Powering Jobs
Empowering Communities
State/Local Governance

PUBLIC AGENCY Established in 1927
ENTERPRISE AGENCY of the City of Oakland
(separate budget and no local tax dollars)
The Tidelands Trust

- All Port of Oakland assets — whether land, cash, or intangibles — are **property of the state of California** and subject to the California Tidelands Trust Doctrine.

- Trust assets may be used for statewide Trust purposes only, which benefit the people of the entire state.

- Port Commissioners are trustees and have a fiduciary duty to govern over the tidelands.
Port Jurisdiction

THE PORT OF OAKLAND  •  POWERING JOBS  •  EMPOWERING COMMUNITIES

Maritime Area

Parks, Open Space, Utility

Aviation (including OAK)

Commercial Real Estate

Maritime Area

San Leandro

San Francisco Bay

Oakland

Alameda
Commercial Real Estate

- Approx. 20 miles of Oakland waterfront along the San Francisco Bay
- Home to Jack London Square
- Powers nearly 8% of the 73,565 Port-related jobs in the region
Aviation

- Second largest airport in the fifth busiest U.S air service market
- 11 million passengers annually
- #1 air cargo airport in the Bay Area
- Powers nearly 53% of the 73,565 Port-generated regional jobs

x 1000 = 3.3 direct jobs
Maritime

• Sixth busiest container port in the United States

• Only major seaport for Northern California; handles 99% of containerized goods moving through the region

• 2.3M TEUs, totaling more than $40 billion of cargo

• Powers nearly 40% of the 73,000 regional jobs generated by the Port

x 1000 = 8 direct jobs
Port Municipal Utility

- Operates a local municipal utility with 100% commercial and industrial customers. (Approx. 125 Customers)
- Purchase electricity from wholesale market and redistributes through Port-owned distribution infrastructure
- Complies with additional regulations as a utility company compared to other ports
Port Electric Service Map

Former Oakland Army Base
Demand: 0.4 MW
Avg. Demand: 0.2 MW
Total MWH: 1,781 MWH

Former Oakland Naval Base
Demand: 9 MW
Avg. Demand: 3.8 MW
Total MWH: 33,000 MWH

2 Port Owned Substations
- Davis Substation (POU)
  - Serves Former Oakland Naval Base and Former Oakland Army Base
  - Power provided by Port as Utility
- Cuthbertson Substation (IOU)
  - Port owned distribution asset
  - Serves crane power and shore power to outer harbor tenants.
  - Power provided by PG&E

Oakland Airport
Demand: 8 MW
Avg. Demand: 5.5 MW
Total MWH: 48,000 MWH
Port Electric Load Projection and Resources

![Graph of Port Electric Load Projection and Resources](image-url)
Renewable Portfolio Standard

- In 2002, RPS goal was 20% by 2017
- In 2005, an accelerated RPS goal was set at 20% by 2010
- In 2011, State adopted goal of achieving 33% RPS goal by 2020
- In 2015 Governor Brown signed legislation to increase RPS to 50% by 2030
Renewable Energy

- Solar energy along north field runway
- Biogas energy from EBMUD Wastewater Treatment Plant.
- For Calendar Year 2015, Port procured 32% of its retail electricity sales from renewable energy resources.
### RPS Beyond 2020

#### Current Resources (MWh's)

<table>
<thead>
<tr>
<th>Year</th>
<th>EBMUD</th>
<th>SunEdison</th>
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<tbody>
<tr>
<td>2016</td>
<td>10,865</td>
<td>970</td>
</tr>
<tr>
<td>2017</td>
<td>10,865</td>
<td>956</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>941</td>
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<td>2019</td>
<td></td>
<td>927</td>
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<tr>
<td>2022</td>
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<td>886</td>
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<tr>
<td>2023</td>
<td></td>
<td>873</td>
</tr>
<tr>
<td>2024</td>
<td></td>
<td>860</td>
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</tbody>
</table>

#### Future Purchases (MWh's)

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<th>Year</th>
<th>EBMUD</th>
<th>New Contract</th>
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<tbody>
<tr>
<td>2016</td>
<td>10,865</td>
<td>8,760</td>
</tr>
<tr>
<td>2017</td>
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<td>8,760</td>
</tr>
<tr>
<td>2024</td>
<td></td>
<td>8,760</td>
</tr>
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</table>

#### Current and Future Portfolio Mix as a Percentage of Retail Sales

<table>
<thead>
<tr>
<th>Year</th>
<th>Renewables</th>
<th>GHG Free</th>
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<tbody>
<tr>
<td>2016</td>
<td>25%</td>
<td>63%</td>
</tr>
<tr>
<td>2017</td>
<td>24%</td>
<td>61%</td>
</tr>
<tr>
<td>2018</td>
<td>39%</td>
<td>75%</td>
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<tr>
<td>2019</td>
<td>39%</td>
<td>73%</td>
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<tr>
<td>2020</td>
<td>38%</td>
<td>72%</td>
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<tr>
<td>2021</td>
<td>37%</td>
<td>71%</td>
</tr>
<tr>
<td>2022</td>
<td>19%</td>
<td>52%</td>
</tr>
<tr>
<td>2023</td>
<td>18%</td>
<td>51%</td>
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Port offers rebates and incentives for Port utility customers.

Some Port tenants who have taken advantage of the rebates include:

- Federal Aviation Administration
  - Solar Carport
- FedEx
  - Lighting retrofits
  - Solar installation (pending)
- Landmark Aviation
  - Lighting retrofits
- Rolls Royce
  - Lighting retrofits
Major Recent and Future Efforts

**Energy Innovation Study**

- **Cost of Service Study**
  - Goal
    - Cost Causation
    - Continue to provide reliable, clean, competitive, electric service to our customers.
  - Phase I – Review revenue requirement and cost recovery under existing rates
  - Phase II – Design/Re-structure rates

- **Smart Grid**
  - Remote meter reading
  - Billing improvements

- **Asset Management Plan**

- **Plan for future electric load increase**

- **maritime electric master planning**
Electric Master Plan

1. Scope
   - Assess current maritime electric distribution system using power flow model
   - Develop asset management plan
   - “Stress test” system with future scenarios, including increased electrification

2. Preliminary Results
   - Shorepower growth is major driver of load growth
   - Port electric system may require upgrades under certain scenarios

3. Next Steps
   - Develop alternatives to address deficiencies and increase reliability
   - Asset management plan incorporated into CIP process
   - Regular inspections of assets identified for near term replacement
   - Convene Electric Infrastructure Working Group

How to pay for it all?
Electric Master Plan

2016 Asset Replacement Requirement Distribution

Years to replacement

Horizontal axis: Asset categories (RT, TR, SC, etc.)
Vertical axis: Years to replacement
A Day in the Life of Shorepower
May 14 & 15 2016
Upside of a Port in the Electric Utility Business

- **Project Development** – local control
- **Cost Control and Rate Stability:**
  - *Port of Oakland Electric rates haven’t increased in 8 years*
  - *Maritime rates are an average 10-20% below PG&E (local IOU)*
  - *Airport rates slightly above PG&E but projected to drop below PG&E in 1-2 years*
  - ***If PG&E provided power Port would still carry a large portion of the current electric utility related costs*****
- **Investment cost** - recovered through electricity rates
- **Master Planning** – *more control, including utility distribution infrastructure*
- **Fast Response** – *Staff with security clearance*
- **Customer Focused** – *For example, solar rebates stay at Port*
- **Local Accountability** – *Governing boards understand unique business*
Downside of a Port in the Electric Utility

Not Many, really…….

- **Lots of Hats** – *small utilities have to do more with less*
- **Cost Containment** – *renewable energy costs, infrastructure costs to meet state goals*
- **Non-Core business (for now)** – *Lack of understanding by Port staff and tenants*
- **Increased staffing** – *Not large and recovered through rates*
- **Skilled Workforce** – *Retirements and increased competition for skilled workers an issue*
Key to Success = Joint Action

Joint Action / Power Pool / Load Aggregation
Coordination with the CAISO
Manage the Port’s federal hydropower allocation
Develop power project opportunities
Energy forecast and planning
Work with Legislators and Regulators
Advocacy
Questions?

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