BPS 012 – Decarbonization Plans

OR BPS Background

The Oregon Building Performance Standard (OR BPS) is a mandatory program that aims to bring awareness about building energy use to owners of existing commercial buildings, and to reduce energy use and utility costs for less efficient buildings. Buildings that must comply with this program are divided into two tiers, based on Gross Floor Area and property type. The table below shows the two tiers covered by the OR BPS program and gives compliance dates.

Oregon Building Performance Standard Tiers

Gross Floor Area *(excludes parking garage area)*	**Property Type**	**Tier / Compliance Date**
35,000 to 90,000 square feet	Nonresidential, Hotel, or Motel	Tier 1 / June 1, 2030
90,000 to 200,000 square feet	Nonresidential, Hotel, or Motel	Tier 1 / June 1, 2029
200,000 square feet and greater	Nonresidential, Hotel, or Motel	Tier 1 / June 1, 2028
20,000 to 35,000 square feet	Nonresidential, Hotel, or Motel	Tier 2 / July 1, 2028
35,000 square feet and greater	Multifamily, Hospital, School, University, Dormitory, Barracks, Prison, Residential/Senior Care Facility	Tier 2 / July 1, 2028

Tier 2 buildings are required to **report Energy Use Intensity and Energy Use Intensity Targets** by their July 1, 2028, compliance date.

Tier 1 buildings are required to **report Energy Use Intensity and Energy Use Intensity Targets** and submit operations & maintenance and energy management plans by their compliance date. They must also **meet EUIt** or demonstrate an effort to **reduce energy use**. Tier 1 buildings that expect to exceed their energy target must report at least **180 days before** their compliance date, perform **energy audits** and **life cycle cost assessments,** and develop a plan to implement **cost-effective energy efficiency measures** by their June 1, 2028/2029/2030, compliance date.

This guidance explains what a decarbonization plan is and who might opt to file one. Additional guidance documents for OR BPS are available on the OR BPS website: https://tinyurl.com/ODOE-BPS.

OR BPS Definitions for Decarbonization Plans

Definitions to understand when developing a decarbonization plan:

Building: a structure, including mobile homes, manufactured homes, and other factory-built buildings, wholly or partially enclosed within exterior walls, or within exterior and party walls and a roof, that affords shelter to people, animals, or property.

Building Owner: an individual or entity possessing title to a building. In the event of a land lease, the building owner is the entity possessing title to the building on leased land. For condominium structures, building owner means the owners' association.

Gross Floor Area (GFA): the space of a building measured from its exterior enclosing walls, not including any parking garage area, but:

- Including all offices, lobbies, restrooms, equipment storage areas, mechanical rooms, break rooms, elevator shafts, and conditioned basements.
- Not including outside bays or docks, exterior spaces, covered walkways, open roofed- over areas, outdoor play courts, porches, exterior terraces or steps, roof overhangs, balconies, decks, patios, pipe trenches, interstitial plenum space between floors, driveways, parking garages, or surface parking areas.
- Including specific areas for each building activity type listed in Table 7-4 of the Oregon Building Performance Standard 100.

Building Gross Floor Area: sum of a building's regular gross floor area and special gross floor area.

Regular Gross Floor Area: sum of a building's gross floor area for hotel, motel, and nonresidential use, excluding any parking garage or special gross floor area.

Special Gross Floor Area: sum of a building's gross floor area for multifamily, hospital, school, university, dormitory, barracks, prison, residential care, and senior care use, excluding any parking garage area.

Tier 1 Building: a building under ownership by a sole individual or entity, with regular gross floor area of at least 35,000 square feet, and that does not meet any Tier 2 building definition. Under OR BPS, a Tier 1 building is required to benchmark its energy use by determining EUI and EUIt, and to take action to reduce their energy use if EUI exceeds EUIt.

Tier 2 Building: a building under ownership by a sole individual or entity that is either:

a. a "regular" Tier 2 building with regular gross floor area of at least 20,000 square feet and less than 35,000 square feet, and not a "special" Tier 2 building as in part b. of this definition; or
b. a "special" Tier 2 building with building gross floor area of at least 35,000 square feet and either special gross floor area that equals or exceeds regular gross floor area if regular gross floor area is at least 20,000 square feet, or special gross floor area of at least 15,000 square feet if regular gross floor area is less than 20,000 square feet; or
c. an "extended" Tier 2 building with regular gross floor area that equals or exceeds 35,000 square feet, submitted as part of a set of grouped buildings that includes a "special" Tier 2 building as in part b. of this definition.

Under OR BPS, a Tier 2 building must benchmark its energy use by determining EUI and EUIt, but need not take any action if EUI exceeds EUIt.

Energy Use Intensity (EUI): a measurement of energy use that normalizes building energy use relative to building size, calculated by dividing the total net energy the building consumes in one year by the building gross floor area, reported in units of thousands of British thermal units per square foot per year (kBtu/ft^2-yr).

Energy Use Intensity Target (EUIt): EUI value established for compliance with this standard as the maximum total energy use buildings are expected to consume in a year. EUIt values were set for Oregon buildings by analyzing local, regional, and national commercial buildings and applying average weather-normalized energy use to different building activity types.

Grouped Buildings: a set of Tier 1 and/or Tier 2 buildings that comply at the connected or campus-level, or that comply at the complex level and have a single shared primary function, along with any other connected buildings that are not covered buildings.

Complex: a group of individual or connected buildings on contiguous property.

Connected Buildings: buildings with shared energy meter(s) on contiguous property.

Contiguous Property: adjoining property sharing a common border under sole ownership.

Campus: collection of buildings served by district heating, cooling, water reuse, and/or a power system owned by the same building owner.

District Energy System (or District Energy or District System): a system that provides heating, cooling, or heating and cooling to a campus by distributing steam, hot water, chilled water, or cool water to buildings.

Campus District Energy System: a district energy system that provides heating, cooling, or heating and cooling to a campus by distributing steam, hot water, chilled water, or cool water to three or more buildings with more than 100,000 square feet of combined conditioned space, where the system and all buildings connected to the system are owned by:

a. A single entity; or
b. A public-private partnership in which a private entity owns the systems providing heating, cooling, or heating and cooling to buildings owned by one public entity; or
c. Two private entities in which one private entity owns the buildings connected to the system and another private entity owns the system providing heating, cooling, or heating and cooling to the buildings.

Participating Campus: a campus that chooses to pursue OR BPS compliance by developing and implementing a decarbonization plan in accordance with Normative Appendix W of Oregon Standard 100.

Decarbonization Plan Compliance Pathway

Owners of a campus district energy system may choose to comply with OR BPS by following an alternative decarbonization plan compliance pathway. These "participating campuses" develop and implement a plan to decarbonize their district energy system.

The "participating campuses" pathway could be a useful compliance option for Tier 1 buildings on a campus district energy system that exceed their Energy Use Intensity Target, allowing another way to work toward reducing their Energy Use Intensity.

Buildings on a district system may have limited options for reducing energy use within the building itself, since they have no primary heating or cooling equipment. These buildings may be able to reach their EUI target more easily by improving the district system.

Many campuses are already working toward improving their district systems. The decarbonization plan pathway allows them to use these efforts toward OR BPS compliance.

Implementing a decarbonization plan on its own may be enough to allow Tier 1 buildings to meet their Energy Use Intensity Target. In the case that the estimated savings from district system decarbonization is high enough, building energy audits need not be carried out.

Decarbonization Plan Objectives and Requirements

The goal of a decarbonization plan is to replace all fossil fuel use in buildings served by district energy systems within fifteen years.

Fossil fuels are used predominantly in district heating plants to produce steam or hot water, which is then distributed to buildings for space heating. The decarbonization plan should include mechanisms for replacing all fossil fuel-based heating equipment in district plants.

District systems that only provide cooling are also expected to eliminate fossil fuel use at the building level under a decarbonization plan. This would entail replacing any fossil fuel-based heating equipment being used in buildings served by district cooling.

Decarbonization plans can be developed for any campus district energy systems, defined under OR BPS as heating and/or cooling systems that serve at least three buildings with at least 100,000 square feet of combined conditioned gross floor area.

There can be some flexibility in the plan regarding how, how much, and when to decarbonize:

- A district plant may be decommissioned if building-level heating systems are also decarbonized, and if a lifecycle cost analysis shows that decommissioning saves energy and is cost-effective.
- The final decarbonization result may use fossil fuels or electric resistance heat to provide up to 10 percent of annual heating plant or building-level heating equipment output.
- Implementation may be extended beyond fifteen years with OR BPS approval.

Decarbonization plans should include the following elements:

- The net energy use of all campus buildings, with thermal energy use measured at the input side of the district energy system.
- For district heating systems, proposed mechanisms for replacing 100 percent of the fossil fuels used by heating equipment, and a schedule for this replacement.
- For cooling-only district systems, proposed mechanisms for replacing 100 percent of the fossil fuels used by building-level heating equipment, and a schedule for this replacement.
- For cooling-only district systems, comparison of building-level heating equipment replacement versus the addition of a district heating system.

Decarbonization plans are also encouraged to consider:

- Upgrades or repairs to the distribution network
- The potential for on-site storage facilities
- The potential for using nearby waste heat or waste cooling sources
- Existing space cooling systems, and comparison of district versus building-level cooling systems in residential and non-residential facilities
- Building-level improvements that reduce heating or cooling loads or building energy use in general
- Options for creating local industry or public-private partnerships
- Labor and workforce needs and the potential for using state-registered apprentices

Decarbonization Plan Schedule

Should a building on a campus district energy system choose to follow the decarbonization plan pathway, the schedule for developing and implementing that plan is as follows:

- By June 30, 2026, notify OR BPS that your campus is developing a decarbonization plan, and include a list of all buildings connected to the district system.
- By June 30, 2027, submit a completed decarbonization plan to OR BPS. This plan is then reviewed by OR BPS and either approved or sent back for revision if it doesn't meet OR BPS standards.
- Every five years after June 30, 2027, submit progress reports outlining the work done to implement the decarbonization plan and detail any revisions to the plan.
- By June 30, 2032, cooling-only district systems without any building-level heating equipment decarbonization submit a completion report attesting to the full implementation of the decarbonization plan.
- By June 30, 2042, district systems with district and/or building-level heating equipment decarbonization submit a completion report attesting to the full implementation of the decarbonization plan.