



## SOLAR POWERS INNOVATIVE PARTNERSHIP

In 2017, GW celebrated its first full year of receiving half its electricity from three solar farms in North Carolina. At the time the project was announced in June of 2014, this solar contract was the largest ever signed by a U.S. institution and one that provided a groundbreaking new business model for other institutions seeking to expand their renewable energy options.

The story of this remarkable achievement is a textbook example of how a university can provide a test bed and proving ground for innovative solutions to major global issues.

The university's *Climate Action Plan*, completed by GW's Office of Sustainability in 2010, set a long-term target for carbon neutrality by 2040 and an interim target of a 40 percent emissions reduction by 2025. The plan spells out a preference for the tangible benefits of energy efficiency and renewable energy development over the more abstract purchase of Renewable Energy Credits (RECs). GW quickly discovered that in its close urban quarters, the university lacks the roof space and land to make a meaningful dent in its electricity consumption by using on-site solar, so it had to look elsewhere for reliable, cost-effective, large-scale renewable energy.

With unwavering support from the administration and operational functions, the office forged partnerships with other large energy users to leverage our combined purchasing power. GW worked with Customer First Renewables to manage a bidding process to identify the winning solution – solar photovoltaic power supplied by Duke Energy Renewables using panels located at three sites in North Carolina. Together with the George

Washington University Hospital and American University (AU) – the members of the Capital Partners Solar Project (CPSP) – we purchase 100 percent of the output from the 53.5-megawatt solar photovoltaic arrays, cutting our collective carbon footprints by the equivalent of nearly 18,000 cars. As the anchor buyer, GW purchases about 70 percent of the project output, while George Washington University Hospital and AU buy the remainder.

The project is innovative in several ways:

- Purchasing partnerships are unusual among not-for-profit institutions, but aggregating the purchasing power of the participants was key to opening up economies of scale. The final cost to the university is projected to be less than what it would expect to pay if it used solely conventional electricity over the life of the 20-year term of the purchase agreement.



*The Capital Partners Solar Project is a utility-scale solar farm in North Carolina.*



CASE STUDY CONTINUED FROM PREVIOUS PAGE

- The agreement was structured to take advantage of the fact that high solar production – often driven by activities such as air conditioning use, which increases on hot sunny days – can help to displace high-cost conventional electricity.
- The solar power generated in North Carolina is fed into the same regional electricity grid to which all project partners are connected. Since electrons are fungible, the power purchased from North Carolina will displace electrons on our regional grid that otherwise would need to be produced by more carbon-intensive generation sources, thereby increasing the share of renewable generation in the regional power supply mix.
- Built on agricultural land, the project provides a reliable stream of income to farmers who are often buffeted by swings in weather and commodity prices, helping to enhance the resilience of the farmers and their communities.

Under the agreement, GW is purchasing 68 percent of the output of the solar project, AU receives 24 percent, and the George Washington University Hospital receives 8 percent. This electricity is equivalent to about half the electricity needs of GW and AU and about 30 percent of the electricity needs of the

#### Capital Partners Solar Project by the numbers<sup>10</sup>

- 53.5 megawatts (MW) of new solar capacity on GW's regional electric grid
- 243,000 solar panels at three sites in North Carolina generate 121 million kilowatt-hours (kWh) of emissions-free electricity each year, taking normal photovoltaic panel degradation into account.
- 84,900 metric tons of carbon dioxide equivalent (MTCDE) abated annually
- Equivalent to taking 17,900 cars off the road

hospital. The approach pioneered by the CPSP has since been replicated by other large retail buyers, including higher education institutions such as Massachusetts Institute of Technology and Georgetown University. GW is looking ahead to additional steps we need to take toward carbon neutrality.

The partnership with Duke Energy Renewables also resulted in the creation of the Duke Energy Innovation Fund, which supports GW faculty and student research into clean energy. For example, the fund supported a living laboratory to study solar farms – a project that intertwined research and education by delivering a case study of Duke Energy Renewable solar farms' technical, financial and environmental facets and integrating real-world energy applications into graduate and undergraduate courses. In 2016 and 2017, the fund contributed \$225,000 to GW research efforts.

*“GW's leadership through the Capital Partners Solar Project is critical to creating a cleaner, more reliable grid and addressing climate change.”*

– LILY DONGE  
PRINCIPAL, ROCKY MOUNTAIN INSTITUTE

GW was also instrumental in forming a partnership with [Second Nature](#) and the [Rocky Mountain Institute](#) (RMI) to provide higher education institution signatories of the Climate Leadership Commitment with complimentary access to RMI's [Business Renewables Center](#) in order to streamline and facilitate renewable energy procurement. The center provides a network of like-minded institutions and transparency into renewable energy markets.

<sup>10</sup> These data are for the total CPSP project. GW's portion of the project is 68.4 percent.