Innovative Clean Technology Program

Xcel Energy's newest proposals continue efforts in support of solar power and emerging technologies

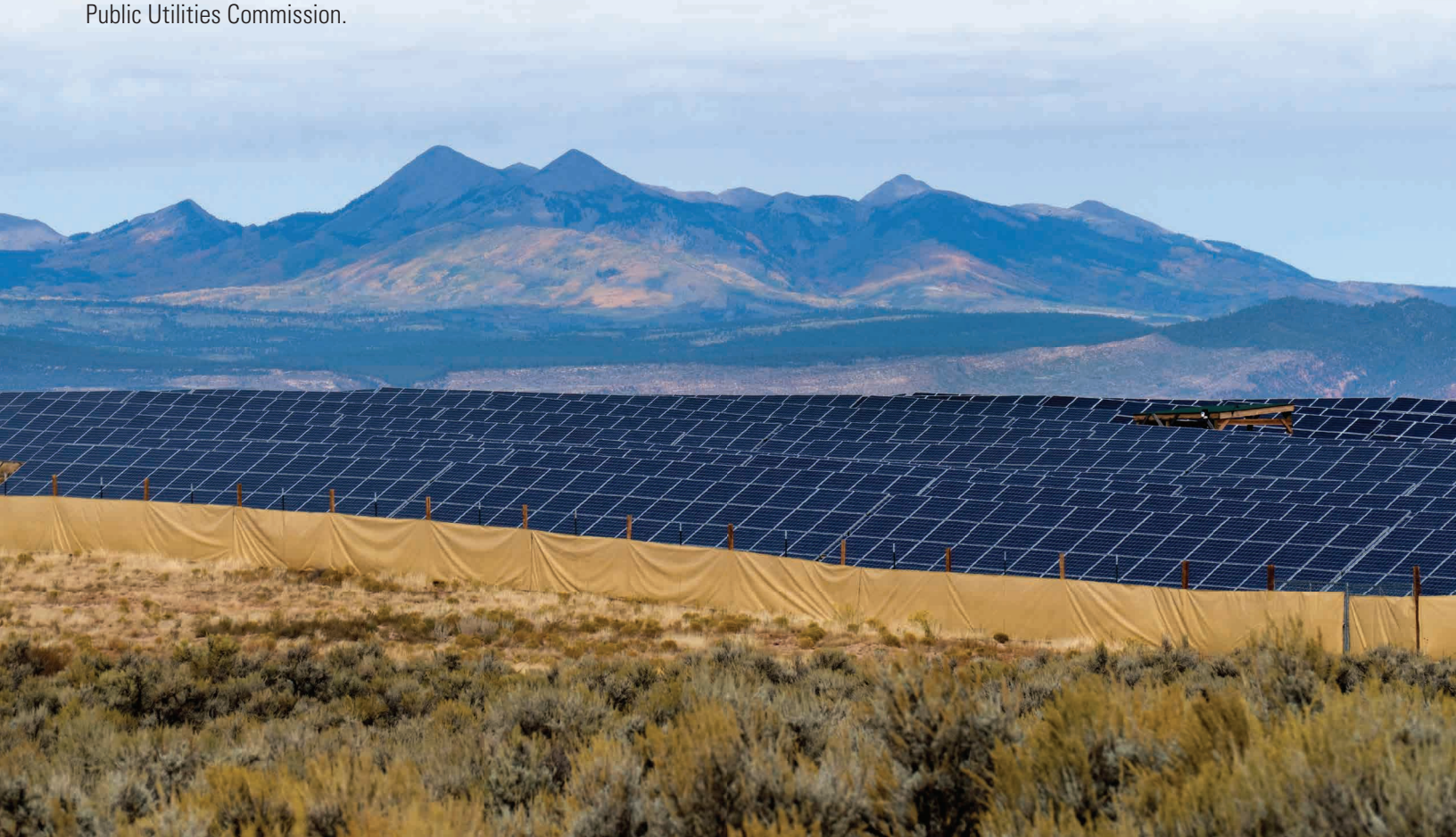
About the Program

In 2009, the Colorado Public Utilities Commission approved Public Service Company's Innovative Clean Technology (or ICT) program to enable the testing of emerging energy technologies that promise lower greenhouse gas emissions and other environmental benefits. Through the ICT program, Xcel Energy pursues the development, commercialization, and deployment of new power generation, energy storage and other technologies that support its clean energy strategy.

Since then, the program has provided funding for a limited number of select, small-scale demonstration projects. It offers a cost-effective, practical means for testing and proving the potential of new technologies, while minimizing risk to Xcel Energy customers.

The ICT program gives the utility opportunities to test promising new technologies and evaluate their cost, reliability and environmental performance on a small, demonstration scale—before determining whether to deploy them more widely for customers.

Xcel Energy uses the learnings to make smart, informed decisions and invest only in those technologies that offer the most value and meet the highest standards for reliability, cost, safety and environmental protection. Each project must be approved by the Colorado Public Utilities Commission.



2009 Colorado Solar Integration Project
(Grand Junction, Colorado)

- Was the first demonstration of its kind in the world.
- Connected a parabolic-trough-concentrating solar plant with the steam cycle at Xcel Energy's Cameo Generating Station to produce the equivalent of one megawatt of electric power from renewable solar energy.
- Tested the commercial viability of using solar power to reduce the overall consumption of coal, reduce plant emissions, and improve plant efficiency while increasing the opportunity for cost-effective renewable power generation.

2012 Community Energy Storage Project
(Aurora, Colorado)

- Located at our SolarTAC facility near Denver International Airport.
- Xcel Energy and its partners are testing a 25-kilowatt battery system connected to a simulated four-home neighborhood, where all of the houses have rooftop solar panels.
- Evaluates energy storage as a tool to manage grid peaks and integrate the variable energy output of residential rooftop solar systems.

2015 Panasonic Project
(Denver)

- A proposal to test a single large battery system on a commercial customer's electric feeder, in conjunction with installation of a large Public Service Company-owned photovoltaic system.
- The battery will be operated as a micro grid to provide the customer with back-up power.
- Partners include the Panasonic Corporation, Denver International Airport, land developer L.C. Fulenwider and the City and County of Denver.
- The demonstration will run from 2016-2018 (and operation could continue after testing and evaluation is complete).

2015 Stapleton Project
(Denver)

- A proposal to install and test a series of batteries on an existing residential electric feeder, which serves a neighborhood with a high market penetration of rooftop solar panels.
- Potential partners include the Electric Power Research Institute and the National Renewable Energy Laboratory.
- Will help evaluate distribution system benefits of both utility and customer-sited batteries and address the impact of two-way power flow on the grid.
- The demonstration will run from 2017-2018 (and operation could continue after testing and evaluation is complete).