WHAT IS PROJECT NEXUS?

Project Nexus includes the installation of solar panel canopies over various sections of Turlock Irrigation District’s (TID) irrigation canals. Project Nexus will serve as a Proof of Concept to pilot and further study solar over canal design, deployment, and co-benefits on behalf of the State of California using TID infrastructure and electrical grid access.

HOW DID PROJECT NEXUS GET ITS NAME?

The pilot project is called Project Nexus as a nod to the water-energy nexus paradigm gaining attention among public utilities. Utilities are increasingly recognizing the symbiotic relationship between water management and energy management, and are finding ways to design projects and actions that benefit the management of both resources beyond what has been done historically.

Project Nexus goes beyond recognizing the linkage that water is used for energy production and energy is used for water treatment and conveyance. With Project Nexus, existing water conveyance infrastructure will serve as the foundation for solar canopies to produce renewable energy. The water in the conveyance infrastructure has the potential to cool the solar panels, increasing their efficiency. The solar panels provide shade and wind protection over the water, reducing evaporation and also leading to a reduction in aquatic growth improving water quality. Project Nexus has the potential to demonstrate a new, innovative water-energy nexus project that can be replicated elsewhere in the state and nation to increase efficiencies in managing limited natural resources.

PROJECT NEXUS GOALS

- Demonstrate proof of concept of narrow and wide-span canal coverage with solar panels.
- Increase renewable power generation.
- Experience water quality improvements.
- Reduce vegetative growth in the canal.
- Investigate integration between renewable power generation and energy storage.

UC MERCED STUDY

A 2021 study showed that covering all of the approximately 4,000 miles of public water delivery system infrastructure in California with solar panels can result in significant water, energy and cost savings for the state. The study illustrates a savings of 63 billion gallons of water annually (enough to irrigate 50,000 acres of farmland or meet the residential water needs of more than 2 million people).

According to the study, 13 gigawatts of solar power the solar panels would generate each year would equal about one sixth of the state’s current installed capacity. As such, Project Nexus is a way to test these conceptual projections at a much smaller scale. A copy of the UC Merced Study is available at go.nature.com/3sefJf0.

FAST FACTS

- First in the Nation project.
- TID was the first publicly-owned irrigation district in CA.
- Private/Public/Academic collaboration.
- DWR will provide funding and technical assistance for the project.
- There are three project sites planned along various sections of TID’s canal system.
- 5MW of renewable energy generated.
- Energy storage to be incorporated.

The project is anticipated to break ground in fall 2022 and be completed by the end of 2023.

PROJECT NEXUS PARTNERS

TID.org/ProjectNexus