



# Energy Economy Ratios (EER) and Transportation Electrification Workshop

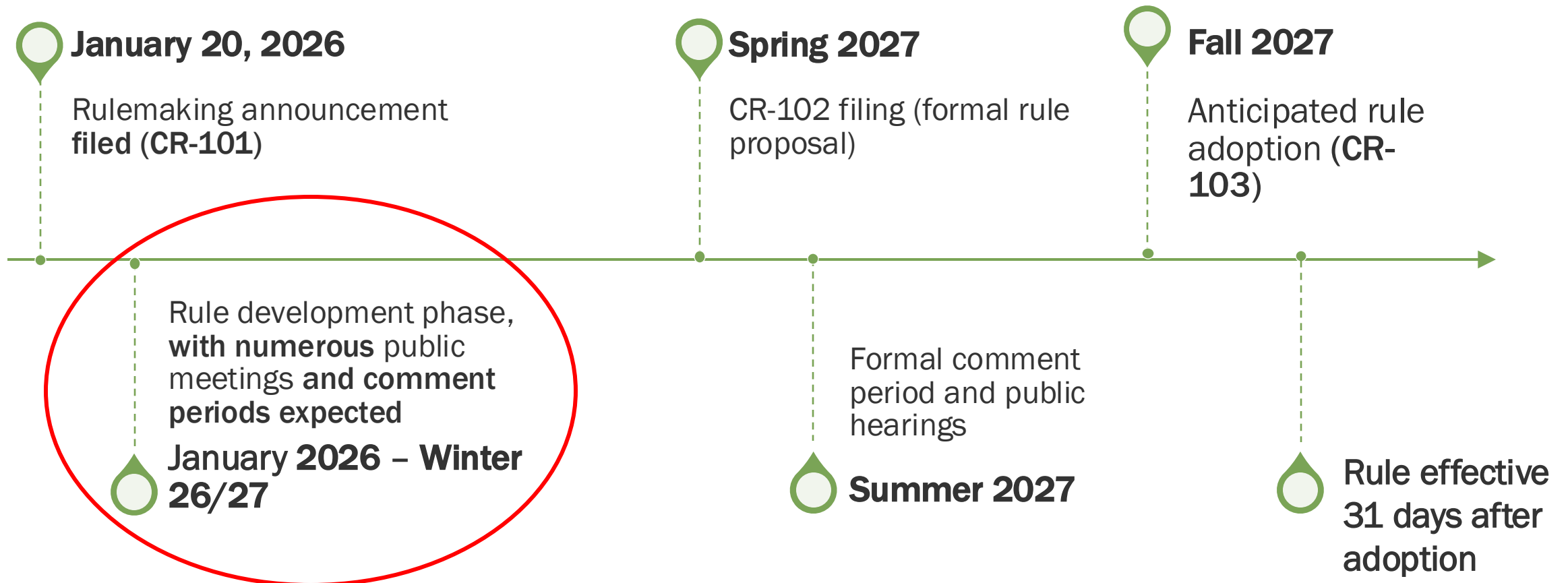
Clean Fuel Standard Rulemaking, Climate Pollution Reduction Program

May 27, 2026

# Ecology staff introductions

- Lauren Sanner – Environmental Planner, CFS Rulemaking Lead
- Audrey Stacey – Senior Program Analyst, Clean Fuel Standard
- Brian Goldgeier – Program Analyst, Clean Fuel Standard
- Meg Baker – Community Outreach and Engagement Specialist
- Kayla Stevenson – Environmental Planner, Technical Host
- Abbey Brown – Technical Lead, Clean Fuel Standard

# Rulemaking timeline



# Purpose of today's workshop

Ecology is looking to maximize the Clean Fuel Standard's (CFS) ability to support transportation electrification in light of the drawback of federal policy support.

## Today we want to:

- Provide an update on our initial ideas and draft methods
- Strengthen ideas from previous comments
- Receive your input

## We'll focus on...

# Agenda

- 1 Light-Duty Electric Vehicle EER
- 2 Public Transit EER
- 3 Accounting for indirect effects of public transit
- 4 Whiteboard activity – electrification topics
- 5 Submit informal comments and stay involved

# Why focus on electrification?

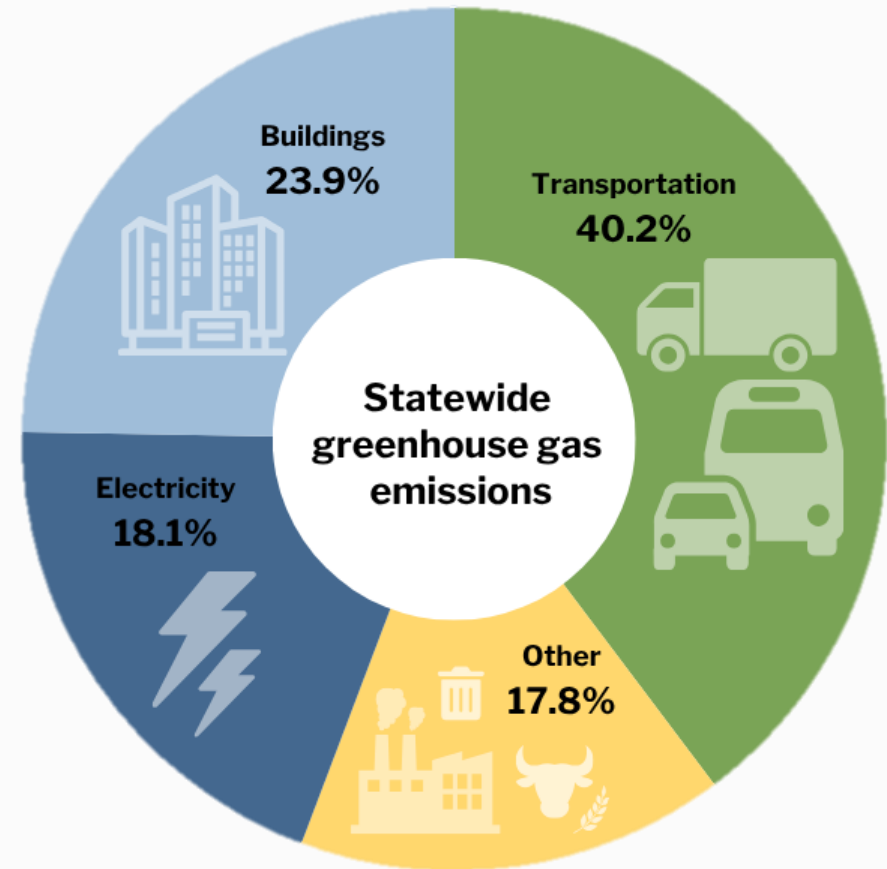
- Clean Fuel Standard: [RCW 70A.535.050](#) and [RCW 70A.535.080](#)
- [Executive Order 21-04](#): Zero-emission vehicles

The CFS supports the use of clean transportation fuel technologies, including electric vehicles.

- Opportunity to scale zero emission vehicle (ZEV) efforts

# Policy areas of CFS influence

- EV adoption and affordability
- EV charging infrastructure
- Low-carbon electricity generation





# Potential changes to Energy Economy Ratios (EERs)



# What is an Energy Economy Ratio (EER)?

- EER compares the efficiency of a vehicle using an alternative fuel to a similar vehicle using a conventional fuel
  - For light-duty vehicles the comparison is based on miles per gallon (MPG)
  - For transit vehicles, the comparison is based on energy (MJ) per passenger-mile
- EER values in current rule are based on older vehicles
- Impacts of improved vehicle efficiency on EER values

# Calculating EER (light-duty vehicles)

Formula

$$\frac{\text{EV MPGe}}{\text{ICEV MPG}} = \text{EER}$$

Example

$$\frac{100 \text{ MPGe}}{25 \text{ MPG}} = 4$$



# Light-Duty EV EER

Potential updates to light-duty EV EER value through rulemaking

- Current EER = 3.4
  - Value is likely outdated; average EER for vehicle data used to calculate residential base credits is around 4

New draft methodology

$$\frac{\text{Average MPGe for all EVs registered in WA}}{\text{Average MPG of all ICEVs registered in WA}} = \text{EER}$$

# Methodology

## WA registration data

Make	Model	Year	Fuel

## EPA fuel economy data

Make	Model	Year	Fuel	MPG

- Assign MPG to registered vehicles by matching datasets
- EPA data has more detail than registration data
  - Take average MPG of all types and assign that average to registered vehicle
- Group vehicles by fuel type (BEV and PHEV are grouped as EVs)
- Calculate average MPGe for EVs and MPG for ICEVs in WA

# Methodology example

WA registration data

Make	Model	Year	Fuel
Toyota	RAV-4	2022	ICEV

EPA fuel economy data

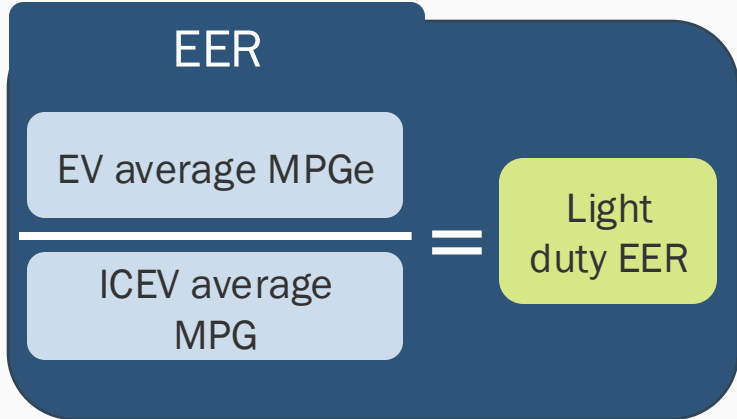
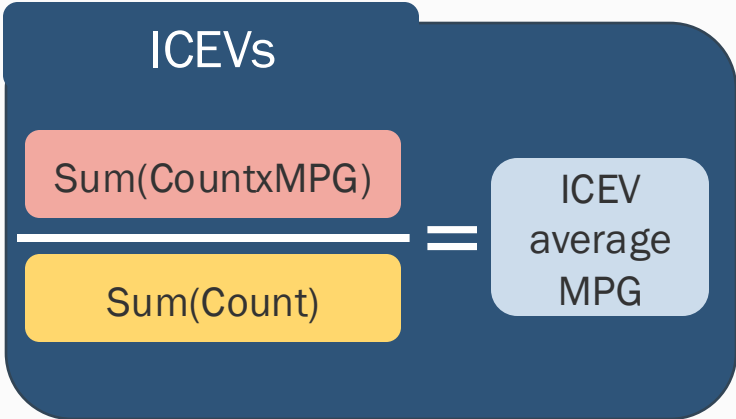
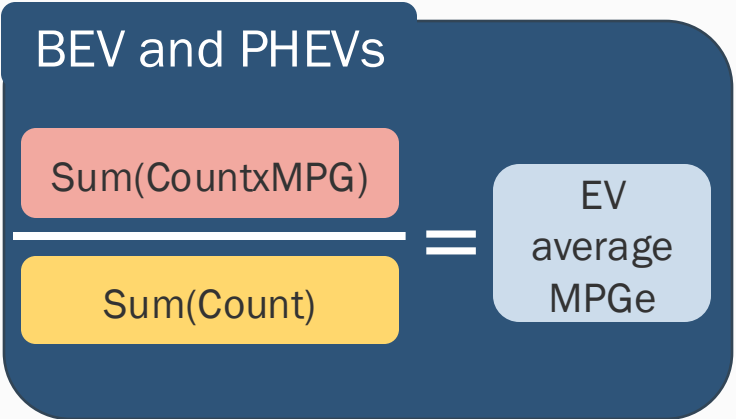
Make	Model	Year	Fuel	MPG
Toyota	RAV4	2022	ICEV	30
Toyota	RAV4 AWD	2022	ICEV	28
Toyota	RAV4 AWD LE	2022	ICEV	30

Output

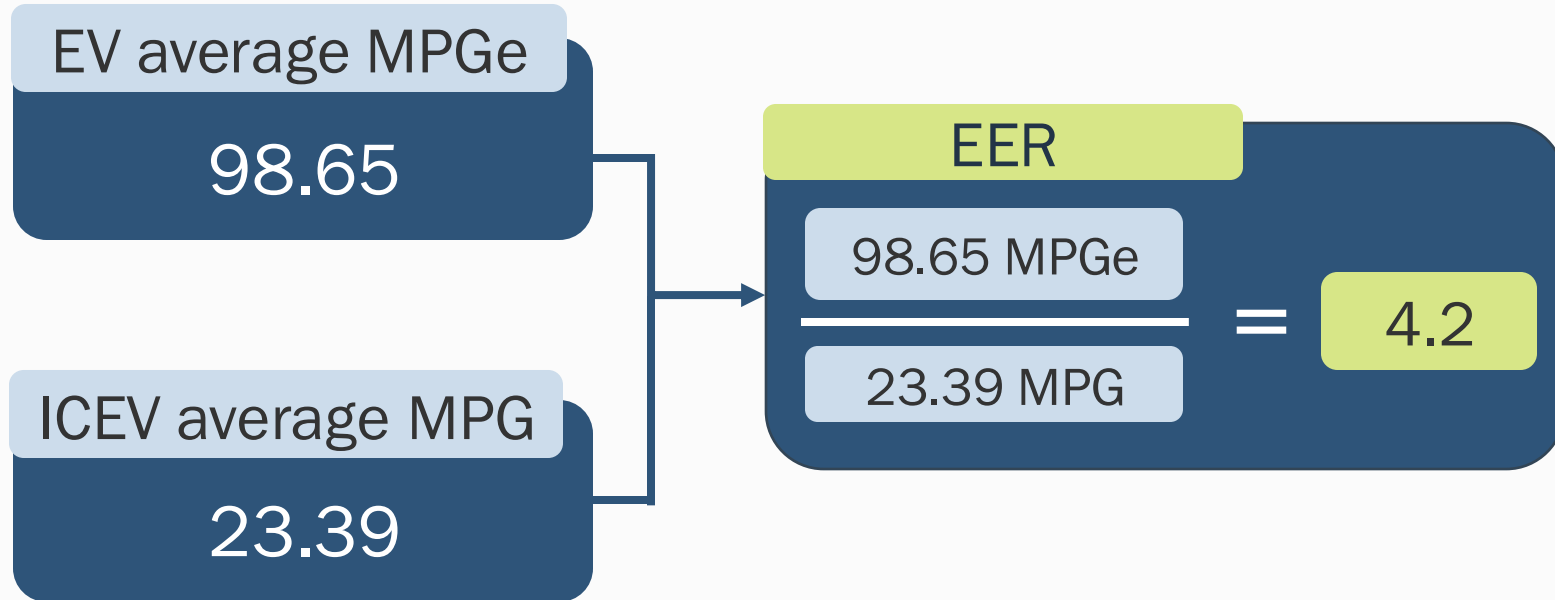
Make	Model	Year	Fuel	MPG
Toyota	RAV4	2022	ICEV	29.3

# Methodology example

Make	Model	Year	Fuel	Count	MPG	CountxMPG
Toyota	RAV4	2022	ICEV	20	29.3	586
Tesla	Model Y	2023	BEV/PHEV	10	118.67	1186.7
Tesla	Model Y	2024	BEV/PHEV	15	116	1740
Subaru	Crosstrek	2024	ICEV	10	28.33	283.3
Hyundai	Ioniq 5	2024	BEV/PHEV	5	107.33	536.65



# Light duty EER preliminary results



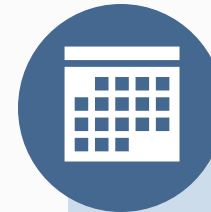
# Light duty EV EER: feedback



MPG data  
source; tied  
to VIN?



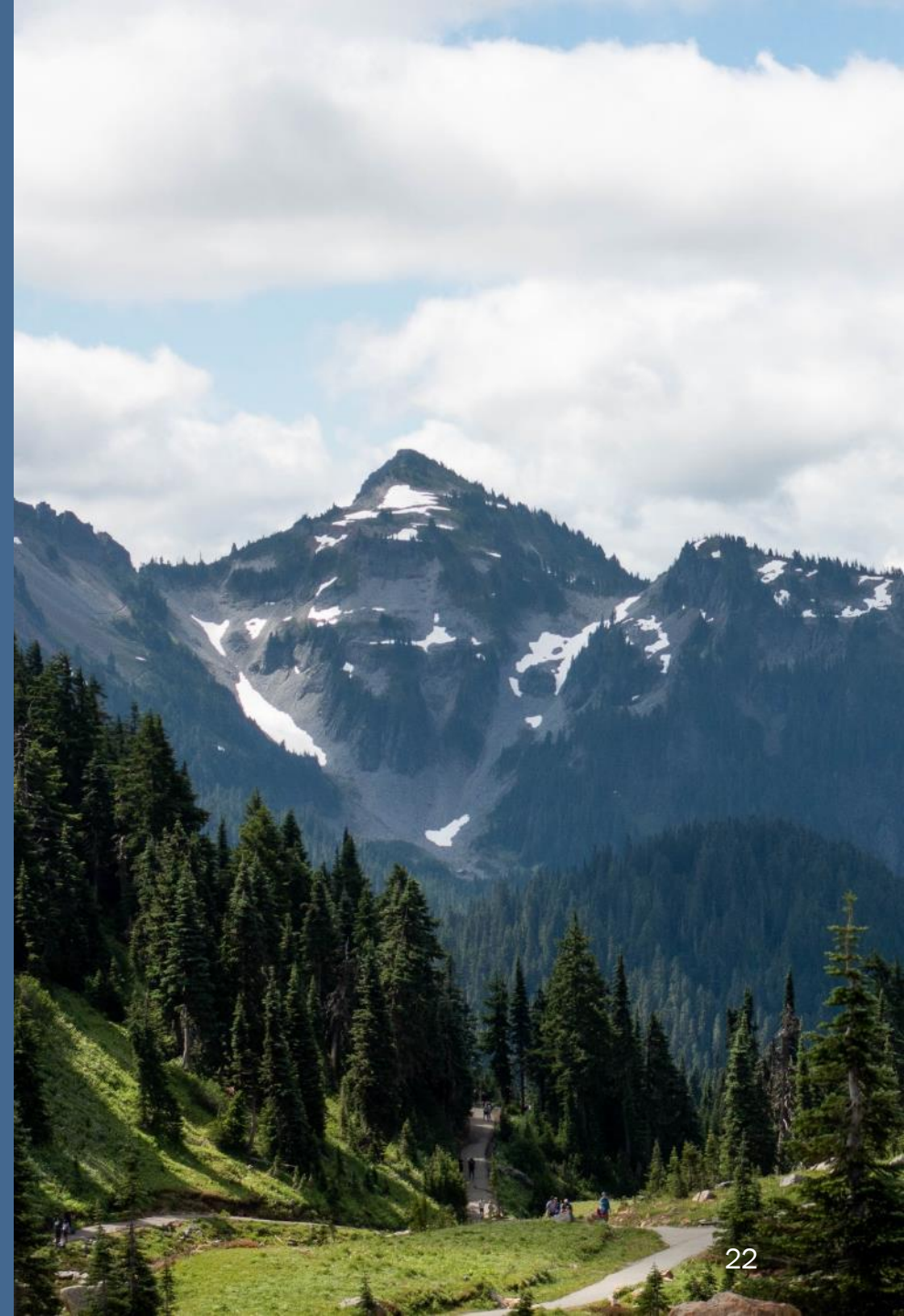
Are there  
better ways to  
join the two  
datasets?



How many  
years of data  
should we  
use?



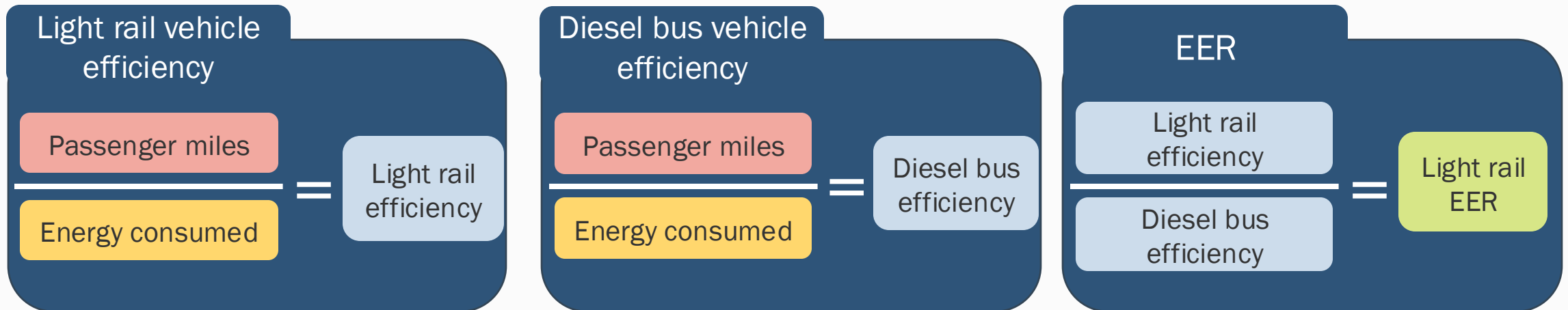
Questions?



# Public transportation EER

Current EER values are based on the vehicle efficiency of electrified transit compared to the vehicle efficiency of a diesel bus

Example:



# Public transportation EER: feedback



What baseline fuel or mode comparison is best supported by available data on WA transit systems?



What evidence is there for mode shift from light duty vehicles versus diesel buses?



What sources exist for MPGe of electric transit vehicles?



What other mechanisms could more accurately account for emissions reductions from transit?

# Why is this important?

- The CFS supports technologies that have the most potential for reducing transportation emissions
- Public transportation can reduce more emissions using fewer resources than many other options
  - Decarbonizing public transit supports access to clean transportation for communities who can't afford EVs

# Secondary effects of public transit

Transit can reduce emissions indirectly through:

- Compact land use/density
- Shorter trip distances
- Increased walking and biking
- Reduced vehicle ownership
- More efficient trip chaining

Leading to reductions in VMT and emissions beyond those created by transit ridership alone.

Sources: <https://www.vtpi.org/tranben.pdf>; <https://link.springer.com/article/10.1007/s11116-024-10542-0>; <https://www.nationalacademies.org/publications/22203>; <https://onlinepubs.trb.org/onlinepubs/tcrp/docs/TCRPJ-11Task3-FR.pdf>

# Land use multiplier effect

Using a multiplier to measure the total VMT reductions per passenger mile

- Wide range with no consensus value:
  - 1.9x (APTA 2009)
    - Report updated to encourage regional calculations in 2018
  - 3.04x (Ewing & Hamidi, 2014)
  - 6.59x (Sabouri et al., 2024)
- No WA-specific multiplier value currently exists

# Feedback request summary:



**Indirect effects:** Washington-specific data on relationship between transit systems and indirect emissions reductions



**Fuel comparison:** What baseline fuel or mode comparison (i.e. diesel bus, light duty vehicle) is best supported by available data on WA transit systems?



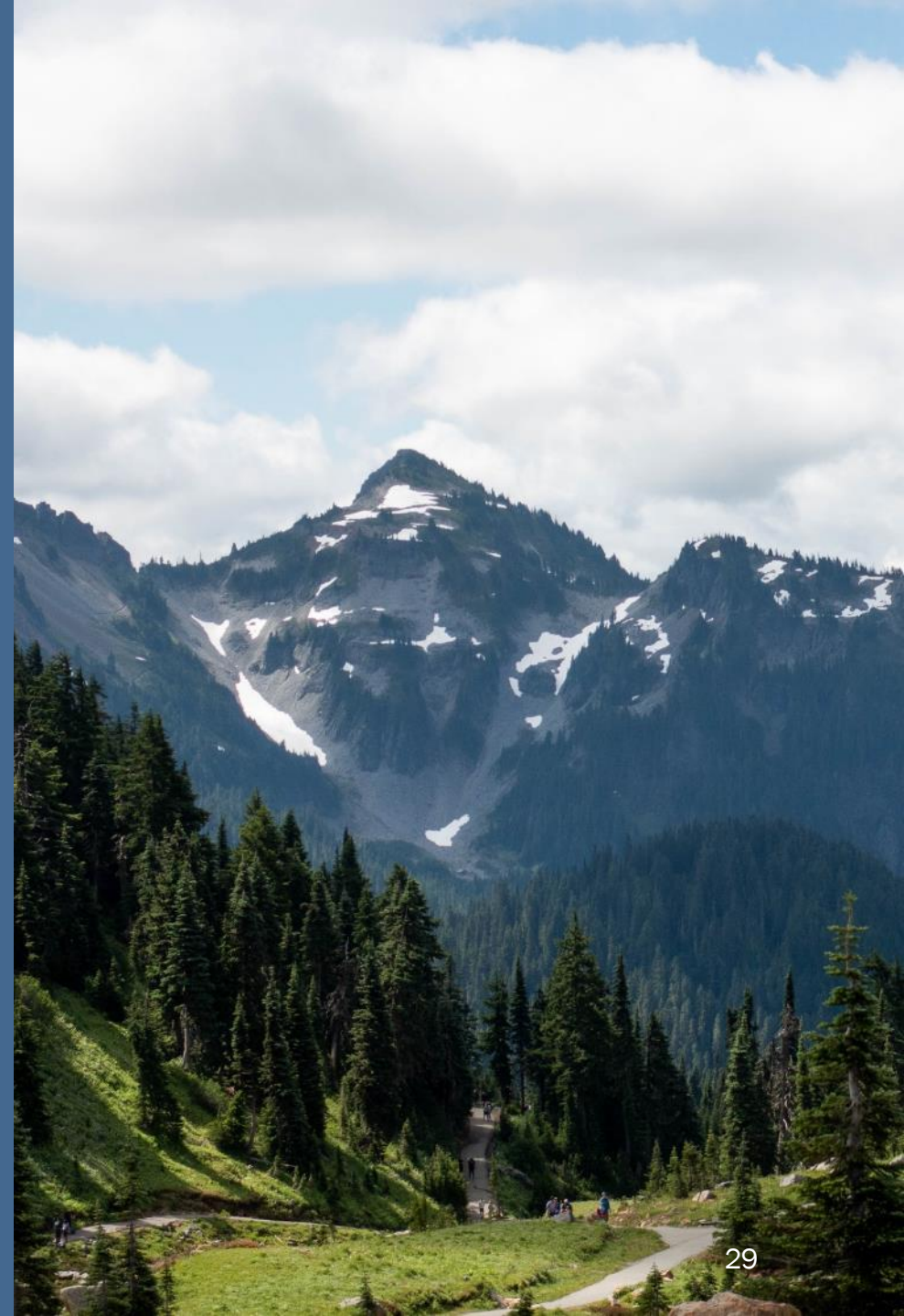
**Transit MPGe:** What sources exist for MPGe of electric transit vehicles?



**Other suggestions:** What other mechanisms could more accurately account for emissions reductions from transit?



Questions?





**Break (~10 mins)**

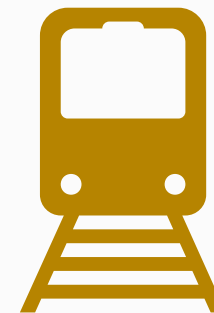
# Summary



Light duty EV EER



Public transit EERs

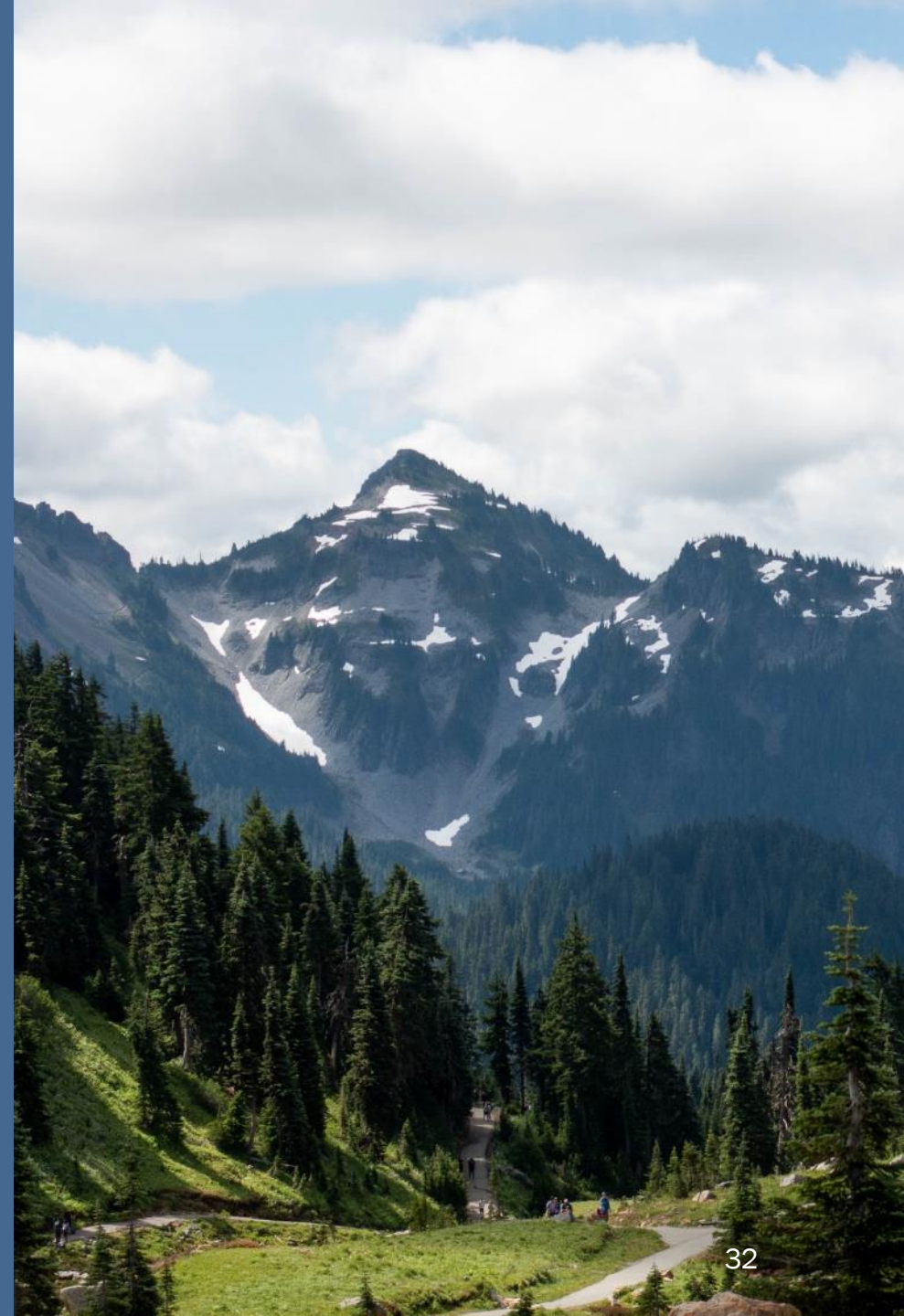


Indirect effects of  
public transit

Updating EERs would increase credit generation and support  
transportation electrification



# Other transportation electrification topics



# Whiteboard activity

**Purpose:** Explore ideas to further support TE in rule that are feasible and provide most public benefit

## Topics for feedback include:

- Electric utility revenue investment on EV charging and interconnection
- Maximizing capacity credits
- Decarbonizing electricity generation

# Background

- [RCW 70A.535.080](#): Electric utilities are required to spend their revenue from CFS credits on transportation electrification projects
- [WAC 173-424-560](#): Capacity credits are credits earned for installation of heavy-duty DC fast chargers and hydrogen charging stations
- To help meet Washington's statutory greenhouse gas emissions limits, the CFS may be able to indirectly support decarbonizing of the electricity sector

# Whiteboard – Activity outline

## Phase I – Brainstorm (30 minutes)

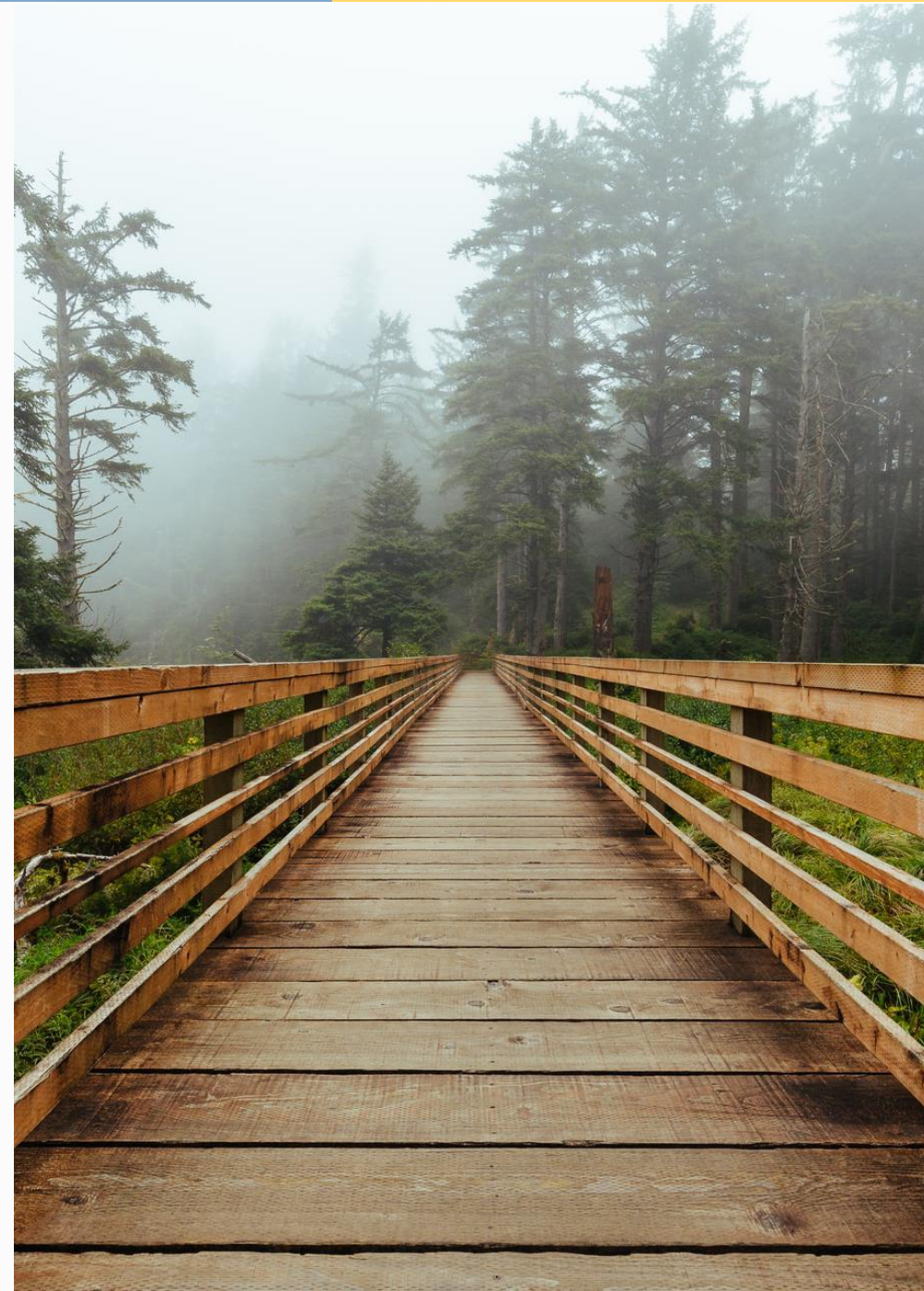
- Contribute ideas to 1 or more topics

## Phase II – React (10 minutes)

- Add emojis or upvote ideas

## Phase III – Discuss (20+ minutes)

- Clarify questions, expand on responses, open discussion




# Whiteboard – How to

**Navigate the canvas**

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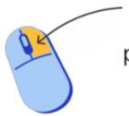
**Zoom in and out** - lower right hand corner




**Keyboard**  
Use 'Shift +' and 'Shift -' as keyboard shortcuts to zoom in and out

+ -

**Mouse**  
Use right click to pan the canvas




pan




zoom

**Touchscreen or Trackpad**  
Pinch to zoom in and out  
Use two fingers to pan the canvas

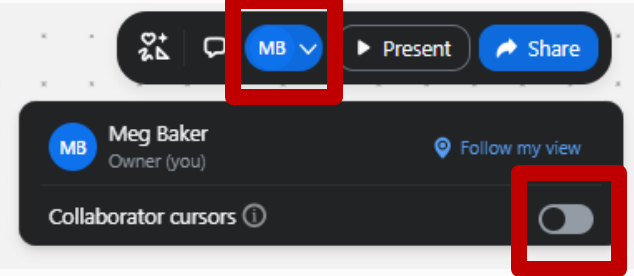


zoom

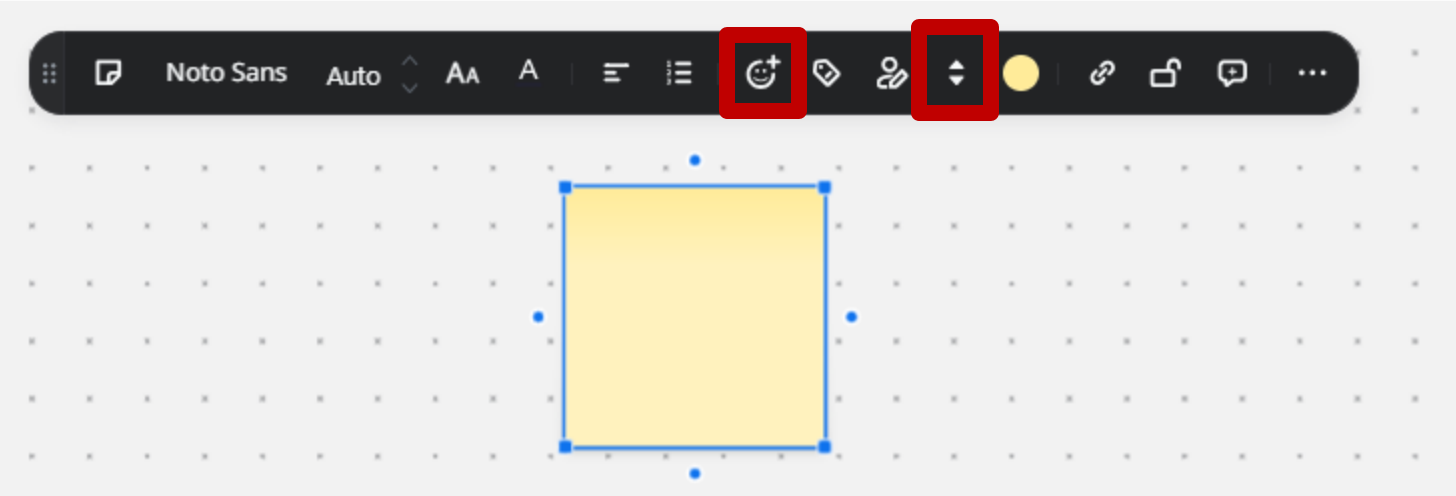


pan

Turn off cursors - Upper right-hand side



Reacting to sticky notes



# Requests for feedback

- Light Duty EER initial methodology (**slide 21**)
- Washington specific data and information needed to potentially update Public Transit EER (**slide 24**)
- Ideas on ways the CFS can incentivize TE through utility revenue spending, maximizing capacity credits, and supporting decarbonization of electricity generation (**slide 33**)



**Online by 11:59 p.m. on June 17, 2026**

<https://ecology.commentinput.com?id=r6j3iP8k4>



**Email us or schedule a 1:1**

Send requests to [lauren.sanner@ecy.wa.gov](mailto:lauren.sanner@ecy.wa.gov) and [abbey.brown@ecy.wa.gov](mailto:abbey.brown@ecy.wa.gov)



**By mail to:**

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Lacey, WA 98503



# How to comment



# Thank you

The slides and recording will be posted to our rulemaking webpage.

Please reach out if you have questions after the meeting or would like to meet with Ecology to talk more about transportation electrification.

**Lauren Sanner**

Climate Rulemaking Planner

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[WAC 173-424-455](tel:WAC 173-424-455) - Washington State Department of Ecology