



Case study



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Here comes the sun Celebrating 10 years in solar

One in five people still lack access to modern electricity, while three billion people still rely on wood, coal, charcoal or animal waste for cooking and heating. With energy being a dominant contributor to climate change, Sustainable Development Goal 7 underscores the need for clean and renewable energy to help combat climate change while meeting increasing energy demands.

7 RENEWABLE ENERGY



By 2030

- Increase substantially the share of renewable energy in the global energy mix
- Double the global rate of improvement in energy efficiency
- Ensure access to affordable, reliable and modern energy services

In the past ten years Amec Foster Wheeler has built nearly 30 solar energy facilities and installed over 1.6GWdc of solar energy projects across North America, ranging from rooftop solar, remote site solar/diesel hybrid solutions to large utility scale projects: From initial design and permitting through to engineering, procurement and construction (EPC).

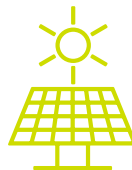
Installed over
1.6GWdc
in less than 10 years
in North America



Recognised as a top tier
Solar EPC
provider in North America by
ENR and Solar World Power



Installed **>6 million**
solar panels for 30 energy
facilities across
North America



In less than 10 years

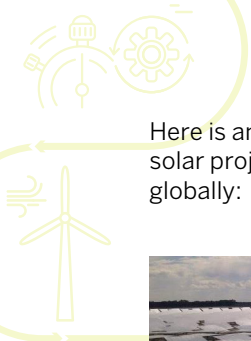




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Here is an overview of some of the solar projects we have delivered globally:



Gemsolar, Seville, Spain

The first commercial solar plant with a central tower receiver and molten salt head storage technology. The plant's storage system provides electricity production for 15 hours without sunlight and can supply 110 GWh per year – enough to supply power for 27,500 homes.

Amec Foster Wheeler designed and supplied one 17 MWe steam generating grain consisting of preheater, a kettle type steam generator, superheater and reheater as well as two LP and three JHP feedwater heaters.

Foothills Solar Plant, Yuma, Arizona, USA

Amec Foster Wheeler provided engineering, procurement and construction services on this 400 acre, 35MWe photovoltaic solar plant. The project was the largest Arizona Public Service owned PV project, featuring more than 150,000 solar modules – enough to generate enough energy to power 8,750 Arizona homes.

Amec Foster Wheeler also provided geotechnical, permitting and hydrology services.

Indy Solar I, II and III, Indianapolis, Indiana, USA

Amec Foster Wheeler worked as EPC contractor for Dominion Resources on three alternating current photovoltaic solar plants with a combined capacity of 28.6 MWac, increasing the amount of energy produced in Indiana more than fivefold.

The solar plants form the largest installation to date of Array Technologies Dura Rack fixed group-mount systems. Amec Foster Wheeler was responsible for the procurement of all materials including the solar panels, construction and tie in to the local distribution system.



Mesquite Solar 2 & 3, Tonopah, Arizona

Amec Foster Wheeler is constructing a 150 megawatt photovoltaic (PV) solar facility situated on 1,000 acres of land.

Responsible for the engineering design, procurement of all materials including solar panels, construction and commissioning, the procedure will create 600 jobs during the peak of the construction phase and around 50 support staff. Once complete it will generate enough electricity to power around 40,000 homes.



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Focus on Copper Mountain Solar 3 & 4 Boulder City, Nevada, USA

Copper Mountain Solar 3 (CMS3) and Copper Mountain Solar 4 (CMS4) are utility scale photovoltaic solar plants situated in Boulder City, Nevada for which Amec Foster Wheeler was responsible for the engineering, procurement and construction. Combined, the two plants produce over 340 megawatts (MW) of clean, emission-free electricity; enough to power approximately 108,800 homes.

Health & Safety

The Copper Mountain Solar projects were crowned winner of Amec Foster Wheeler's HSSE best practice CEO awards in 2015 for implementation of best practice techniques and working practices to protect workers in unique and challenging working environments. These controls included:

- Specific weather exposure control plans to stagger work times, and provision of portable open-air cooling trailers with misting fans to provide cool-down area.

- Training on identification of dangerous insects for all workers, and specific training for designated employees on how to safely relocate protected species from work areas.
- Introduction of stretch and flex programmes for all workers in response to repetitive work-tasks and soft tissue injury concerns.
- Cables laid using wire spools on trucks in place of manual installation to reduce risk of injury associated with laying 290 miles of cable.

Efficiency and innovation

A number of innovative solutions were incorporated into the design for Copper Mountain Solar 4, one of which was to overcome the challenge associated with meeting output requirements in a limited amount of space. A tracking system was implemented, moving east to west, tracking the sun to provide approximately 6% more power per unit of area than the fixed tilt solar panels used at Copper Mountain Solar 3.

Environmental management

The design phase considered installation, operation, and maintenance in the design. An example outcome of these considerations was to choose polycrystalline silicon modules for the CMS3 and CMS4 project. Along with other factors influencing the decision, polycrystalline panels are inert and can be recycled at the end of their design life.

Both projects utilised local recycling services: The majority of the cardboard recycled from the project was shredded and repurposed, and the wood pallets reused or recycled for construction of new pallets. Overall, both projects recycled over 700 tonnes of cardboard waste, and 1,100 tonnes of wood pallets and dunnage.

Community

At the end of Copper Mountain 4 project, Amec Foster Wheeler donated approximately 500 solar panels, worth US\$25,000, to the city of Boulder City to charge electric vehicles in a new covered car port for the city's electric vehicle fleet. The solar panels are capable of producing 118 kW; enough to power approximate 12 US households.

Construction of the solar project created roughly 600 jobs, and 12 permanent operations jobs.

Project sustainability framework

Human & Labour Rights	Environment	Anti-bribery & Corruption	Community
Diversity & Inclusion	Environmental Management	Code of Business Conduct and Ethics	Stakeholder Engagement
Human Rights	Carbon Management	Anti-bribery & Corruption	Local Content
Health & Safety	Efficiency and Innovation	Supply Chain	Community
Resiliency			