Appendix E

Climate Resilience Evaluation & Awareness Tool (CREAT) Report

Scenarios and Threats for Boswell Solar

Changing climate conditions are expected to impact a utility's ability to meet its basic goals. The scenarios presented below capture current and future risk profiles for specific threat(s) to Boswell Solar. These scenarios will inform decision-making and planning to mitigate potential future climate impacts.

Baseline Scenario - The Baseline Scenario captures historical data for the analysis location to assist in defining Boswell Solar's current risk profile.

THREAT(S) IDENTIFIED AND DEFINED FOR THIS SCENARIO:

Service Demand and Use: Changes in residential use

Definition: Residential demand for water is strongly linked to seasonal temperatures. Changes in future temperatures will challenge the ability of utilities to provide adequate levels of wastewater and stormwater services.

Hotter, Drier and Stormier Future Conditions (2060) - The Hotter, Drier and Stormier Future Conditions uses projected climate data for the utility's time period (2025 – 2100) to assist in defining Boswell Solar's potential future risk profile.

THREAT(S) IDENTIFIED AND DEFINED FOR THIS SCENARIO:

Service Demand and Use: Changes in energy sector water needs

Definition: Increasing temperature and changing precipitation patterns combine to change the demand for water used in the generation of energy. The consumption of energy is strongly linked to seasonal temperatures and the energy needs of water utilities.

Climate Data for Boswell Solar

Measurement	Baseline	Hotter, Drier and Stormier Future Conditions
Annual Average Temperature (Fahrenheit)	38.98	--
Annual Degree Change in temperature (Fahrenheit)	--	7.00
Annual Number of hot days over 90 °F (Days)	3	25
Annual Number of hot days over 95 °F (Days)	0	7
Annual Number of hot days over 100 °F (Days)	0	1
Annual Total Precipitation (Inches)	27.77	--
Annual % Change in precipitation (%)	--	0.89
100-year storm event (Inches/24hr)	5.04	--
100-year storm event (Inches/72hr)	5.78	--
100-year storm event (%)	--	25.77
Annual Average Mean Flow (Cubic Feet/Second)	1,238.15	--
Annual Average Minimum Flow (Cubic Feet/Second)	304.52	--
Annual Average Maximum Flow (Cubic Feet/Second)	2,622.20	--
Annual Average 7Q10 (Cubic Feet/Second)	159.84	--
Annual Average 7Q2 (Cubic Feet/Second)	349.50	--
2100 Sea Level Rise (Inches)	--	0.00

* Baseline relative sea-level rise (SLR) is typically a rate based on vertical land movement (VLM), if available

Map Locations for Boswell Solar

Data Type	Station/Site/ Cell ID	Station Name	Latitude	Longitude
Temperature	531		47.2640	-93.6383
Hot Days Station	USC00216612	POKEGAMA DAM	47.2508	-93.5861
Precipitation	531		47.2640	-93.6383
Intense Precipitation Station	USC00216612	POKEGAMA DAM	47.2508	-93.5861
Streamflow Gage	5211000	MISSISSIPPI RIVER AT GRAND RAPIDS, MN	47.2322	-93.5302
Streamflow Projection Point	7004117		47.2527	-93.6368
Tide Gauge			0.0000	0.0000

The Climate Resilience Evaluation and Awareness Tool (CREAT) is a risk assessment and scenario-based planning application for water, wastewater, and combined utilities of all sizes. CREAT guides utility owners and operators through the development of potential climate-related threat scenarios and assessment of the subsequent risk for their utilities.

CREAT provides users with access to basic climate science information and a framework to gauge climate-related risk reduction following the implementation of different adaptation strategies. Results can be incorporated into asset planning and water-resource management efforts to build resilience at their utility. For more information, go to creat.epa.gov.

Resources:
EPA's Creating Resilient Water Utilities initiative – epa.gov/crwu
2014 National Climate Assessment – nca2014.globalchange.gov