



# Sustainable Energy System Evaluation and Planning

## *Integrating energy with design*

District energy networks, microgrids and sustainable energy resources are becoming increasingly popular for their ability to decrease total cost of ownership, reduce energy use and greenhouse gas (GHG) emissions, integrate sources of renewable energy and enhance resiliency in a changing climate. Successful implementations consider the shifting energy landscape and involve a systems-based approach with robust engineering and financial analysis informing decisions from early planning to project completion.

With our unique combination of cross-sectoral experience and strategic and technical expertise, WSP USA provides impartial evaluations of potential energy systems using a life cycle approach to identify the best systems for achieving project goals.

## **Our services**

WSP provides detailed feasibility and engineering design services for a variety of district energy and microgrid applications, including university and corporate campuses, mixed-use real estate developments, industrial parks, urban districts and entire communities.

WSP engages with clients in early conceptual design through final design and construction management, offering the following services:

- **Goal evaluation:** Identifying and establishing project goals, including lower system life cycle costs, net-zero energy, decarbonization, resiliency and grid independence.
- **Load profile analysis:** Developing electric and thermal load profiles of proposed and existing buildings to identify potential energy efficiency measures, load shifting opportunities and optimal sustainable energy system design to make the most efficient use of capital investments.
- **Energy resources:** Assessing the potential of on-site and local energy resources, including solar, wind, biomass/biogas, waste to energy, heat recovery, geothermal and other energy sources in the vicinity.
- **Energy storage:** Evaluating the potential for electrochemical, thermal and compressed air energy storage to increase resiliency and reduce costs.
- **Technical and economic analysis:** Conducting detailed evaluations of potential technologies for converting available energy resources into electricity, heating, cooling and process energy.
- **Regulatory policy and utility analysis for grid-integrated systems:** Optimizing system design based on current and projected rate structures, permitting requirements, policies and net metering rules.

These services are delivered as stand-alone offerings or can be coupled with our broader approach to sustainability advising, transportation planning, certification support and placemaking.

Through strategy, planning, and implementation support, WSP enables clients to improve environmental performance across all aspects of operations. This ranges from reducing water consumption greenhouse gas emissions to achieving net-zero energy, water and waste goals.

## Our experience

### PROVIDED DISTRICT HEATING AND ELECTRIC MICROGRID ASSESSMENT FOR BRIDGEPORT, CONNECTICUT

Our team's assessment supported a broader climate resiliency project for the City, which was significantly impacted by Hurricane Sandy.

### DEVELOPED WASTE HEAT-ENERGIZED HEATING SYSTEM FOR A TECHNOLOGY CLIENT

WSP evaluated and designed a district heating system using heat from an adjacent data center to serve the client's corporate campus.

### PROVIDED DISTRICT HEATING AND ELECTRIC MICROGRID ASSESSMENT FOR A DEVELOPER

Our analysis included off-site renewable energy procurement opportunities and utility negotiation for a proposed Denver mixed-used development with a carbon neutral goal.

### DELIVERED DISTRICT COOLING AND MICROGRID SYSTEM FOR A CALIFORNIA COLLEGE CAMPUS

WSP performed evaluation, optimization, design and construction management for the system, with the goal of decreasing demand charges, providing support services to the local electric grid, and providing fulltime emergency energy resources leveraging solar PV, electrochemical batteries and thermal energy storage.

### DEvised SUSTAINABLE ENERGY MASTER PLAN FOR A TECHNOLOGY CLIENT

WSP developed a plan that encompassed aggressive building efficiency improvements and on-site renewable energy generation for our client's multi-building corporate campus.

### PROVIDED UTILITY-SCALE PV PROCUREMENT SUPPORT TO THE BERMUDA ELECTRICITY COMPANY

Our work included a solar resource assessment, an estimate of the energy yield from 6 MW of installed PV capacity, development of technical specifications, and a request for proposals and evaluation of proposals from prospective project developers.

## About WSP USA

WSP USA is the U.S. operating company of WSP, one of the world's leading engineering and professional services firms. Dedicated to serving local communities, we are engineers, planners, technical experts, strategic advisors and construction management professionals. WSP USA designs lasting solutions in the buildings, transportation, energy, water and environment markets. With more than 9,500 employees in 150 offices across the U.S., we partner with our clients to help communities prosper.

Our multidisciplinary sustainability, energy and climate change team has been providing related services for two decades. We support clients across sectors by providing strategy and planning, operational and technical expertise, a collaborative approach and a unique perspective on the market.



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For more information on sustainable energy, or our sustainability, energy and climate change services, please contact:

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