EV Charging and Solar-Ready Development

Land Use and Environment Committee
June 16, 2022

Agenda

- **Thurston Climate Mitigation Framework**
- **EV Charging Background**
- **EV Ready Codes and Options**
- **Solar Ready Codes and Options**

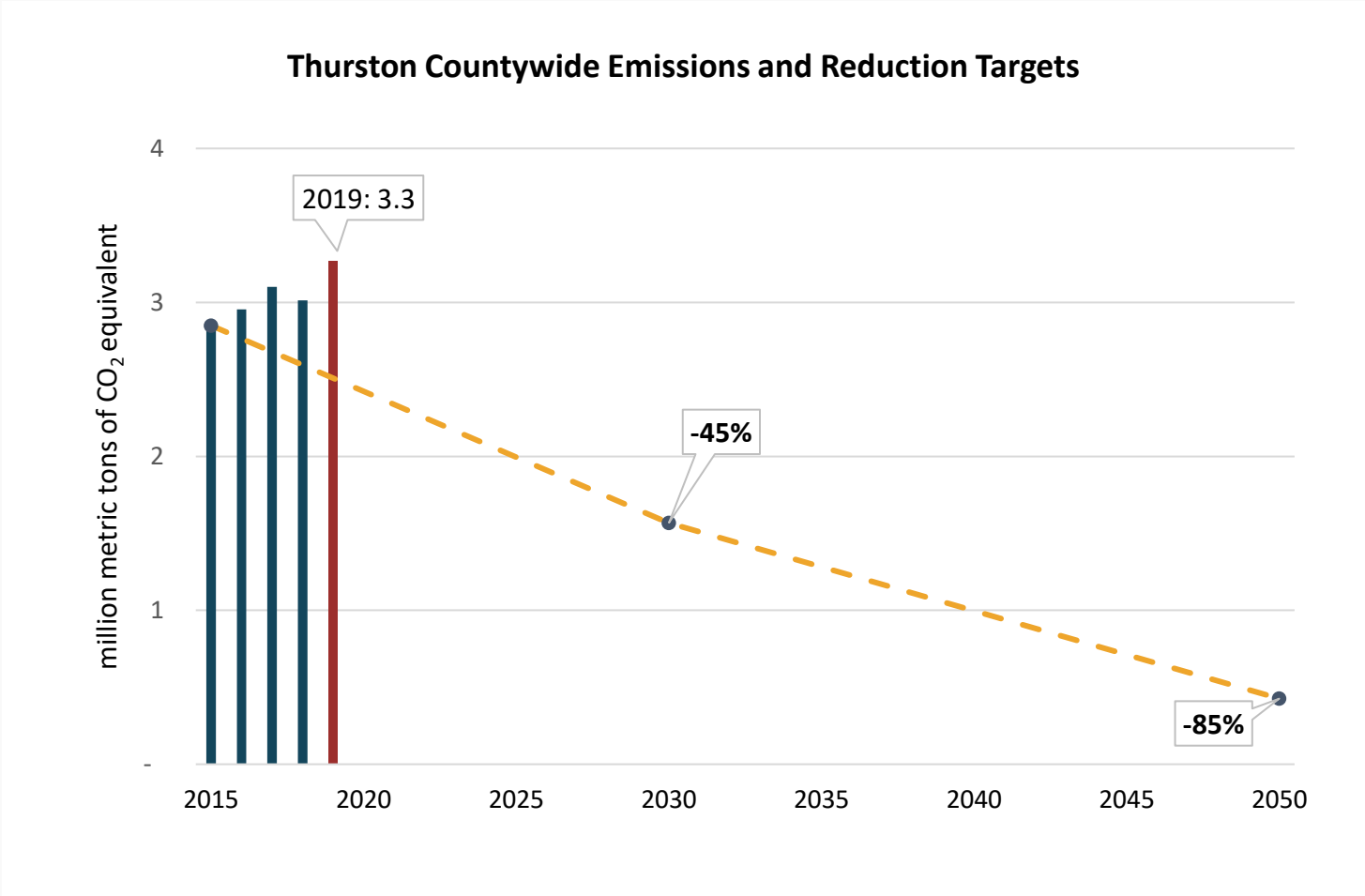
Olympia's Climate Action Commitments

- **Thurston Climate Mitigation Plan:** Reduce regional greenhouse gas emissions 45% below 2015 levels by 2030 and 85% below 2015 levels by 2040.
- **Olympia Climate Inheritance Resolution:** Achieve net-zero emissions by 2040.
- **Cities Race to Zero:** Achieve net-zero emissions by 2040 and set an interim 2030 science-based target, which reflects Olympia's fair share of a 50% global reduction in emissions by 2030.

2019 Greenhouse Gas Emissions
Thurston County

3.3 million

metric tons of carbon dioxide equivalent ($MTCO_2e$)

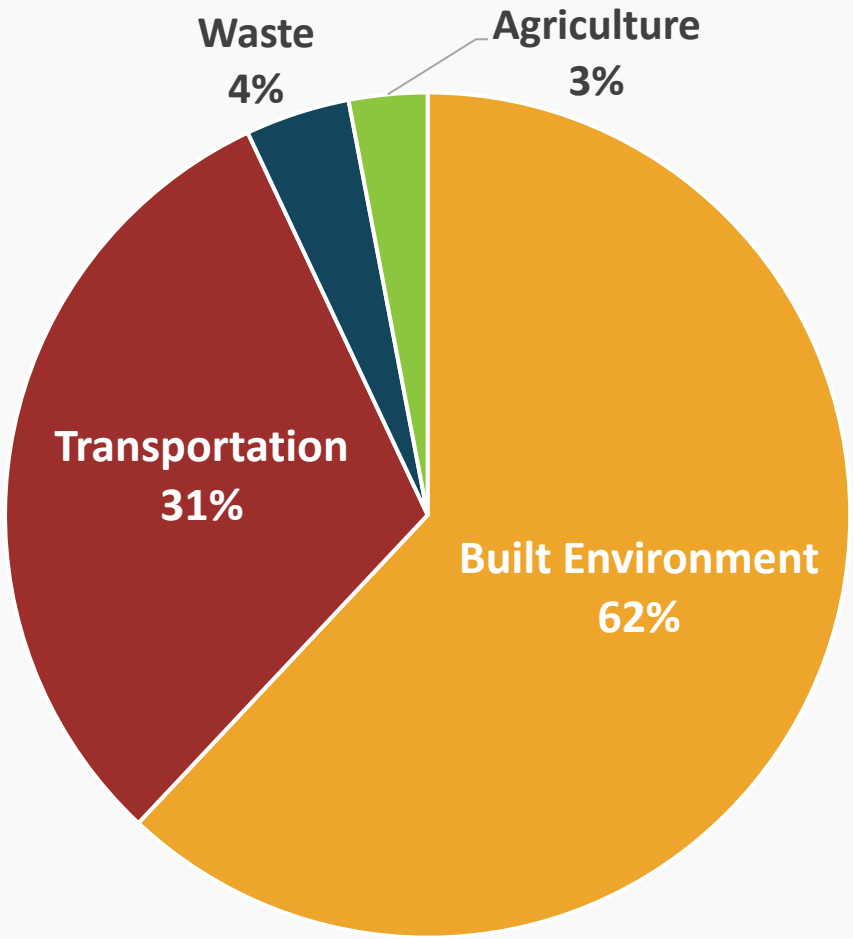


Thurston Climate Mitigation 2021 Progress Report

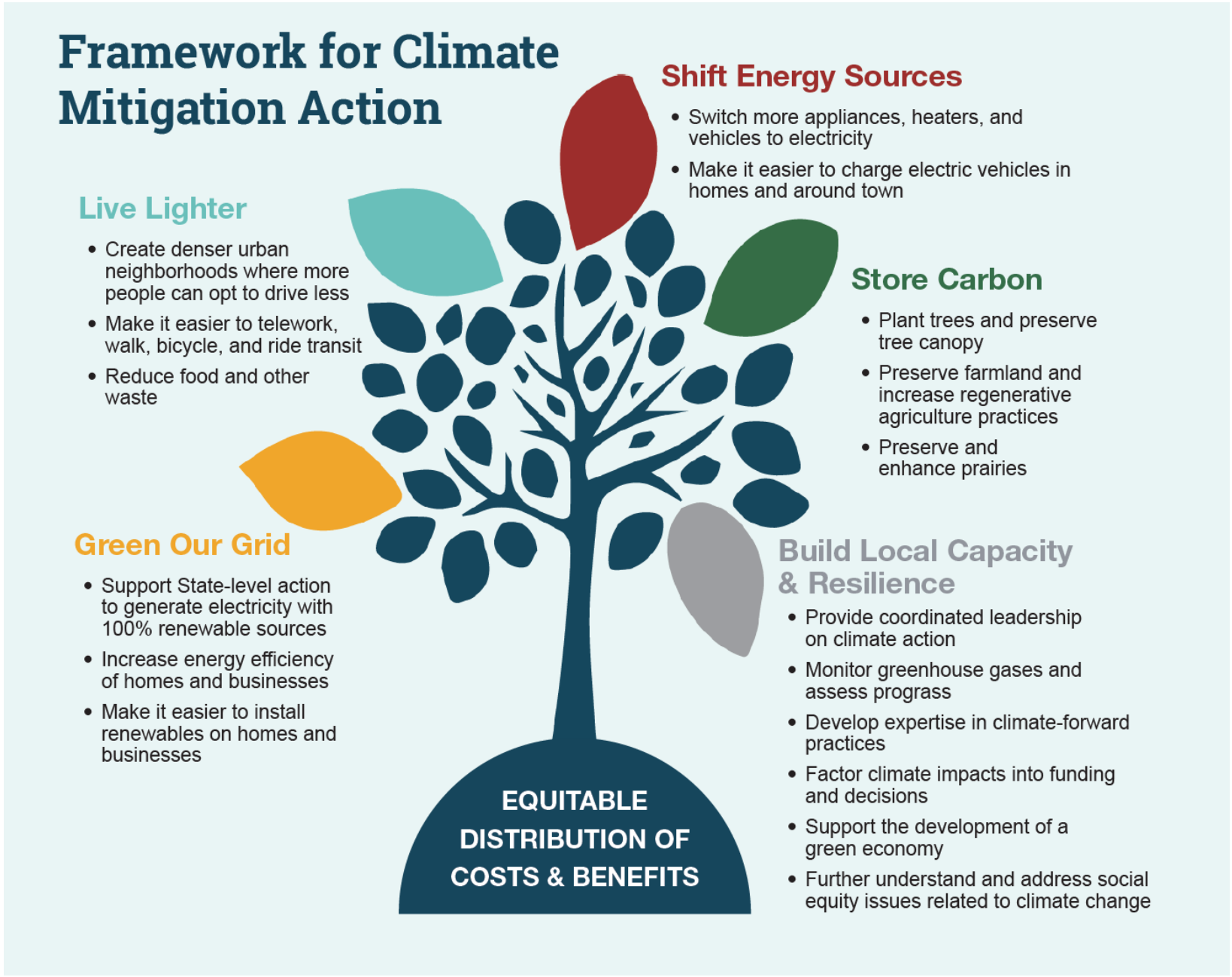
2019 Greenhouse Gas Emissions
Thurston County

3.3 million

metric tons of carbon dioxide equivalent ($MTCO_2e$)



Thurston Climate Mitigation 2021 Progress Report

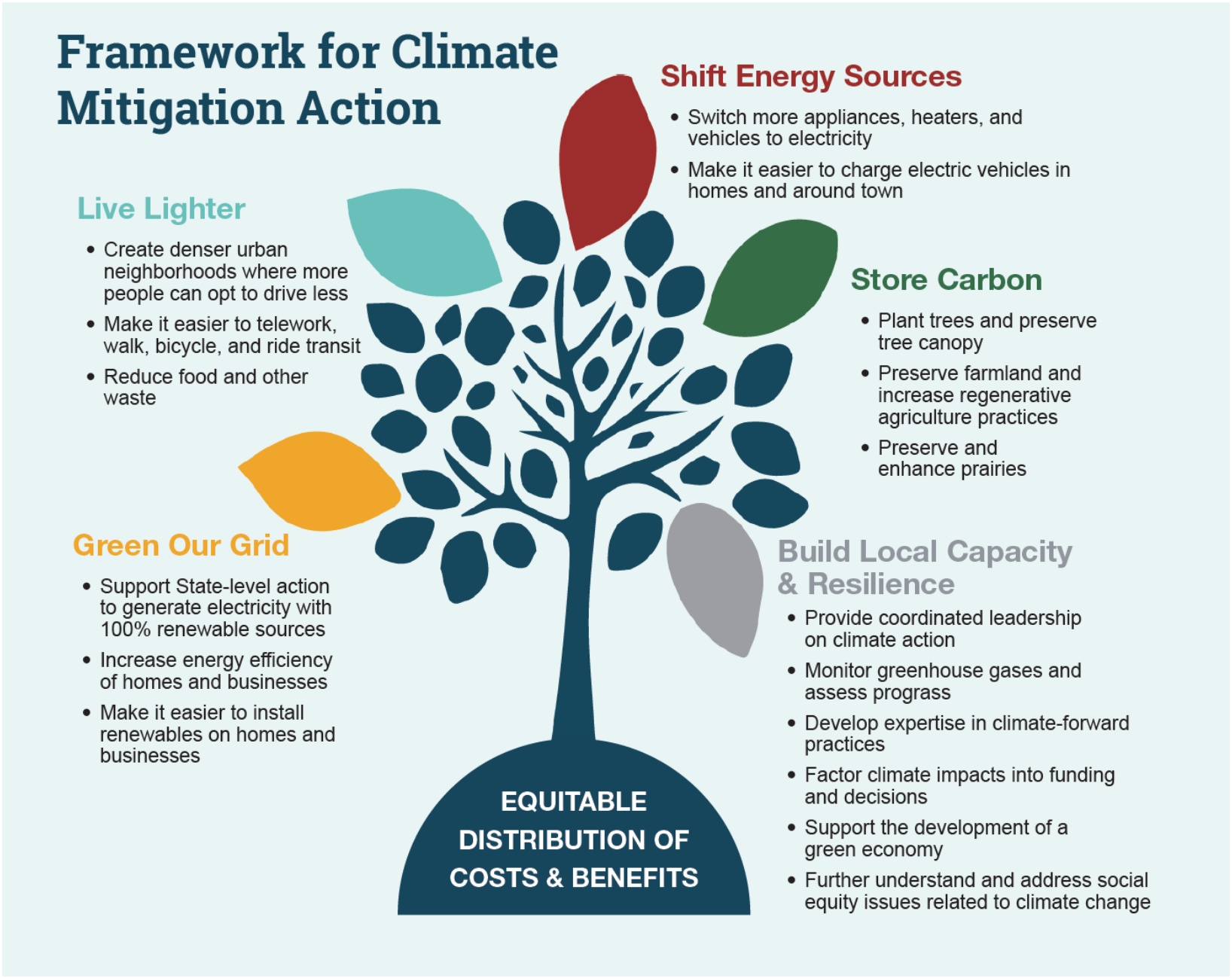


Green our Grid

Increase the production of local renewable energy.

B5.8 Solar-ready.

Amend local development code to require solar-ready construction for all buildings types.



Shift Energy Sources

Increase the adoption of electric vehicles.

T3.1 EV parking new construction.

Require large commercial and residential buildings to dedicate a percentage of parking spots for electric vehicle charging.

T3.5 EV-ready building code.

Require all new residential construction to be built EV ready.

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EV Charging Levels

AC Level 1

Does not require specialized equipment. Primarily used at home, sometimes at work.

AC Level 2

Requires additional charging equipment. Typically used at home, work, and for public charging.

DC Fast Charging

Requires highly specialized high-powered equipment. Typically used for public charging stations, especially along heavy traffic corridors.

Image: marylandev.org, 2022

Mix of Charging Infrastructure

Home Charging

More than 80% of charging is expected to occur at home, when available.

Workplace Charging

Supports drivers without access to home charging. Provides charging for long-distance commuters and vehicles with limited range.

Public Charging

Supports drivers without access to home or workplace charging. Provides “opportunity charging” and fast charging on longer trips.

Image: US DOE, 2014

EV-Readiness

EV-Capable

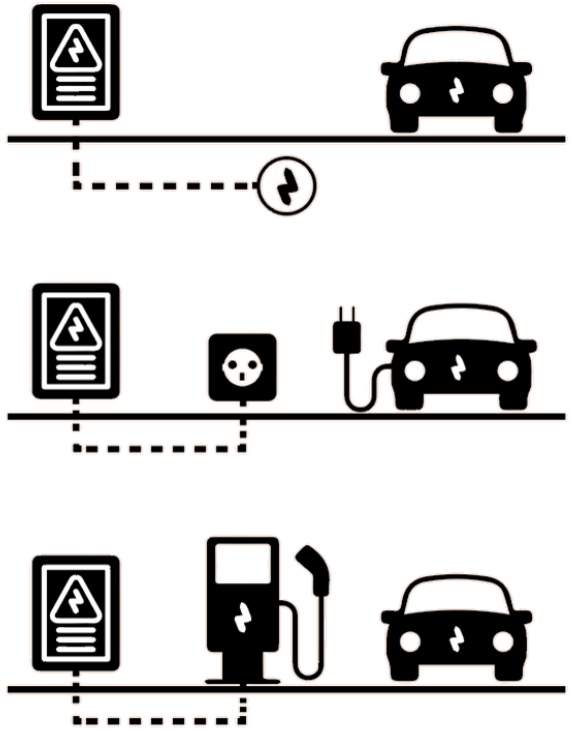
Electrical panel capacity with a dedicated branch circuit and continuous raceway from the panel to the future EV parking spot.

EV-Ready

Electrical panel capacity and raceway with conduit to terminate in a junction box or 240-volt charging outlet.

EV Charging Stations

A minimum number of Level 2 EV charging stations.



Source: SWEEP, 2022

Estimated Cost of EV-Ready Parking

EV-Ready Labor and Materials

Single family homes and duplexes

- $150 to $375 per space

Multifamily and Commercial

- $1,330 - $1,380 per space
- Retrofitting existing parking is at least $900 to $5,000 more expensive per space.

Level 2 Chargers

Single family homes and duplexes

- $380 to $689 for a basic single-port residential charger

Multifamily and Commercial

- $1,500 for a single-port multifamily charger with a limited interface that assigns charging to residents.
- $3,000 per port for a “smart” charger that allows improved remote control such as wait listing, and dynamic pricing.

Source: Electric Vehicle Charging Options Report, King County, 2020

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Washington State Building Code

EV Charging Requirements (effective ~July 2023)

Occupancy	EV Charging Stations	EV-Ready Parking Spaces	EV-Capable Parking Spaces
Group R			
Buildings with 1-2 dwelling units	Not required	One per dwelling unit	Not required
Dwelling units with private garages	Not required	One per dwelling unit	Not required
All other Group R	10% of total spaces	25% of total spaces	10% of total spaces
Group A, B, E, F, H, I, M, S	10% of total spaces	10% of total spaces	10% of total spaces

Single Family, Duplex & Townhouse

Occupancy	EV Charging Stations	EV-Ready	EV-Capable
WA State (July 2023)	-	1 per unit	-
King County, WA	-	1 per townhouse unit	-
Seattle, WA	-	1 per unit	-
Lacey, WA	-	-	-
Boulder, CO	-	1 per unit	-
San Jose, CA	-	1 per unit	-
Vancouver, BC	-	100% of total spaces	-

Multifamily

Occupancy	EV Charging Stations	EV-Ready	EV-Capable
WA State (July 2023)	10% of total spaces	25% of total spaces	10% of total spaces
King County, WA	10% of total spaces	25% of total spaces	-
Seattle, WA	-	20% of total spaces	-
Lacey, WA	10% of total spaces	-	-
Boulder, CO	5% of total spaces	10% of total spaces	40% of total spaces
San Jose, CA	10% of total spaces	20% of total spaces	70% of total spaces
Vancouver, BC	-	100% of total spaces	-

Non-residential

Occupancy	EV Charging Stations	EV-Ready	EV-Capable
WA State (July 2023)	10% of total spaces	10% of total spaces	10% of total spaces
King County, WA	5% of total spaces	10% of total spaces	-
Seattle, WA	-	10% of total spaces	-
Lacey, WA	1-3% of total spaces	-	-
Boulder, CO	5% of total spaces	10% of total spaces	10% of total spaces
San Jose, CA	10% of total spaces	-	40% of total spaces
Vancouver, BC	-	10% of total spaces	-

EV Ready Policy Options

Status and Options

- **Washington State Building Code**

  Requires a minimum number of EV-charging, EV-ready, and EV-capable parking spaces in all new development.

- **Olympia Municipal Code**

  OMC allows for EV charging, but does not establish any additional EV-readiness requirements.

  Option: Amend OMC Parking requirements to require a greater percent of EV-ready parking, where residential and/or non-residential parking is provided.

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Solar Ready Policy Options

Status and Options

- ### Commercial Buildings

  Washington State Commercial Energy Code requires non-residential commercial buildings to meet solar ready requirements.

  Option: Amend Commercial Energy Code to extend solar readiness requirements to include large multifamily buildings.

  Examples: Seattle, Shoreline, and Bellingham require a solar zone on all commercial buildings, including large multifamily.

Solar Ready Policy Options

Status and Options

- **Residential Buildings**

  Washington State Residential Code allows for local jurisdictions to adopt solar-ready provisions (Appendix T).

  Option: Adopt State Building Code Appendix T – Solar-ready provisions for detached one- and two-family dwellings, and multiple single-family dwellings (townhouses).

  Examples: Tumwater and Lacey have adopted the residential building Solar-ready provisions.

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