

CITY OF PORTLAND, MAINE
Standing Committee on Sustainability and Transportation
Councilor Andrew Zarro, District 4, Chair
Councilor Roberto Rodriguez, At-Large
Councilor Victoria Pelletier, District 2

Agenda
November 30, 2022
5:00 PM

The Sustainability and Transportation Committee will conduct this meeting remotely via Zoom . Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend live either in person or via Zoom, a recording will be available in the [Agenda Center](#) following the meeting.

Please click the link below to join the webinar:
<https://portlandmaine-gov.zoom.us/j/82618139942?pwd=MXF0SGpEK1NVd05MYmprb0M1MC9tdz09>
Passcode: 350331

Or Telephone:
US: +1 646 931 3860
Webinar ID: 826 1813 9942

1. Review and approve minutes from October 12, 2022
 - a. Minutes
2. Sustainability Program Updates
 - a. Sustainability Updates
3. Presentation and Discussion
 - a. Presentation regarding Portland's potential role in offshore wind development
Presenters: Troy Moon, William Needelman, Stephanie Watson (Governor's Energy Office), Matthew Burns (Maine Port Authority)

The S& T Committee will receive presentations from two State of Maine offices working on the development of offshore wind energy generation in the Gulf of Maine. Stephanie Watson serves as the Maine Offshore Wind Program Manager in the Governor's Energy Office. Matthew Burns is the Executive Director of the Maine Port Authority. Ms. Watson and Mr. Burns have both been assisting with the leadership for the Maine Offshore Wind Roadmap program.

Ms. Watson will be presenting the Maine Offshore Wind Roadmap process and Mr. Burns will be describing findings related to ports and infrastructure development. City staff requests that

the Committee receive a briefing on the status of wind energy in the Gulf of Maine to understand potential opportunities for the Port of Portland, including City infrastructure, in support of offshore blue energy development.

- b. Annual report on Energy Benchmarking
Presenters: Troy Moon and Erin Ferrell
- c. Report on Electrify Everything! pilot program
Presenter: Troy Moon
- d. Review committee accomplishments during 2022
Presenters: Committee members and City staff
- e. Discussion of items to recommend for committee to consider in 2023
Presenters: Committee members and City staff

4. Other Business

CITY OF PORTLAND, MAINE
Committee on Sustainability and Transportation
Councilor Andrew Zarro (D4), Chair
Councilor Victoria Pelletier (D2)
Councilor Roberto Rodríguez (At-Large)

Draft Minutes October 12, 2022

Members Present: Councilor Zarro, Councilor Rodríguez, Councilor Pelletier

Staff Present: Troy Moon, Katie Tims

Guests: Marshall Ripley (CMP), Jason Rauch (Avangrid), Peter Kinkley (Avangrid), Chris Morin (CMP), Michael Pertell (NYSEG), Scott Bochenek (Avangrid), Breanna Pierce (CMP), Megan Sullivan (Avangrid)

Meeting called to order.

September 14 Minutes

Councilor Zarro makes a motion to approve the September 14th meeting minutes. Councilor Rodríguez so moves and Councilor Pelletier seconds the motion. September 14th minutes passed unanimously, 3-0.

Sustainability Update

Presented by Troy Moon and Katie Tims

The Sustainability Office celebrated National Clean Energy Week (Sept. 26-30) by hosting an educational webinar with Joel Rosenberg of Rewiring America. The office also organized Portland's National Drive Electric event, which brought many attendees to learn about incentives and technology and test-drive electric vehicles. The Sustainability Office also celebrated international Park(ing) Day with help from the Parks Department and Cumberland County Soil and Water Conservation District, organized a regional meeting to collaborate with other sustainability professionals on how local governments advance climate action, and hosted their monthly Coffee & Climate.

As the pilot year of Portland's Electrify Everything! program ended, the Sustainability Office is working to gauge feedback from program participants, efficiency contractors, and other involved groups to best inform the next version of Electrify Everything! The Office also applied for a waste reduction grant from the Maine DEP to support our community food scrap recycling program. Troy Moon received the NRCM Conservation Leadership award for leading outstanding efforts in Maine's sustainability.

Committee Comment on Sustainability Update

Councilor Zarro asks how we are going to actively engage renters in the next version of the Electrify Everything! program.

The next iteration of EE! program will look differently, focusing on investments or appliances that renters can utilize. The program will also look to work with and encourage landlords and property owners to begin efficiency projects.

Councilor Zarro mentions that they have yet to see the request for \$400,000 in Recovery Act funds to support Electrify Everything! Programming yet at the Council but is curious how the Committee can be supportive.

Councilor Pelletier appreciates the information about how the Office plans to engage with renters and asks if we can include it in goal setting for the following year.

Presentation by Central Maine Power regarding the Electrical Grid in Portland “Planning for Beneficial Electrification”

Presented by participating guests

Central Maine Power, part of Avangrid, has a large corporate focus on Environment, Social, and Governance investment and includes UN Sustainable Development goals in its business strategy. Avangrid Networks works to enable regions where they operate to be leaders in transportation electrification through support for EV infrastructure, rate design, forecasting impacts on systems, and incentives, and increase customer awareness and acceptance. Conducting system impact assessments as the market matures. CMP corporate forecast uses economic forecasts to determine MWH allocation to service centers.

Eight substations feed into the city of Portland with ~40 distribution circuits and ~275mi distribution lines (overhead and underground). Portland’s Downtown network is a single substation that feeds the network. Network system is more expensive to build and maintain because of redundant equipment. Generation on network systems looks like a backfeed and can cause equipment to trip; the concern increases with larger projects. CMP models the distribution system ten years forward and identifies projects to improve and accommodate load on the system.

Local and regional assessment for “Lower Maine” identified “local system issues” in 2021 assessment. Local area study revealed the need for additional transmission source into area recommended a new 115 kV line, and both thermal and voltage needs into City. Requested input from the City of Portland and South Portland, specifically specific local electrification objectives and load growth projections.

Comment on CMP Presentation

Troy Moon notes that “state and local climate action plans are informing (Avangrid’s) planning”, but to what extent? *Michael Pertell explains that they match currently available information (18-24mo transmission queue) with glide path for longer-term state policy goals. Scott Bochenek adds that the state goal is the “high scenario” for EV growth. Jason Rauch adds that statewide forecasting includes state policy goals.* How does that (home efficiency upgrades) play out in the local distribution network? *That is what we try to account for when we look at load growth in a ten-year period (based on data).* Is there a time when we have too many homes in a circuit that you might tell people, “No you can’t have a heat pump or solar”? *We never say no, we say yes with upgrades. “Won’t get into rates” but if it is individual residential customers, that is considered native load growth, and would be solved with investments and bill increase. We try to leave 10% margin on the system and mitigating that action naturally. Investment is extremely*

location specific and that's why details are needed. In terms of equitable distribution of those costs (large-building upgrades necessitating increased transmission and thus investment)? There are state rules, PUC rules, about cost responsibility for load interconnection. The "line extension contract" relates neighbors and sharing cost of investment.

Councilor Zarro mentions that our climate action plan, One Climate Future, outlines such goals of beneficial electrification throughout the City and thus there should be no uncertainty in the direction the municipality is working in - clarifying that we are doing this meeting now so that we can best get in front of a situation in which we are successful in helping residents upgrade and "electrify everything" before the infrastructure is in place. Councilor Zarro asks if the local area study, that Megan discussed, was the 2025 capacity study for OCF. *Troy answers, no, not directly.* Where does shore power feasibility connect to this conversation? *We treat that in two ways: one is a specific interconnection project and one is considering it in the larger future load study of full Portland area.* What is the general timeline of those studies? *No, we don't have a good estimate of release date.*

Councilor Zarro notes that at this point the larger capacity study and the local studies underway are the next step that we can take to identify the increases in infrastructure. We want to collaborate with you (CMP) moving forward and asks how much of the OCF plan factored into the Lower Maine projection study. *I don't think OCF was incorporated into the south forecast, the work identified in ISO-NE, because the Maine Climate Action plan does not incorporate City-specific goals. Information sessions like this are so critical. ISO-NE is our regional guide with baseline assumptions.* Our goal is to codify OCF into ordinance, so we need to get to work yesterday to increase our transmission and it's going to take all of us moving together. *It helps with the uncertainty factor when things get put into ordinances or laws, it creates a lot more certainty and we hope that will help.*

Councilor Rodríguez raises the different transportation agencies that we have in the region and there may be pockets of more motivation than others. *If you are speaking about fleet operators, whether municipalities or businesses, once you start having those discussions this could be something that goes beyond CMP but collaboration with DMV or other states or other creative avenues of information.* Noting that the Maine state legislature is discussing how PFAS-contaminated agricultural land can be converted into solar farms, is that something you have considered? *There is a task force looking at this issue and there have been discussions for adders or subtractors for different qualifiers for programs. Coordination with CMP's host-capacity maps online and siting tool.*

Councilor Zarro asks the final question, what are next steps look like and how do we move forward? *From a planning perspective, details and specific information can help us develop more detailed plans and solutions that will help us when we go to regulators.* Troy Moon follows up by asking, in terms of engagement there are PUC dockets, but they are difficult for individuals and the City, how can we work talk less formally about decision making? *Not sure, but getting OPA and NWA and other state agencies involved in the approval process sooner would make it faster. Prove that this is real and not pie-in-the-sky because concrete evidence*

will only help us in the long term. The extent that we can help the public understand the need for the transmission along with the generation to serve the load is important. Recognition of new bill of LD1959 for two requirements for PUC: Climate Change Protection Plan and Integrated Grid Plan - encourage the City to be part of stakeholder engagement.

Other Business

Councilor Zarro asks for any other questions or comments and thanks the guests for joining us and helping us achieve our goals of decarbonizing the City.

Motion to Adjournment

No roll call, friendly adjournment.

Meeting Adjourned



CITY OF PORTLAND

Sustainability Office

Troy Moon

Sustainability Director

Sustainability Updates

November 30, 2022

Energy

In March 2022, the Sustainability Office launched Electrify Everything! with the goal of assisting in at least 75 electrification projects to help Portland residents decarbonize their homes and lower their energy costs. Electrify Everything! The pilot program concluded last month and was successful in reaching that goal. A total of 114 Portland residents expressed interest in the program by signing up on the Sustainability Office website or by going directly to ReVision Energy. The 105 completed projects include 33 air source heat pumps, 2 battery storage units, 10 water heater heat pumps, 5 home electric vehicle charging stations, 33 community solar farm leases, and 22 solar (pv) installations. You can view more details about the program, outreach, and outcomes here, in the [Program Report](#).

Feedback gathered from residents who signed up for the program and from over two hundred efficiency contractors in the greater Portland area, also included in the Program Report, will be used to inform our efforts in promoting beneficial electrification throughout the community and will help us design future versions of Electrify Everything!

The Council appropriated \$200,000 in American Rescue Plan Act funds to support Electrify Everything! Programming. The Sustainability Office plans to launch Electrify Everything! 2.0 in early 2023 with increased priority on assisting low- to moderate-income residents to reduce the upfront costs associated with electrification projects.

Waste Reduction

The Office applied for the Maine DEP Waste Diversion grant to expand access to our food scrap recycling drop sites and was awarded \$9,000. The Office plans to use those funds to translate all signs and educational materials into six languages and provide further direct outreach.

On November 1st, the Office hosted a Pumpkin Cycle event to collect pumpkins and jack-o-lanterns to be recycled by AgriCycle Energy to make energy and fertilizer for farms in Exeter. The event was a great success with 3,000 lbs of pumpkins collected and recycled. We were joined by Eighty-8 donut food truck which created a fun atmosphere for families and residents dropping off pumpkins. The Office plans to hold the event again next year.

Electric Vehicles

The first Level 2 EVGo chargers were installed at East End School. They will be operational once CMP connects the power. Construction of the Level 2 charging hub in the Deering Oaks parking lot is nearly completed. We hope both will be operating before the end of the year. Construction for the chargers at the corner of High St/Spring St is underway. Most site work is now complete but EVgo will need to return in the Spring to install the pedestals and complete the utility connections. This location will have a 350 kw charger and two 100 kw chargers. This equipment will supply four parking spaces with fast charging capabilities.

Community Support

The Office spent October 8th, Election Day, assisting the Clerk's Office to manage the thousands of absentee ballots cast in the City of Portland. Erin and Katie also represented the City of Portland at the Maine Hunger Dialogue and Climate Action Summit. Conference attendees participated in breakout sessions focused on the intersection of food security and climate change and heard from speakers, including Hannah Pingree, the Director of the Office of Innovation for the State of Maine, and Bob Moore, Director of the Augusta Food Bank.

Education and Outreach

On October 25 Troy was invited to speak at the Maine Digital Government Summit in Augusta to discuss how the City has employed "smart city" technologies including LED street lights and adaptive traffic control systems to help achieve our sustainability goals.

On Tuesday, November 29th, the Sustainability Office hosted a webinar with speakers from Efficiency Maine and Evergreen Home Performance to discuss home energy efficiency improvements that residents can make to save money on heating costs and stay comfortable in their homes this winter. The webinar was promoted to audiences around Maine and the recording will be available on our YouTube channel so people can view it anytime.

Katie and Erin hosted a popup tabling event in Post Office Park to talk with residents about food scrap recycling, One Climate Future, and office programs.

The One Climate Future team hosted two Coffee and Climate events, one focused on Community Solar with guests from ReVision Energy and Maine Community Solar. Our November Coffee and Climate focused on climate legislation with a discussion led by Kathleen Meil of Maine Conservation Voters.

Climate and Coffee events are community conversations that happen on the 2nd Friday of the month at 9 AM. We record sessions with guest speakers and post them on www.oneclimatefuture.org, along with other information about our work. You can also follow us on social media. Instagram @sustainableportlandme / Twitter @SustainPortME / FB @SustainablePortlandME

To: Chair Andrew Zarro and members of the Sustainability and Transportation Committee
From: Bill Needelman, Waterfront Coordinator
Date: November 23, 2022
RE: November 30, 2022 presentation on Offshore Wind Generation
CC: Anne McGuire, Deputy City Manager
Mary Davis, Acting Director HEDD
Troy Moon, Sustainability Director
Kathy Alves, Ports and Public Buildings Director

Introduction:

On November 30, 2022 the S& T Committee will receive presentations from two State of Maine offices working on the development of offshore wind energy generation in the Gulf of Maine. Stephanie Watson serves as the Maine Offshore Wind Program Manager in the Governor's Energy Office. Matthew Burns is the Executive Director of the Maine Port Authority. Ms. Watson and Mr. Burns have both been assisting with the leadership for the Maine Offshore Wind Roadmap program.

Ms. Watson will be presenting on the *Maine Offshore Wind Roadmap* process and Mr. Burns will be describing findings related to ports and infrastructure development. City staff requests that the Committee receive a briefing on the status of wind energy in the Gulf of Maine to understand potential opportunities for the Port of Portland, including City infrastructure, in support of offshore *blue energy* development.

The purpose of the meeting is to introduce the Committee and the public to the offshore wind planning process and to lay groundwork for future City decision making as local opportunities come forward.

Background:

The [Maine Offshore Wind Roadmap](#) is a process led by the Governor's Office of Energy to set the stage for the creation of a new utility-scaled energy industry in the Gulf of Maine. As described on the Roadmap website:

The Maine Offshore Wind Roadmap will create an economic development plan for the offshore wind industry in Maine, by building on the state's record of planning, research and development, and innovation that stretches back over a decade.

While wind energy generation has matured for terrestrial applications, offshore wind is still early in its development in the United States. Moreover, the few installations that have been

constructed in coastal waters are located in shallow areas using fixed foundations. The Gulf of Maine is largely a deep body of water, unsuitable for fixed foundation construction. However, the wind resource of the Gulf of Maine is vast providing utility-scale *floating offshore wind* generation with enormous potential. To access the Gulf of Maine's wind energy potential, Maine's emerging offshore wind industry will need to develop and utilize floating foundations for generation equipment. These floating technologies have been explored at the University of Maine for over ten years and Maine may emerge as a world leader in floating offshore wind. Ports and port communities will play a critical role in the development, deployment, and maintenance of the offshore wind industry. Portland has the potential to contribute and benefit from the emergence of the industry should it grow as promoted by the State of Maine.

The Roadmap Process:

The *Roadmap* process has engaged communities, industries, and advocates in a robust outreach process to establish an actionable course toward achieving the State's carbon reduction goals. The City of Portland was invited to participate in the Roadmap process and the Waterfront Coordinator has served on the *Supply Chain, Workforce Development, Ports, and Marine Transportation Working Group* since the beginning of the process.

Through this work, City staff has made contacts with the offshore wind development industry, as well as opponents to the industry, and offers the following observations.

Offshore Wind in Portland Harbor – preliminary observations:

Offshore wind developers are interested in opportunities in Portland; While the Port of Portland is not suited to be the primary construction port for the industry, Portland Harbor has the potential to provide many short and long term opportunities to participate in the emerging industry. Operations and Maintenance, crew transfers, materials handling, component construction/assembly/transport, and technical support are all functions well suited to local infrastructures and will be needed for offshore wind to develop and grow.

The city has assets that may be valuable to the industry: Longstanding vacancies in the Portland Ocean Terminal provide viable short and long-term opportunities that may be explored with the offshore wind industry.

The scope and scale of the opportunities are proportionate to our harbor; Many of the physical/spatial needs for the construction and deployment of offshore wind are beyond the capacity of Portland Harbor to accommodate. A [Maine DOT Offshore Wind Port Infrastructure Feasibility Study](#) has identified Searsport as the *State Offshore Wind Hub*. However, long-term operations and maintenance functions are modest in scale and well suited to local public and private facilities. As the industry develops, Portland Harbor may be home to one or more such tenants.

Fishing will not see localized negative impacts from potential OSW footprint in Portland Harbor; Offshore wind has proven to be extremely unpopular with many fishing interests – state wide. Fishing industry concerns run the gamut from direct displacement from traditional fishing grounds, to gear disturbance during equipment transport, to potential ecological harm from the construction and operation of the facilities. However, the scale

and nature of opportunities here in Portland Harbor will not generate *direct impacts* to fishing. The generation platforms will be located in federal waters well offshore and the localized impacts of operations and maintenance activities envisioned for Portland Harbor are consistent with other port-related industries.

However, the Portland Harbor fishing fleet, both lobster and groundfish, potentially may see reduced fishing opportunity if offshore wind expands sufficiently to meet both Maine and federal carbon reduction goals. If the City is a participant in development of the offshore wind industry, our opportunities to advocate for legitimate fisheries protections will likely be stronger. The Waterfront Coordinator's participating in the Roadmap Process to date has already provided an additional voice for fishing in the ongoing discussions.

Communication and inclusion of fishing voices in the development of offshore wind will continue at the state and federal level - The extent of fishing impacts is still under evaluation and will continue to be highly scrutinized during the ongoing planning and future permitting processes preceding construction.

As a fishing community and a port service center, Portland has a legitimate role in both advocating for protection of fishing interests while simultaneously exploring port business opportunities.

Offshore wind has the potential to support harbor services that have struggled recently. With the loss of traditional petroleum business in Portland Harbor, tugboat service, chandlery businesses, and other harbor support business have a rare opportunity to expand into an emerging industry. Portland Harbor has been an energy port for generations. As our communities transition away from petroleum products, port activities will need to transition as well to serve the marine uses that hope to replace our energy needs.

Offshore wind will help diversify the business base for the port generally and city port operations specifically. City port resources, with the recent transfer of the International Marine Terminal to State ownership, are now concentrated into two industries – fisheries at the Portland Fish Pier, and passenger operations at the Portland Ocean Terminal and Ocean Gateway. The recent pandemic demonstrated the vulnerabilities created by overreliance on any single tenant base. Offshore wind provides opportunities to diversify the tenant mix at the City terminals on the Eastern Waterfront.

Concluding Thoughts:

Offshore wind generation offers an opportunity to reconsider the role of marine resources for the community. The climate action goals of One Climate Future and Maine Won't Wait require a thoughtful transition away from petroleum toward lower carbon energy. For Maine, offshore wind is a critical component of this transition. For offshore wind, ports and the support of port communities are the platform that will house and nurture the industry's emergence and growth.

Conflicts with existing uses will be inevitable. Cruise ship operations may need to be altered and possibly restricted at the POT if offshore wind tenants are considered. Fishing may be challenged on the water, even if compatibility is achieved in Portland Harbor (as we expect.)

Other conflicts may arise as our knowledge about offshore wind grows, and the opportunities develop.

However, as the material provided in the links provided herein demonstrate, offshore wind is coming. The State of Maine is moving forward with two pilot projects in the near term and Federal leases for wind development in the Gulf of Maine are scheduled for auction in 2024.

The Committee is asked to review the material available, to explore with the presenters any questions they may have. City staff will be available to answer questions about City facilities and our interactions with the process to date.

Maine Offshore Wind Port Characteristics and Operations Overview

By: Matt Burns, Executive Director - Maine Port Authority

OSW Ports – High Level

OSW requires very specific criteria not common in ports worldwide.

Fixed vs. floating port requirements are similar.

There are currently no purpose-built floating OSW port facilities in the world.

A primary hub location is necessary to support a commercial OSW project.

Multiple ports may be developed to support the industry as it matures.

What are the most important characteristics of an OSW port facility?

Deep Water Access

No Overhead Restriction – Air Draft

Cargo Staging Area

Heavy Loading Capacity

Dedicated Wharf Frontage

The “nice to have’s”

Proximity to Project

Access to Labor Force

Intermodal Connectivity

Geographic Location

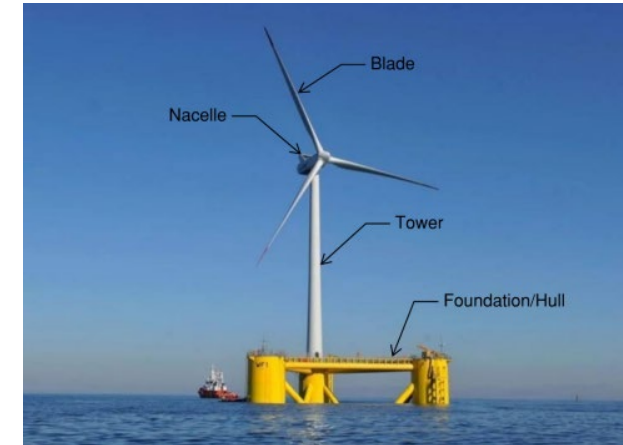
What makes up a floating OSW turbine?

Nacelle – The outer covering that houses all the energy generating components including the gearbox and drivetrain.

Tower – Column that elevates the nacelle to the proper hub height to capture the optimal wind speeds. Towers typically come in two to three sections.

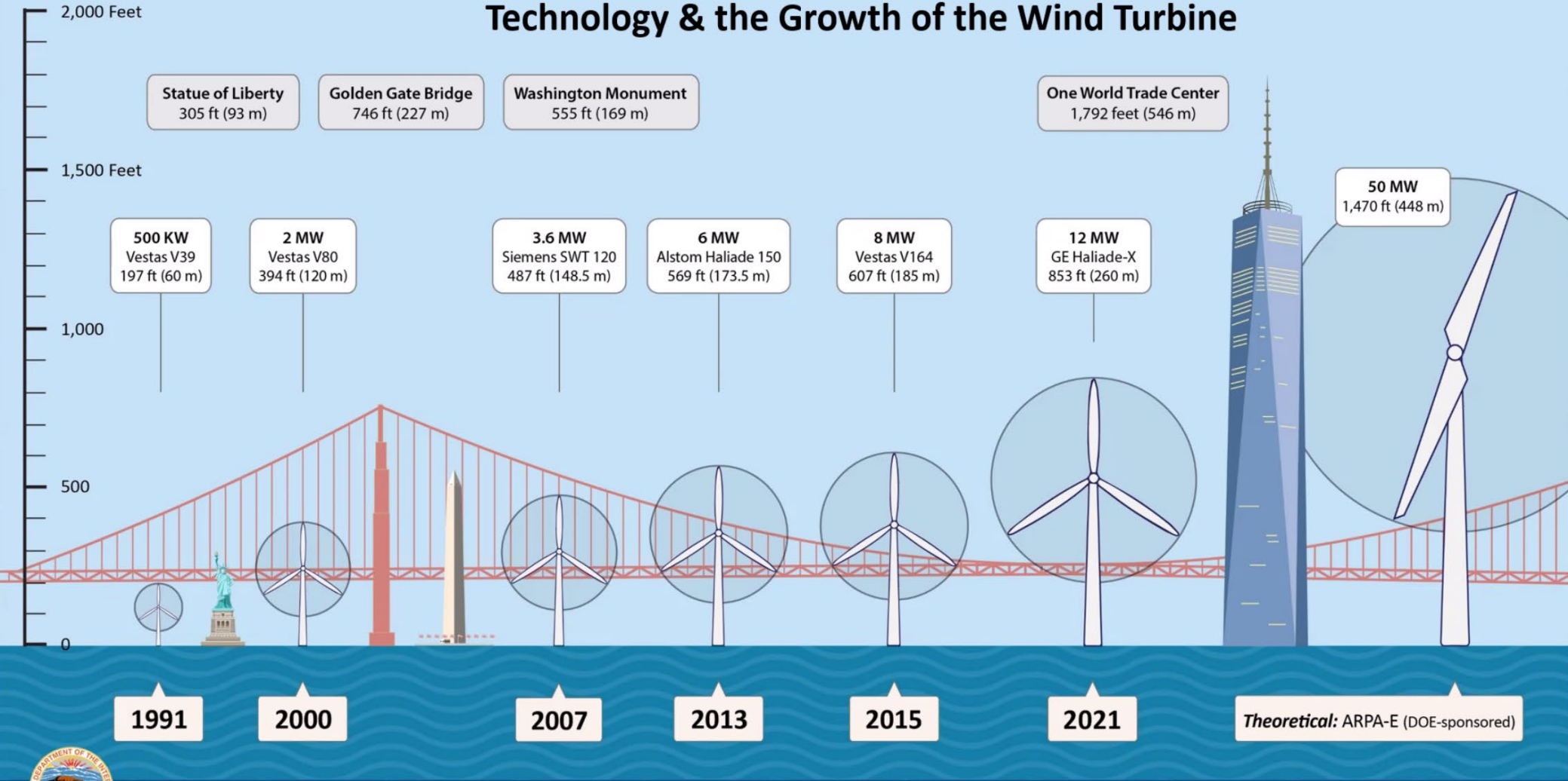
Blades – Used to capture the wind energy and transfer it to the wind turbine.

Foundation/Hull – Provides a platform for the tower, turbine and blades



Component	Length (ft)	Width (ft)	Height (ft)	Diameter (ft)	Weight (T)
Blade	404	N/A	N/A	21	77
Nacelle	80	36	43	NA	917
Tower 1 (T1)	101	N/A	N/A	30	315
Tower 2 (T2)	155	N/A	N/A	26	324
Tower 3 (T3)	164	N/A	N/A	23	272

Technology & the Growth of the Wind Turbine



BOEM Bureau of Ocean Energy Management

Five Stages of OSW Foundation Fabrication and WTG Installation



Fabrication



Loadout



Float Off



WTG Installation at Berth



Tow to Installation Site

Types of OSW Vessels and Equipment

WTIV – Wind Turbine Installation Vessel. Large crane, jacking spuds, dynamic positioning.

SOV – Service Operation Vessel, vessels that are equipped to provide routine repair and maintenance to the wind farm

CTV – Crew Transfer Vessel, high speed and capable of moving crew from one place to the next.

Barge – Deck barges and semi-submersible barges are the most common.

Delivery Vessel – General cargo or heavy lift vessel that is used to transport WTG components to the marshaling facility. 8-10m draft.

Types of OSW Vessels and Equipment

AHTS – Anchor handling vessels. Specially designed to handle the large anchors that tether the floaters to the seafloor.

Cable Layers – Responsible for installing subsea cables between turbines and to the shoreline.

Helicopters – Extremely fast way to shuttle personnel to and from support vessels as well as hotshotting parts and equipment.

Cranes – Massive cranes on shore and mounted on vessels are required to move heavy components.

SPMT – Self Propelled Modular Transport. Similar to a tank without a turret.



- ① Dynamically Positioned Support Offshore Vessel
- ② Dynamically Positioned Next Generation Floating Feeder Vessel
- ③ Crew Transport Vessel
- ④ Offshore Support Barge
- ⑤ Dynamically Positioned ATB Floating Feeder
- ⑥ Cable Laying Barge
- ⑦ Conventionally Towed Feeder Barge
- ⑧ Dynamically Positioned Next Generation Jack-up Vessel
- ⑨ Dynamically Positioned Tug
- ⑩ Anchor Handling Tug











Types of OSW Port Facilities

Marshalling – Marine cargo delivery, cargo storage, WTG assembly and construction. Also synonymous with ‘staging’.

Factory – Production facilities for WTG components (blades, nacelles, tower sections)

O&M – Routine operations and maintenance, transporting smaller pieces of equipment and personnel.

SOV Home Port – Refuel and restock SOV with larger components for maintenance.

Marshalling Facility

Generally 30+ acres in size. Component laydown takes up the majority of space.

Marine cargo delivery vessels call on a regular basis depending on the size of the laydown area. Tug and barge activity present.

Many commonalities for a fixed vs. floating facility. WTIV not necessary for floating facility.

Port of Esbjerg, Denmark. D1 OSW Terminal Belfast, Ireland.

Users include Port Authorities, OSW Developers, Engineering Contractors.

Traffic includes personal vehicles, weekly/monthly large commercial vessel traffic. 100-300 personnel depending on size.













Factory Facility

Production of components is done in specialized factories before loading onto a vessel for staging.

Blades, nacelles, tower sections and transition pieces are delivered from the factory to the marshalling facility.

Generally 60+ acres is required. Cranes are required to transfer components.

Typically see delivery vessels and barges. Raw materials arrive by barge, vessel, rail or truck. Components transported to the wharf by SPMT's.

SIF Offshore Terminal at Maasvlakte 2, GE LM Wind Power Cherbourg, France.





O&M Facility

Once installation is complete and wind farms are generating power, there is a need for routine O&M. Daily CTV voyages to and from wind farm.

Transport personnel and smaller pieces of equipment. Cranes could be installed quayside.

Generally, require 3+ acres. Storage yard, forklift maneuvering area, offices and parking.

Personnel arrive by car or bicycle.

Rampion at Newhaven, England.







SOV Home Port

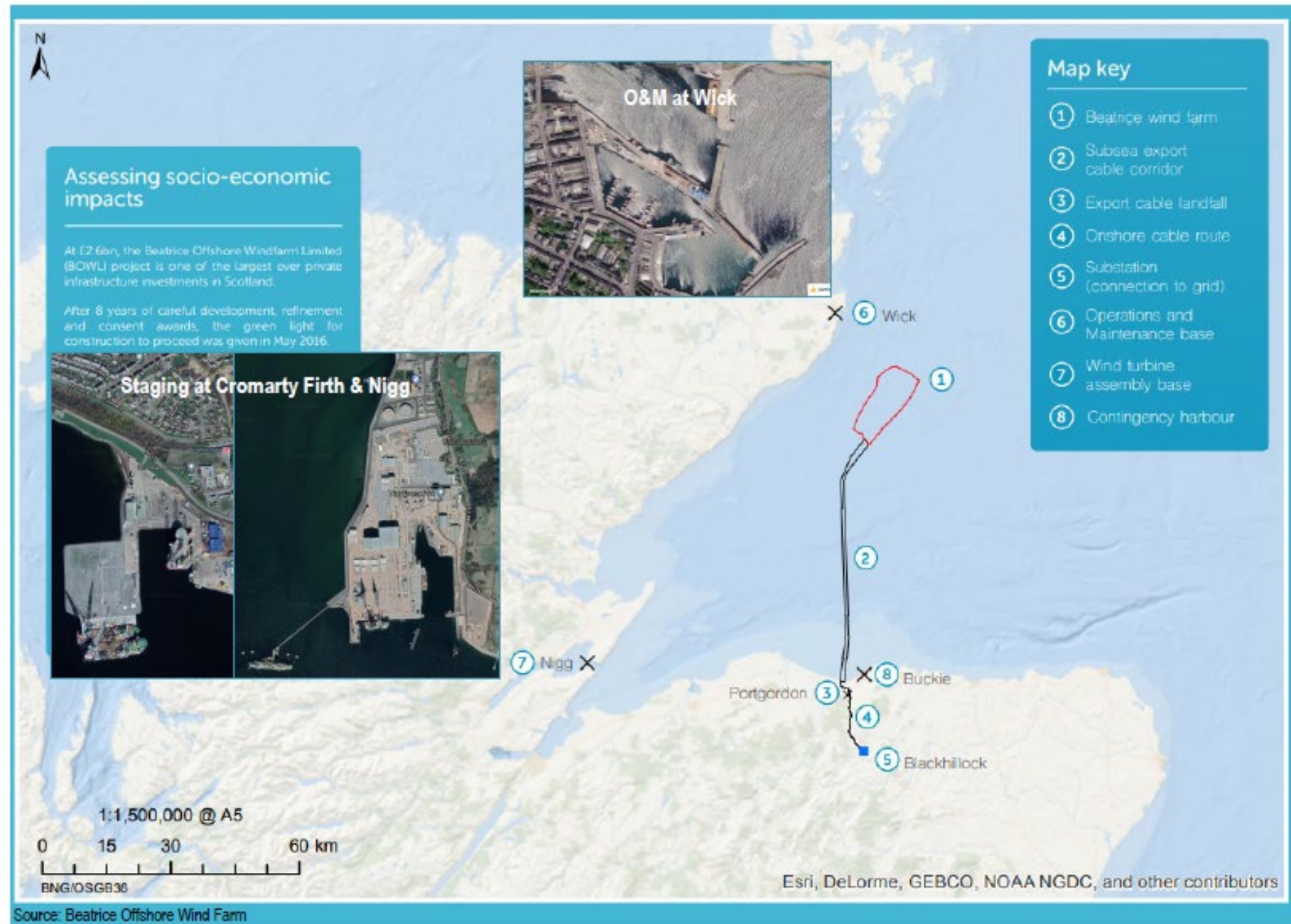
Supply support vessels with maintenance and operation equipment. Storage yard, storage warehouse, parking.

Area required 1 to 3 acres.

Min water depth 24ft. SOV makes 1-3 port calls per month to fuel and resupply. SOV stays for 1 day then departs.

Equipment and components delivered by barge, truck or rail.





OSW Port Infrastructure related to a Hypothetical Solicitation Timeline for Maine

2023-2025 MeRA will require a primary port facility to install the 12-turbine research array.

2028-2030 The primary port facility is expanded to commercial-ready, anticipating roughly 120 turbines (S1+S2). O&M port online.

2031 Solicitation 1 approx. 800MW or 60 turbines.

2032 Solicitation 2 approx. 800MW or 60 turbines.

2032-2034 SOV port, a second marshaling and foundation manufacturing facility.

2035 Solicitation 3 1100MW

2037 Solicitation 4 1100MW

2040 Solicitation 5 1100MW

Closing Points to Make

Many proposed OSW port facilities include marshalling and manufacturing sites. Higher value elements (blades, nacelles) may be produced in the USA once the industry matures.

Most facilities are being developed on existing infrastructure but need significant rehabilitation and new construction to make them suitable for use in OSW.

Cost of these facilities is often exceeding \$100million in initial improvements. Most of these developments are public/private partnerships.

Average life of a wind farm is 25 years. In that timeframe, there will be a significant amount of vessel traffic to and from the installation site for maintenance and repair exercises.

Development of port infrastructure will catalyze job creation in Maine. This will occur in phases with a hub location to support the installation of the MeRA, and then expansion into a commercial-ready facility.

The efficiencies of a port network in proximity to the installation site has proven to be a downward cost driver and beneficial for communities.



Overview of Offshore Wind

**Presented to the Portland City Council
Committee on Sustainability and Transportation
November 30, 2022**

Stephanie Watson, Offshore Wind Program Manager
Governor's Energy Office



GOVERNOR'S
Energy Office

Overview

About Offshore Wind

Offshore Wind in Maine

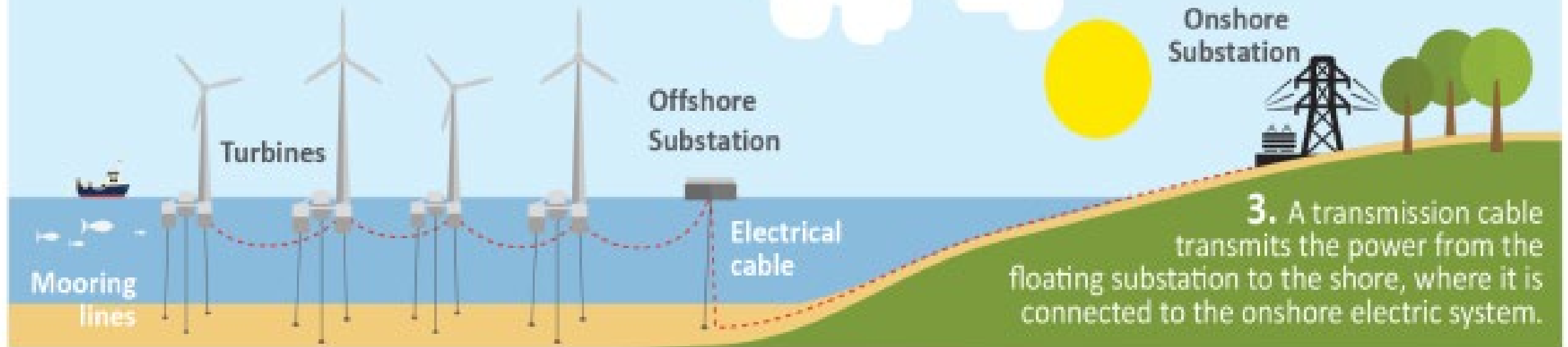
Maine Communities and Offshore Wind:
Engagement Opportunities &
Considerations



How Offshore Floating Wind Farms Work

1. Floating wind turbines are configured in an array to optimize the capture of wind energy.

2. Energy captured by the turbines is conveyed through a transmission line to a floating substation.



3. A transmission cable transmits the power from the floating substation to the shore, where it is connected to the onshore electric system.

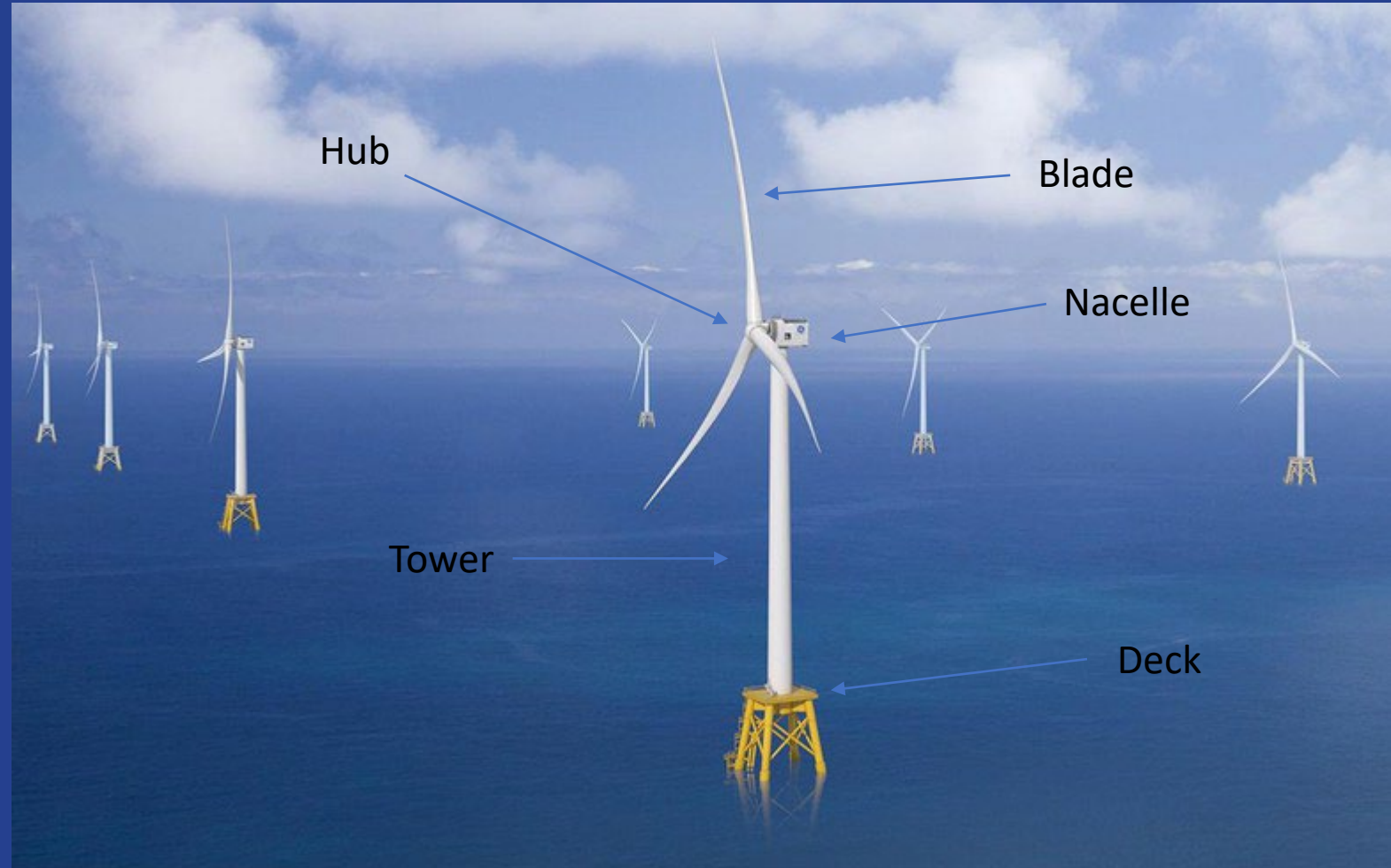
Parts of an Offshore Wind Turbine: Above Water

Fixed Bottom Offshore Wind Turbines

- Similar to land-based turbines
Except:
- Bigger
- Have more complex supports drilled in seabed
- Withstand marine environment

Floating Offshore Wind Turbines

- Similar to fixed turbines at surface
Except:
- Floating substructures
- Attached to the seabed w/ mooring lines and anchors



Fixed Bottom Offshore Wind Platforms with 12 MW Turbine

Monopile

4-legged
Jacket

Tension Leg
Platform

Spar Buoy

Semi-submersible

0 to 60 meters depth
(fixed bottom)

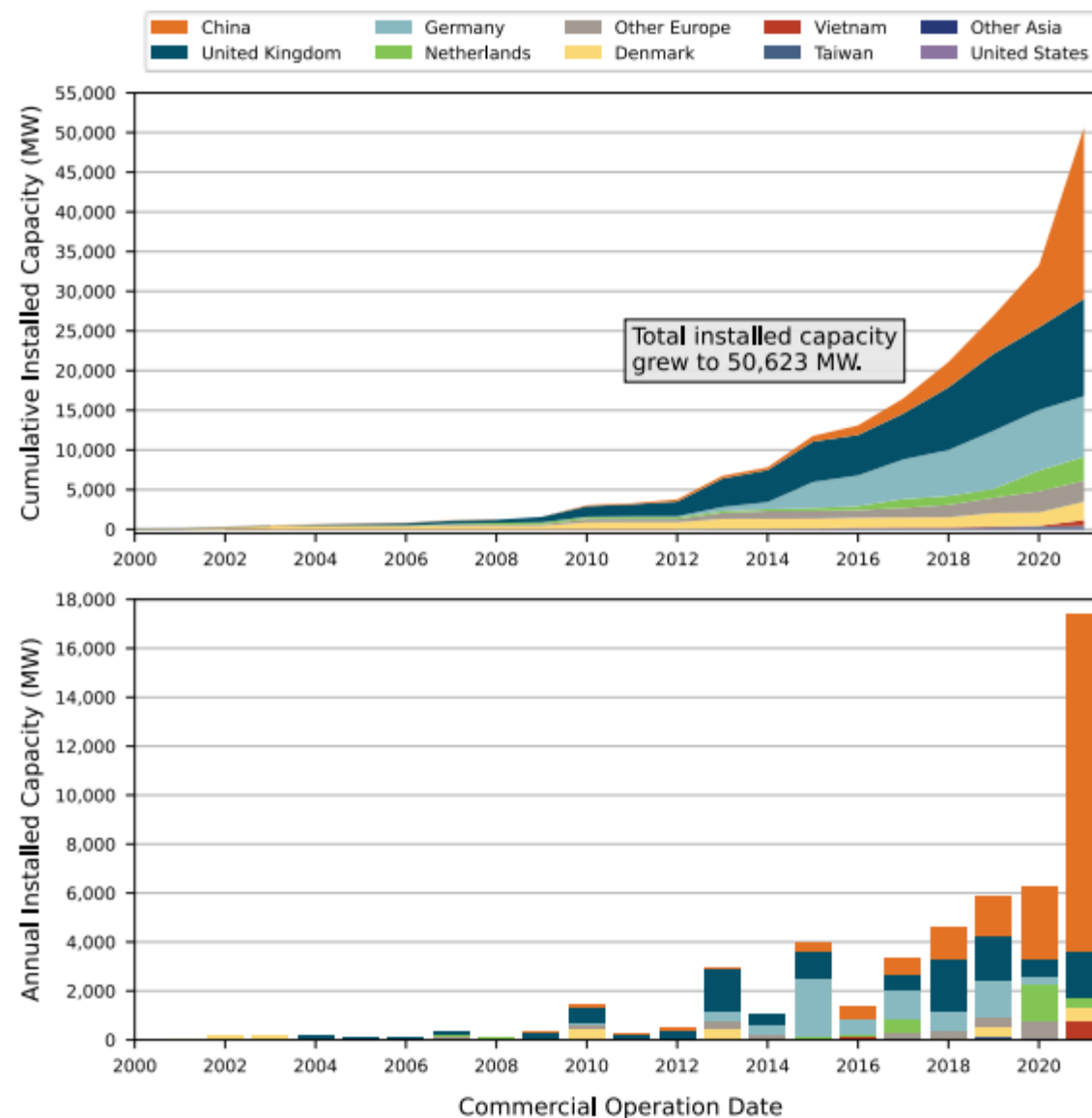
Above 60 meters depth
(floating)

Offshore Turbine Substructure Type Depends on Water Depth



Global Cumulative Offshore Wind Energy Deployment Tops 50 GW in 2021 With Record-Setting Annual Capacity Additions of More Than 17 GW in 2021

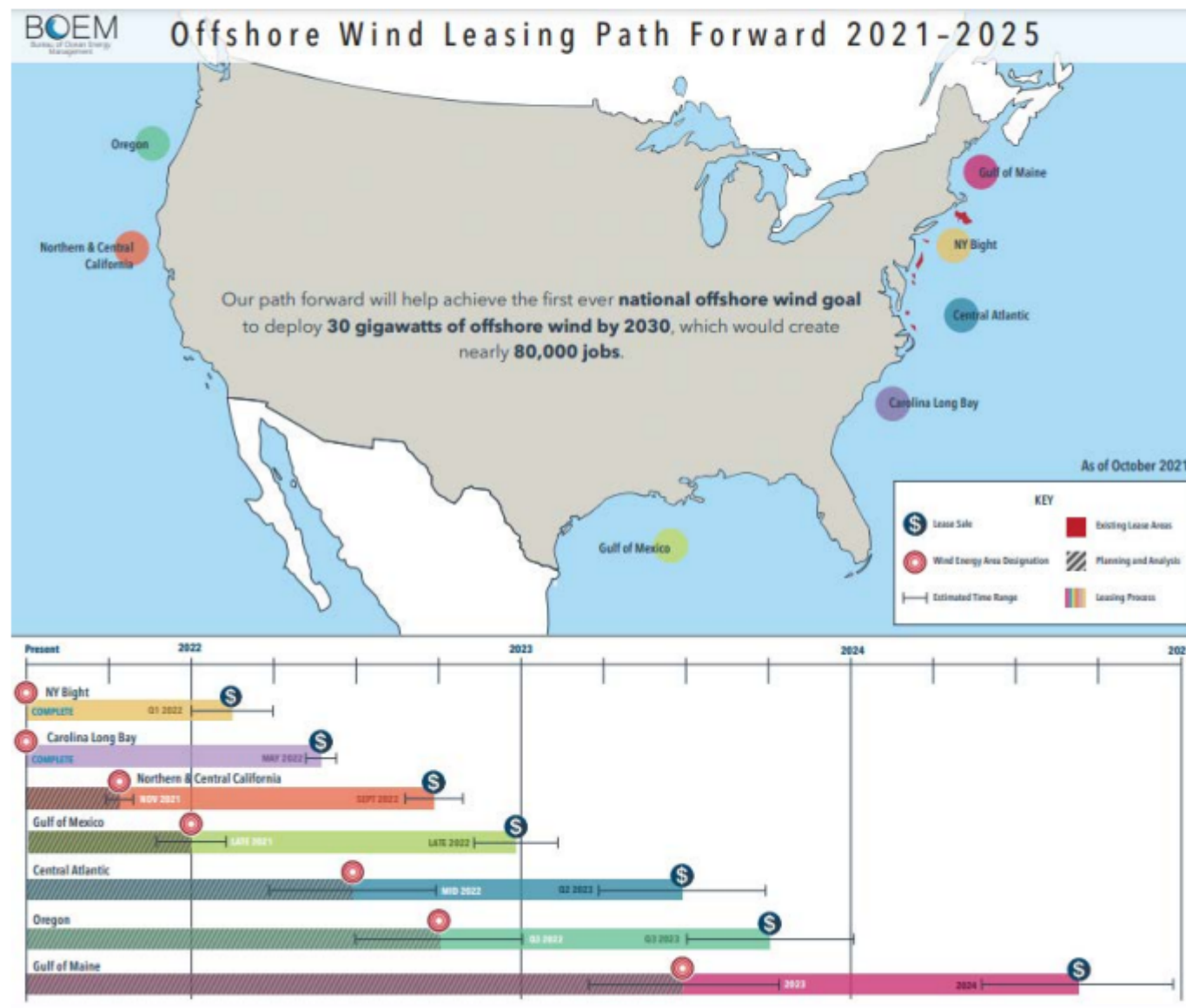
- Global offshore wind energy in 2021 had a record year for deployment with about 17,398 MW of new projects commissioned.
- The cumulative global installed capacity reached 50,623 MW from 257 operating projects.
- Most of 2021 new capacity is attributed to China, which commissioned 13,790 MW—more capacity in 1 year than the entire world has installed in any single previous year.
- The United Kingdom deployed 1,855 MW, Vietnam deployed 643 MW, Denmark deployed 604 MW, the Netherlands deployed 402 MW, and Taiwan deployed 109 MW.



BOEM Announced the “Offshore Wind Leasing Path Forward 2021–2025” in October 2021, Which Calls for up to Seven New Lease Auctions

- U.S. Department of the Interior Secretary Deb Harland announced a near-term leasing plan in October 2021.
- BOEM has the authority to carry out up to seven lease auctions by 2025.
- Five of the planned auctions may have floating offshore wind lease areas.
- Lease auctions include New York Bight (February 2022), Carolina Long Bay (May 2022), California (late 2022), Gulf of Mexico (early 2023), Central Atlantic (mid 2023), Oregon (late 2023), and Gulf of Maine (mid 2024).

(BOEM 2022)

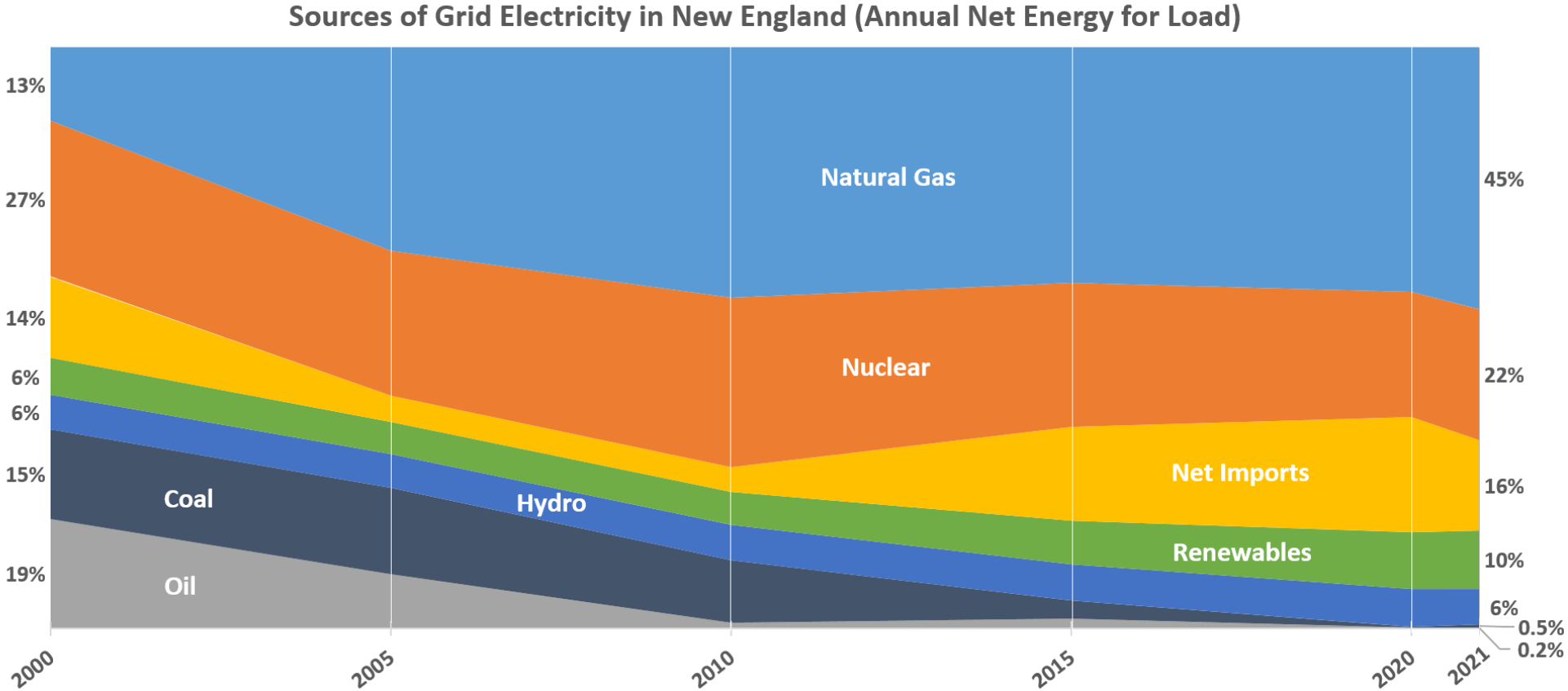


Regional Electricity Mix

**Lower-Emitting Sources of Energy Supply
Almost All of New England's Electricity**

In 2021, efficient natural-gas-fired generation, nuclear, other low- or no-emission sources, and imported electricity (mostly hydropower) provided roughly 99.3% of the region's electricity.

Source: ISO New England, generation data, and *Net Energy and Peak Load by Source Report*



Maine's Climate and

Environment

REDUCE MAINE'S

Greenhouse Gas Emissions



2005 2015



2005 2015

Transportation Emissions



2005 2015



2005 2015

Buildings Emissions





Maine Offshore Wind Initiative



GOVERNOR'S
Energy Office

Offshore Wind is an Opportunity for Maine to:



Fight Climate
Change



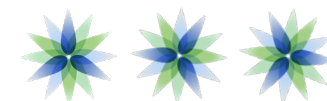
Harness Renewable
Energy



Create Jobs & Economic
Growth



Sustain Maine's Maritime
Heritage





Economic Impact of Maine's Commercial Fisheries

- 2021 Landings: \$890M
- 2021 Lobster Landings: \$733M
- Licensed Maine Fishermen: 16,000+
- Total Economic Impact: \$3 billion

Lobster landings are 82% of Maine's total and represent 80% of the total U.S. lobster catch.
It is the second most valuable ocean species harvested in the U.S.



About the Initiative

Planning & Stakeholder Engagement

- Maine Offshore Wind Roadmap
- Ports Studies & Stakeholder Group
- BOEM Gulf of Maine Task Force

Research & Innovation

- University of Maine Demonstration Project
- Gulf of Maine Research Array
- Maine Offshore Wind Research Consortium

Policy & Legislation

- Bipartisan legislation supporting Research Array, Research Consortium, and prioritizing federal waters for commercial OSW

Partnerships

- University of Maine
- Regional Wildlife Science Consortium for OSW
- National Offshore Wind R&D Consortium
- Responsible Offshore Science Alliance
- Business Network for Offshore Wind
- MOU with United Kingdom



Maine
Offshore Wind
Initiative



Maine Offshore Wind Roadmap

Led by Governor's Energy Office with Support from Other State Agencies



Advisory Committee

GEO, Working Group Co-Chairs and
Other Public, Private and Non-governmental Leaders



Working Groups:

Technical knowledge and subject matter expertise



Supply Chain, Workforce, Ports
& Marine Transportation



Renewable Energy
Markets & Strategy



Fisheries



Environment 
Wildlife

Focus on Economic Opportunities
and Socioeconomic Impacts

Focus on Research/Data Gaps
and BOEM Process

Maine Offshore Wind Roadmap

Led by Governor's Energy Office with Support from Other State Agencies

The Maine Offshore Wind Roadmap is a comprehensive plan for the state's offshore wind energy future. It was developed with the support of a \$1 million federal Economic Development Agency Grant awarded to GEO in 2020. The Roadmap supports the State's 10-Year Offshore Wind Energy Plan and the state's goal of achieving net-zero emissions by 2050.



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Key Findings and Recommendations

- The state has a significant potential for offshore wind energy, with an estimated capacity of 10,000 MW.
- Maine and New England Energy Analysis (MNEEA) shows that offshore wind energy is a viable and competitive option for meeting the state's energy needs.
- The state's 10-Year Offshore Wind Energy Plan provides a clear roadmap for the state's offshore wind energy future.
- The state's goal of achieving net-zero emissions by 2050 requires a significant increase in renewable energy production, including offshore wind energy.
- The state's current energy infrastructure is not sufficient to support a large-scale offshore wind energy industry.
- Transmission Analysis is a critical component of the state's offshore wind energy plan.

The Maine Offshore Wind Roadmap is a comprehensive plan for the state's offshore wind energy future. It was developed with the support of a \$1 million federal Economic Development Agency Grant awarded to GEO in 2020. The Roadmap supports the State's 10-Year Offshore Wind Energy Plan and the state's goal of achieving net-zero emissions by 2050.



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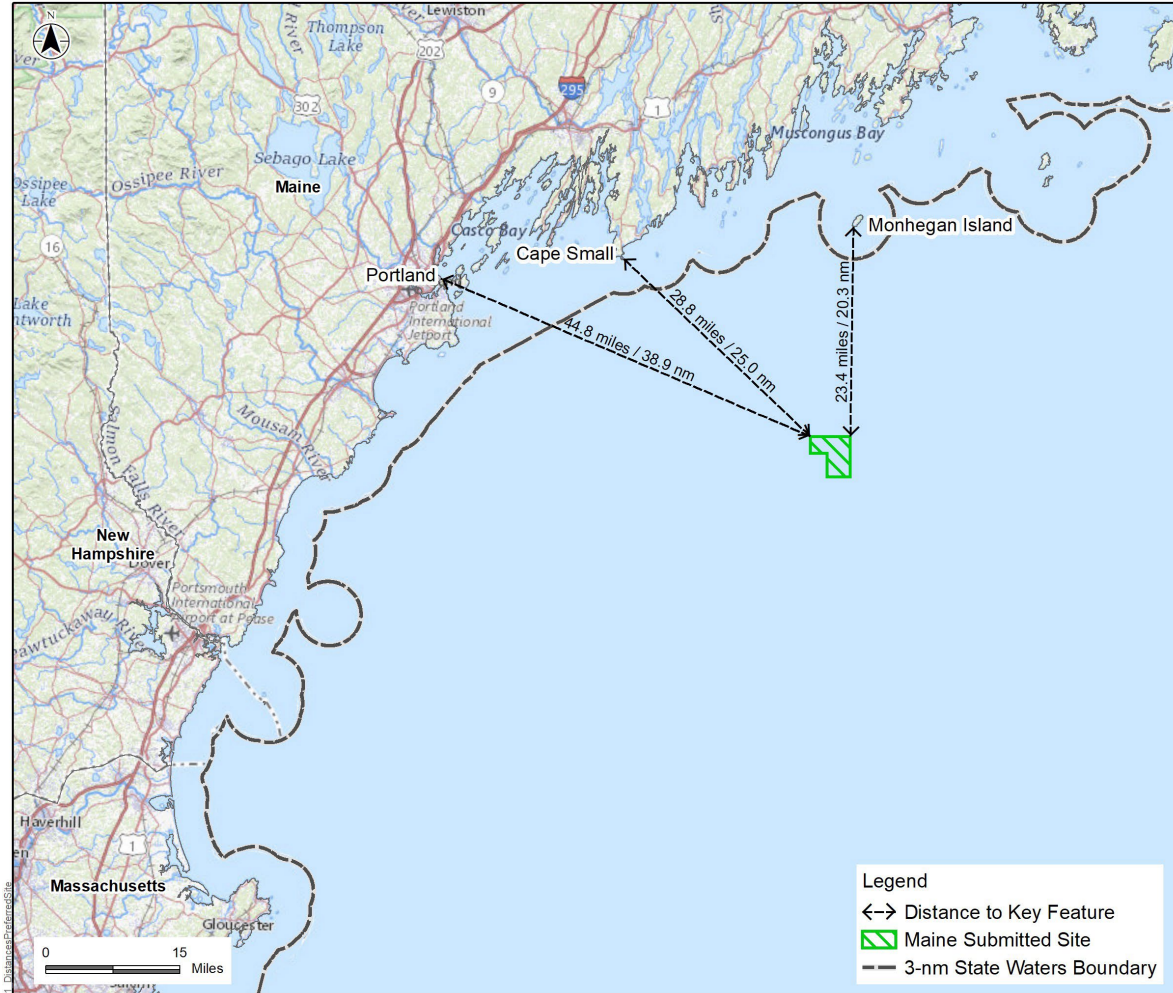
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<https://www.maineoffshorewind.org/working-group-recommendations/>

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2021 Energy Benchmarking Report
November 11, 2022

Overview

Energy benchmarking is the process of measuring a building's energy and water use over time. Jurisdictions all over the country have implemented energy benchmarking and transparency policies as foundational tools to support building decarbonization. Energy Benchmarking ordinances encourage the efficient use of energy and water and help to reduce greenhouse gas emissions. By taking inventory of energy usage each year and comparing buildings of similar size and use, owners can identify underperforming areas that can be improved.

On November 7, 2016, the City of Portland adopted an energy benchmarking ordinance that requires covered properties to annually report water and energy usage. On July 15, 2019, the City Council voted to require all single-occupant buildings to begin reporting their energy and water consumption. A single-occupant building is defined as any building with a single tenant that utilizes 90% or more of the building space. All other covered properties must be compliant one year after the Sustainability Office certifies that the energy data is available from utilities in a convenient electronic format. The Sustainability Office will alert affected property owners when this certification is made.

How It Works

Unique Building IDs

The Office obtains a list of buildings 20,000 sq ft or more from the Assessor's Office. Each building is assigned a Unique Building Identifier that is geolocated and is unique for that building even if the building envelope may change.

How Data Is Reported

The ordinance relies on self-reported data input into Energy Star Portfolio Manager by building owners or individuals designated by the building owner. Portfolio Manager applies a complex analytic model to compare and rank similar types of buildings across the country and over time by adjusting for differences in weather, climate, and use characteristics.

Benchmarking Score

Certain property types can receive a 1 - 100 Energy Star score, which compares properties to similar properties nationwide. A score of 50 represents median energy performance, while a score of 75 or higher means your building is a top energy performer.

Weather Normalization

Energy use changes due to colder winters or hotter summers; weather-normalized energy accounts for this difference and allows for a closer look at changes in energy use without the effect of weather.

2021 Reporting

All owners of buildings 20,000 sq ft or more in the City of Portland received a notice letter in January 2022. Letters informed building owners of the requirement to report for single-tenant building owners and the delayed requirement to report for multi-tenant building owners. Multi-tenant building owners will be required to report once the utility is able to provide whole-building aggregated energy use information in a convenient online format.

Trainings and Outreach

The Sustainability Office held two benchmarking workshops in March 2022 to walk through how to comply with Portland and South Portland Benchmarking Ordinances. These two workshops were well attended and gave an opportunity for building owners and benchmarking contacts to ask questions and see a live demonstration. The Sustainability Office created many short tutorials for common questions and explaining how to fix common errors in benchmarking reports. Sustainability staff met one-on-one with numerous building owners to assist in completing and submitting reports.

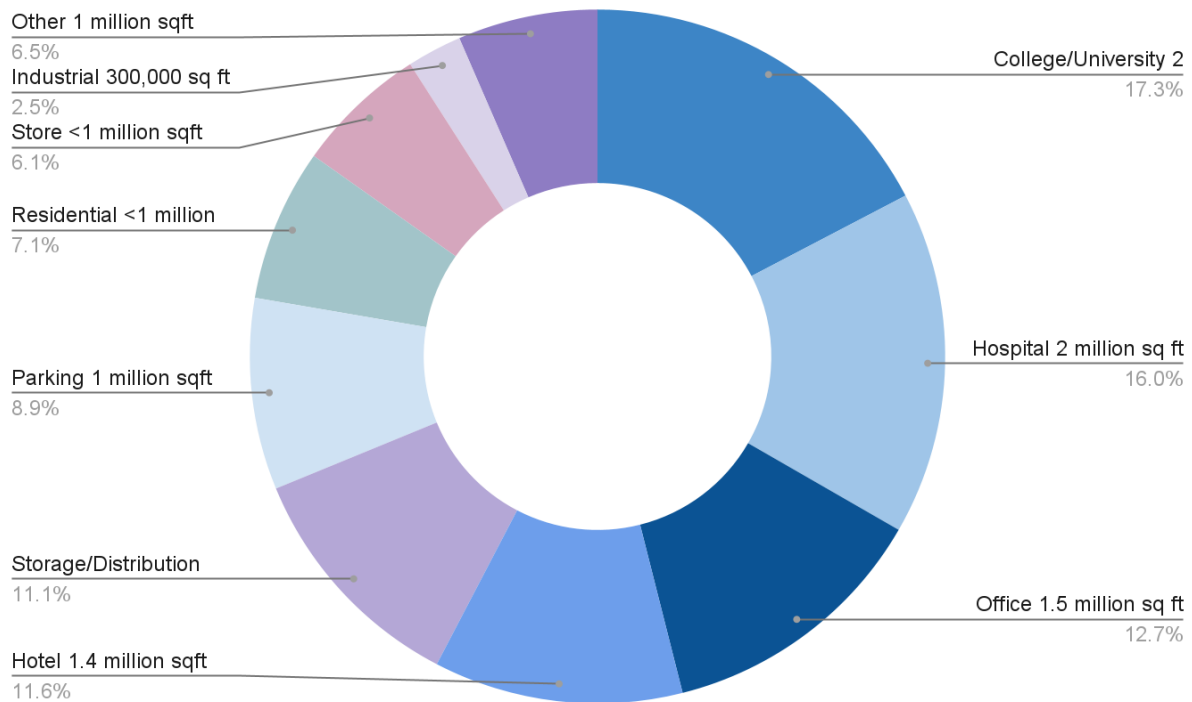
2021 Data Analysis

The Sustainability Office received 191 Energy and Water Use Benchmarking Reports for calendar year 2021. There were 50 municipal buildings and 141 commercial/residential buildings reported. Of the commercial/residential buildings, 96 reported enough energy and water data to designate Building Energy Use Intensity (EUIs) for the buildings. No EUI can result from missing data or having gaps in the dates data is entered. Of the buildings with EUIs, there are 34 unique property types.

Property Type Breakdown: Who Reported?

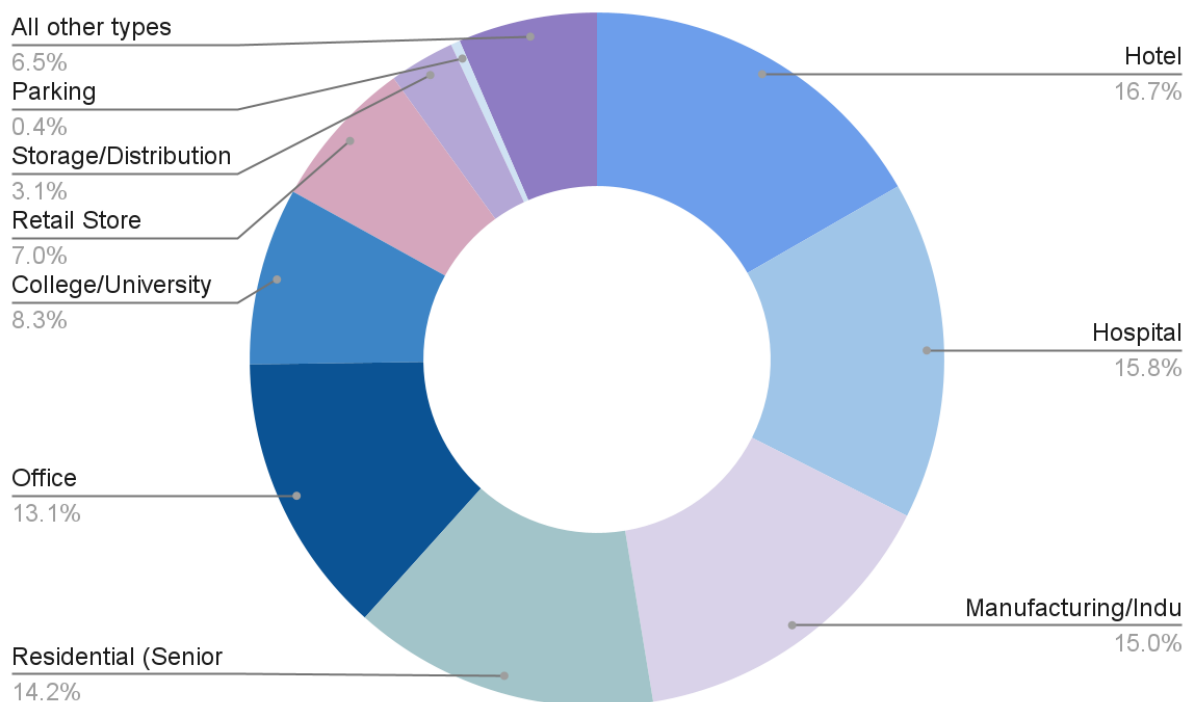
Includes all non-municipal reports received.

Category	Property Use	Number of Reports	Gross Floor Area (GFA) in Sq Ft
College	College/University	28	2,067,714
Hospital	General, Medical, Surgical, and Specialty Hospital; Surgical Centers	6	1,909,573
Office	Medical Office; Financial Office; Bank; Courthouse	17	1,519,848
Hotel	Hotel	14	1,382,716
Storage/Distribution	Non-Refrigerated Warehouse; Self-Storage Facility	15	1,329,416
Parking	Parking Garages	6	1,064,880
Residential	Senior Living; Multifamily Housing; Residential Care Facility	11	847,488
Retail	Strip Mall; Auto Dealership; Supermarket; Retail Store	13	731,935
Industrial	Manufacturing/ Industrial Plant	5	304,288
All Other Buildings	Repair Services, Fitness Center, K-12 School, Performing Arts, Bowling Alley, Library, Mixed Use Property, Not Available, Worship Facility	26	879,100
TOTAL		141	12,036,958



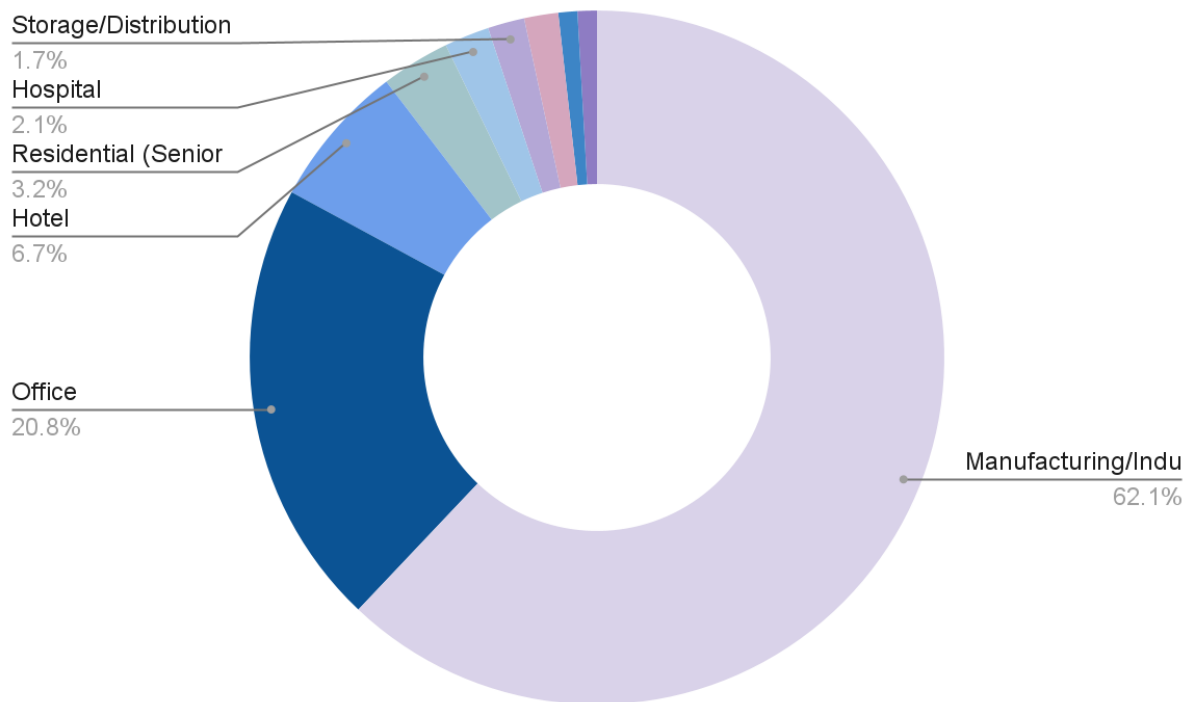
Energy Use Intensity by Property Type:

Analysis of non-municipal reports with all requested data.



Water Use Intensity by Property Type:

Analysis of non-municipal reports with all requested data.



Average Energy Star Score

The average Energy Star Score for qualifying property types is 61.

Data Quality

Energy Benchmarking relies on self-reporting. Certain indicators point to a low level of data quality for non-municipal buildings reported in 2021. We expect data quality to improve each year as building owners get comfortable with the process and City staff capacity increases to allow further support for building owners.

Properties using default, estimated, and temporary values are considered low levels of data quality. Site EUI and Source EUI may be noted as “Not Available” if energy data was input incorrectly, there was not a full year of data to analyze, or if the building is part of a parent property. Energy Star scores of 1 or 100 indicate energy data or property gross floor area (GFA) were input incorrectly.

Data Cleansing and Summary of Analyzed Methodology

Data cleansing is the process of removing incorrect or incomplete data before analysis. First, properties with duplicate submissions were removed. The dataset included 141 reporting properties as of the analysis cutoff date of September 1, 2022. From these 141 properties, 45 (32%) were removed due to missing information. This data cleansing process resulted in 96 building data submissions that provide the basis for the analysis presented. This is the first year for data analysis for City of Portland Energy Benchmarking Reports.

Looking to the Future

- *Multi-tenant buildings:* As the ordinance states, multi-tenant buildings 20,000 square feet or more are required to report energy and water use metrics once the utility is able to provide whole-building energy usage data in a convenient online format. Central Maine Power is currently working on this platform, with hopes to launch by the end of 2022. The Sustainability Office anticipates multi-tenant buildings will be required to report starting in 2024.
- *Contact with building owners:* There are around 600 buildings covered under the ordinance in the City of Portland. The Office has had difficulty reaching the building owners of these buildings as Assessor's Office information is the basis for benchmarking contact. In early 2022, the Office requested contact information for building owners and those who would be responsible for completing the reporting required. The Office received contact information for 311 covered buildings (52%).

2021 Data

Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Ambulatory Surgical Center										
Northern Light Mercy Hospital: Outpatient Specialty & Surgery Center	155 Fore River Parkway	33045	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
33 Sewall St	33 Sewall St	54000	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Automobile Dealership										
Moose LLC	375 Riverside Street	26285	41.5	44.1	84.5	86.8	65.6	2.5	114.8	Not Available
Quirk Chevrolet	1000 Brighton Ave	56000	49.5	53.2	88.6	92.5	162.1	2.9	165.3	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Bank Branch										
Norway Savings Bank	1200 Congress Street	30000	125.5	Not Available	243.3	Not Available	224	7.5	174.3	45
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score

		(Buildings) (ft²)				EUI (kBtu/ft²)	Tons CO2e	(kgCO2e/ ft²)		
Bowling Alley										
Spare Time Portland	867 Riverside Street	30984	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
College/University										
University of New England: College of Pharmacy	706 Stevens Avenue	46380	205.9	216.9	326.7	339.3	543.9	11.7	218.2	Not Available
University of New England: Oral Health Center	1 College Street	40300	112.5	Not Available	272.1	Not Available	285.2	7.1	1007.3	Not Available
University of New England: Blewett Hall	716 Stevens Avenue	31650	53.4	57.2	83.2	87.2	95.9	3	176.2	Not Available
University of New England: Central Loop	716 Stevens Avenue	254806	47	50.3	74	77.5	681	2.7	2207.3	Not Available
University of New England: Goddard Hall	716 Stevens Avenue	12696	39.7	43.7	41.7	45.9	26.8	2.1	624.8	Not Available
University of New England: Proctor Hall	716 Stevens Avenue	31074	44.7	44.7	125.2	125.2	91.2	2.9	819.2	Not Available
University of New England: Linnell Hall	716 Stevens Avenue	12411	Not Available	Not Available	Not Available	Not Available	0	0	97.8	Not Available
University of New England: Hersey Hall	716 Stevens Avenue	22170	Not Available	Not Available	Not Available	Not Available	0	0	85	Not Available
University of New England: Alumni Hall	716 Stevens Avenue	12612	Not Available	Not Available	Not Available	Not Available	0	0	10.6	Not Available
University of New England: Innovation Hall	716 Stevens Avenue	63700	26.8	26.3	75	73.6	112	1.8	242.6	Not Available

University of New England: Coleman Hall	716 Stevens Avenue	10718	79.5	88.5	83.4	92.9	45.2	4.2	4.4	Not Available
University of New England: Ginn Hall	716 Stevens Avenue	18783	831.9	885.9	994.2	1053.9	846.2	45.1	518	Not Available
University of New England: Alexander Hall	716 Stevens Avenue	22098	41.3	41.3	115.7	115.7	59.9	2.7	205.7	Not Available
University of New England: MacDougal Hall	716 Stevens Avenue	15308	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
University of New England: Parker Pavilion	716 Stevens Avenue	6600	503.1	462	1408.5	1293.6	218	33	Not Available	Not Available
USM: Wishcamper Center	34 Bedford Street	59704	0.2	0.2	0.2	0.2	0.6	0	53.1	Not Available
USM: Glickman Family Library	314 Forest Avenue	126432	42.8	45.7	45	48	287.7	2.3	330.1	Not Available
USM: Abromson Community Education Center	88 Bedford Street	44124	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
USM: Luther Bonney Hall	85 Bedford Street	76685	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
USM: Woodbury Campus Center	35 Bedford Street	28256	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
USM: Masterton Hall	71 Bedford Street	36636	Not Available	Not Available	Not Available	Not Available	0	0	60.7	Not Available
USM: Maine Law Building	246 Deering Avenue	92983	Not Available	Not Available	Not Available	Not Available	0	0	207.4	Not Available
USM: Sullivan Gym Complex	66 Falmouth Street	58062	4.8	5.2	5.1	5.5	14.8	0.3	140.6	Not Available
USM: Science Building	70 Falmouth Street	152806	4.5	4.5	4.7	4.7	36.4	0.2	917.9	Not Available
USM: Payson Smith Hall	96 Falmouth Street	52516	0.1	0.1	0.1	0.1	0.2	0	264.4	Not Available
USM: East Campus	Bedford Street	230260	42.9	42.9	120.1	120.1	648.4	2.8	Not Available	Not Available
USM: West Campus	Bedford Street	497944	29.6	29.1	82.8	81.5	966.5	1.9	Not Available	Not Available
USM: Placeholder Property (Bills from Unknown Source)	Unknown	10000	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available

Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Courthouse										
CUMBERLAND COUNTY COURTHOUSE	142 FEDERAL STREET	78000	62.1	68.7	90.3	97.2	271.2	3.5	477.7	91
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Distribution Center										
187-209 Read St, LLC	187 Read St	165000	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	16.4	Not Available
85 St. James Street	85 St. James Street	20160	31.5	31.5	58.6	58.6	44.5	2.2	60.9	52
102 Hutchins Drive	102 Hutchins Drive	82522	54.4	55.9	129.5	130.5	281.3	3.4	Not Available	11
10573002 - Portland	165 Read Street	196599	46.6	46.9	114.7	115.5	579.7	2.9	13319.8	78
CONGDON-52 Canco	52 Canco Road	48782	35.6	39.8	43.8	48.2	94.4	1.9	67.3	68
JB Brown - 150 Read Street	150 Read Street	59520	34.1	37.6	49.9	53.6	113.7	1.9	56.3	77
Sprague Operating Resources	92 Cassidy Pt Dr	227594	6.9	7.5	12.7	13.6	109.8	0.5	1045.8	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Fitness Center/Health Club/Gym										
Planet Fitness Portland	145 Marginal Way	20000	92.3	94.6	191.6	194	111.6	5.6	349.9	Not Available

Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Hospital (General Medical & Surgical)										
Northern Light Mercy Hospital SS	144 State Street	242156	200.5	201.9	360.5	358.1	2838.3	11.7	9336.4	78
Northern Light Mercy Hospital	175 Fore River Parkway	210803	268.5	Not Available	450.5	Not Available	3264	15.5	8930.8	47
Maine Medical Center: Bramhall Campus	22 Bramhall Street	1158254	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Hotel										
2049-Portland	340 Park Ave.	50864	62.4	64.6	118.1	121.1	187.7	3.7	2060	90
Canopy Portland Waterfront Hotel	9 Center St	60000	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Clarion Hotel	1230 Congress st	99000	66.5	70.5	125.2	131.7	388.9	3.9	6129.6	94
Fireside Portland	81 Riverside St	113493	93.5	Not Available	160.8	Not Available	614.7	5.4	7477.5	76
HGI Portland	65 Commercial st.	76472	86.1	87.5	154.6	156.1	384.9	5	3972.1	87
Holiday Inn By The Bay	88 Spring Street	178842	124.1	Not Available	198.6	Not Available	1266.3	7.1	12935.3	46
Maple Hotel Enterprises LLC dba Motel 6	1 Riverside Street	44944	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Portland Downtown ME RI	127 Fore St	137640	66.2	65.8	136.3	135.2	549.8	4	5823	84
Portland DT Waterfront ME ACH	158 Fore St	105975	83.4	86.9	140.9	144.6	510	4.8	3784.1	83

Portland ME AH	379 Commercial St	82113	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Portland ME HAMP	209 Fore St	71206	81.1	83.8	155.7	157.8	342.8	4.8	0	70
Portland Regency Hotel & Spa	20 Milk St	24393	367.2	375.2	655.9	664.3	523	21.4	5209.6	1
The Press Hotel	119 Exchange St	83506	91.6	93.9	180.5	182.9	456.7	5.5	3639.2	60
Westin Portland Harborview Hotel	157 High Street	254268	86.1	89.1	158.6	161.7	1287.5	5.1	7648	75
Hilton Garden Inn Portland Airport	145 Jetport Blvd.	20000	Not Available	Not Available	Not Available	Not Available	344.7	Not Available	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
K-12 School										
Glickman Academy	587 Ocean Ave	21624	343.9	370.9	383	411.3	398.4	18.4	305.2	1
64 Emery Street	64 Emery Street	2000	1305.6	1419.3	2006.2	2125.7	147.8	73.9	174	1
16 Storer Street	16 Storer Street	1000	2635.1	2860.9	4077	4314	149.3	149.3	107	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Library										
University of New England: Abplanalp Library	716 Stevens Avenue	26636	Not Available	Not Available	Not Available	Not Available	0	0	224	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity	Water Use (All Water Sources) (kgal)	ENERGY STAR Score

							Tons CO2e)	(kgCO2e/ ft²)		
Manufacturing/Industrial Plant										
Barber Foods, LLC	70 St. John Street	146233	524.2	530.5	1064.3	1070.9	4609.4	31.5	43641.2	Not Available
John Gross	80 Pine Tree industrial Parkway	32351	39.1	39.1	109.5	109.5	83.1	2.6	485268.5	Not Available
Allagash Brewing Company	50 Industrial Way	75000	282.5	281.2	451.3	447.8	1201.5	16	11028.5	Not Available
31 Diamond Street	31 Diamond Street	22504	7.5	7.5	20.9	20.9	11.1	0.5	0.5	Not Available
Douglas Bros. Division-Robert Mitchell Co., Inc.	423 Riverside Industrial Parkway	28200	23.5	Not Available	27.5	Not Available	35.8	1.3	1678.6	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Medical Office										
Eye Venture Associates	53 Sewall St	26030	184.7	182.2	356.8	349.6	285.8	11	581.5	50
887 Congress Street	887 Congress Street	48058	154.9	161.1	261.9	267	429.6	8.9	Not Available	14
272 Congress Street	272 Congress Street	21000	78.2	80	160.4	161.1	99	4.7	Not Available	60
216 Vaughan Street	216 Vaughan Street	28220	119.5	128.3	181	190.2	190.4	6.7	Not Available	47
Northern Light Health	43 Baxter Blvd	24524	37	37	76.7	76.7	54.9	2.2	37980.1	100
31301101 - Fore River Medical Building	195 Fore River Parkway	75784	127.6	127.6	353.7	353.7	633	8.4	564.6	2
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score

Multifamily Housing										
Back Bay Tower - Reliant	401 Cumberland Ave	229083	28.5	30.3	69.5	73.4	412	1.8	3784.4	98
Danforth Heights - Building A	240 Danforth Street	24612	89.6	95.7	125.9	132.3	122.7	5	897	51
Danforth Heights - Building B	213 Danforth Heights	30436	114	119.5	150.8	156.6	191.1	6.3	2745.5	25
Danforth Heights - Building C	48 Salem Street	55604	108.8	116.4	155.1	163.4	337.5	6.1	2433.9	41
10590 Woods At Canco	257 Canco Road	112647	61.2	64.7	114.4	120.2	406.4	3.6	8139.2	45
deering pavilion	880 forest ave	135968	322.4	347.3	374.5	400.6	2363.7	17.4	4995.9	1
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Non-Refrigerated Warehouse										
165 Presumpscot	165 Presumpscot St	44100	3.2	3.4	9.1	9.5	9.4	0.2	230.6	Not Available
NU Portland Facility	376 Riverside Industrial Parkway	64759	49.2	52.7	88.1	91.1	186.1	2.9	80.3	64
NEPW Logistics, Inc.	70 Quarry Road	90400	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
NEPW Logistics, Inc.	90/118 Quarry Road	175000	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
NEPW Logistics, Inc.	182-184 Read Street	77000	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
Pine Tree Paper Co	633 Warren Ave	20000	8	8.4	19.5	20.3	10.1	0.5	0.1	96
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score

Office										
Congress Street LLC	2331 Congress Street	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	374	Not Available
110 Free Street	110 Free Street	83052	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Baxter	562 Congress st	105872	6.6	Not Available	18.6	Not Available	46.2	0.4	435.4	Not Available
Donald Foerster	75 Northport Drive	90000	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
Unum Portland, ME Campus	2211 Congress Street	719458	71.2	75.7	132	136.8	3014.8	4.2	6242.5	Not Available
PWD Admin Facility	225 Douglass St.	65000	112.7	121.4	191.5	200.6	423.1	6.5	429.5	45
MRM Equity, LLC	482 Congress Street, Suite 404	50616	42.3	45.7	71.9	75.2	123.8	2.4	134802.1	93
Shalom House Inc - Admin Office	106 Gilman St	27233	24	27.4	26.3	29.8	35	1.3	76.4	100
Fancy Sauce	1945 Congress St. Building A	25100	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Cianbro (Ricker's Wharf Facility)	60 Cassidy Point Drive	21901	70.9	77	170.5	183.2	97.5	4.5	161	26
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Other										
Northern Light Mercy Hospital: Maintenance Storage Building	65 Fore River Parkway	5460	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
127 MW	127 marginal way	27554	0.7	Not Available	2	Not Available	1.3	0	7704.9	Not Available
161 MW	161 marginal way	54922	4.8	Not Available	13.4	Not Available	17.2	0.3	1710.8	Not Available
Brighton Campus	335 Brighton Ave	211315	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Parking										
PARKING GARAGE	142 FEDERAL STREET	118760	3.7	3.7	10.2	10.5	27.9	0.2	0	Not Available
USM: Parking Garage	88 Bedford Street	386681	Not Available	Not Available	Not Available	Not Available	0	0	89	Not Available
Chestnut Street Garage 1	134 Lancaster Street	5008	Not Available	Not Available	Not Available	Not Available	0	Not Available	0.1	Not Available
Chestnut Street Garage 2	134 Lancaster Street	16669	Not Available	Not Available	Not Available	Not Available	0	0	0.7	Not Available
Chestnut Street Garage 3	134 Lancaster street	16669	Not Available	Not Available	Not Available	Not Available	0	Not Available	0.7	Not Available
One City Center Parking Garage	23 Free Street	175134	2.6	2.6	7.2	7.2	29.6	0.2	Not Available	Not Available
190 St. John Street	190 St. John Street	732640	2.7	2.9	6.6	6.9	126.3	0.2	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Performing Arts										
121 Center Street	121 Center Street	28885	102.4	108.6	172.9	179.4	170.6	5.9	172.8	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Repair Services (Vehicle, Shoe, Locksmith, etc.)										
Maine Yacht Center	100 Kensington Street	49300	39.6	41.5	73.6	74.2	126.6	2.6	610.3	Not Available

Portland Yacht Services	100 West Commercial Street	86400	44.9	48.6	78.3	82	242.9	2.8	167.8	Not Available
Portland Yacht Services: Building A	100 West Commercial Street	19200	2.1	2.2	6	6.2	2.7	0.1	41.9	Not Available
Portland Yacht Services: Building B	100 West Commercial Street	28800	50	54.6	88.8	94.6	93.4	3.2	377.4	Not Available
Portland Yacht Services: Building C	100 West Commercial Street	21600	29	32.2	44.3	47.7	35.4	1.6	131.1	Not Available
Portland Yacht Services: Building D	100 West Commercial Street	4800	76.9	86.2	110.9	120.6	20.7	4.3	81.8	Not Available
Portland Yacht Services: Building E	100 West Commercial Street	12000	69.3	Not Available	84.4	Not Available	53.5	4.5	251.6	Not Available
Moody's Collision Centers	495 Presumpscot St	11250	285.6	310.5	361.9	387.1	234.5	20.8	151.2	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Residential Care Facility										
899A-Sue Wright	899 Riverside St	12460	1.1	1.1	3.2	3.2	0.9	0.1	37.8	Not Available
899B-Bigelow	899 Riverside St	12460	300	345.2	330.8	378.3	200	16	81.5	Not Available
899C-Kineo	899 Riverside St	9180	583.2	620.3	630.5	669.4	285.5	31.1	53.9	Not Available
ST Joseph's Manor	136 Ray Street	88000	146.1	153.4	205.3	212.5	744.3	8.5	4783.4	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score

Retail Store										
145 Presumpscot Store	145 Presumpscot St	21600	25	25	69.9	69.9	35.4	1.6	56.2	94
Branch 616 - Portland, ME	425 Warren Ave	26357	48.3	53.9	66.8	73	70.7	2.7	3	62
N001946-PORTLAND ME	1058 BRIGHTON AVENUE	115928	79.6	84.1	166.6	171.3	559.2	4.8	1002.2	34
2401 - PORTLAND	245 RIVERSIDE STREET	107085	74.6	81	129.7	136.4	463.8	4.3	1368	78
Ruth's Reusable Resources	39 Blueberry Rd	27000	26.4	26.8	37.2	38.2	46	1.7	11.2	96
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Self-Storage Facility										
U-Haul Moving & Storage At Rte 295 (731066)	411 Marginal Way	49580	35.6	39	62.3	65.9	102.7	2.1	60.4	Not Available
White Memorial SDA Church: Warehouse - 97A Allen Avenue	97 Allen Avenue	8400	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Senior Living Community										
Ashton Gardens Retirement Residence LLC	830 Ocean Ave	137038	30	31.4	84	87.9	270	2	6457268972	70
Property Name	Address 1	Property GFA - Calculated	Site EUI (kBtu/ft²)	Weather Normalized	Source EUI (kBtu/ft²)	Weather Normalized Source	Total GHG Emission	Total GHG Emissions	Water Use (All Water	ENERGY STAR Score

		(Buildings) (ft²)		d Site EUI (kBtu/ft²)		EUI (kBtu/ft²)	s (Metric Tons CO2e)	Intensity (kgCO2e/ ft²)	Sources) (kgal)	
Strip Mall										
Northgate Plaza	91 Auburn St	111096	1	1.1	2.8	3	7.2	0.1	Not Available	Not Available
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Supermarket/Grocery Store										
07541- Portland, ME	Northgate Shopping Center	63100	221.7	228.5	447.5	452.6	840	13.3	1260	60
07543- Portland, ME	Westgate Shopping Center	38949	228.3	233	516	517.1	549.4	14.1	430	50
10291-Portland Bayside	2 Somerset Street	56059	323.5	328.2	638.8	637.3	1083.3	19.3	Not Available	22
Property Name	Address 1	Property GFA - Calculated (Buildings) (ft²)	Site EUI (kBtu/ft²)	Weather Normalized Site EUI (kBtu/ft²)	Source EUI (kBtu/ft²)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ ft²)	Water Use (All Water Sources) (kgal)	ENERGY STAR Score
Worship Facility										
Temple Beth El	400 Deering Avenue	21674	59	64.3	83.6	89.1	71.3	3.3	124	Not Available
Grace Baptist Church	476 Summit Street	4737	1896.5	2118.9	1970.7	2198.7	665.3	140.5	62.1	Not Available
First Parish Church	425 Congress Street	17637	38.4	43.3	58.1	64.5	38.2	2.2	95	Not Available
St. Joseph Church	671 Stevens Avenue	20000	64.5	72.7	68.1	76.4	95.4	4.8	4412.3	Not Available
St. Pius X Church	492 Ocean Ave.	20000	57	61.9	71.5	76.7	62.2	3.1	229.7	Not Available
White Memorial SDA Church	97 Allen Avenue	9948	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

White Memorial SDA Church: Office Building - 91 Allen Avenue	97 Allen Avenue	8484	Not Available	Not Available	Not Available	Not Available	0	0	Not Available	Not Available
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ELECTRIFY EVERYTHING! PILOT YEAR REPORT

In March 2022, the Sustainability Office launched Electrify Everything! with the goal of assisting in at least 75 electrification projects to help Portland residents decarbonize their homes and lower their energy costs.

The Program

The Office released an RFP in Fall 2021 looking for a partner that would be able to provide a discount to Electrify Everything! participants to help decrease the cost of installing rooftop solar, heat pumps, water heater heat pumps, and electric vehicle chargers. ReVision Energy - a local full-service solar company with over 15 years of experience designing, installing, and maintaining solar energy systems in the region - was chosen through the RFP process.

The Office created an Electrify Everything! page on the City website consisting of information on the benefits of electrification, resources for each electrification option and available rebates, and a sign up form for those interested in learning more. Sustainability staff followed up with each Electrify Everything! Sign up through the website.

As part of the program, ReVision Energy offered Portland residents the following discounts:

- \$500 discount on solar installations
- \$250 discount on air source heat pumps, heat pump water heaters, and home electric vehicle chargers (maximum \$1,250 per address, achieved if homeowner installed all four technologies)
- Up to \$60,000 to help low-income households going solar

These discounts were offered in addition to generous rebates and incentives provided by Efficiency Maine for these technologies. The ReVision Energy team assisted with the paperwork to make sure participants received all rebates they qualified for.

Starting in March 2022, any Portland resident who signed up for an electrification or solar project through ReVision Energy was considered an Electrify Everything! participant and received the discounts. The final Electrify Everything! Consultations were held in October 2022.

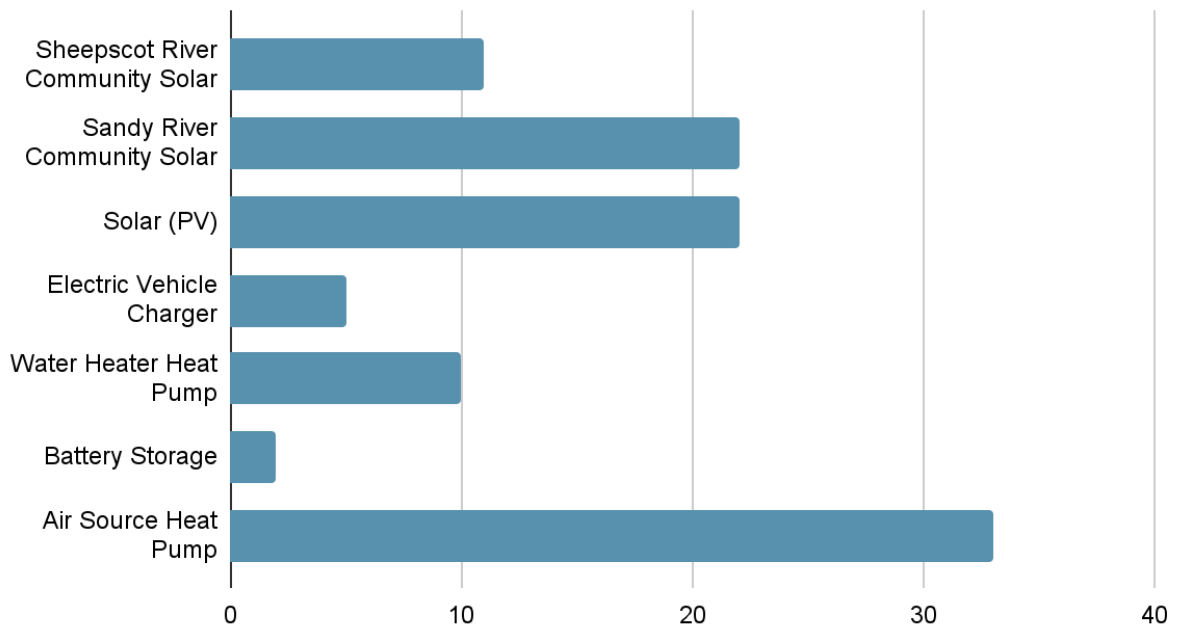
Outreach

The Sustainability Office hosted multiple Electrify Everything! Outreach events to talk about electrification technologies, Electrify Everything! discounts, and Efficiency Maine incentives. The program promoted community solar as an option for renters to encourage renewable energy generation and hosted a Coffee and Climate event on the topic. The Office hosted 3 tabling events to engage with residents about the program.

Outcomes

114 Portland residents expressed interest in the program through signing up on the Sustainability Office website or by going directly to ReVision Energy. There were a total of 105 projects confirmed for Electrify Everything! participants. Projects included: 33 air source heat pumps, 2 battery storage units, 10 water heater heat pumps, 5 home electric vehicle charging stations, 33 community solar farm leases, and 22 solar (pv) installations.

Electrify Everything! Projects



ELECTRIFY EVERYTHING! FOLLOW UP SURVEY

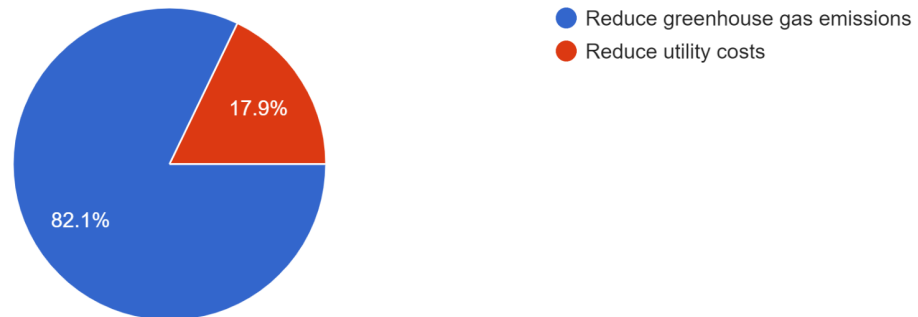
As the current version of the City of Portland's Electrify Everything! program wrapped up, we asked residents who signed up for the program to provide feedback about their experience. Their feedback, seen below, will be used to inform our efforts in promoting beneficial electrification throughout the community and will help us design future versions of Electrify Everything!

Major Takeaways

- All 28 respondents were homeowners.
- Majority (64%) of respondents were interested in heat-pumps, followed by 54% interested in community solar, 43% interested in on-site solar, 36% interested in heat pump water heaters, 32% interested in EV chargers, and 25% interested in weatherization upgrades.
- Most responses of satisfaction with ReVision Energy and/or the EE program cited:
 - ◆ Having everything in one website was helpful
 - ◆ Appreciation for City-based rebates
 - ◆ Friendliness, clear explanation of project
- Most responses of Dissatisfaction with ReVision Energy and/or the EE program cited:
 - ◆ Frustration with response speed or lack of response from ReVision Energy
 - ◆ Need for more than one contractor due to wait times
 - ◆ Upfront costs were still too high even with rebate
- In the future iteration of Electrify Everything, respondents want to see:
 - ◆ Larger discounts or rebates to bridge gap and make the upgrade more compelling
 - ◆ Broader list of qualified contractors
 - ◆ Continued public education/publicity/awareness about the program
 - ◆ Consideration for limitation of the permitting process (i.e., fire code setbacks and historic preservation rules)

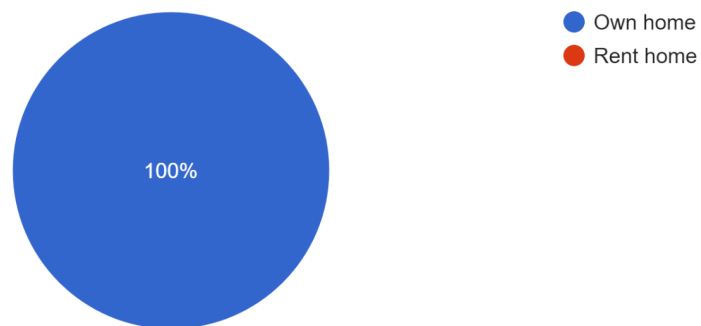
Why were you interested in Electrify Everything?

28 responses



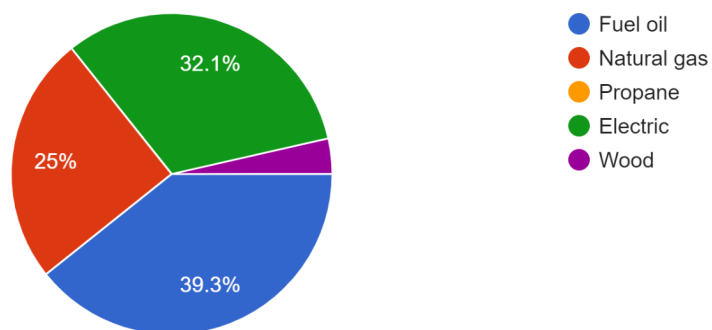
Do you own or rent your home?

28 responses



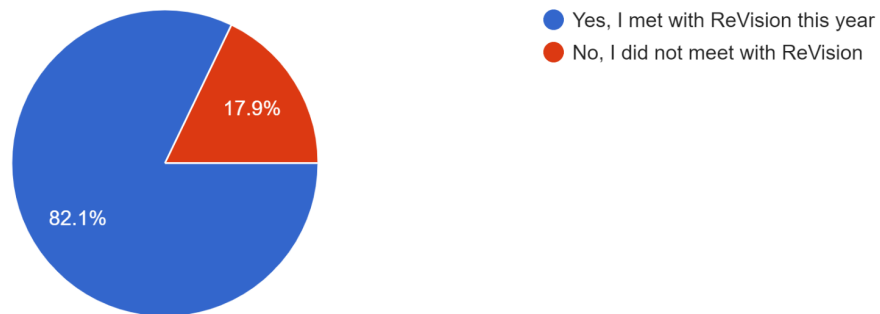
What is the primary heating source for your home?

28 responses



Did you meet with ReVision Energy for an Electrify Everything consultation?

28 responses



Did you sign up for a project with ReVision Energy as part of Electrify Everything!?

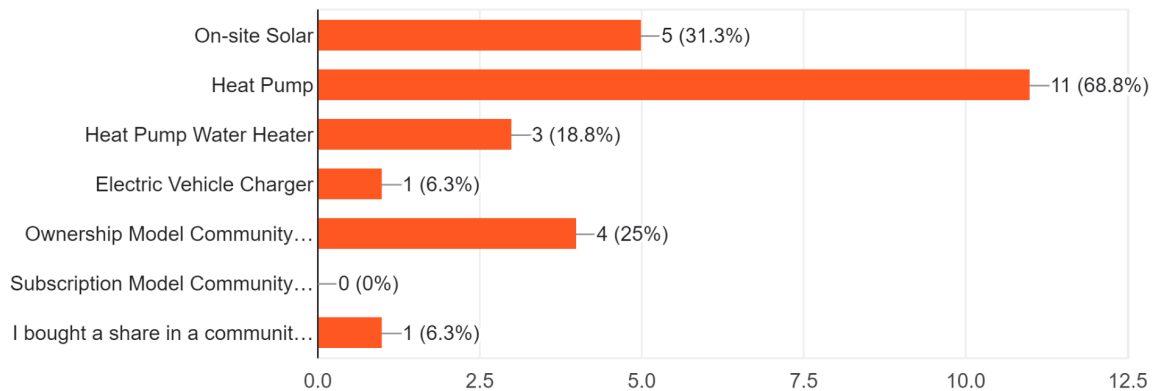
→ 10 responses chose “Yes”

→ 11 responses chose “No”

→ 1 response was unsure if their ReVision Energy project was part of Electrify Everything

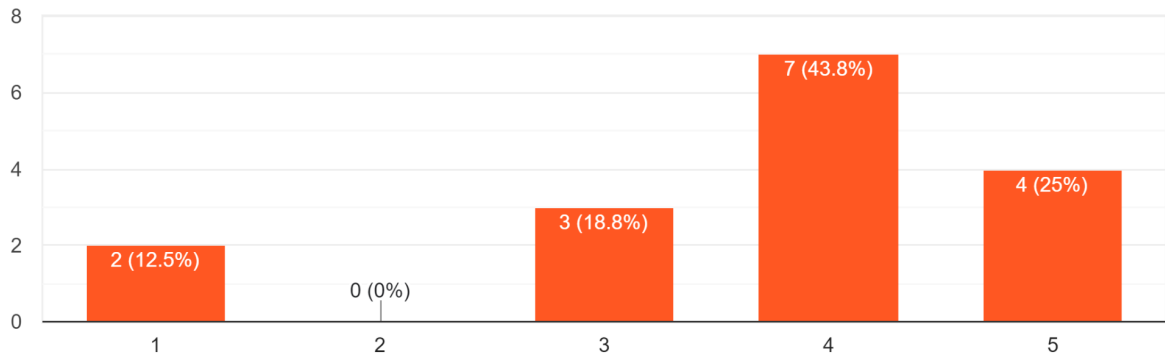
What type of project(s) did you sign up for? (choose all that apply)

16 responses



How satisfied are you with your experience with Electrify Everything?

16 responses



In explaining their satisfaction or dissatisfaction, responses included:

- Frustration with response speed or lack of response from ReVision Energy
- Having everything in one website was helpful
- Appreciative of rebates, friendliness, clear explanation of project
- Need for more than one contractor due to wait times

Respondents mentioned the following barriers that kept them from upgrading their home with ReVision Energy?

- Many respondents mentioned that “Upfront cost was too high”
 - ◆ Some projects necessitated electrical upgrades or multiple upgrades that would have made the project worth the cost savings
- Lack of response from ReVision Energy

What would you like to see in future iterations of Electrify Everything?

- Larger discounts or rebates to bridge gap and make the upgrade more compelling
- more publicly available EV chargers
- Bigger list of qualified contractors
- Make permitting process easier to allow for upgrades
 - ◆ restrictions i.e., fire code setbacks and historic preservation rules seem to run counter to the programs goals
- Continued public education/publicity/awareness about the program.
- Continued local/City-based incentives

EFFICIENCY CONTRACTORS: FIVE QUESTION SURVEY

This additional survey requested feedback from 206 companies in the Greater Portland area that install and maintain electric equipment including air source heat pumps, heat pump water heaters, and rooftop solar arrays. These contractors were identified with the Efficiency Maine [Find a Residential Registered Vendor](#) tool. The goal was to learn about barriers they may face in acquiring customers and/or completing installations. Their feedback, seen below, will be used to inform our efforts in promoting beneficial electrification throughout the community and helping to reduce carbon emissions from buildings.

206 Vendors in 25 mile radius					
Energy Assessment & Air Sealing	Insulation	Heat Pumps	Geothermal	Heat Pump Water Heater	Solar
6.80%	6.31%	89.32%	1.31%	33.98%	2.91%

Major challenges in completing new projects

- 13 respondents chose “Permitting process”
- 3 respondents chose “Hiring challenges”
- 3 respondents chose “Customers lack of knowledge about rebates”
- 3 respondents chose “Customers have low awareness of benefits of weatherization”
- 2 respondents chose “Customers have low awareness about equipment options”

Other challenges cited trouble procuring materials, existing electrical services in most cases are not adequate to support the demands of additional electrical equipment, and City zoning restrictions for small businesses.

Additional challenges in reaching low-income households

- Upfront costs and unaware of financial help
- Low credit score; do not qualify for financing
- Most jobs cost ineffective because households need additional work to make efficient use of efficiency updates

Additional challenges in reaching multi-family/multi-tenant buildings

- Property owner/management company/landlord isn't interested in requesting a quote (tenants pay utilities) & the tenants won't or can't make alterations to their units.
- Required reapproval process in large buildings

"Untapped groups" or potential clients that the City could help contractors reach

- 2 responses mentioned, "Middle Income" groups who "need more info on rebates and tax credits to help offset the costs"
- 3 responses mentioned, "Commercial & Industrial" as "some of the largest issues and not being identified as cause"

Support that would help contractors install or provide CLEAN ENERGY services

- Provide residents and businesses with information about the short term and long term benefits of upgrades and weatherization
- Continue providing website materials pointing to City and State incentives
- Connect contractors with multi-family/multi-tenant building owners to promote energy-efficient alternatives options
- Targeting mid-income groups (cannot easily afford the project but don't qualify for low-income benefits)
- Eliminate redundancy in the permitting process
 - ◆ If a project goes through planning and review etc... with stamped engineered drawings, the sub-vendor permits should not have to go through permitting again that which was already looked at. We should be able to add our name as a sub-vendor to the original building permit without additional review.
 - ◆ Eliminate duplicate permit requirements for heat pumps. Currently, both HVAC and electrical permits are required. The linear workflow extends the permitting process and is unnecessary.

Looking to the Future

The Sustainability Office continues to think of new ways to assist Portland residents in decarbonizing their homes and reducing their energy costs by electrification. The Office plans to launch Electrify Everything! 2.0 in early 2023 with increased priority on assisting low- to moderate-income residents lower the upfront costs associated with electrification projects. The Office will take into account responses from efficiency contractors and past Electrify Everything! Participants to create a program that will work towards reaching our One Climate Future goals.

The program was recently allocated \$200,000 of ARPA funding from the City Council to assist low- to moderate-income residents.

To: Members of the Sustainability and Transportation Committee
From: Troy Moon, Sustainability Director
Subject: Review of Committee Accomplishments in 2022

During the past year, the Sustainability and Transportation Committee held ten meetings during which they addressed a wide range of issues relevant to the ongoing sustainability of the City including climate action, sustainable transportation, and environmental improvements. In addition, the Committee held a joint meeting with the Housing and Economic Development Committee in November to discuss food trucks. During these meetings, the Committee engaged a diverse group of stakeholders and provided an important forum for the public to provide input about the City's climate action and environmental goals. This memo summarizes the work of the Committee this year and highlights a number of its important achievements.

Climate Action

Reviewed and discussed the City's Community Resilience Self Assessment

In order to join the State of Maine's Community Resilience Partnership the City was required to conduct a self assessment of our community resilience efforts and our climate vulnerabilities. Membership further required presenting this assessment in a public meeting for community discussion and input. In January, staff presented these assessments and discussed them with Committee members and with members of the public who participated in the public comment period. Joining the Community Resilience Partnership allowed us to apply for grants offered by the Governor's Office. To date, we have received a \$50,000 grant to hire a consultant to help develop Climate Resilience Overlay Zoning. We submitted a \$25,000 grant application to support climate action work in neighborhoods and are still waiting for news regarding that application.

Presentation by Center for Climate Integrity

The Center for Climate Integrity offered a presentation highlighting lawsuits filed by state and local governments against the fossil fuel industry with the intent of accessing financial resources to help their jurisdictions adapt to the impacts of climate change. The presenters indicated that these lawsuits are based on the fact that fossil fuel companies have long known that burning fossil fuels disrupts the climate and will lead to catastrophic damages from rising seas, stronger storms, and more extreme heat, amongst other impacts. The lawsuits argue that fossil fuel companies should bear financial responsibility for these impacts because they have long known the consequences of burning fossil fuels, but engaged in decades long efforts to undermine climate action thereby exacerbating the impacts of climate change on communities.

Beneficial Electrification

The Committee spent a considerable amount of time working on efforts to promote beneficial electrification, which is a core strategy to achieve the climate goals described in One Climate Future.

Reviewed and provided feedback on the Electrify Everything! program

The Sustainability Office created a pilot program to encourage Portland residents to decarbonize their homes by fully electrifying their home. The project offered a “one stop shop” opportunity with a qualified vendor who could implement one or several projects for a property owner. The Committee reviewed the initiative's progress throughout the year and received a final report on the program on November 30. Councilor Zarro offered an amendment to the Council order appropriating the second tranche of ARPA funds to provide \$200,000 to fund the next iteration of the program. The City Council endorsed the amendment on November 21.

Electrification of cruise ship berths & Electrification of buildings and transportation

The Committee engaged with representatives of the cruise ship industry to discuss sustainability initiatives, particularly adoption of shore power connections that will reduce the need for ships to idle their engines while in port. Providing electrical connections would reduce greenhouse gas emissions as well as other air pollutants resulting from the combustion of fossil fuels. The cruise industry noted their commitment to sustainable practices and agreed to cooperate with the City and

Central Maine Power to determine the feasibility of establishing shore power. Conducting such a study is an objective outlined in One Climate Future.

In a subsequent meeting, the Committee engaged representatives from Central Maine Power / Avangrid to emphasize the City's commitment to beneficial electrification of buildings and transportation. The Committee noted that the utility must be prepared to support this work as it aligns with policies established at the State and local level. The Committee emphasized the need for utility planners to incorporate much higher demand for electricity into their future growth projections. The utility agreed to continue working with the City to achieve our electrification goals, including work on the feasibility of connecting cruise ships to shore power.

The Committee reviewed restrictions placed on gasoline powered small equipment by other jurisdictions, particularly leaf blowers because their emissions are exacerbated by their loud volume when being operated.

The Committee received the annual report regarding implementation of the Energy Benchmarking Ordinance and discussed recommendations from the Sustainability Office about future improvements.

Transportation

The Committee met with representatives from GPCOG to review and discuss GPCOG's Rapid Transit Study which intends to determine the feasibility of a rapid transit connection between Portland and Gorham. Committee members questioned whether plans by the Maine Turnpike Authority to create a highway spur between South Portland and Gorham align with plans for transit that are included in regional transportation plans adopted by GPCOG/PACTS. This resulted in the Committee drafting a resolution requesting that the Maine Turnpike Authority pause work on the Gorham Connector in order to be informed by the results of the study. The City Council voted unanimously to endorse the resolution on July 11, 2022.

The Committee reviewed and discussed the City's grant application for harbor dredging to ensure long term viability of Portland's piers and berths to support the maritime economy.

The Committee discussed proposed uses of the abandoned Saint Lawrence and Atlantic rail corridor. This included presentations from proponents of restored rail service and proponents of creating a multi-use trail along the corridor. The Committee continues to monitor the work of the Maine Department of

Transportation's Portland to Auburn Rail Use Advisory Council, which is charged with making a recommendation to the DOT Commissioner.

The Committee recommended amendments to the parking schedule to increase parking on Thames Street.

The Committee recommended changes to fees charged by tow operators working on behalf of the City.

The Committee recommended naming Donatelli Square on Congress Street on Munjoy Hill after a proposal brought forward by Councilor Ali.

The Committee discussed and provided feedback on the Bike Share program.

Environment

Following the annual report from the Pesticide Management Advisory Committee, the Committee recommended amendments to Chapter 34 of the City Code to generally prohibit the use of synthetic fertilizers and restrict the use of organic fertilizers. These amendments aim to improve soil health and protect local waterways from nutrient rich stormwater runoff. The City Council unanimously adopted the amendments on September 19.

The Committee invited representatives from Maine Audubon and the Portland Society for Architecture to share their findings about how buildings in Portland contribute to the deaths of migrating birds from window strikes. During the discussion, the Committee learned that other jurisdictions have adopted ordinances requiring bird safe glass and design elements to reduce mortality. They asked staff to work with Maine Audubon and PSA to prepare a draft ordinance for Portland. A working group of design and construction professionals met throughout the summer to prepare a working document. The Sustainability Office is currently working with other City staff members and community stakeholders to get feedback on the working document and is prepared to bring a draft ordinance to the Committee in 2023.

The Committee received reports from City staff about the Community Food Recycling program and supported efforts to transition the program from a pilot project to an ongoing program with expanded service. The program currently offers 8 drop off locations.

The Committee received updates from the City Arborist about the invasive insect, Emerald Ash Borer, and how its presence in Portland will impact the tree canopy. Members learned that the Ash Borer has decimated ash tree populations in other communities and will likely do the same here in Portland. The Committee anticipates updates on this issue and can help inform the public about this issue.

Parks

The Committee hosted a public discussion about the plan for food trucks on the Easter Promenade during the spring and participated in a joint meeting with HEDC in the fall to review an updated proposal from the Parks Department.

The Committee met with the Portland Parks Conservancy to learn about plans for Portland Harbor Commons park, which would create more publicly accessible open space / green space on the waterfront.

Budget

As part of its work plan, the Committee highlighted the need to advocate for additional staffing in the Sustainability Office during the budget process. The budget passed by the City Council included increasing the hours of the Sustainability Associate to full-time as well as an amendment, submitted by Councilor Zarro, to add a second full-time Sustainability Associate to the Office. Following the passage of the budget, the Sustainability Office now has three full time employees - which has doubled its capacity.



Troy Moon <thm@portlandmaine.gov>

2023 TSC Work Plan

Anne Pringle <oldmayor@maine.rr.com>

Tue, Nov 29, 2022 at 9:08 AM

To: "Zarro, Andrew" <Azarro@portlandmaine.gov>, "Rodriguez, Robetto" <rrodriguez@portlandmaine.gov>, "Pelletier, Victoria" <VPelletier@portlandmaine.gov>

Cc: "Snyder, Kate" <ksnyder@portlandmaine.gov>, "Moon, Troy" <thm@portlandmaine.gov>, "Karu, Tim" <tnk207@gmail.com>

TSC Members,

I see on your Agenda for Wednesday a discussion of the issues the Committee would like to address in its 2023 Work Plan. I assume this is a preliminary discussion, as it will be the new TSC that sets the final Work Plan.

In any case, I hope you will consider reviewing the history and rationale behind restoring two-way traffic on State and High Streets. As noted in the attached summary, this topic has been analyzed three times in the past fifteen or so years. It **is** feasible, will cost relatively little, will significantly improve the experience of users of Deering Oaks and the quality of life in peninsula residential neighborhoods, and reverse a decision made decades ago when community values were significantly different from today. Now is the time to address this issue!

I served on all of the Task Forces that studied this possibility and will be happy to provide further insights at the appropriate time.

Thank you for considering this request.

Anne Pringle, President

Friends of Deering Oaks

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History

- The Maine Mall was completed in 1971.
- Preparing for its impact on downtown Portland, the City hired Victor Gruen (the father of the enclosed shopping mall) to devise a plan to “save” the downtown from its impact.
- Gruen recommended a number of traffic “improvements” to facilitate access of downtown, creating a ring road of arterials: Franklin, Spring, High/State, and Cumberland (not implemented).
- In retrospect, this traffic network did not save the downtown, which deteriorated for decades, and resulted in negative impacts on the peninsula’s residential neighborhoods, obliterating some (along the Franklin Street and Spring Street Arterials), and destroyed the neighborhood street feel of State and High.

Context

- State and High Street both are high-density residential streets with most housing on-street from end-to-end.
- One-way traffic concentrates traffic volumes, promotes speeding, encourages beating lights, and creates noise for residents.
- One-way traffic is intimidating for pedestrians.
- One-way traffic is dangerous for pedestrians – visibility in crosswalks.
- Bisection neighborhoods.
- Presents confusing access to PMA, Westin, and other businesses.

Process

- Restoring two-way has been the subject of multiple City studies: Peninsula Traffic Study, Portland Transit Plan, Preliminary Feasibility Analysis, and Phase II feasibility Analysis.
- For the last analysis (2015), the Council appointed a diverse 15-member Public Advisory Committee and 13 Community Advisors.
- The PAC had four two-hour meetings and held two two-hour well-attended public meetings.
- The traffic study indicates minimal impact on traffic flows during rush hour, with traffic splitting between the two streets, depending on destination and route preference.
- A pro-cons analysis indicates more pros than cons.
- The PAC has expressed a strong majority of support 10-2-2.
- Restoring two-way traffic was unanimously recommended by the TSE in July, but tabled by the City Council due to opposition by the then-City Manager.

The Case for Two-Way

- This proposal has been the subject of significant public process.
- It is “citizen driven”, a reflection of changing community values and the evolution of widespread interest in reversing the Gruen plan’s impact on residential neighborhoods.
- The Purpose and Needs Statement of the 2015 analysis notes the need to balance interests.
- Nationally, many cities are reversing one-way traffic flows with many positive impacts.
- Net cost is a minimal \$1.3 million, with \$2 million of the total project cost for scheduled signalization upgrades (now completed).
- Widespread support was voiced in 2015– by neighborhood associations, residents, PMA, Westin, Landmarks, Congress Square advocates, GPCOG.
- Concerns raised by opponents are not substantiated by the analysis – e.g. two-way streets are dangerous, the change would bring gridlock, etc..

The Transportation and Sustainability Committee should review the history of the traffic pattern on State and High Streets as an element of its 2023 work plan and, hopefully, recommend restoration of two way-traffic.