CASE STUDY:
THE RISE OF SOLAR IN U.S. CITIES

SOLSYSTEMS

As cities emerge to lead in transforming the U.S. to clean energy, Sol Systems completes one of the largest, most complex municipal portfolios.

Why are cities flocking to renewables, and what can others learn from how Sol Systems delivered the Washington, DC Department of General Services onsite solar energy portfolio?

U.S. CITIES ARE FAST TRACKING RENEWABLE ENERGY

Cities are becoming a driving force in the rapid adoption of clean energy in the U.S. As of March 2017, at least 25 major cities are either already working toward 100% renewable energy in the near term, or have made city-wide commitments to transition to 100% clean, renewable energy by 2050. Today, four U.S. cities are now powered by 100% renewable energy – Georgetown, Texas, Las Vegas, Nevada, Burlington, Vermont, and Greensburg, Kansas.

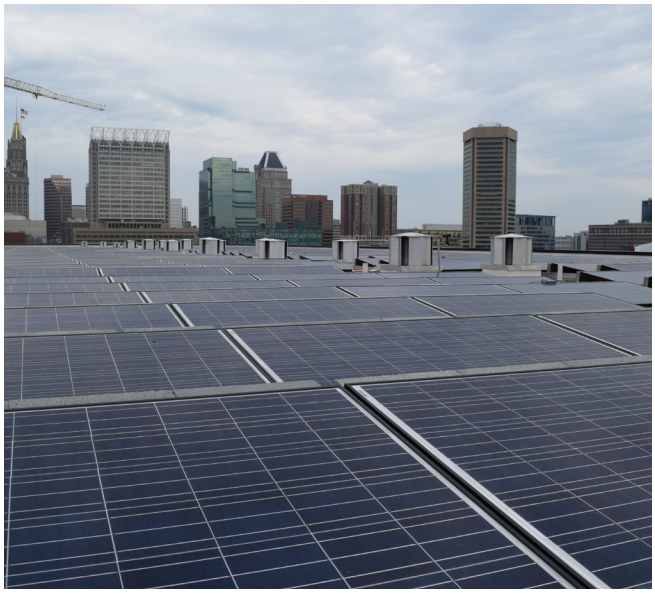
SUSTAINABILITY AND ECONOMIC STABILITY

When NPR asked Dale Ross, the Mayor of Georgetown, Texas how Georgetown became one of the first cities powered by renewable energy, he replied,

> **"First and foremost, it was a business decision… wind and solar power are more predictable. The prices don't swing up and down like oil and gas. So, the city can sign a contract today and know what the bill is going to be for the next 25 years. That's especially appealing in a place like Georgetown where a lot of retirees live on fixed incomes."**

Another city now on its way is Washington, DC with the launch of "Clean Energy DC," the District's new climate and energy plan that provides a vision and tangible strategies to both cut greenhouse gas emissions and reduce operating costs. In the plan, the District set goals to increase the use of renewable energy to 50% of the total electric supply by 2032. Subsequently, in July, 2016 the Renewable Portfolio Standard (RPS) Expansion Amendment Act of 2016 was signed into law, officially raising renewable portfolio and solar supply requirements to 50% and 5% by the year 2032, respectively.

The Department of General Services (DGS), the District's agency responsible for managing over 80 municipal properties, first began its efforts to increase renewable energy by contracting to purchase 125,000 megawatt hours of electricity annually from a wind power farm in Pennsylvania. Signed in August 2015, that deal will provide about one third of the DC government's energy needs from wind power, and will save the city approximately $45 million on its energy bills over 20 years.



CHRIST CHURCH APARTMENTS IN BALTIMORE, MARYLAND

BALLOU STAY HIGH SCHOOL, WASHINGTON, DC

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DC GOES SOLAR IN A BIG (AND COMPLEX) WAY

In early 2015, DC DGS also turned to the sun, and sought to develop one of the largest municipal portfolio of onsite solar projects in the United States as follows:

DC DGS Portfolio by the Numbers

34

District Facilities: schools, hospitals, recreation centers, and police training facilities

35

Individual Projects: 34 rooftops plus 1 carport

10.9MW

Installed Capacity

HERE'S HOW IT GOT DONE

As one of the largest and most complex onsite municipal solar projects in the United States, the DGS portfolio presented several notable challenges. The most significant hurdles were:

1. The sheer number of sites and projects across the city;
2. A challenging timeline of about nine months; and
3. Multiple constraints at each site so as not to disrupt operations, particularly at schools and public safety facilities.

HERE'S HOW SOL SYSTEMS CLEARED THESE HURDLES:

CHALLENGE: 34 offtakers with unique needs

PATH FORWARD: Negotiate a single Power Purchase Agreement (PPA) for all 34 offtakers

Of course, this was no small task. As with most municipal entities, DGS required multiple levels of approvals from internal stakeholders. Sol Systems met with numerous stakeholders from sustainability and procurement officers to facilities management and internal counsel to build consensus, and structure an acceptable singular PPA.

Additionally, to make the project economically viable, Sol secured a strong investor.

CHALLENGE: Design, construct, and closeout 35 projects simultaneously in about nine months

PATH FORWARD: Approach the portfolio as one project and create state-of-the-art project management

To deliver the highest quality systems under a demanding timeline, Sol Systems approached the portfolio not as 35 projects, but as one. Then, Sol customized the project delivery plan supported by a series of web-based tools, and established a state-of-the-art level of coordination, tracking, and communication. This provided clarity and transparency for DGS, each offtaker, and Sol's delivery partners enabling concise management of such a substantial number of projects.

CHALLENGE: Minimize disruption to operations of each and every facility during construction

PATH FORWARD: Rigorous communication and coordination processes with all stakeholders and subcontractors

DGS empowered each of the sites (principals and facilities' managers) to make decisions that were best for their individual facilities. In support of that, Sol Systems worked in lock step to meet the individual needs and unique operational challenges of each site. To accomplish this, Sol fully leveraged its intensive system to coordinate among multiple subcontractors and communicate with all stakeholders. The result: the entire portfolio of 35 individual projects was customized and delivered with minimal disruption to the schools and other sites.

$25 million	140 Jobs	13,800MWh
The amount tax payers will save over the deal's 20-year term	Construction and design created 140 temporary jobs, plus a projected five permanent jobs for ongoing operation and maintenance of the system	The portfolio will produce roughly 13,800 MWHs of electricity each year, equal to reduction in CO2 emissions from over 10 million pounds of coal burned.