somewhat unknown?

Carter: With optimism and a focus on policies that support the cleanest and most efficient, reliable, and affordable electric system possible. The industry is moving to a low-carbon future, and is rapidly becoming a service-oriented and customer-focused business rather than a commodity-focused one. At the same time, it must make sure that it's providing affordable, reliable, environmentally responsible services. One of the first things we need to do is ensure that our regulations support movement in this direction. We don't need to know the exact future to do that.

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For example, traditional regulation penalizes utilities for not focusing on a commodity-intensive business because their cost recovery and financial health are dependent on kilowatt-hour sales. Regulation can be modified so they don't get penalized. For example, [decoupling](#) is a simple policy change that makes utilities indifferent to how much electricity they sell. It has been adopted in 16 states and is pending in another seven.

Breaking the link between sales and cost recovery is critical to ensuring a focus on service rather than commodity. But if the utility doesn't earn based on how much electricity it sells, you need to provide other earnings opportunities—linked to delivering clean, reliable, equitable, and affordable energy services, of course. Many utilities have been earning performance-based rewards for delivering on cost-effective energy efficiency savings, for example. Design and implementation of these performance-based rewards are going to be one of the more challenging things we face. New York's Reforming the Energy Vision proceeding is already talking about this.

Even if we don't know the complete future, there are actions we can take right now that will enable utilities to move forward with more freedom and flexibility, as long as we focus on moving toward a clean, reliable, and affordable end state. Promising solutions are being added to the mix too rapidly to preordain the exact makeup of the grid anyway.