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CASE STUDY:
General Motors
and the Road to 100%
Renewable Energy



General Motors and the Road to 100% Renewable Energy

General Motors, one of the world's largest automakers, is one of 84 global companies, and one of only three auto manufacturers, to join RE100.

The company pledges to meet the electricity needs of its global operations with 100 percent renewable energy by 2050.

According to Mary Barra, GM's Chairman and CEO, "Establishing a 100 percent renewable energy goal helps us better serve society by reducing environmental impact. This pursuit of renewable energy benefits our customers and communities through cleaner air while strengthening our business through lower and more stable energy costs."

With an annual global energy consumption of 9 terawatt hours, or 9 billion kilowatt hours, GM's energy portfolio is immense. GM operates 350 plants, warehouses, technical centers and offices in 59 countries around the world and is seeking the right mix of energy to power each site. How does a heavy manufacturing company commit to running on 100 percent renewable energy?

A DIVERSE RENEWABLES PORTFOLIO

GM has deliberately considered both on- and off-site renewables opportunities and is focused on procuring the "right mix" of renewables to power its operations:

- › Two of its landfill gas projects have been recognized for Green Power Leadership Awards by the U.S. Environmental Protection Agency;

- › Twenty-four solar projects housed at GM facilities around the globe generate 48 megawatts (MW) of energy;
- › GM has executed power purchase agreements (PPAs) totaling 30 MW of wind in Mexico, and has completed both 30 MW (2015) and 50 MW (2016) PPAs in Texas.

GM's use of renewable energy has saved the company \$80M over the last two decades. GM expects its renewable energy financial returns to expand as its project portfolio grows to meet its RE100 commitment.

APPROACH

GM's 100 percent renewable energy commitment, along with the pursuit of electrified vehicles and efficient manufacturing, is part of the company's approach to addressing climate change. After thoughtful and deliberate analysis with many stakeholders within the company, GM developed an implementation strategy that incorporates a variety of energy generation technologies and varied approaches to financing to achieve success.

Rob Threlkeld, GM's global manager for renewable energy, remarked that to achieve success in implementing the use of renewable energy, "you have to develop an internal tracking system to know how much energy you are consuming at what times and where. Once you have that data, you can start to put together a plan that fits your company's



needs.” While data and tracking systems are essential, Threlkeld made sure to note, “You will need top leadership support.”

In developing its long-term 100 percent renewables plan, GM focused on four pillars: energy efficiency, procurement, energy storage, and policies to support the development of renewables. From there, the company assessed the markets where it had the largest footprint and where the energy and renewables markets are most developed, leading to an initial focus on the U.S., Brazil, China and Mexico.

As GM continues to gain experience in procuring renewable energy, the company will focus on smaller markets where renewable options are scarce.

With the structure of these near-term and long-term strategies in place, the GM team can continually monitor opportunistic renewable energy programs and proposals without having to “recreate the wheel” each time the company wishes to execute a new deal.

VALUE ANALYSIS/ RESULTS

Early on, GM decided to look outside the company for assistance. “We have a small team in-house that works on our onsite generation projects, but we can’t do it all,” says Threlkeld.

GM selected Altenex, an Edison Energy Company, to support its renewable energy sourcing efforts. Altenex helps energy users like GM navigate the power markets and specializes in the tracking,

analysis and negotiation of renewable energy projects that meet customized economic, risk management and sustainability objectives.

GM and Altenex worked together to develop an outline of an “ideal” renewable energy transaction. Over the course of two years, Threlkeld and Altenex met with several internal stakeholders at GM ranging from facilities to finance, treasury and accounting. Once the process and groundwork were established, the team was able to focus on strategy execution.

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MARY T. BARRA
Chairman & CEO
General Motors Company

¹“GM Commits to 100 Percent Renewable Energy by 2050.” GM.com blog entry. The General Motors Company, September 14, 2016. Web. February 13, 2016.



*GM solar installation;
Lordstown, OH.*

Altenex assisted the GM team in navigating the complex world of project due diligence and risk assessment, and developed confidence intervals to forecast economies for each project. The result was a formalized process that yielded best-in-market opportunities for General Motors. The team continues to return to this recipe for success, while keeping an eye out for opportunities to drive further efficiency where able.

Now with a working relationship spanning four years, General Motors has made significant progress in building its energy portfolio based on an analytically rigorous methodology that aligns with the company's long-term business plans. The renewable energy initiatives are being successfully built into the company's planning around brand and operations, and have gained the tactical support of senior management across the organization.

CONCLUSION

"GM's commitment to renewable energy is helping transform the way electricity is produced, distributed and consumed around the world, and we are doing it in a way that makes our company and communities stronger," said Rob Threlkeld. "These renewable energy investments drive down greenhouse gas emissions, reduce our dependence on finite resources, and help keep our air and water clean."

The GM experience shows us that America's biggest companies can benefit their bottom line by using renewable energy while improving the communities where they operate.

Edison Energy, an independent advisory and services company, recognizes energy is the largest unaddressed risk faced by most companies, and can exceed foreign currency, interest rate and other operational risks. Providing advanced analytic capabilities, we create competitive advantage for global market leaders by quantifying this risk and designing the portfolio solution to protect shareholder value threatened by complex energy policies, technological advancements and new products.

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