



Port of San Diego Resiliency in Terminal Operations at Tenth Avenue Marine Terminal

The Port Act and Tidelands Trust Doctrine



Details responsibility on behalf of the people of the State of California



Manage San Diego Bay and the Waterfront 'Tidelands'



Promote commerce, navigation, recreation, fisheries, and environmental stewardship



Port of San Diego Jurisdiction

34

miles of waterfront

2,403

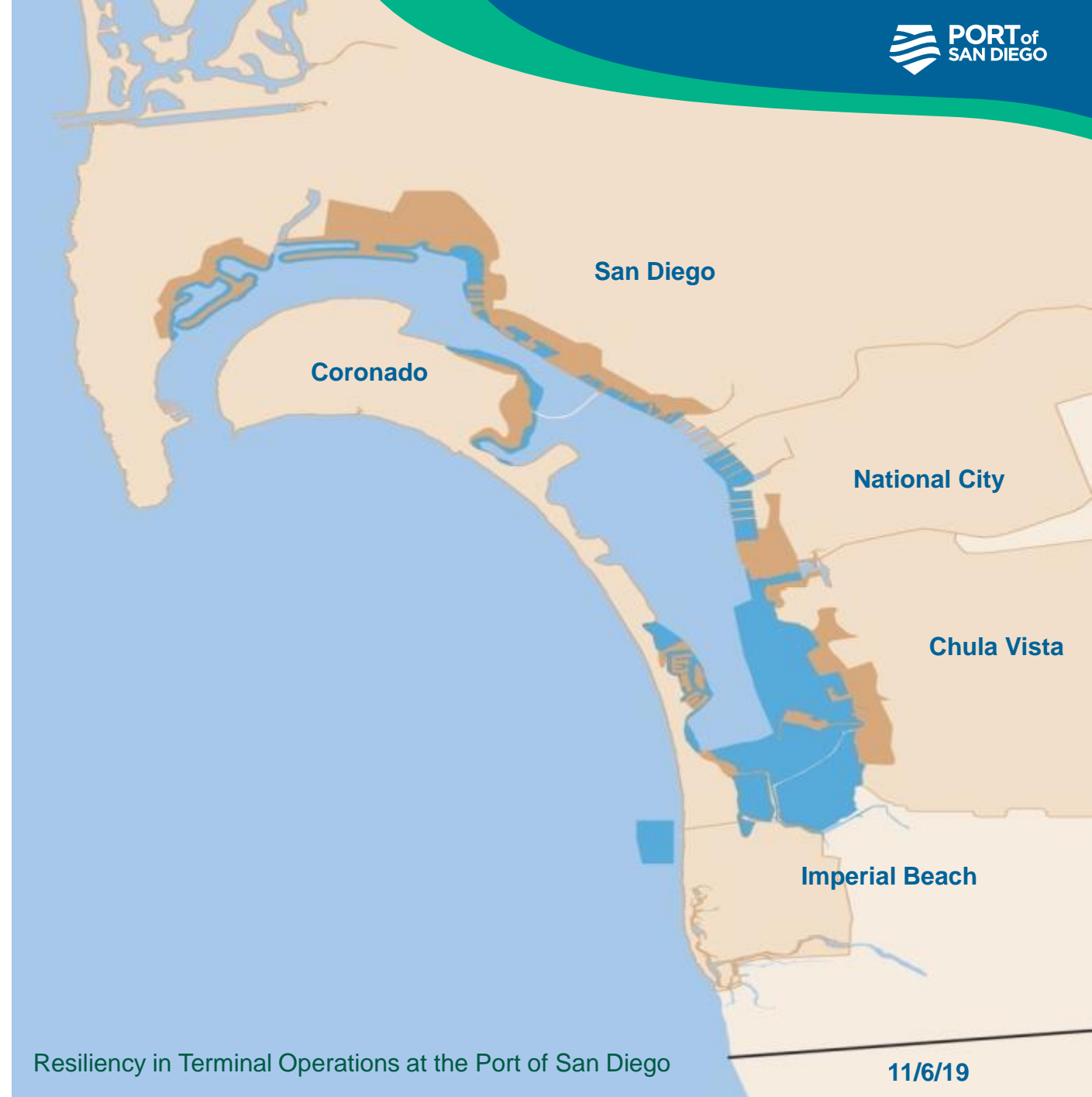
acres of land

3,535

acres of water

 Port Tidelands

 Submerged Tidelands



Economic Engine

More than \$1.7 Billion Invested Since 1963



5

public piers



4

terminals



9

museums & attractions



18

hotels



74

restaurants



22

parks



70

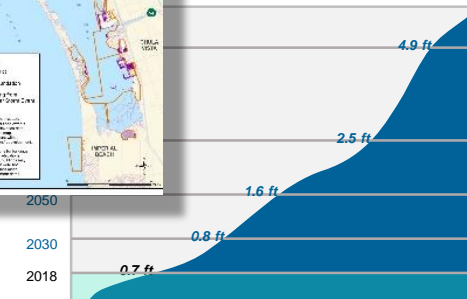
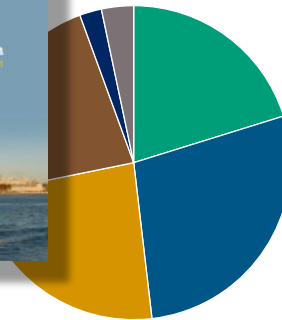
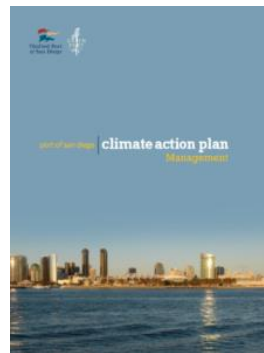
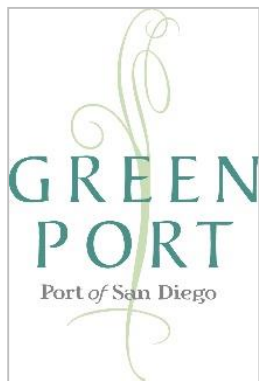
artworks



80+

sponsored events

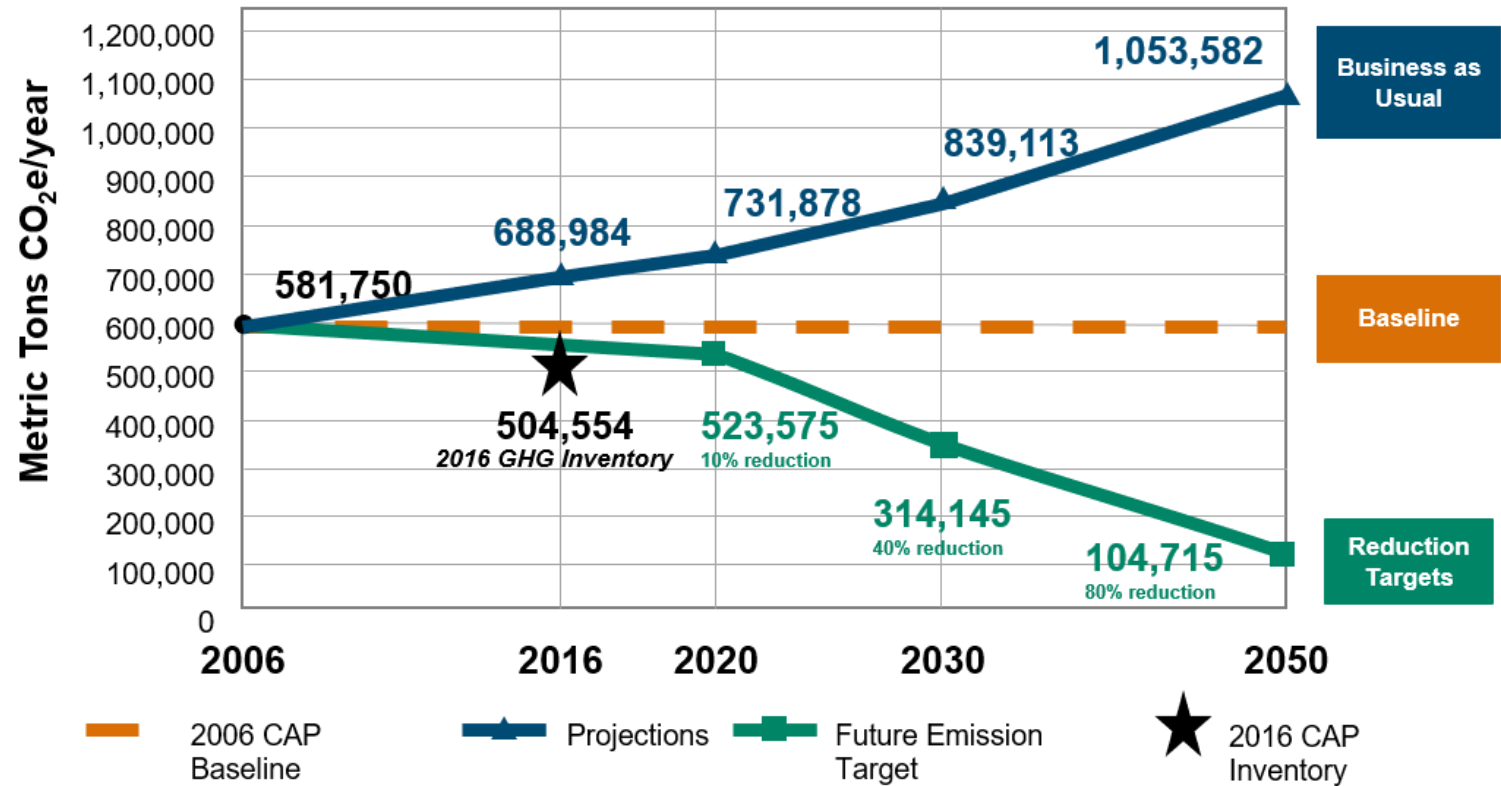
Climate Planning Timeline



Climate Action Plan



Greenhouse Gas Emission Reduction Targets
 -10% by 2020
 -25% by 2035



Note: Timescale is drawn for illustrative purposes.



Demonstrate Business Case for Advanced Microgrids in Support of California's Energy and GHG Policies



Electric Program Investment Charge

- 17 microgrid projects at 23 sites.
- Total: \$75.6 million CEC funds and \$71.4 million match funds.
- Projects are located in the CA Investor Owned Utility territories.

Grant Funding Opportunity-17-302		
Project Title	Grant Recipient	EPIC Funding (Match)
Port of Long Beach Microgrid	Port of Long Beach	\$5M (\$2.12M)
Camp Parks Microgrid	Lawrence Berkeley National Laboratory	\$5M (\$11.41M)
Miramar Marine Air Station Microgrid	University of California, San Diego	\$5M (\$6M)
Port of San Diego Microgrid	San Diego Unified Port District	\$4.98M (\$4.63M)
Port Hueneme Server Farm Building Microgrid	Electric Power Research Institute	\$4.99M (\$3.5M)
Chemehuevi Indian Reservation Microgrid	Handbook Holdings, LLC	\$4.99M (\$8.4M)
Virtual Wide Area Urban Microgrids	Gridscape	\$4.99M (\$3.28M)
Rialto Microgrid	Rialto Bioenergy Facility	\$5M (\$6.66M)
Redwood Coast Airport Microgrid	Humboldt State University	\$5M (\$6.32M)
Santa Rosa Junior College Microgrid	Sonoma County Junior College District	\$4.99M (\$8.69M)
	Total Award	EPIC - \$49.97M Match - \$61.02M

Project Overview – Goals of Microgrid Grant

Electrification

Resiliency

Technological Advancement

Replicability



Tenth Avenue Marine Terminal

Port of San Diego – Strategic Port



- 1 of 17 U.S. Department of Transportation Strategic Ports - Supply of Emergency Goods / Services
- **Critical Infrastructure:**
 - Jet Fuel Storage for San Diego International Airport
 - Security Gates/Facilities
 - Site Lighting

Microgrid Project Overview

- **Project Consultants**

- Burns & McDonnell (BMcD) – System Design and Construction Admin Support
- Electric Power Research Institute (EPRI) – Cyber Security Assessment, Testing/Evaluation, and Knowledge Transfer
- UC San Diego (UCSD) – Project Evaluation and Knowledge Transfer

- **Application Ask**

- CEC Funding: \$4,985,272
- District Match: \$4,427,973
- UCSD Match: \$201,963

Estimated Project Budget \$9.6 M

- **Overview**

- Solar PV power, battery storage, and microgrid controller
- Energy Efficient Lighting Retrofits
- Decrease electricity costs 60%



Fuel Storage Area

Dole 12 kV

Dole Shorepower 12 kV

SDRS 12 kV

Warehouse B

Warehouse C

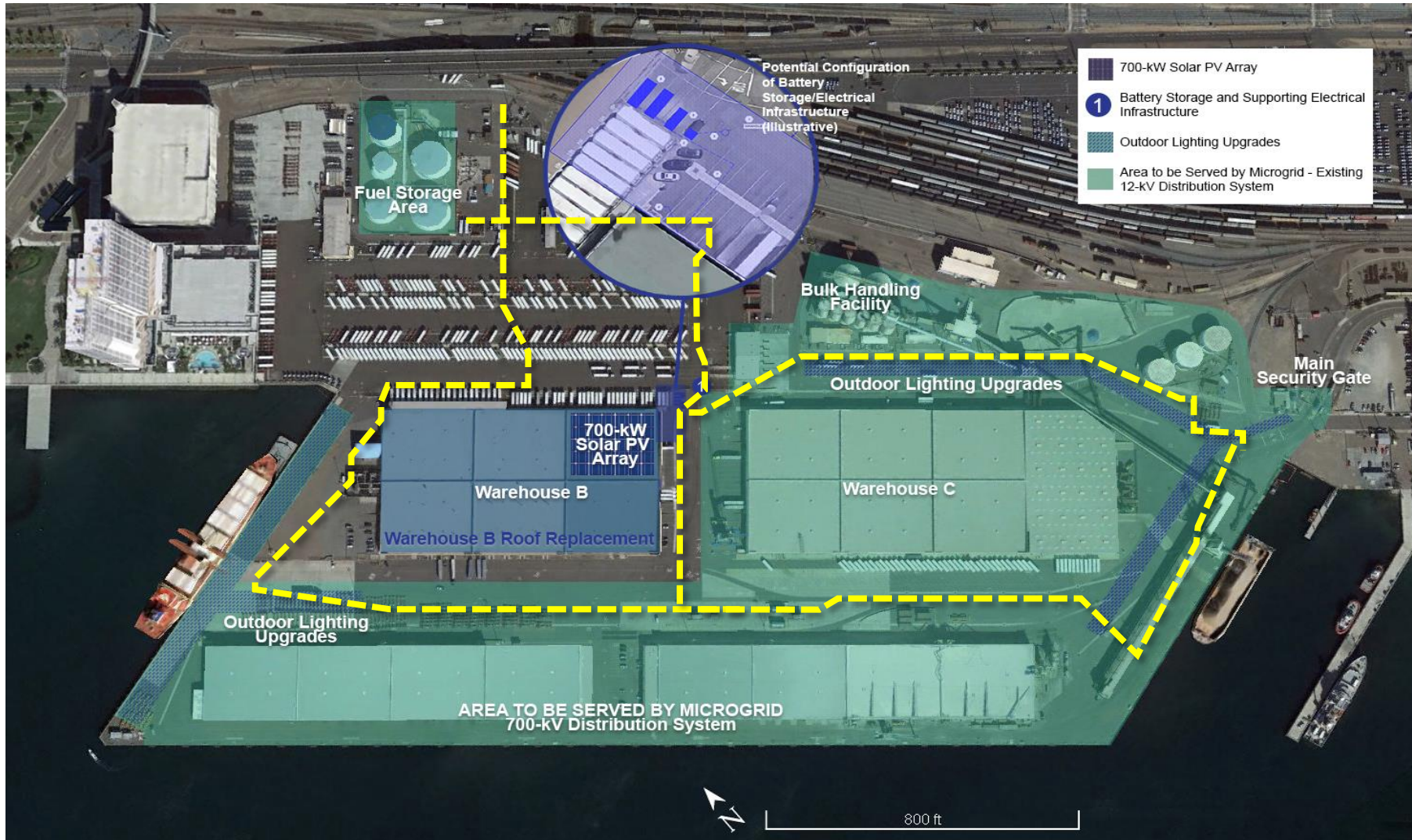
Bulk Handling Facility
NAT 12 kV

District 12 kV

Main Security Gate

CEMEX 12 kV

Microgrid Preliminary Site Plan



858,000 kWh
Reduction
Solar 700 kW
Battery Storage
700 kW / 2,500 kWh

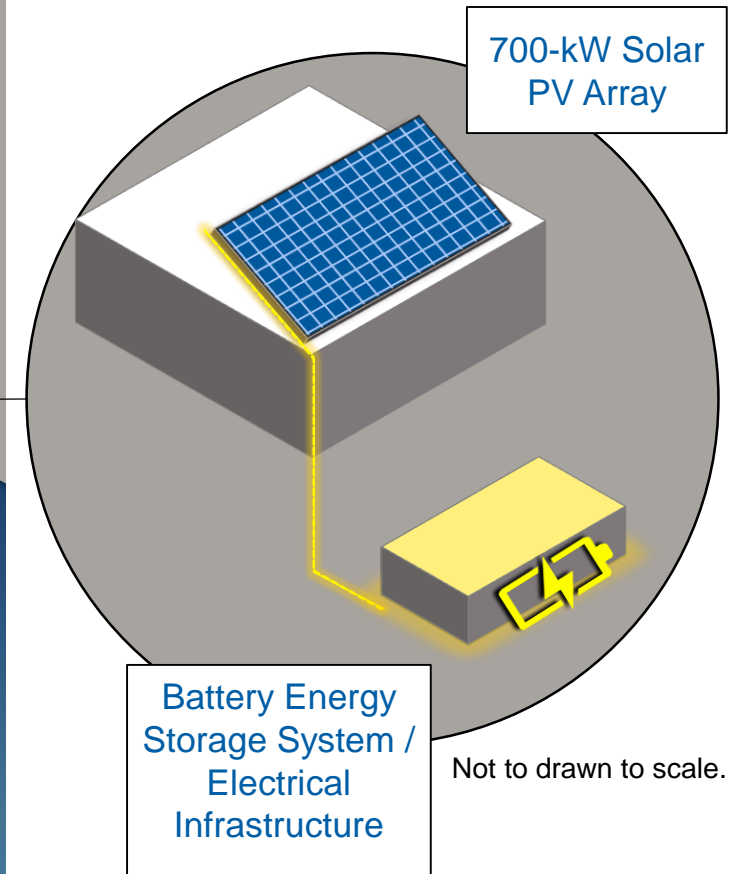
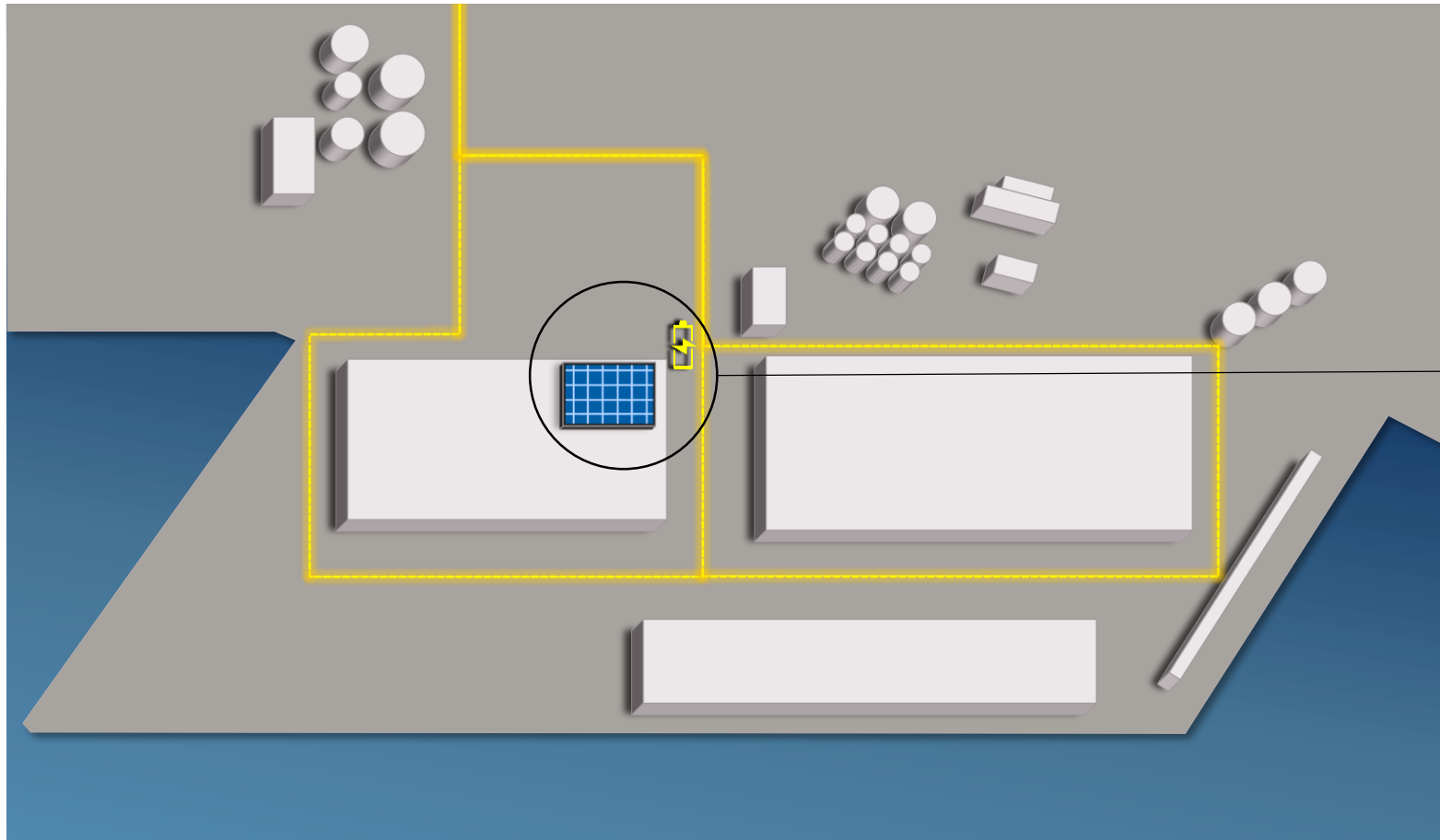
280,000 kWh
Reduction
Energy Efficient Site
Lighting Retrofits

Estimated Reduction
360 MTCO₂e



Energy Resiliency

Tenth Avenue Marine Terminal Microgrid Project



Microgrid Technical Tasks

- 1 – General Project Tasks
- 2 – Microgrid Design
- 3 – Microgrid Construction
- 4 – Operation and Maintenance
- 5 – Testing and Evaluation
- 6 – Evaluation of Project Benefits
- 7 – Technology/Knowledge Transfer Activities

→ 100% Design Phase

Technical Advisory Committee

Consultant Role:

UCSD, EPRI, and BMcD

→ Committee:

San Diego Gas & Electric

City of San Diego

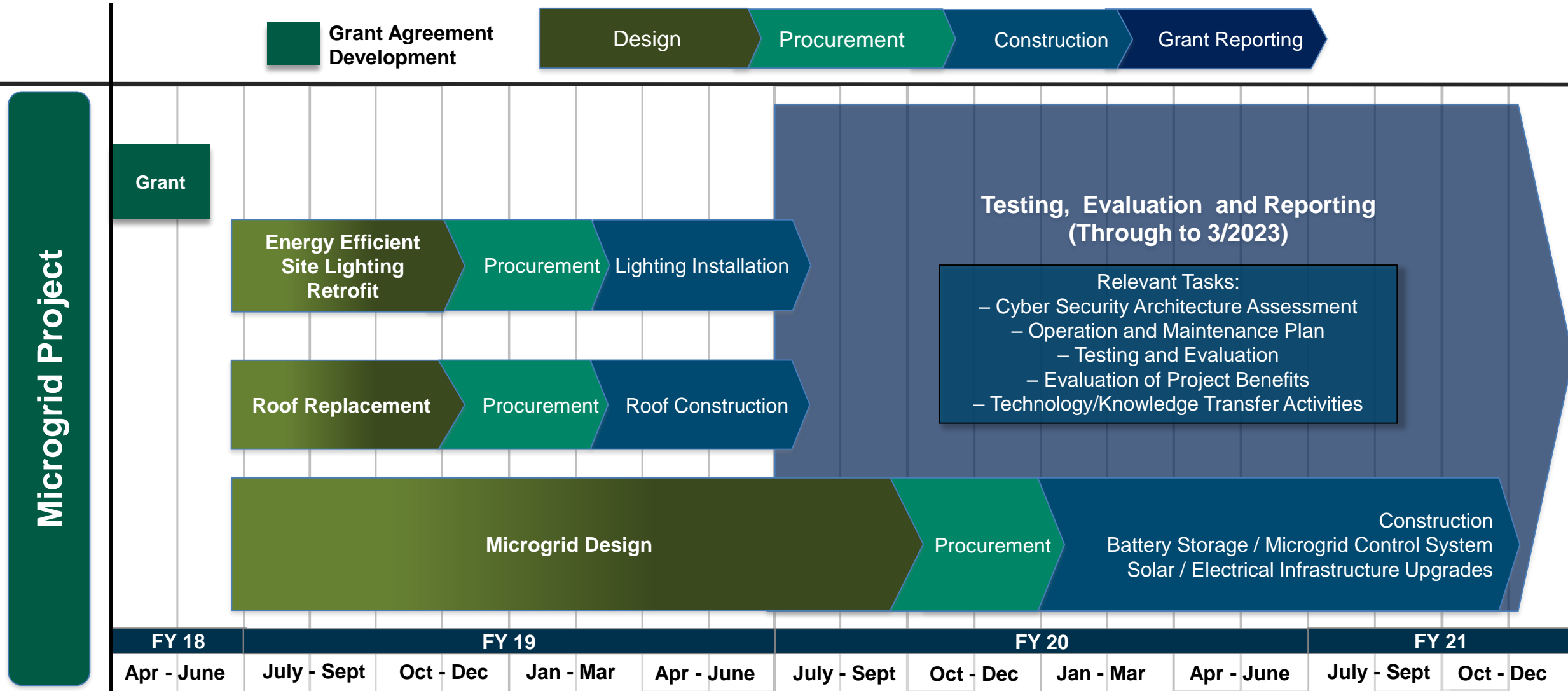
Navy Region Southwest

California Air Resources Board

San Diego International Airport

San Diego Refrigerated Services
(TAMT Tenant)

Anticipated Microgrid Project Schedule



California State Legislative & Policy Framework

Land Use & Mobility

Port Master Plan

Sustainable Communities and
Climate Protection Act
(2008)

Sustainable Freight Action
Plan
(2016)

Climate Change

Climate Action Plan Update

Executive Orders
(2005 and 2013)

AB 32 – Global Warming
Solutions Act
(2006)

SB 32 – Global Warming
Solutions Act
(2016)

Clean Air

Maritime Clean Air Strategy

Clean Air Act
(1970)

California Clean Air Act
(1988)

AB 617 - Community Air
Protection Program
(2018)

California State Legislative & Policy Framework



Questions / Discussion

