

CASE STUDY / **AS-NEEDED ENERGY SERVICES CONTRACT**

# A ROBUST RELATIONSHIP TO DRIVE SUSTAINABLE PORT OPERATIONS

The San Diego Unified Port District has embraced a leadership role in establishing operations that reduce emissions and improve air quality. To help determine the right projects to further this mission, the District turned to our team for a multiyear, as-needed energy services contract.



# EFFECTIVE COLLABORATION GUIDES MULTIPLE PROJECTS THROUGHOUT THE PORT OF SAN DIEGO

A dedicated multidisciplinary team executes a vast range of studies and projects for emission reduction and energy resilience.

## PROJECT STATS

### CLIENT

San Diego Unified  
Port District

### LOCATION

San Diego, California

# \$5M

GRANT AWARDED TO  
HELP FUND MICROGRID

# 4

YEAR  
INITIAL CONTRACT

# 3

YEAR  
CONTRACT EXTENSION

## CHALLENGE

Recognizing the impact port emissions can have on the environment and surrounding communities, the San Diego Unified Port District developed a Climate Action Plan (CAP) to reduce greenhouse gas emissions and improve air quality. Through the CAP, the District is focusing on sustainable operations with energy conservation, renewable generation and the use of alternative-powered vehicles, vessels and cargo-handling equipment. To implement this program, the District contracted Burns & McDonnell to provide as-needed energy services for projects that support its emissions reduction and energy resiliency goals.

## SOLUTION

Under the multiyear contract, our team executed an extensive array of studies, assessments, concepts and projects throughout the port to advance the District's mission. As each study request arose or grew into executable projects, our team provided holistic services to assist at every stage. A selection of the most prominent requests included:

### TENTH AVENUE MARINE TERMINAL MICROGRID

Our team was tasked with the preparation and evaluation of a detailed feasibility study for an on-site solar and battery storage microgrid. We conducted solar

assessments, electrical load analysis, electrical interconnection evaluation, battery energy storage modeling, economic modeling and more to provide viable plan recommendations.

Based on our evaluation, we recommended a permanent, renewable microgrid at the Tenth Avenue Marine Terminal, incorporating solar photovoltaic generation, battery energy storage, energy efficiency improvements and a centralized microgrid controller to sustain operations when islanded from the electrical grid. Collaborating with the District, we prepared a winning grant application for \$5M grant awarded to help fund microgrid. We are now providing engineering design, procurement, construction support and owner's representative project management services for the project.





## **B STREET PIER MOBILITY HUB FEASIBILITY ASSESSMENT**

Looking to expand its existing 20-megawatt (MW) Cochran Marine Shore Power system capacity at the B Street Pier, the Port requested a technical and financial feasibility analysis. This analysis determined the viability of providing shore power to two cruise ships simultaneously while also developing a power distribution system for electric vehicle (EV) charging stations for public passenger vehicles and charter bus companies. We identified ideal locations for new EV charging stations and electrical infrastructure, while also helping the District evaluate engineering and construction scope and costs required to implement the upgrades.

## **NATIONAL DISTRIBUTION CENTER FLEET ELECTRIFICATION STUDY**

To support heavy-duty and passenger vehicle electrification at the National Distribution Center, we conducted

a thorough evaluation of electric load growth, distributed generation and infrastructure upgrades. The study looked at the potential for deploying charging infrastructure, refrigerated container outlets, rooftop solar and battery storage to develop a model for zero-emission goods movement. We also developed site layout diagrams, electrical single-line diagrams and preliminary construction cost estimates in support of the District's due diligence analysis and pursuit of project funding.

## **BUILDING ENERGY MANAGEMENT**

We conducted an evaluation and recommended an approach to upgrade the District's Building Automation Systems (BAS) that manage and control the building systems of multiple facilities. The study involved inspecting existing equipment to be controlled and monitored by a new BAS and evaluation of the equipment relative to typical useful life

expectancies; reviewing five of the top available BAS products in the market from operational and cybersecurity perspectives; and developing a phased approach for implementing the BAS upgrades. Key considerations included capital costs of system and equipment upgrades, potential for leveraging existing systems and equipment, and cost savings opportunities from long-term energy management and increased staff resource efficiency.

## **RESULTS**

During the four-year contract, our team performed all as-need energy service requests within schedule and budget to vet new technologies, assist in funding, and provide project feasibility clarity from both an infrastructure and cost perspective. As the original contract was set to expire in 2020, the District signed an extension with our team for another three years as it continues to pursue its emissions reduction and energy resiliency goals.



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