



The Challenge of Setting Company Climate Goals

EPRI Informs Electric Power Industry on ‘Climate Scenario Analyses’ and Emissions Target Setting

By Brent Barker

Rick Johnson, Entergy’s director for environmental strategy and policy, has been involved in climate issues at the utility for more than 15 years. “In 2001, we were the first U.S. utility to set a voluntary greenhouse gas target,” he said. “Our current target is to stabilize our CO₂ emissions at 20 percent below 2000 levels through 2020.”

Lately, Entergy has received numerous requests for information on its climate initiatives. “Over the last two decades and especially over the last five years, we’ve seen a burgeoning interest by multiple stakeholders—investors, large customers, regulators, nongovernmental organizations, and even residential customers,” said Johnson. “They want to know more about our environmental performance and how our business model will be impacted by a carbon-constrained economy.”

Increasingly, stakeholders are requesting climate scenario analyses, which involve examining how potential climate policies may affect the company’s decisions and business model. Many scenarios are

focused on pathways to limit average global warming to below 2°C.

“When we started thinking about undertaking a 2°C scenario analysis, we wondered how our current process fits in,” said Johnson. “Since around 2010, we have used a range of carbon price projections in our planning processes and investment decisions to frame our climate analysis and stress test our decisions. This evolution of best practices related to analysis of climate risks and opportunities has resulted in Entergy taking a broader view on the issue, while continuing to enhance our existing use of an internal price on carbon.”

Entergy is not alone in its efforts to navigate complex climate issues. “Across the United States, utilities are receiving a growing number of requests from a diverse set of stakeholders to evaluate the risks posed by potential greenhouse gas emission targets and policies,” said EPRI Technical Executive Steve Rose.



“This is part of a trend of increased climate policy activities at the state and local levels. We see some states increasing their commitment to address climate change. We see public utility commissions such as those in Minnesota and Colorado examining policies that may put a price on greenhouse gas emissions,” said Rose. “There are proposals for some companies to set emission reduction targets along with requests for them to undertake climate scenario analyses to better understand the financial risks of managing assets in a carbon-constrained world.”

Some proposals and requests come from utility shareholders. In 2017, there were 14 shareholder proposals to investor-owned utilities to undertake climate scenario analyses, report on stranded asset risk from climate policy, or set greenhouse gas emission targets.

Assessing how a company might be impacted by global scenarios, such as those focused on a 2°C temperature constraint, is extraordinarily complex. It involves understanding the relationship between a company today and global multi-century climate objectives. In 2017, EPRI launched a project to develop a technical foundation for informed discussion and decisions on climate scenario analyses and emissions target setting.

“There are valuable scientific resources available that can inform these efforts. For instance, understanding the relationship between future global temperatures and potential emissions pathways is central to both topics. There is a vast store of scientific knowledge that can help characterize relationships and uncertainties relevant to companies,” said Rose. “We need to assess this knowledge and help bring it into discussions and decision making.”

EPRI's project aims to evaluate scientific knowledge, identify key issues, provide insights to inform company options, and facilitate a collaborative industry forum for sharing ideas and experience. Diverse companies, many already deeply involved in efforts to reduce greenhouse gas emissions, are participating. Forums for discussion of climate scenarios also include nonutility stakeholders and technical experts.

"For a long time, power companies have performed scenario analyses to inform their strategic planning processes," said EPRI Senior Project Manager Morgan Scott. "But experience with climate-related scenario analysis is limited, and companies are seeking technical input on how best to approach it."

While the Intergovernmental Panel on Climate Change recognizes and evaluates more than 1,000 climate scenarios, "published methodologies to date have not considered this information," said Scott. "Companies need to better understand the state of knowledge for robust decision making and long-term planning."

"Everyone needs a better understanding of the methods and results and their strengths and weaknesses," said Rose. "We're characterizing what we know and don't know, as well as how to use that knowledge properly."

INSIGHTS TO DATE

As a first step, EPRI researchers are analyzing the technical literature on climate science, economics, and modeling. "We are evaluating current scientific understanding of the relationship between a company and a global climate goal, and we're identifying insights and issues companies and the public should be considering," said Rose.

The results, published in October, inform more detailed, quantitative analysis later this year. Recent insights include:

Abundant scientific resources. EPRI researchers are finding that the scientific literature offers substantial, useful information and data resources. "To date, utility discussions, recommendations, and proposed methodologies have focused on a very narrow body of information—often considering only one or two scenarios to inform company efforts," said Rose. "In fact, there are approximately 1,200

scenarios from more than 30 models from which to draw insights. A more comprehensive consideration of the state of knowledge can help companies to identify and characterize relationships, uncertainties, robust insights, and gaps in understanding. This is essential for assessing company risks and making good decisions."

Uncertain company role. Significant uncertainties define the relationship between a company and a global climate goal. "At the highest level, there is uncertainty in the relationship between a global temperature goal and global greenhouse gas emissions. From there, the uncertainty only increases as we move from global to country to local emissions with additional factors entering the story at each level," said Rose. There is uncertainty about future technology, markets, and policies, as well as about how the climate system will respond to greenhouse gas emissions. "Research also illustrates that the emissions pathways associated with limiting global warming to 2°C will be extremely demanding and may be unachievable, so companies don't know if and when global emissions will peak and start declining," said Rose.

While there are many uncertainties for companies to consider, they need not be an obstacle. The scientific literature can help identify robust insights. "In our study, we identify insights that hold regardless of the model and assumptions. These provide a strong foundation for decisions," said Rose. "Companies should embrace uncertainty in their analyses and build flexibility into their strategy."

Nonuniform emissions targets. Some stakeholders are encouraging companies to adopt a common greenhouse gas emissions reduction target. "Based on detailed results from emissions scenarios, it is unlikely that identical targets across companies will be cost-effective for society," said Rose. "Flexibility for companies to work together within and across sectors will be important to enable companies to achieve emissions reductions at a lower cost to society."

Potential electrification for decarbonization. Electricity from low-carbon electric power generation could help decarbonize the overall economy. "However, the level of electrification will depend on the design of policies and the availability

of cost-effective, low-carbon technologies,” said Rose. “Power companies need to consider the range of possibilities with respect to electrification.”

Climate policy and company planning. Most power companies have planning processes that consider future demand, fuel markets, policies, and other variables. Potential climate policies could be another factor to consider. “Many companies already consider climate policies in their planning, particularly state renewable energy and emissions policies,” said Scott.

DELVING INTO CLIMATE SCENARIO ANALYSIS

EPRI’s research offers guidance to companies, drawing on the scientific literature. Among other things, EPRI’s study includes steps on how a company might implement this guidance.

According to Entergy’s Johnson, EPRI’s project is helping his company better understand all the relevant issues and uncertainties as the company conducts a scenario analysis and considers setting its next set of emissions goals. Climate scenario analysis expands the range of considerations traditionally included in utility planning.

“This project is helping us to evaluate approaches to climate scenario analysis and to develop our own approach,” said Johnson. “EPRI is evaluating analytical frameworks and methodologies, as well as company reports as they come out. The experts that EPRI brings to the table are helping us review the methodologies and frameworks with a critical eye.”

Johnson points to the collaborative forum as a key benefit. “Hearing the perspectives of our peers at other utilities—as well as experts outside the utilities—brings great value to all of us. If we didn’t have this project, we would each be thinking about this in a vacuum.”

Entergy recently announced that the company is conducting a full 2°C scenario analysis and expects to publish it by March 2019. “This analysis will help us understand the impact a carbon constraint may have on our strategy and long-term planning,” said Johnson.

A COMMON LANGUAGE FOR DISCUSSION

Another power company participating in EPRI’s project, Public Service Company of New Mexico (PNM), is on an aggressive greenhouse gas emissions reduction trajectory. In 2017, PNM’s integrated resource plan concluded that phasing out coal generation was the most cost-effective plan for PNM customers and resulted in a pathway to zero emissions from coal.

“Our integrated resource plan recommends shutting down our largest coal asset, San Juan Generating Station, by 2022 and completely exiting coal generation by 2031,” said Maureen Gannon, PNM’s executive director for environment, safety, and lands. “This will put us on track to reduce our greenhouse gas emissions by 60 percent by 2030. By 2040, we will have reduced our emissions by 87 percent from 2012 levels.”

These plans are not final yet. “We still have to go through the regulatory process and gain approval from our Public Regulation Commission,” said Gannon.

She added that EPRI’s climate scenario analysis project “hit all the right buttons for us. This year, we had shareholder proposals related to climate issues, and we needed a better grasp of the subject in order to respond. As a small company, what do we do to help meet a global 2°C goal? And what does two degrees mean? The EPRI work gives us a solid basis to inform stakeholders that 2°C is a goal—not a scientific threshold.”

Gannon says that EPRI’s initial study has helped PNM become more familiar with the technical terms and issues related to climate modeling and scenario analysis. “For me, it’s developing a much better understanding of the language. What is it going to take to perform a robust scenario analysis? The project is an opportunity to become better informed and create a common language for discussion with our many stakeholders, from investors and customers to regulators and nongovernmental organizations.”

NEXT STEPS

Later in 2018, EPRI plans to conduct new analyses on research gaps and key issues identified in the initial study. EPRI and project participants will consider a variety of research opportunities to continue informing industry and public discussions.

“Our project is designed to take a strategic pause in climate scenario and goal-setting discussions to develop the necessary technical knowledge and resources,” said Scott. “People have been very receptive and appreciative of our objective approach and the insights coming out of it. In the end, grounding company decisions in robust science is in the best interest of society.”

KEY EPRI TECHNICAL EXPERTS

Steve Rose, Morgan Scott