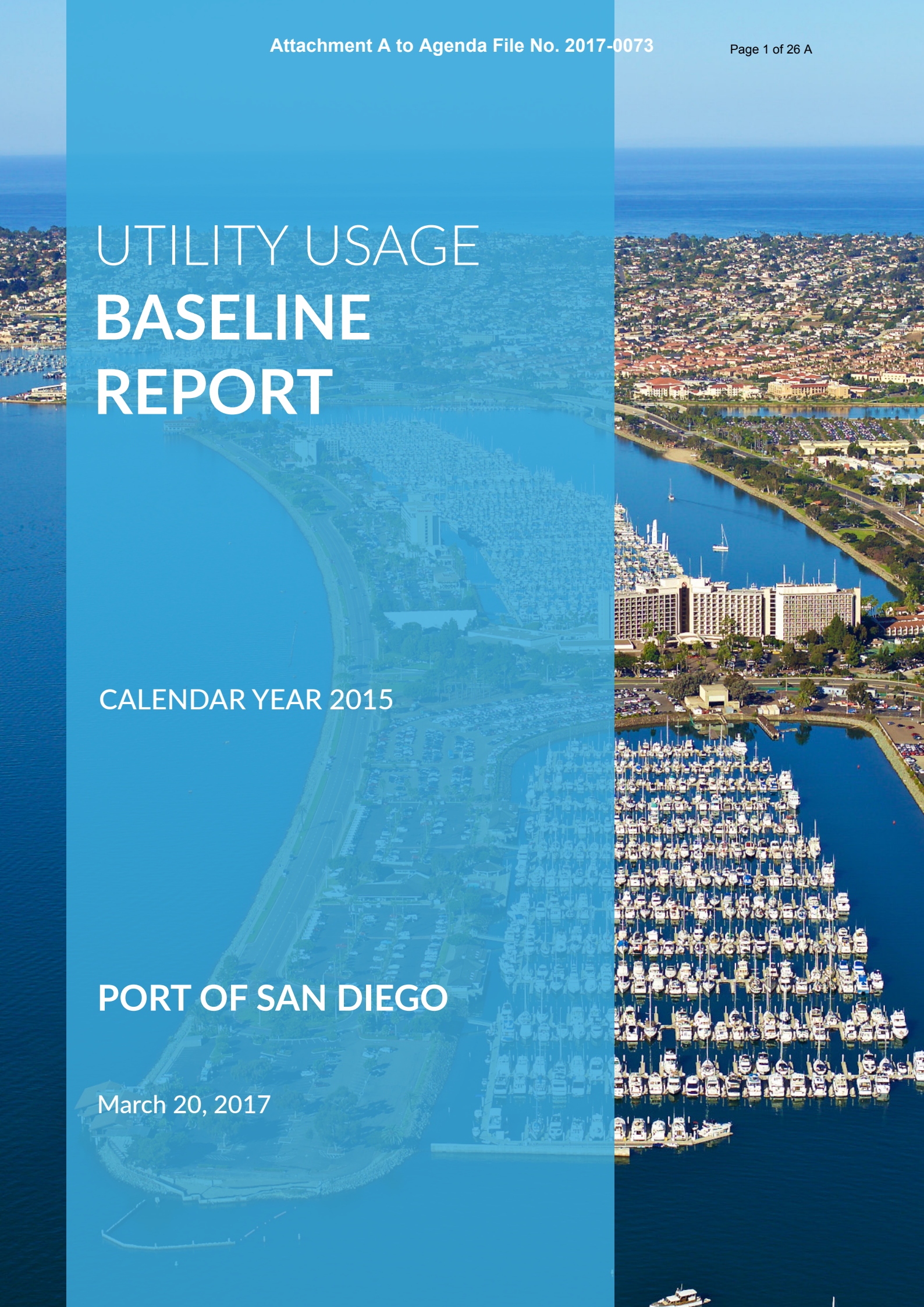# UTILITY USAGE
BASELINE
REPORT

CALENDAR YEAR 2015

PORT OF SAN DIEGO

March 20, 2017

TABLE OF CONTENTS

EXECUTIVE SUMMARY
Utility Usage Reporting Ordinance

The Port of San Diego (Port) Board of Port Commissioners (Board) adopted Ordinance 2844 – Required Utility Usage Reporting in December 2015 requiring all utility account holders within the Port tidelands report energy and water usage through a data collection system, and then to provide that information to a third party data aggregator, Edison Energy, for the purposes of preparing this aggregated utility usage report. The Port selected the Environmental Protection Agency's ENERGY STAR® Portfolio Manager® (Portfolio Manager) tool as the data collection system. This benchmarking report provides the results for calendar year 2015 utility data (January 1 – December 31, 2015), which is the first year of this undertaking. Key findings contained in the report include:

SUMMARY OF RESULTS

TOTAL NUMBER OF UTILITY ACCOUNT HOLDERS IDENTIFIED (AS OF 3/14/17)	**340**
PERCENTAGE OF PARTICIPATION	**37%**
NUMBER OF PARTICIPATING UTILITY ACCOUNT HOLDERS	**127**
PERCENTAGE IN COMPLIANCE	**23%**
NUMBER IN COMPLIANCE OF THE PARTICIPATING UTILITY ACCOUNT HOLDERS	**79**
ELECTRICITY USAGE REPORTED ANNUALLY	**202,195,384** KWH/YR.
NATURAL GAS USAGE REPORTED ANNUALLY	**3,680,456** THERMS/YR.
TOTAL ENERGY USAGE REPORTED ANNUALLY	**1,057,965** MMBTU/YR.
WATER USAGE REPORTED ANNUALLY	**429,305,000** GALLONS/YR.
TOTAL GREENHOUSE GAS EMISSIONS REPORTED ANNUALLY	**79,055** MT CO2e
TOTAL FLOOR AREA OF PARTICIPATING UTILITY ACCOUNT HOLDERS	**12,088,262** SQ. FT.

Note: An acronym list is provided at the end of this report.

GHG emissions equivalent to
16,937 cars
driving for one year
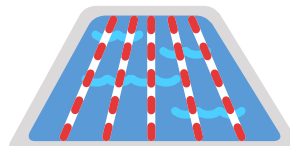
Water use equivalent to
650
Olympic sized pools

EXECUTIVE SUMMARY
continued

Participation is determined if a utility account holder has created a Portfolio Manager profile and connected with Edison Energy. Compliance is determined if the utility account holder has also reported utility data (electricity, natural gas, and water, if applicable to the third party data aggregator) for calendar year 2015.

It is important to note that all values presented in this report are based on an overall participation rate of approximately 37% of utility account holders and a compliance rate of 23% as of March 14, 2017, unless otherwise noted. Therefore, the values do not represent the total energy and water use within the Port's jurdistiction.

This is the first year implementing the Ordinance and a new process for tenants and subtenants to adopt. The report outlines opportunities to increase compliance rates and provide additional outreach and training in future years. The purpose of the report is to provide a baseline of the data gathered in the utility usage report/reporting process and to comply with the reporting requirements of Ordinance 2844. Recommendations for reporting in future years are provided in Section 6. Recommendations for increasing compliance and presenting data in future reports are described in Section 7.

Utility benchmarking and reporting yields data that can measure performance and progress towards achieving the Climate Action Plan (CAP) GHG emissions reduction goals over time and can be used by building operators to understand the performance of their building in comparison to similar buildings. The annual energy and water use, average energy use intensity, and other findings of this utility usage reporting and data aggregation process provide baseline values that the Port can use for tracking and monitoring progress in accordance with the Port's CAP.

Some challenges and lessons learned through the first year of implementing the Ordinance include the complexity of identifying a comprehensive list of utility account holders, the importance of multiple forms of outreach, the learning curve of implementing a new process with multiple organizations working together, and the need to achieve greater participation and compliance in order to report more data analytics. Other challenges include connecting and syncing with San Diego Gas & Electric (SDG&E) through Portfolio Manager, time needed to define the compliance process and provide instructions to tenants, and changes to the Edison Energy data aggregation and benchmarking system to accommodate the different ways in which utility account holder information is entered.

The report that follows provides greater details on energy and water use, GHG emissions, participation, key performance indicators that are recommended for future year's, and a summary of lessons learned and challenges to facilitate the Port's next steps with implementing Ordinance 2844.

Prepared By: Michael Starkey, Jon Aldrich; EDISON ENERGY

1. INTRODUCTION

The Port of San Diego is a centerpiece of the economically vibrant and scenic San Diego region and is a leader in sustainability efforts, including stewardship of the San Diego Bay and its resources, fostering economic activity, and providing community benefits. These goals are described in its mission statement:

> **The San Diego Unified Port District will protect the Tidelands Trust resources by providing economic vitality and community benefit through a balanced approach to maritime industry, tourism, water and land recreation, environmental stewardship and public safety. [1]**

The main purpose of the reporting, aggregation, and analysis of energy and water utility data is to facilitate tracking progress toward meeting the GHG emissions reduction goals identified in the CAP and support the Port's mission and commitment to environmental stewardship through the conservation of resources. Benchmarking can help identify opportunities for investment in energy efficiency, which yields environmental benefits and enhances economic activity through construction and engineering jobs while reducing business operating costs. The baseline report provides insights into energy and water use, GHG emissions, and opportunities for future improvements.

Climate Action Plan Context

The Port was created in 1962 with a mission that includes stewardship of the San Diego Bay. Environmental stewardship was further emphasized in 2008 with the approval of the Green Port Policy and corresponding development of the Green Port Program. Addressing climate change is an important part of this effort, and in December 2013, the Port of San Diego's Board of Port Commissioners adopted a CAP to reduce GHG emissions that contribute to global climate change. The CAP established the following targets:

- GHG Reduction of at least 10% less than 2006 levels by 2020
- GHG Reduction of at least 25% less than 2006 levels by 2035

The CAP applies to all operations within Port tidelands, including both Port-owned and operated as well as tenants and subtenants, including on-road transportation, off-road transportation (boats and other vessels), and buildings. Based on the 2013 CAP, the relative contributions of these sectors are 39% for on-road transportation, 35% for buildings, 22% for off-road transportation, and 3% for other.

The CAP is informed by California state policies and the overall management of the Port. Relevant state policies include Assembly Bill (AB) 32, which is California's Global Warming Solutions Act of 2006, and Executive Order S-3-05, which extends the state's GHG emissions goals. Subsequent policies related to implementation of the CAP include AB802, which was passed in 2015 and mandates statewide energy use benchmarking and disclosure; the subsequent SB32 passed ten years after AB32; and AB75 for energy efficiency in existing buildings.

Some measures in the CAP that address building energy and water consumption are:

- EB1 & EB2: Establish green building standards and/or policies for existing buildings and new construction[2]
- EB 6: Replace light fixtures with lower energy consuming option such as compact fluorescent lamps (CFLs) and light-emitting diodes (LEDs)
- EB7: Enforce the requirements of California AB1103, requiring non-residential buildings to measure and report energy use data through Portfolio Manager
- WR1: Establish programs and policies to increase capture and use recycled water
- EB5: Increase awareness and coordinate use of incentives to invest in energy efficiency upgrades

Baseline Report

This report is the annual utility data aggregation and benchmarking report for the Port tidelands, and is therefore the baseline for which future reports will be compared against. It is important to note that all values presented in this report are based on a participation rate of approximately 28% (of total) and compliance rate of 14% (of total) as of March 17, 2017, unless otherwise noted.[3] Therefore, the values do not represent the total energy and water use in the Port. Rather, the purpose of the data presentation is to describe the data gathered thus far in the aggregation program and to comply with the reporting requirements of Ordinance 2844. Recommendations for increasing participation and presenting other analytics in future years are provided in Section 7. The data aggregation and reported analysis will evolve over time as more data is available and increased compliance is achieved. As more data is available, new and greater insights into energy and water use within the Port may be discovered. Future reports will benefit from the availability of trend data that can be used to track changes in GHG emissions and energy use, identify areas where efficiency improvements are occurring, and will provide the ability to compare performance relative to this baseline report.

2. UTILITY USAGE REPORTING ORDINANCE *overview*

FIGURE 1:
ENERGY STAR Portfolio Manager Login Screen
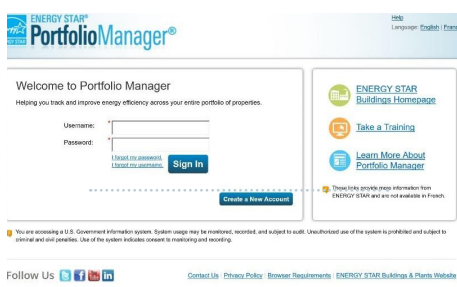
Increased energy efficiency can help achieve Climate Action Plan goals

ENERGY STAR
PORTFOLIO MANAGER

267,016

Properties benchmarked using Portfolio Manager. [4]

28.2 BILLION

Square feet of buildings represented through Portfolio Manager (*current as of 2012***).** [4]

Ordinance 2844

In December 2015, Ordinance 2844 was passed by the Board requiring utility usage data to be reported via a third party data aggregator to the Port. The Port selected the use of the Portfolio Manager as the data collection system to be used for the purposes of utility account holder reporting. Portfolio Manager is a tool that is used nationally and is a best practice for energy and water benchmarking and reporting. Utility account holders as defined in the Ordinance is any entity of person, as defined by California Public Resources Code Section 25116 or any successor legislation, who has an account with any provider of utilities that is separately metered. Utility account holders include a range of tenants, subtenants, and Port-operated properties within the Port's jurisdiction that have utility accounts. The Ordinance further calls for a third party data aggregator, separate from the Port, to aggregate and report the data. The Port and the San Diego Port Tenants Association collaborated under a Memorandum of Understanding to jointly select Edison Energy as the data aggregator. Per the Ordinance, the Port does not have access to the energy or water utility data of the individual utility account holders, and the data remains confidential. Edison Energy receives the utility data through Portfolio Manager® and then aggregates and reports the data to the Port. The data is reported as an aggregated value. Future reports may include more aggregation sub-categories, such as member cities or business sectors. Each aggregation category must have at least three utility account holders reporting data for Edison Energy to breakout that category in any reporting. This three utility account holder threshold has been established as a means to maintain anonymity.

ENERGY STAR® Portfolio Manager®

ENERGY STAR® Portfolio Manager® is an online platform managed by the United States Environmental Protection Agency (US EPA). The platform allows individual building owners, managers, or operators to organize and better understand the energy performance of their properties. It is used to benchmark the energy efficiency of buildings relative to a national database, tailored to local weather conditions and building operating hours. The system is capable of also tracking water use, waste, and greenhouse gas (GHG) emissions. Figure 1 shows the Portfolio Manager login screen, which can be accessed at:

://portfoliomanager.energystar.gov/pm/login.html

Portfolio Manager is used in the District's data aggregation and benchmarking program as the platform by which utility account holders enter their energy and water data and basic characteristics of their property (floor area, property type, etc.). This data is then accessed by Edison Energy to prepare this aggregated utility usage report.

UTILITY USAGE REPORTING ORDINANCE
continued

Benefits of Benchmarking

Benchmarking of energy and water use has become an important part of environmental efforts around the world. The old adage "you can't improve what you can't measure" provides some of the motivation behind benchmarking efforts, but the value of benchmarking goes beyond that. Benefits of benchmarking include:

- Engaging building owners, managers, and operators to understand their energy and water use
- Provides energy managers and other sustainability practitioners information and tools to focus and promote energy efficiency programs
- Provides policy makers and regulators with data to evaluate sustainability and climate planning
- Reduces energy use—the US EPA found that energy benchmarking with Portfolio Manager provides an average annual energy use reduction of 2.4%.[4]

Anonymity

A requirement of the Ordinance is that all data reported by the data aggregator must be presented anonymously. Anonymous here means that no data is identified by a specific address or tenant name, and that individual tenant data cannot be extrapolated from the report. This anonymity should encourage participation of all tenants and subtenants. Specifically, aggregation must include at least three properties to be included in within a reporting category.

Process of Utility Data Reporting, Aggregation, and Publication

Implementation of the Ordinance has required developing and fine-tuning the process for reporting and aggregating the data. The flow chart, Figure 2, describes the process established in 2016. The process begins with outreach and education (training) to inform tenants of the requirements and promote understanding of the reporting process. Each utility account holder then creates a Portfolio Manager account and enters their utility data and basic characteristics of their property (floor area, property type, etc.) and authorizes SDG&E to automatically populate meter data. The utility account holder then connects their account to the Edison Energy data aggregation account within Portfolio Manager. Edison Energy's data aggregation and benchmarking platform automatically extracts the Portfolio Manager data and loads it into the Edison Energy platform where it can be aggregated, analyzed and benchmarked. Edison Energy reports the aggregated data to the Port.

Data Sources

Benchmarking relies on the quality of the data used. Therefore, time spent identifying and developing quality data sources and "cleaning" the data yields more accurate and benchmarking results. Data used in this report comes from several sources, including utility company meter data, a list of properties provided by the Port, and self-reported data from tenants and subtenants. All of the utility data is first entered into Portfolio Manager and then provided to the data aggregator, Edison Energy. This Portfolio Manager data and the utility account holder, for which Port staff has access to, have been mapped to each other by Edison Energy and given anonymous coding to protect tenant privacy. This anonymously-coded data is then used in the annual report. An online web portal is currently under development and review. Once approved, the intent of using a web portal is to provide regular access to the aggregated utility usage data.

UTILITY USAGE REPORTING ORDINANCE
continued

Utility Company Meter Data

Utility companies that serve properties in the Port include SDG&E, The City of San Diego (water utility), Sweetwater Authority, and California American Water. Data used in the aggregation and benchmarking effort ultimately comes from the meters of these utility companies. In addition, there may be some energy used in buildings within the Port's jurisdiction that is delivered by other companies that provide fuel oil, for example.

Web Services, Automated Meter Data Entry

SDG&E offers an Automated Benchmarking Services (ABS) through which SDG&E automatically populates monthly meter data into properties within Portfolio Manager. The ABS uses Portfolio Manager's web services feature, which facilities automated exchanges between Portfolio Manager and third-party providers. Benefits of ABS relative to manual data entry are that it (1) eliminates potential introduction of errors inherent in manually copying data from a monthly utility bill into Portfolio Manager and (2) saves time for staff who would otherwise have to spend time entering SDG&E utility data each month. However, it is important to note that for 2015 electricity data many tenants have to manually enter since SDG&E's automatic population is only available for data within the last 12-14 months.

Tenant training and support encourage use of web services for SDG&E electric and natural gas meters for enhanced data quality.

Manual Meter Data Entry

Monthly water consumption data must be manually entered for each water meter. This is because the water utilities serving the facilities within the Port tidelands do not offer Portfolio Manager web services automated meter data uploads. In addition, utility account holders may choose to manually enter their energy data rather than using the previously described SDG&E web services feature.

Self-Reported Property Data

Property information such as floor area, operating hours, number of computers, and other characteristics are self-reported by utility account holders. Currently utility account holders who have incomplete property data but have entered complete utility data are still considered compliant. Some property data can be difficult to enter due to the unique businesses that make up the Port.

Data Quality Control and Cleaning

Part of Edison Energy's role is to review data to ensure the data is as accurate as possible. This involves data "cleaning," meaning that improperly formatted data, duplicate entries, and other inaccuracies are identified and are corrected, or removed. For tenant-entered data, Edison Energy contacts tenants/subtenants when needed to address data issues and works with the tenants to resolve these issues. As for tenants/subtenants and subtenant information, the initial property and contact list was prepared by the Port with the understanding that aligning this list to identify specific utility account holders would be necessary, as the Port does not have a comprehensive database accounting for tenants and subtenants that pay for utilities directly. Edison Energy then reviewed the data to identify and correct issues. A pilot program of the data reporting, aggregation, and analysis was performed in the fall of 2016 and provided insights to help develop the process. According to the Ordinance, the data can also be evaluated by an independent auditor to further insure its accuracy.

UTILITY USAGE REPORTING ORDINANCE
continued

FIGURE 2: Flowchart on Data Usage Reporting
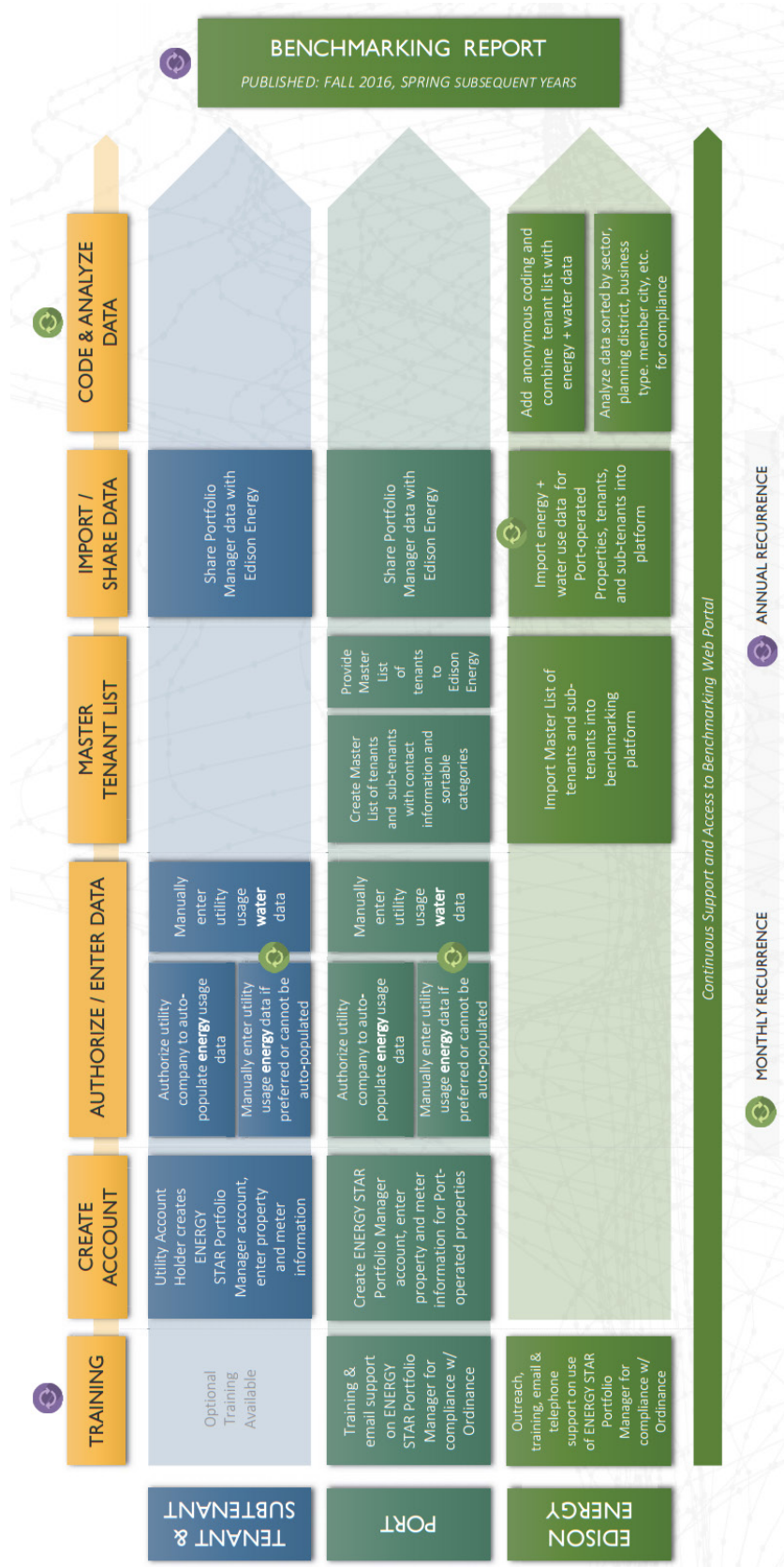
3. PARTICIPATION
by the Port, tenants, and subtenants

Participation is critical to the success of the data aggregation and benchmarking effort. The ability to draw meaningful conclusions from the data and make informed policy decisions relies upon achieving participation levels that yield statistically significant results. Several methods were used to encourage and facilitate utility account holder participation:

1. **Training** for tenants and subtenants was provided by the Port, the Center for Sustainable Energy (CSE), and Edison Energy at no cost to attendees. These trainings covered use of ENERGY STAR Portfolio Manager with a specific focus on compliance with the Ordinance in order to encourage increased participation and a better understanding of the tools available within Portfolio Manager. Nine training sessions were held in 2016, and approximately 65 people attended the trainings. Two websites dedicated to the program have been created with training videos and resources: **https://www.portofsandiego.org/utility-usage-reporting.html** and **http://greenportnetwork.org/utility-usage-reporting.**

2. **Outreach** to tenants and subtenants has helped increase participation. The Port, the SDPTA, CSE, and Edison Energy have put significant effort into outreach to increase compliance. The Port has leveraged the Green Business Network, and the SDPTA has helped many of its member achieve compliance. Email, phone calls, newsletters, and door-to-door visits have been implemented to inform utility account holders of the Ordinance requirements and promote the available training resources. Master tenants have also invested in outreach to subtenants who are also utility account holders.

3. **Individual Technical Assistance** has been provided via phone, e-mail, and in-person meetings. Utility account holders can receive technical assistance to create a property in Portfolio Manager and ...reach reporting compliance. This support has been available to utility account holders since 2016. Edison Energy has a helpline that tenants can call with questions or when they are experiences issues achieving compliance. Tenants can call (949) 243-0548 and email tenantsupport@portofsandiego.org to receive assistance.

4. **Data privacy** is built into Ordinance 2844 and its implementation. Utility data with tenant specific information is not shared with the Port. This process encourages participation while still ensuring meaningful data is provided. Utility account holders have complete access to individual data through Portfolio Manager and can track their progress overtime while comparing their facility to other similar buildings. The Port will benefit from tracking utility usage overtime, as there is a direct correlation to CAP progress reporting.

PARTICIPATION
## *continued*

Compliance requires the following:

    A. Creation of an ENERGY STAR Portfolio Manager account;
    B. Entering Property Information;
    C. Reporting utility usage data for the full 2015 calendar year;
    D. Connecting and sharing the property and usage data with Edison Energy.

Participation at all levels are required for compliance with the Ordinance.

A total of 127 tenant, subtenant, and District-operated properties created a Portfolio Manager account and connected with Edison Energy as of March 14, 2017. This tentatively represents 37% of the approximately 340 utility account holders located in the Port.[5] Figure 3 below represents utility account holder participation and compliance over the course of implementing the Ordinance.

FIGURE 3: Utility Account Holder Participation
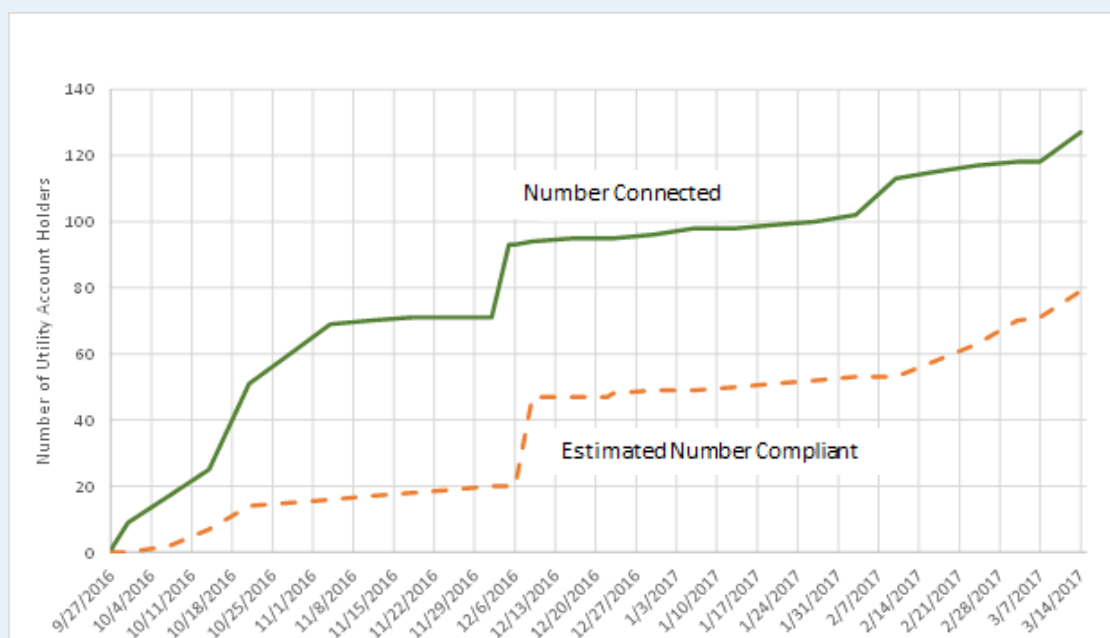
More utility account holders have participated in the program each week since the rollout of the program. As participation grows and year-over-year trend data becomes available, more analytics will be available to better understand GHG reductions and energy and water usage in the Port. This data will be useful to track and monitor the Port's progress towards achieving the goals established in the Climate Action Plan.

4. ENERGY AND WATER USE
annual use distribution

This section summarizes the total reported energy and water use by participating buildings. The distribution of reported energy use by fuel type and a comparison to estimated total usage are provided. Note that all data presented is based on the utility data submitted as part of the data aggregation program required by the Ordinance. The current participation level of 37% and compliance of 23% mean that conclusions should not be made about the overall energy and water use in the Port using the data presented in this report.

ANNUAL ENERGY USE DISTRIBUTION

Total reported energy usage is 1,057,965 million British Thermal Units (MMBtu) per year. Table 1 summarizes the annual electric, natural gas, and total energy usage. The data is provided in kilowatt-hours (kWh) for electricity and therms for natural gas. This data is then converted to MMBtu to show the total energy use on a consistent unit basis. The reported usage is also compared to the estimated total electricity and natural gas usage. The total usage is based on the Port's 2015 Emissions Inventory and adjusted SDG&E Port-wide summary data provided to Edison Energy by the Port. Figure 4 graphically presents the distribution of total annual energy use between electricity and natural gas on an MMBtu/yr. basis.[6]

TABLE 1: 2015 Total Energy Use

	Electricity Use (kWh/yr)	Natural Gas (therms/yr)	Total Energy (MMBtu/yr)
Total 2015 Estimated Utility Usage	402,055,889	25,486,155	3,920,487
Utility Usage Reported Under Ordinance	202,195,384	3,680,456	1,057,965
Estimated Percentage Reported Under Ordinance	50.3%	14.4%	27.0%

FIGURE 4: Total Annual Energy Use Distribution

35% Natural Gas

65% Electricity
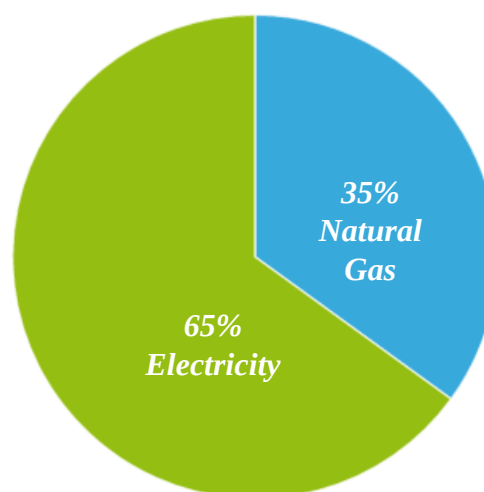
The total energy use by fuel type shows only the 2015 reported utility usage by March 14, 2017. Conclusions about the total energy use in the District should not be made based on this Figure 4. Instead, this chart indicates the approximate distribution of energy use for program participants.

ENERGY AND WATER USE
summary of baseline results

ANNUAL WATER USE

Total reported water usage for calendar year 2015 is 429,305,000 gallons.

SUMMARY OF BASELINE RESULTS

The following table summarizes the baseline results, including the GHG emissions that are discussed in the following section of the report.

|	
TOTAL NUMBER OF UTILITY ACCOUNT HOLDERS IDENTIFIED (AS OF 3/14/17)	**340**
PERCENTAGE OF PARTICIPATION	**37%**
NUMBER OF PARTICIPATING UTILITY ACCOUNT HOLDERS	**127**
PERCENTAGE IN COMPLIANCE	**23%**
NUMBER IN COMPLIANCE OF THE PARTICIPATING UTILITY ACCOUNT HOLDERS	**79**
ELECTRICITY USAGE REPORTED ANNUALLY	**202,195,384** KWH/YR.
NATURAL GAS USAGE REPORTED ANNUALLY	**3,680,456** THERMS/YR.
TOTAL ENERGY USAGE REPORTED ANNUALLY	**1,057,965** MMBTU/YR.
WATER USAGE REPORTED ANNUALLY	**429,305,000** GALLONS/YR.
TOTAL GREENHOUSE GAS EMISSIONS REPORTED ANNUALLY	**79,055** MT CO2e
TOTAL FLOOR AREA OF PARTICIPATING UTILITY ACCOUNT HOLDERS	**12,088,262** SQ. FT.

5. GREENHOUSE GAS EMISSIONS
addressing global climate change and sustainability efforts

Addressing global climate change and reducing GHG emissions are key features of the Port's CAP and Green Port Program. Benchmarking GHG emissions will help the Port measure progress toward the Climate Action Plan goals. The total GHG emissions of the reporting properties for Calendar Year 2015 are 79,055 MT CO2e/year. The GHG emissions are based on the GHG emissions factors provided by the Port, which are sourced from the 2015 GHG Inventory for Port Operations (electric) and The Climate Registry General Reporting Protocol for 2016 (natural gas).

In future years as participation and compliance rates increase comparisons can be made with the Port's Climate Action Plan 2006 baseline.

The following figure shows the distribution of reported GHG emissions between electricity and natural gas usage at the Port.

FIGURE 5: GHG Emissions Distribution

25%
Natural Gas

75%
Electricity
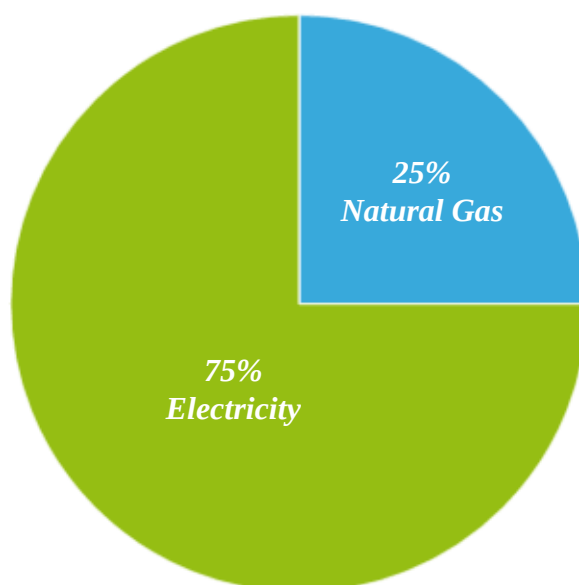
In the future, year-over-year trend data from annual utility data aggregation and benchmarking reports will be available. It is expected that the reported emissions will increase as a result of increasing participation. It may be possible at that point to use the data to compare current performance against the CAP baseline and CAP targets.

6. POTENTIAL ANALYTICAL CATEGORIES FOR FUTURE REPORTS
business sectors, geography, and property characteristics

The Port consists of a multifaceted political geography and consists of many business sectors. The Port contains approximately 340 utility account holders ranging from restaurants and hotels to refrigeration warehouses and maritime operations. These characteristics and other salient features are useful in understanding the distribution of energy and water use in the Port and the associated GHG emissions.

Insights into the Data: Current and Future Analysis

The distributions of energy use by energy sources, business sector, city, and other factors will provide some insights into the characteristics of utility usage within the Port's jurisdiction. Currently, the analysis covers distribution by energy source and comparison to CAP baseline. During the baseline reporting for calendar year 2015, it was identified that utility account holders within the Port tidelands use more electricity than natural gas overall. As compliance rates increase, future statistics may add value, such as reporting usage by Business Sector, Geographic Area (Planning District or Member City), Green Business Network participation, Energy Use Intensity by building type, etc. Future reporting must be done in a manner that is flexible enough to adapt as more information becomes available.

The energy and water usage data reported during the first year provides useful insights but also has limitations. The total usage provides baselines that can be used to understand year-over-year changes in participation levels in the next annual report. It is expected that energy and water use values will be higher in the next report as participation increases. These changes can be understood by the number of buildings and floor area included. As the total amount of energy used included in the benchmarking report increases, the analytics available from the Data Aggregator will be of greater value. Once certain statistical thresholds are reached, stakeholders can make Climate Action Planning insights based on the data.
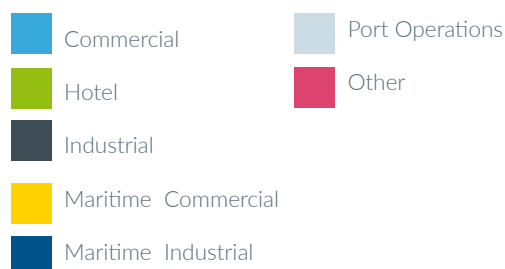
FIGURE 6:
Distribution of Utility Account Holders by Business Sector

NUMBER OF UTILITY ACCOUNT HOLDERS BY BUSINESS SECTOR

44%
18%
1%
10%
14%
6%
7%
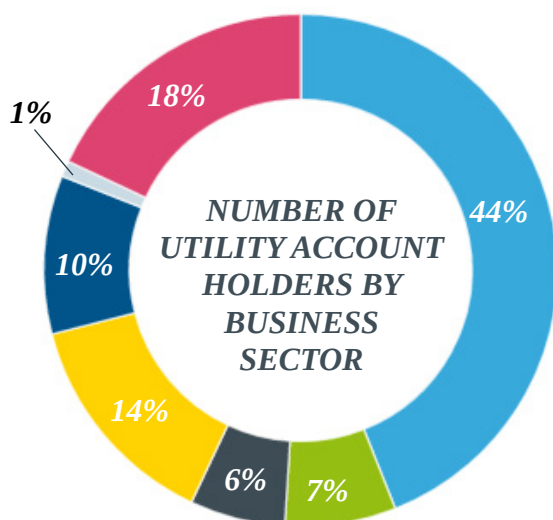
Business Sectors

The Port is home to a wide variety of businesses. Each property in the Port is identified as a member of one of the business sectors identified in Figure 6 to the left. The distribution of utility account holders by business sector could be utilized in future reports to understand the distribution of energy across land use designations and types of development.
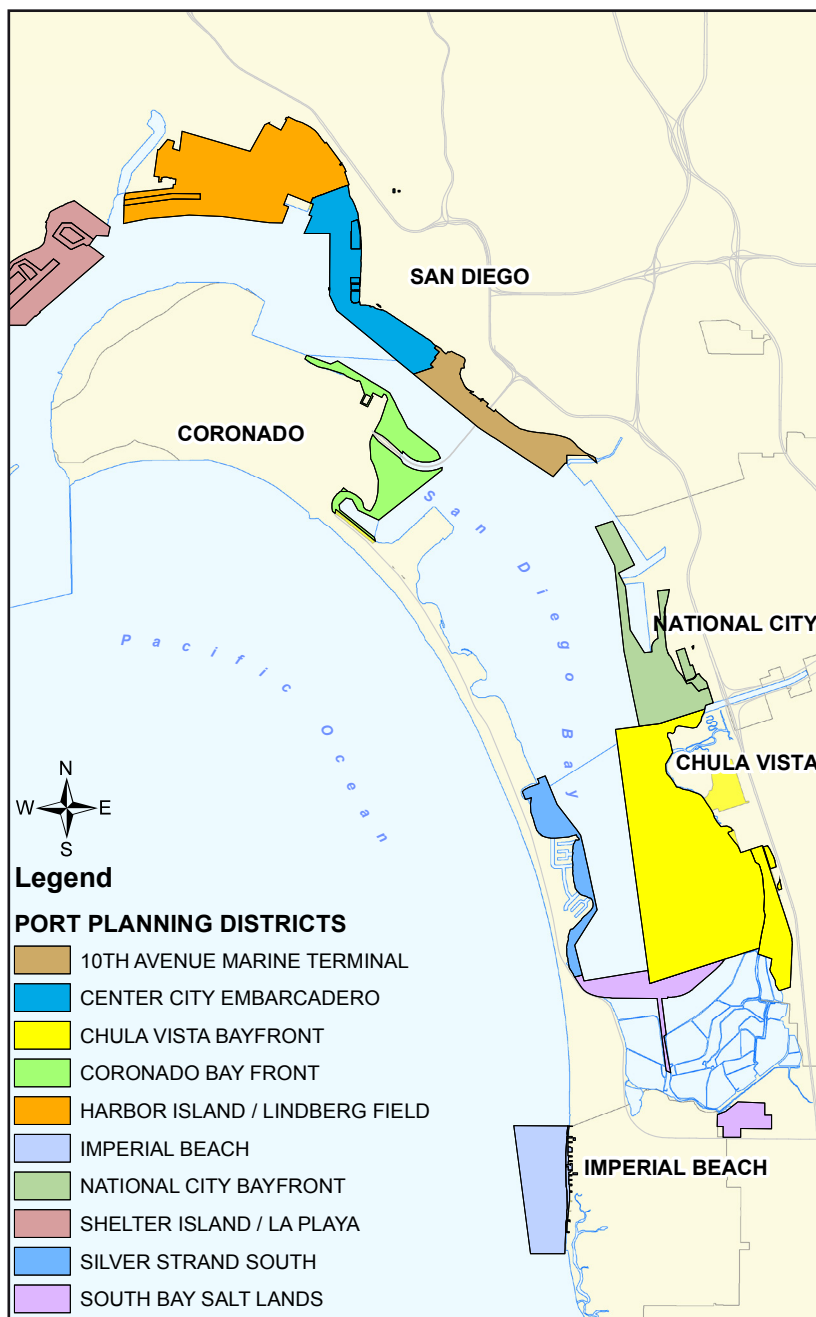
- Commercial
- Hotel
- Industrial
- Maritime Commercial
- Maritime Industrial
- Port Operations
- Other

POTENTIAL ANALYTICAL CATEGORIES FOR FUTURE REPORTS
continued

Geography

Two important geographic features are that the Port consists of five member cities and divided into tent planning districts, as summarized below:

FIGURE 7: Port Jurdistiction by Planning District.[7]

Member Cities

The Port spans across five member cities:

- *San Diego*
- *Chula Vista*
- *National City*
- *Imperial Beach*
- *Coronado*

Planning Districts

The Port of San Diego consists of ten Planning Districts:

- *Shelter Island*
- *Harbor Island/Lindbergh Field*
- *Centre City/Embarcadero*
- *Tenth Avenue Marine Terminal*
- *National City Bayfront*
- *Coronado Bayfront*
- *Chula Vista Bayfront*
- *Silver Strand South*
- *South Bay Salt Lands*
- *Imperial Beach*

A map of the member cities and planning districts is presented in Figure 7.

# POTENTIAL ANALYTICAL CATEGORIES FOR FUTURE REPORTS
continued

Energy Use Intensity and Property Types
Energy efficiency in buildings can be evaluated with a metric known as energy use intensity (EUI).

The EUI represents the amount of energy used annually per square foot (sq. ft.) of floor area. The units are kBtu/sq.ft.-yr. EUI values are not presented in this baseline report. As participation and compliance increase in future years, an analysis of EUI may be provided.

Two EUI values are reported by Portfolio Manager for each property: "source" and "site" EUI. The difference between source and site is illustrated in Figure 8, which is a simplified representation of the production, distribution, and consumption of electricity.

FIGURE 8: Difference Between Source and Site Energy Use Intensity (EUI)
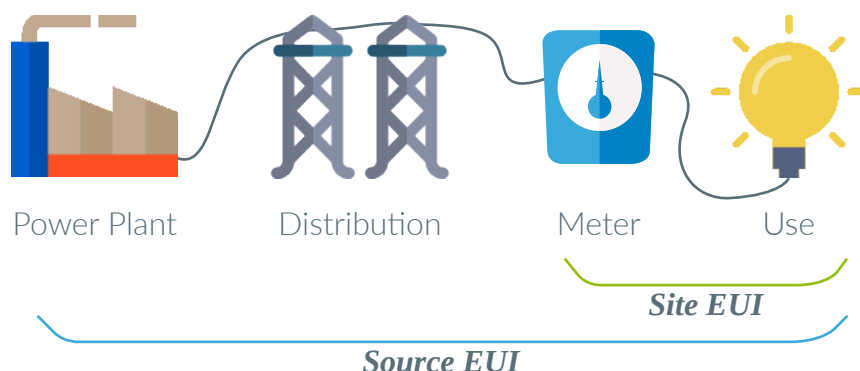
Power Plant   Distribution   Meter   Use

Site EUI

Source EUI

Site EUI represents the amount of energy used at a property. It is the amount energy read on utility meters and shown on utility bills.

Site EUI represents the amount of energy used at a property. It is the amount energy read on utility meters and shown on utility bills. Source EUI is this amount plus the energy used to overcome losses due to inefficiencies at the power plant and losses in the energy distribution system. Source EUI is always greater than site EUI.

POTENTIAL ANALYTICAL CATEGORIES FOR FUTURE REPORTS
continued

One of the main reasons for energy benchmarking is to compare building performance to other similar buildings. Building performance comparisons can help identify top performers for potential recognition and facilitate building operators with inefficient buildings to understand the benefit of making energy efficiency investments. EUI is a useful metric for such comparisons. This aspect of benchmarking is most effective for building types for which large datasets of comparable buildings are available, such as offices and hospitals. Many of the properties and functions in the Port are relatively unique to port and maritime operations, and therefore do not have large datasets available for comparison.

EUI values depend on detailed information, such as business sector, geographic location due to weather differences, building operating hours per week, and other factors. Many of the Port's tenants are in business sectors that do not have sufficient, representative data to calculate national median EUIs. Maritime commercial and maritime industrial properties are not included in the CBECS survey, and ENERGY STAR Portfolio Manager doesn't have benchmark data for these sectors. Therefore, the Port's marinas, ship repair, sport fishing outfits and other maritime properties do not have national EUI benchmarks for comparison. Industrial facilities also lack national EUI benchmarks recognized by ENERGY STAR due, in part, to their wide variation in operations and often industry specific equipment and processes. A study by the Industrial Assessment Center at Texas A&M University found the majority of industrial sectors in the study's database falling between 150 and 300 kBtu/sq.ft.-yr., including lumber and wood products, apparel, and fabricated metal products, but there were also many industries outside of this range (A. Hanegan et al, 2007).

7. CHALLENGES, LESSONS LEARNED, AND NEXT STEPS

In the first year of implementing Ordinance 2844, several challenges were encountered. These challenges provide lessons learned and opportunities to identify and implement changes in the future.

CHALLENGES & LESSONS LEARNED

The Challenges

One significant challenge is the relatively low level of utility account holder participation, consisting of 37% participation and 23% in compliance as of March 14, 2017. These values are based on an estimated 340 utility account holders.[8] As a result, it is difficult to make general conclusions about the Port's overall energy and water usage considering the participation levels to date. That said, the first year includes a combined total floor area of 12,088,262 sq.ft., which is a substantial portion of the Port's building and facility footprint. Recommendations for increasing participation are presented later in the Next Steps section.

Utility data reporting, aggregation, benchmarking, and report generation has required coordination between multiple organizations. The working relationships of Edison Energy with the Port and SDPTA are new, and there has been a learning curve for understanding how to work together most effectively. Going forward, the efforts will benefit from the time spent to learn how best to collaborate.

The compliance process can be difficult, and a reference guide has been produced to assist utility account holders. In addition, utility account holder information has been entered in Portfolio Manager in several different ways, and Edison Energy has made changes to the data aggregation and reporting system to accommodate some of these differences.

Trend Data

The first report for calendar year 2015 has served primarily as a data aggregation effort and has established some baseline values for the Port. Future data aggregation and benchmarking reports will be able to show year-over-year trend data, which will provide additional metrics by which the Port can measure and monitor progress towards the CAP GHG reduction goals. Some of the key trends that are expected to be presented are:

01 *PARTICIPATION*

Trends in participation can be tracked by number of properties participating, floor area participating, and % of properties participating.

02 *ENERGY & WATER USE*

Energy and water use trends can be presented using kWh/yr, therms/yr, MMBtu/yr, and gallons/yr. Trends of annual energy use could be documented in future benchmarking reports. The values may need to be adjusted based on changing participation levels.

03 *EUI & ENERGY STAR SCORE TRENDS*

To evaluate changes in building energy efficiency at the Port, the average EUI and ENERGY STAR scores can be presented as trends by year.

04 *GREENHOUSE GAS EMISSIONS*

GHG emissions trends can be presented year-over-year throughout the data aggregation and benchmarking process and can also be compared to the CAP 2006 baseline, 2020 target, and 2035 target.

NEXT STEPS

The SDPTA, tenants, subtenants, and Edison Energy can take several next steps based on the results of this aggregated utility usage and benchmarking report.

Participation and Compliance

Increasing participation levels is crucial to the future success of this data aggregation and benchmarking program. Edison Energy recommends the following actions to increase participation:

☑️ Increase outreach to tenants and subtenants. The Port and SDPTA staff have increased outreach efforts in the first months of 2017, and it is producing good results. Outreach efforts should continue to include door-to-door visits with tenants/subtenants, phone calls, and email to provide education on the reporting requirements and assist with implementation.. Edison Energy will continue to provide phone and email support to tenants with any questions or issues concerning compliance with the Ordinance.

☑️ Provide direct assistance to help utility account holders create Portfolio Manager accounts, enter property and meter data, and connect and share with the data aggregation system. Edison Energy will continue to increase our support of tenants as they work with Portfolio Manager and connect with us to share data for the aggregation.

☑️ Utilize full access in Portfolio Manager. Tenants have been encouraged to provide Edison Energy with read only access to their accounts because the reporting process is designed to have tenants enter data into Portfolio Manager, and then it is extracted by Edison Energy's platform. It is possible for tenants to provide full access temporarily to Edison Energy. This level of access allows Edison Energy to review and correct aspects of the utility account holder's property profile in Portfolio Manager, such as energy meter set-up. After the initial set up is complete, the tenant/subtenant can then return the access to read only.

☑️ Work with more stakeholder groups. The Port and SDPTA staff support has been instrumental in educating tenants and subtenants with increasing compliance. SDPTA's knowledge of and contacts with various tenants are a great benefit for compliance. There may be other stakeholder groups that can provide additional assistance.

☑️ Continue to provide education and training to utility account holders. Edison Energy recommends training sessions be offered in 2017. These sessions may be the same as those already provided or could be tailored to address specific issues that have been identified during the first year of reporting.

☑️ Continue to work with SDG&E to facilitate Ordinance compliance. SDG&E's automated benchmarking service (ABS) provides 14 months of meter data, which doesn't cover the entire prior calendar year for a tenant who connects in March or later. As a result, even tenants who use ABS can be required to manually enter data for the beginning months of the prior calendar year to achieve compliance. Edison Energy, CSE, and the Port have communicated with SDG&E regarding this issue, and it is possible that a solution will be found if SDG&E can accommodate the request through ABS. In addition, some tenants have had difficult connecting and syncing with SDG&E. These difficulties are addressed through both tenant outreach and by working with SDG&E.

☑️ Assist in finding energy and water bills. Some tenants have difficulty finding energy and water bills from up to two years ago, and some have stated that they no longer have copies of those bills. In addition to working with SDG&E, Edison Energy may need to work directly with some of the local water utilities to assist tenants with acquiring the information that they need to achieve compliance.

NEXT STEPS
continued

Invest in Energy Efficiency & Water Use Reduction

The primary purpose of the data aggregation and benchmarking effort is to support the Climate Action Plan and help the District measure and reduce its GHG emissions. Investing in projects aimed at energy efficiency and water use reductions should be informed by results of the data aggregation and reporting. Using this information to target investment may help the Port move towards achieving its CAP goals.

Data Quality

This report depends on the accuracy of data entered into Portfolio Manager by utility account holders. Outreach and education efforts in the future should include a list of key data quality checks that tenants can do when creating their Portfolio Manager accounts. These include:

- ☑ Accurate floor area and operating hours. The EUI values rely on accurate floor areas to determine a calculation. The ENERGY STAR score for eligible properties relies on the operating hours and approximate building occupancy, in addition to the energy consumption and floor area data.

- ☑ Number of buildings. Input of the number of buildings per property was not done consistently across the participants and is an area for clarification moving forward.

- ☑ Correct SDG&E meter numbers. SDG&E automatically uploads monthly utility data into Portfolio Manager by meter. This ABS provides a great benefit to the utility account holders and the data aggregation effort. Users must provide accurate meter numbers in order to have SDG&E upload the data.

- ☑ Enter water usage data. The majority of the participants did not enter water data. The water data must be entered manually.

Increasing participation levels is crucial to the future success of this data aggregation and benchmarking program. Additional outreach, training, and other support can help more tenants participate in the utility reporting and achieve compliance with the Ordinance.

Apply for Recognition

ENERGY STAR certification is a nationally recognized marker of high performance in building energy efficiency. Utility account holders should monitor their Portfolio Manager accounts to see if they have reached the required score of 75 or higher. Once that score is reached, tenants, subtenants and Port-operated properties should apply for certification. ENERGY STAR certification signage from the EPA can be installed at the building to indicate excellence in energy efficiency performance.

Future Records

Annual reporting is anticipated to facilitate CAP GHG reduction goal monitoring and tracking. As the program moves forward, additional key performance indicators (KPIs) may be incorporated.

8. REFERENCES, ACRONYMS, & ENDNOTES
references

1. Energy Star Portfolio Manager New Account / Login Page:
    www.energystar.gov/benchmark

2. Free Energy Star Portfolio Manager Training:
    http://greenportnetwork.org/utility-usage- reporting

3. Instructions to Share Data with Edison Energy:
    *http://greenportnetwork.org/sites/default/files/Sharing%20Property%20Instructions%20-
    %20Data%20Aggregation%20%20Benchmarking_100316_Final.pdf*

4. Flowchart on Data Usage Reporting:
    *http://greenportnetwork.org/sites/default/files/Data%20Reporting%20and%20Aggregation%20
    Process_11x17_100316.pdf*

5. Port of San Diego - Ordinance No. 2844:
    *https://www.portofsandiego.org/ordinances-a- resolutions/2015-ordinances-resolutions/12-08-
    2015-bpc-meeting/7235-ordinance-no-2844/file.html*

6. SDG&E Energy Efficiency Business Rebates (EEBR):
    www.sdge.com/2016-energy-efficiency- rebate-program

7. SDG&E Business Energy Solutions:
    www.sdge.com/business/sdges-business-energy-solutions- program

8. SDG&E On-Bill Financing:
    www.sdge.com/business/bill-financing

9. City of San Diego Public Utilities Department – Water Survey Programs:
    www.sandiego.gov/water/conservation/surveyprogram

10. SoCal Metropolitan Water District - SoCal Water$mart Rebate Program:
    www.socalwatersmart.com/commercial

11. Port of San Diego Climate Action Plan:
    *https://www.portofsandiego.org/climate-mitigation-and-adaptation-plan/documents/documents-
    1/5515-port-of-san-diego-climate-action-plan/file.html*

REFERENCES, ACRONYMS, & ENDNOTES

acronyms

ABS	Automated Benchmarking Service
Btu	British Thermal Unit
CAP	Climate Action Plan of the San Diego Unified Port District
CFL	Compact Fluorescent Lamp
CSE	Center of Sustainable Energy
GHG	Greenhouse Gas
EUI	Energy Use Intensity
kBtu	1,000 British Thermal Units
kBtu/sq.ft.-yr.	1,000 British Thermal Units per square foot per year
KPI	Key Performance Indicator
kWh	kilowatt hour
LED	Light Emitting Diode
MMBtu	1,000,000 British Thermal Units
MT CO2e	Metric tons of carbon dioxide equivalent
SDG&E	San Diego Gas & Electric
SDPTA	San Diego Port Tenants Association
US EPA	United States Environmental Protection Agency

REFERENCES, ACRONYMS, & ENDNOTES
endnotes & energy team

1. Source: https://www.portofsandiego.org/about-us.html, accessed on 9/24/2016

2. EB   refers to measures identified in the Port's CAP.

3. Of the approximately 340 utility account holders in the Port, 127 are connected to the data aggregation platform, and 79 of these utility account holders are in compliance, meaning that they have reported a full year of energy (and water if applicable) use for calendar year 2015. Additional discussion of these numbers is presented in the Participation section of this report.

4. ENERGY STAR Portfolio Manager Data Trends, Benchmarking and Energy Savings, 2012, https://www.energystar.gov/sites/default/files/buildings/tools/DataTrends_Savings_20121002.pdf

5. Many of the remaining entities who are not currently participating may not be required to report. That is, they may be incorrectly classified as a utility account holder. With continued individual outreach it is expected that the number of utility account holders will decrease. Therefore percentage participation is currently a conservative estimate.

6. Total energy usage (MMBtu/yr.) provided in this report differs from values in Portfolio Manager by approximately 0.00268% because Portfolio Manager uses a conversion factor of 3.412 kBtu/kWh, and this report uses 3.41214 kBtu/kWh to match the conversion use in the Total Energy Usage estimate provided to Edison Energy by the Port.

7. Image provided by the Port.

8. Determining exactly how many utility account holders are covered by the Ordinance is an ongoing effort. The Port and SDPTA have worked to reduce the initial list of potential utility account holders by identifying tenants who do not have utility accounts and therefore are not required to report under the Ordinance.

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