Concise Explanatory Statement
Chapter 173-423 WAC Clean Vehicles Program
Chapter 173-400 WAC General Regulations for Air Pollution Sources

Summary of Rulemaking and Response to Comments

Washington State Department of Ecology
Olympia, Washington

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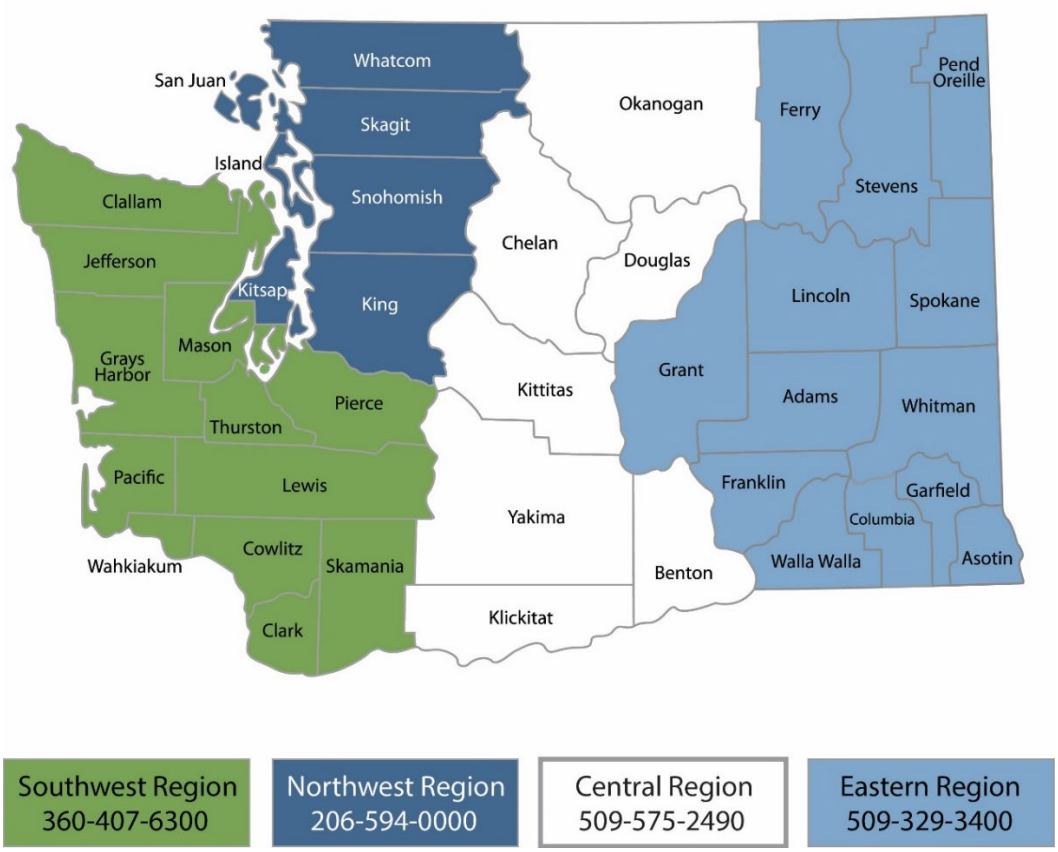
Department of Ecology's Regional Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Statewide	PO Box 46700 Olympia, WA 98504	360-407-6000

Concise Explanatory Statement

Chapter 173-400 WAC
Clean Vehicles Program

Chapter 173-400 WAC
General Regulations for Air Pollution Sources

Air Quality Program
Washington State Department of Ecology
Olympia, WA

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DEPARTMENT OF
ECOLOGY
State of Washington

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Introduction

The purpose of a Concise Explanatory Statement is to:

- Meet the Administrative Procedure Act (APA) requirements for agencies to prepare a Concise Explanatory Statement (RCW 34.05.325).
- Provide reasons for adopting the rule.
- Describe any differences between the proposed rule and the adopted rule.
- Provide Ecology's response to public comments.

This Concise Explanatory Statement provides information on The Washington State Department of Ecology's (Ecology) rule adoption for:

Title:	Clean Vehicles Program and General Regulations for Air Pollution Sources
WAC Chapter(s):	173-423 WAC and 173-400 WAC
Adopted date:	December 19, 2022
Effective date:	January 19, 2023

To see more information related to this rulemaking or other Ecology rulemakings please visit our website: https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking.

Organization of this Document

Ecology accepted formal public comments on the rule proposal from September 7, 2022, through October 19, 2022. During this 43-day public comment period, formal comments were accepted through our online public comment tool, by mail, email, and by testimony provided at a public hearing held on October 12, 2022. Comments made during the public hearing are treated the same as written comments. We received 1,425 comment submissions. Most submissions included several unique comments. Several of the comment submissions were submitted on behalf of multiple individuals or organizations. Many of the comment letters expressed support for the rule. We also received many comments on specific sections of the proposed rule.

In this document, we have organized the comments into the following sections:

Reasons for Adopting the Rule

In 2020, the Washington State Legislature passed the Motor Vehicle Emission Standards law (SB 5811). The law adopts California's motor vehicle emission standards and directs Ecology to adopt rules to implement California's standards, including its zero-emission vehicle (ZEV) program, and to amend the rules from time to time to maintain consistency with California's program.

This law is codified in RCW 70A.30.10, Clean Vehicles Program. Section 177 of the federal Clean Air Act allows states to adopt identical versions of California's vehicle emission standards, which are more stringent than federal regulations.

While Ecology had implemented some of California's clean vehicle rules in response to previous legislative directives, November 2021 marked the first time it had adopted California's ZEV rules. Last year's rulemaking included light-duty ZEV requirements for model year 2025 (Advanced Clean Cars I), as well as ZEV requirements for medium-and heavy-duty vehicles sold in model year 2025 and subsequent years (Advanced Clean Trucks).

This year's rulemaking was initiated because the California Air Resources Board has since adopted additional rules, including the Advanced Clean Cars II program, which the Washington Motor Vehicle Emission Standards law requires that we adopt into Washington's rules. This rulemaking adopts the following motor vehicle emissions standards from Title 13 of California's Code of Regulations:

- Heavy-Duty Engine and Vehicle Omnibus Regulation and associated amendments. These rules require cleaner heavy-duty internal combustion engines for that emit much lower quantities of nitrogen oxides (NOx) and particulate matter (PM).
- Advanced Clean Cars II (ACC II). This rule will increase the percentage of passenger cars, light-duty trucks, and medium-duty vehicles sold in Washington State that are ZEVs. The sales mandate would take effect in model year 2026 and begin by requiring 35% of new passenger vehicle sales to be ZEV, with that percentage increasing between 6-9% per year until ZEVs make up 100% of new sales starting in model year 2035. It will also require light and medium-duty vehicles to meet stronger emissions standards.

This rulemaking also updates 173-423 WAC to reflect the new adoption date of California's rules.

Separate from the adoption of California's rules, the Clean Vehicles Program rulemaking also includes:

- Early Action ZEV Credits: These provisions provide automakers with optional ZEV sales credits for model years 2023 and 2024. This creates an incentive for automakers to bring new ZEVs to market in the state and will help ensure that Washingtonians have access to a wide variety of ZEV models before regulatory requirements take effect in model year 2025.
- One-time Fleet Reporting Rule: This requires fleet owners and operators to report information about medium- and heavy-duty vehicles (defined as vehicles above 8,500 pounds) in their fleet by September 30, 2023. This requirement mirrors a similar

requirement in California's Advanced Clean Trucks rule. Ecology currently has very little data on fleets, and the inventory of existing heavy-duty fleets and information about where these vehicles operate will help Ecology develop and implement strategies to reduce their emissions.

We are also amending Chapter 173-400 WAC, General Air Quality Regulations for Air Pollution Sources. The rulemaking updates the adoption date of federal rules. Ecology can only implement and enforce federal rules that the rule adopts by reference. This action amends the following sections:

- WAC 173-400-025 Adoption by reference
- WAC 173-400-050 Emission standards for combustion and incineration units
- WAC 173-400-070 Emission standards for certain source categories
- WAC 173-400-115 Standards of performance for new sources
- WAC 173-400-720 Prevention of significant deterioration (PSD). The rule will retain the current definition of "project emissions accounting" requirement.

Differences Between the Proposed Rule and Adopted Rule

RCW 34.05.325(6)(a)(ii) requires Ecology to describe the differences between the text of the proposed rule as published in the Washington State Register and the text of the rule as adopted, other than editing changes, stating the reasons for the differences.

There are some differences between the proposed rule filed on September 7, 2022, and the adopted rule filed on December 19, 2022. Ecology made these changes for all or some of the following reasons:

- In response to comments that we received.
- To ensure clarity and consistency.
- To meet the intent of the authorizing statute.

Ecology did not make any changes to the proposed rule that are substantially different from the original proposal. In making this determination, Ecology considered the following factors (RCW 34.05.340 (2)):

• The extent to which a reasonable person affected by the adopted rule would have understood that the published proposed rule would affect their interests.

• The extent to which the subject of the adopted rule or the issues determined in it are substantially different from the subject or issues involved in the published proposed rule.

• The extent to which the effects of the adopted rule differ from the effects of the published proposed rule.

The following content describes the changes and Ecology's reasons for making them.

- WAC 173-423-083 (Fleet reporting requirement): The term "person" has been edited throughout this section to instead refer to "entity" or "broker". This change is intended to reduce confusion and clarify who is required to report information about their fleet vehicles to Ecology under this rule.
- WAC 173-423-070 (Low emission vehicles): This section has been revised to update references to sections of the California Code of Regulations that have been reordered or added since Ecology's last rulemaking.
- WAC 173-423-030 (Adoption by reference): This section has been revised for clarity.

List of Commenters and Response to Comments

Last Name	First Name	Submitted By	Comment Code	Topic	Sub-Topic
Anonymous	Anonymous		I-1	VI. Process and Policy Concerns	2. Opposition to a Mandate
Anonymous	Anonymous		I-1	VIII. Cost and Affordability	4. Financial Incentives
Anonymous	Anonymous		I-1	IX. Infrastructure Impacts	6. Public Charging
Anonymous	Anonymous		I-1	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Engebo	Jennifer		I-2	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Engebo	Jennifer		I-2	X. Environmental Impacts	3. Battery Manufacturing Emissions
Engebo	Jennifer		I-2	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Engebo	Jennifer		I-2	IX. Infrastructure Impacts	6. Public Charging
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Moore	James		I-9	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Anonymous	Anonymous		I-177	II. Opposition to Rulemaking	
Rees	Tarrah		I-178	II. Opposition to Rulemaking	
Rees	Tarrah		I-178	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Rees	Tarrah		I-178	VI. Process and Policy Concerns	2. Opposition to a Mandate
Leutschaft	Theodore		I-179	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Leutschaft	Theodore		I-179	XI. Economics and Security	5. Foreign Nation Dependency
Redmon	Jim		I-180	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Redmon	Jim		I-180	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Nartea	Margaret		I-181	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Nartea	Margaret		I-181	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Godfrey	Glen		I-182	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Godfrey	Glen		I-182	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Middaugh	John		I-183	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Sanders	Lea		I-184	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Sanders	Lea		I-184	VI. Process and Policy Concerns	2. Opposition to a Mandate
Sanders	Lea		I-184	II. Opposition to Rulemaking	
Sanders	Lea		I-184	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Shier	Daniel		I-185	X. Environmental Impacts	2. Electric Generation Emissions
Shier	Daniel		I-185	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Shier	Daniel		I-185	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Shier	Daniel		I-185	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Shier	Daniel		I-185	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Shier	Daniel		I-185	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Shier	Daniel		I-185	II. Opposition to Rulemaking	
Angliss	Glenn		I-186	VI. Process and Policy Concerns	1. Following California
Angliss	Glenn		I-186	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Angliss	Glenn		I-186	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Angliss	Glenn		I-186	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Angliss	Glenn		I-186	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Angliss	Glenn		I-186	XI. Economics and Security	5. Foreign Nation Dependency
Murdock	Cj		I-187	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Murdock	Cj		I-187	XIV. Rural Areas	4. Farmers and Loggers
Anonymous	Anonymous		I-189	IX. Infrastructure Impacts	6. Home Charging
Anonymous	Anonymous		I-190	II. Opposition to Rulemaking	
Basler	Douglas		I-191	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Basler	Douglas		I-191	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Basler	Douglas		I-191	II. Opposition to Rulemaking	
Gallagher	Stephanie		I-192	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Gallagher	Stephanie		I-192	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Gallagher	Stephanie		I-192	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Gallagher	Stephanie		I-192	VI. Process and Policy Concerns	2. Opposition to a Mandate
Robinson	George		I-193	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Robinson	George		I-193	XI. Economics and Security	2. General Economic Concerns
Marion	Bob		I-194	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Hughes	Colette		I-195	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

Hughes	Colette		I-195	VI. Process and Policy Concerns	2. Opposition to a Mandate
Roosendaal	Sandra		I-196	II. Opposition to Rulemaking	
Roosendaal	Sandra		I-196	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Roosendaal	Sandra		I-196	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Pellegrino	Jim		I-197	VI. Process and Policy Concerns	5. 2035 Timeline
Lebrun	Patrick		I-198	II. Opposition to Rulemaking	
Knoch	Patricia		I-199	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Knoch	Patricia		I-199	VI. Process and Policy Concerns	2. Opposition to a Mandate
Anonymous	Anonymous		I-200	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Newton	Lorinda		I-201	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Newton	Lorinda		I-201	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Newton	Lorinda		I-201	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Newton	Lorinda		I-201	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Newton	Lorinda		I-201	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Newton	Lorinda		I-201	IX. Infrastructure Impacts	6. Public Charging
Newton	Lorinda		I-201	XIV. Rural Areas	4. Farmers and Loggers
Newton	Lorinda		I-201	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Lee	Frances		I-202	II. Opposition to Rulemaking	
Lapierre	Rene		I-203	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Lapierre	Rene		I-203	IX. Infrastructure Impacts	6. Home Charging

Lapierre	Rene		I-203	VI. Process and Policy Concerns	2. Opposition to a Mandate
Lapierre	Rene		I-203	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Lapierre	Rene		I-203	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Lapierre	Rene		I-203	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Reeder	Claudia		I-205	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Reeder	Claudia		I-205	X. Environmental Impacts	6. Air Quality
Bayley	Frederick		I-206	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Bayley	Frederick		I-206	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Bayley	Frederick		I-206	XI. Economics and Security	2. General Economic Concerns
Bennington	Claude		I-207	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Divelbiss	Robert		I-208	II. Opposition to Rulemaking	
Divelbiss	Robert		I-208	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Divelbiss	Robert		I-208	IX. Infrastructure Impacts	2. General Electric Grid Concerns
McCotter	Ralph		I-209	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Coyne	Rodney		I-210	II. Opposition to Rulemaking	
Shaputis	Brian		I-211	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Shaputis	Brian		I-211	II. Opposition to Rulemaking	
Price Jr.	Richard		I-212	XV. General Out-of-Scope Comments	
Weiss	Ted		I-213	II. Opposition to Rulemaking	
Weiss	Ted		I-213	IX. Infrastructure Impacts	1. General Infrastructure Concerns

Weiss	Ted		I-213	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Weiss	Ted		I-213	VI. Process and Policy Concerns	3. Public Voting
Schimelfening	Sandra		I-214	II. Opposition to Rulemaking	
Cowman	Charles		I-215	II. Opposition to Rulemaking	
Cowman	Charles		I-215	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Christensen	Gary		I-216	II. Opposition to Rulemaking	
Christensen	Gary		I-216	XIV. Rural Areas	4. Farmers and Loggers
Christensen	Gary		I-216	XIV. Rural Areas	4. Farmers and Loggers
Christensen	Gary		I-216	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Christensen	Gary		I-216	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Christensen	Gary		I-216	XIII. Zero Emission Vehicle Technology Concerns	6. Emergency Vehicles
Newbold	Mark		I-217	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Newbold	Mark		I-217	VI. Process and Policy Concerns	5. 2035 Timeline
Newbold	Mark		I-217	VI. Process and Policy Concerns	5. 2035 Timeline
Sexton	Gloria		I-219	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Sexton	Gloria		I-219	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Gengler	Michael		I-220	VI. Process and Policy Concerns	1. Following California
Gengler	Michael		I-220	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Gengler	Michael		I-220	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Gengler	Michael		I-220	XV. General Out-of-Scope Comments	

Gengler	Michael		I-220	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Gengler	Michael		I-220	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Pagon	Garrett		I-221	VI. Process and Policy Concerns	2. Opposition to a Mandate
Haddick	John		I-222	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Haddick	John		I-222	XI. Economics and Security	5. Foreign Nation Dependency
Haddick	John		I-222	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Haddick	John		I-222	X. Environmental Impacts	2. Electric Generation Emissions
Haddick	John		I-222	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Bannon	Kevin		I-223	X. Environmental Impacts	3. Battery Manufacturing Emissions
Bannon	Kevin		I-223	X. Environmental Impacts	1. Climate Change
Bannon	Kevin		I-223	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Halliwill	Dirk		I-224	VI. Process and Policy Concerns	5. 2035 Timeline
Halliwill	Dirk		I-224	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Halliwill	Dirk		I-224	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Halliwill	Dirk		I-224	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Bender	Thomas		I-225	VI. Process and Policy Concerns	5. 2035 Timeline
Bender	Thomas		I-225	X. Environmental Impacts	1. Climate Change
Falk	Thomas		I-226	II. Opposition to Rulemaking	
Falk	Thomas		I-226	VI. Process and Policy Concerns	3. Public Voting

Anderson	Jon		I-227	II. Opposition to Rulemaking	
Hubbard	Mary		I-228	VI. Process and Policy Concerns	5. 2035 Timeline
Morrow	Joseph		I-229	VI. Process and Policy Concerns	5. 2035 Timeline
McPherson	Carol		I-230	VI. Process and Policy Concerns	1. Following California
McPherson	Carol		I-230	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
McPherson	Carol		I-230	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Faulken	Mrs		I-231	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Faulken	Mrs		I-231	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Faulken	Mrs		I-231	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Faulken	Mrs		I-231	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Faulken	Mrs		I-231	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Kindness	Gary		I-232	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Heenan	Tim		I-233	II. Opposition to Rulemaking	
Heenan	Tim		I-233	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Heenan	Tim		I-233	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Heenan	Tim		I-233	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Heenan	Tim		I-233	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
A Kildall	Michael		I-234	II. Opposition to Rulemaking	
A Kildall	Michael		I-234	IX. Infrastructure Impacts	1. General Infrastructure Concerns

A Kildall	Michael		I-234	VIII. Cost and Affordability	2. Home Charging Station Affordability
A Kildall	Michael		I-234	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
McGarvey	Gerald		I-235	X. Environmental Impacts	3. Battery Manufacturing Emissions
McGarvey	Gerald		I-235	X. Environmental Impacts	1. Climate Change
McGarvey	Gerald		I-235	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Lunkes	John		I-236	VI. Process and Policy Concerns	1. Following California
Swanson	Mike		I-237	II. Opposition to Rulemaking	
Smith	Stephen		I-238	II. Opposition to Rulemaking	
Smith	Stephen		I-238	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Smith	Stephen		I-238	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Hunt	Debra		I-239	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hunt	Debra		I-239	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Hunt	Debra		I-239	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns
Hunt	Debra		I-239	VI. Process and Policy Concerns	2. Opposition to a Mandate
Hunt	Debra		I-239	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Pomerinke	Mark		I-241	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Pomerinke	Mark		I-241	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Pomerinke	Mark		I-241	XIV. Rural Areas	5. Rural Affordability
Avila	Jina		I-242	II. Opposition to Rulemaking	

Avila	Jina		I-242	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Hiatt	Marguerite		I-243	II. Opposition to Rulemaking	
McMillan	Terry		I-244	VII. Modes of Transportation	2. Hybrid Vehicles
McMillan	Terry		I-244	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
McMillan	Terry		I-244	II. Opposition to Rulemaking	
Rude	Donald		I-245	XV. General Out-of-Scope Comments	
Rude	Donald		I-245	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Smith	Judy		I-246	VI. Process and Policy Concerns	2. Opposition to a Mandate
Smith	Judy		I-246	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Smith	Judy		I-246	XIV. Rural Areas	5. Rural Affordability
Smith	Judy		I-246	VI. Process and Policy Concerns	4. Legal Concerns
Smith	Judy		I-246	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Wixom	Kimberlee		I-247	II. Opposition to Rulemaking	
Wixom	Kimberlee		I-247	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Wixom	Kimberlee		I-247	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Shields	Jon		I-248	VI. Process and Policy Concerns	5. 2035 Timeline
Shields	Jon		I-248	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Wilson	Clare		I-249	II. Opposition to Rulemaking	
Wilson	Clare		I-249	XII. People and Employment	2. Labor Rights
Wilson	Clare		I-249	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Wilson	Clare		I-249	XIII. Zero Emission Vehicle Technology Concerns	6. Emergency Vehicles
Wilson	Clare		I-249	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Wilson	Clare		I-249	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Wilson	Clare		I-249	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Potter	Jo Ann		I-250	X. Environmental Impacts	2. Electric Generation Emissions
Potter	Jo Ann		I-250	VI. Process and Policy Concerns	3. Public Voting
Killian	Ronald		I-251	VI. Process and Policy Concerns	2. Opposition to a Mandate
Childs	Mary Lou		I-252	II. Opposition to Rulemaking	
Childs	Mary Lou		I-252	XII. People and Employment	2. Labor Rights
Childs	Mary Lou		I-252	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Childs	Mary Lou		I-252	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Childs	Mary Lou		I-252	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Childs	Mary Lou		I-252	XV. General Out-of-Scope Comments	
George	Warren		I-253	VI. Process and Policy Concerns	2. Opposition to a Mandate
George	Warren		I-253	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
George	Warren		I-253	IX. Infrastructure Impacts	6. Public Charging
George	Warren		I-253	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
George	Warren		I-253	XI. Economics and Security	5. Foreign Nation Dependency
Post	Michael		I-254	IX. Infrastructure Impacts	6. Home Charging

Post	Michael		I-254	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Post	Michael		I-254	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Post	Michael		I-254	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Post	Michael		I-254	II. Opposition to Rulemaking	
Coyne	Kevin		I-255	VI. Process and Policy Concerns	2. Opposition to a Mandate
Coyne	Kevin		I-255	XV. General Out-of-Scope Comments	
Houg	Arnold		I-256	VI. Process and Policy Concerns	2. Opposition to a Mandate
Hay	Mark		I-257	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Hay	Mark		I-257	VI. Process and Policy Concerns	2. Opposition to a Mandate
Nasby	Jason		I-258	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels
Waggoner	Brian		I-259	VI. Process and Policy Concerns	2. Opposition to a Mandate
Waggoner	Brian		I-259	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Cribbin	Peter		I-260	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Cribbin	Peter		I-260	VI. Process and Policy Concerns	2. Opposition to a Mandate
Garoutte	John		I-261	VI. Process and Policy Concerns	2. Opposition to a Mandate
King	Mikki		I-262	II. Opposition to Rulemaking	
King	Mikki		I-262	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
King	Mikki		I-262	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Wright	Wayne		I-263	II. Opposition to Rulemaking	

Wright	Wayne		I-263	X. Environmental Impacts	2. Electric Generation Emissions
Wright	Wayne		I-263	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Wright	Wayne		I-263	XIV. Rural Areas	5. Rural Affordability
Wright	Wayne		I-263	XI. Economics and Security	1. Motor Vehicle Fuel Tax
Wright	Wayne		I-263	XI. Economics and Security	2. General Economic Concerns
Wright	Wayne		I-263	XV. General Out-of-Scope Comments	
Wright	Wayne		I-263	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Wright	Wayne		I-263	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Messerly	Chad		I-264	II. Opposition to Rulemaking	
Reid	John		I-267	IX. Infrastructure Impacts	6. Public Charging
Hoffman	Cecily		I-268	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hoffman	Cecily		I-268	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Hoffman	Cecily		I-268	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Reynolds	Margaret		I-270	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Reynolds	Margaret		I-270	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Reynolds	Margaret		I-270	VII. Modes of Transportation	3. Public Transit
Reynolds	Margaret		I-270	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
McAdams	Sunnie		I-271	II. Opposition to Rulemaking	
McAdams	Sunnie		I-271	XV. General Out-of-Scope Comments	
McAdams	Sunnie		I-271	IX. Infrastructure Impacts	1. General Infrastructure Concerns

McAdams	Sunnie		I-271	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Weise	Kristen		I-273	II. Opposition to Rulemaking	
Weise	Kristen		I-273	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Weise	Kristen		I-273	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Weise	Kristen		I-273	XIV. Rural Areas	5. Rural Affordability
Weise	Kristen		I-273	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Weise	Kristen		I-273	VI. Process and Policy Concerns	1. Following California
Hildebrant	Brian		I-274	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hildebrant	Brian		I-274	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Hildebrant	Brian		I-274	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Roeder	Raymond		I-275	II. Opposition to Rulemaking	
Roeder	Raymond		I-275	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Roeder	Raymond		I-275	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Roeder	Raymond		I-275	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns
Roeder	Raymond		I-275	IX. Infrastructure Impacts	6. Home Charging
Roeder	Raymond		I-275	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Roeder	Raymond		I-275	VI. Process and Policy Concerns	2. Opposition to a Mandate
Dennis	Heidi		I-276	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Petershagen	Robert		I-278	VI. Process and Policy Concerns	2. Opposition to a Mandate

Petershagen	Robert		I-278	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Downs	Bert		I-279	II. Opposition to Rulemaking	
Downs	Alice		I-280	II. Opposition to Rulemaking	
Downs	Alice		I-280	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Dekock	Ben		I-282	II. Opposition to Rulemaking	
Dekock	Ben		I-282	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
De Ru	Ron		I-283	II. Opposition to Rulemaking	
De Ru	Ron		I-283	X. Environmental Impacts	3. Mining and Manufacturing Impacts
De Ru	Ron		I-283	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Palmer	Kathryn		I-284	VI. Process and Policy Concerns	2. Opposition to a Mandate
Palmer	Kathryn		I-284	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Joy	Cheryl		I-285	II. Opposition to Rulemaking	
Tadlock	Emily		I-286	VI. Process and Policy Concerns	2. Opposition to a Mandate
Tadlock	Emily		I-286	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Tadlock	Emily		I-286	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Tadlock	Emily		I-286	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Tadlock	Emily		I-286	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Tadlock	Emily		I-286	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Lane	Philip		I-287	II. Opposition to Rulemaking	
Lane	Philip		I-287	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Anonymous	Anonymous		I-288	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-288	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Lindell	Gordon		I-289	II. Opposition to Rulemaking	
Bell	Jayne		I-290	II. Opposition to Rulemaking	
McKinzie	Thomas		I-291	X. Environmental Impacts	1. Climate Change
McKinzie	Thomas		I-291	X. Environmental Impacts	3. Mining and Manufacturing Impacts
McKinzie	Thomas		I-291	VII. Modes of Transportation	2. Hybrid Vehicles
McKinzie	Thomas		I-291	II. Opposition to Rulemaking	
McKinzie	Thomas		I-291	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Sheehy	Chris		I-292	II. Opposition to Rulemaking	
Marsolek	Dan		I-293	II. Opposition to Rulemaking	
Marsolek	Dan		I-293	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Marsolek	Dan		I-293	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Marsolek	Dan		I-293	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Marsolek	Wendy		I-294	II. Opposition to Rulemaking	
Marsolek	Wendy		I-294	VI. Process and Policy Concerns	2. Opposition to a Mandate
Milke	Susan		I-295	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-296	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-297	II. Opposition to Rulemaking	
Harvey	John		I-298	X. Environmental Impacts	3. Battery Manufacturing Emissions
Bowen	John		I-299	XI. Economics and Security	3. Macroeconomic Conditions
Fritz	David		I-300	II. Opposition to Rulemaking	
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Scott	Revice		I-303	II. Opposition to Rulemaking	
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Scott	Revice		I-303	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Scott	Revice		I-303	II. Opposition to Rulemaking	
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Scott	Revice		I-303	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
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Keel	Robert		I-305	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Conley	Joseph		I-306	XI. Economics and Security	1. Motor Vehicle Fuel Tax
Conley	Joseph		I-306	IX. Infrastructure Impacts	6. Home Charging
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Galante	Cynthia		I-307	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
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Guthrie	Bruce		I-311	X. Environmental Impacts	1. Climate Change
Guthrie	Bruce		I-311	VI. Process and Policy Concerns	2. Opposition to a Mandate
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Guthrie	Bruce		I-311	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Blodgett	Debra		I-312	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Blodgett	Debra		I-312	X. Environmental Impacts	1. Climate Change
Kinder	James		I-314	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Kinder	James		I-314	XII. People and Employment	1. Employment Impacts
Kinder	James		I-314	X. Environmental Impacts	1. Climate Change
Kinder	James		I-314	VI. Process and Policy Concerns	2. Opposition to a Mandate
Kinder	James		I-314	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Kinder	James		I-314	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Cole	Donald		I-315	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Severy	Tyler		I-322	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Severy	Tyler		I-322	II. Opposition to Rulemaking	

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Valdez	Thomas		I-324	VI. Process and Policy Concerns	3. Public Voting
Valdez	Thomas		I-324	VI. Process and Policy Concerns	5. 2035 Timeline
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Valdez	Thomas		I-324	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Berkell	Arthur		I-327	XI. Economics and Security	5. Foreign Nation Dependency
Berkell	Arthur		I-327	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
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Holm	Eric		I-328	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Anonymous	Anonymous		I-332	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Anonymous	Anonymous		I-332	IX. Infrastructure Impacts	6. Public Charging
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Wallin	Eric		I-335	X. Environmental Impacts	2. Electric Generation Emissions
Wallin	Eric		I-335	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Wallin	Eric		I-335	XI. Economics and Security	5. Foreign Nation Dependency
Wallin	Eric		I-335	II. Opposition to Rulemaking	
Zimmaro	John		I-336	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts

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Hayes	Daid		I-337	XI. Economics and Security	2. General Economic Concerns
Hayes	Daid		I-337	XI. Economics and Security	3. Macroeconomic Conditions
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Rigtrup	Jacqueline		I-342	X. Environmental Impacts	2. Electric Generation Emissions
Rigtrup	Jacqueline		I-342	IX. Infrastructure Impacts	6. Home Charging
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Thomas	James A.		I-343	IX. Infrastructure Impacts	1. General Infrastructure Concerns
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Ryan	Kimmarie		I-345	VI. Process and Policy Concerns	2. Opposition to a Mandate
Dean	Dezri		I-346	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Dean	Dezri		I-346	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Dean	Dezri		I-346	II. Opposition to Rulemaking	
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Leavens	David		I-349	IX. Infrastructure Impacts	2. General Electric Grid Concerns
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Wissel	Sydney		I-360	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Miles	Kristina		I-363	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Miles	Kristina		I-363	XI. Economics and Security	5. Foreign Nation Dependency
Miles	Kristina		I-363	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Miles	Kristina		I-363	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Howe	David		I-364	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Black	Joel		I-365	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Black	Joel		I-365	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Collins	Timothy		I-367	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Collins	Timothy		I-367	IX. Infrastructure Impacts	6. Home Charging
Collins	Timothy		I-367	VI. Process and Policy Concerns	2. Opposition to a Mandate
Collins	Timothy		I-367	VI. Process and Policy Concerns	1. Following California
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Irvin	Ted		I-371	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Anonymous	Anonymous		I-377	IX. Infrastructure Impacts	5. Battery Recycling Infrastructure
Anonymous	Anonymous		I-377	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-377	VII. Modes of Transportation	2. Hybrid Vehicles
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Johansen	Rob		I-387	XI. Economics and Security	5. Foreign Nation Dependency
Johansen	Rob		I-387	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Johansen	Rob		I-387	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Johansen	Rob		I-387	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
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Almeida	Michele		I-389	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Macgugan	Daniel		I-390	II. Opposition to Rulemaking	
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Waldock	Royal		I-401	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Gugeler	Dwane		I-403	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Gugeler	Dwane		I-403	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Gugeler	Dwane		I-403	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Sanner	Bernadita		I-405	VI. Process and Policy Concerns	2. Opposition to a Mandate
Sanner	Bernadita		I-405	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Sanner	Bernadita		I-405	XII. People and Employment	1. Employment Impacts
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Rust	Gregory		I-412	X. Environmental Impacts	2. Electric Generation Emissions
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Westphal	Bob		I-414	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Cleveland	Robert		I-416	X. Environmental Impacts	2. Electric Generation Emissions
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Bell	Steve		I-418	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Cammann	Thomas		I-419	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Cammann	Thomas		I-419	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Cammann	Thomas		I-419	IX. Infrastructure Impacts	6. Home Charging
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Leghorn	Robert		I-420	XIV. Rural Areas	5. Rural Affordability
Leghorn	Robert		I-420	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Leghorn	Robert		I-420	II. Opposition to Rulemaking	
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Christensen	Brandon		I-425	XI. Economics and Security	5. Foreign Nation Dependency
Christensen	Brandon		I-425	VI. Process and Policy Concerns	2. Opposition to a Mandate
Christensen	Brandon		I-425	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Christensen	Brandon		I-425	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels
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Motz	Dwight		I-427	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Motz	Dwight		I-427	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Motz	Dwight		I-427	II. Opposition to Rulemaking	
Clay	Andrew		I-428	VI. Process and Policy Concerns	2. Opposition to a Mandate
Clay	Andrew		I-428	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Clay	Andrew		I-428	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Clay	Andrew		I-428	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
McGarvey	Gerald		I-430	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Seng	Carole		I-431	IX. Infrastructure Impacts	6. Home Charging
Seng	Carole		I-431	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

Seng	Carole		I-431	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Seng	Carole		I-431	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Seng	Carole		I-431	IX. Infrastructure Impacts	6. Public Charging
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Hamm	Jeff		I-432	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hamm	Jeff		I-432	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Hamm	Jeff		I-432	XI. Economics and Security	5. Foreign Nation Dependency
Hamm	Jeff		I-432	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Gildea	Stephen		I-433	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Gildea	Stephen		I-433	IX. Infrastructure Impacts	6. Public Charging
Gildea	Stephen		I-433	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Gildea	Stephen		I-433	II. Opposition to Rulemaking	
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Lee	Byron		I-434	VI. Process and Policy Concerns	2. Opposition to a Mandate
Lee	Byron		I-434	XI. Economics and Security	4. Material Scarcity
Lee	Byron		I-434	VI. Process and Policy Concerns	1. Following California
Lee	Byron		I-434	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Lee	Byron		I-434	XI. Economics and Security	5. Foreign Nation Dependency

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Grover	James		I-436	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Watkinson	Ross		I-437	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Jennings	James		I-438	VI. Process and Policy Concerns	2. Opposition to a Mandate
Jennings	James		I-438	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Jennings	James		I-438	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Pekarek	Joan		I-439	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Pekarek	Joan		I-439	VI. Process and Policy Concerns	1. Following California
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Goehner	Barbara		I-445	XIII. Zero Emission Vehicle Technology Concerns	6. Emergency Vehicles
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Widman	Harvey		I-446	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
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White	Ian		I-447	VI. Process and Policy Concerns	2. Opposition to a Mandate
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Bright	Kevin		I-457	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Anderson	Shari		I-460	II. Opposition to Rulemaking	
Bickerton	Ralph		I-461	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
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Staudinger	Ken		I-484	II. Opposition to Rulemaking	
Turner	Stephen J		I-485	II. Opposition to Rulemaking	
Tropp	Ed		I-486	II. Opposition to Rulemaking	
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Restivo	Michael		I-494	II. Opposition to Rulemaking	
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Kuk	Joseph		I-501	XI. Economics and Security	4. Material Scarcity

Kuk	Joseph		I-501	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
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Wohleb	Ernest		I-508	VII. Modes of Transportation	3. Public Transit
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Downs	Timothy		I-518	VI. Process and Policy Concerns	2. Opposition to a Mandate
Downs	Timothy		I-518	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Downs	Timothy		I-518	VI. Process and Policy Concerns	1. Following California
Robinson	David		I-519	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Robinson	David		I-519	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Robinson	David		I-519	II. Opposition to Rulemaking	
Nelson	Elizabeth		I-522	I. Support for Rulemaking	
Anonymous	Anonymous		I-523	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-523	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

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Pietila	Harlyn		I-533	II. Opposition to Rulemaking	
George	Dave		I-534	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Waddington	Jeff		I-537	I. Support for Rulemaking	
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Davis	Virginia		I-539	I. Support for Rulemaking	
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Mattison	Robert		I-541	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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S	David		I-542	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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S	David		I-542	IX. Infrastructure Impacts	6. Public Charging
S	David		I-542	II. Opposition to Rulemaking	
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Anonymous	Anonymous		I-545	II. Opposition to Rulemaking	
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Russell	Ken		I-548	I. Support for Rulemaking	
Sieloff	Brad		I-551	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Sieloff	Brad		I-551	X. Environmental Impacts	3. Mining and Manufacturing Impacts
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Belzak	Karl		I-553	VI. Process and Policy Concerns	2. Opposition to a Mandate

Garver	Earl		I-554	II. Opposition to Rulemaking	
Garver	Earl		I-554	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
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Ross	Herman		I-556	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
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McNamee	Alma		I-560	X. Environmental Impacts	2. Electric Generation Emissions
McNamee	Alma		I-560	IX. Infrastructure Impacts	6. Public Charging
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Day	Krista		I-563	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
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Day	Krista		I-563	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Day	Krista		I-563	XI. Economics and Security	3. Macroeconomic Conditions
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Lawson	Gregory		I-565	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Lawson	Gregory		I-565	XII. People and Employment	2. Labor Rights
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Ferris	Mildred		I-572	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Ferris	Mildred		I-572	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Anonymous	Anonymous		I-573	XI. Economics and Security	5. Foreign Nation Dependency
Anonymous	Anonymous		I-573	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Strang	Arnold		I-575	I. Support for Rulemaking	
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Padur	Neal		I-578	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Wedge	Rodney		I-580	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Wedge	Rodney		I-580	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Moller	Steve		I-581	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Moller	Steve		I-581	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Moller	Steve		I-581	XI. Economics and Security	2. General Economic Concerns
Middaugh	John		I-582	II. Opposition to Rulemaking	
Middaugh	John		I-582	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Dunn	Scot		I-583	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Dunn	Scot		I-583	X. Environmental Impacts	2. Electric Generation Emissions
McMillan	Terry		I-584	X. Environmental Impacts	3. Mining and Manufacturing Impacts
McMillan	Terry		I-584	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
McMillan	Terry		I-584	VII. Modes of Transportation	2. Hybrid Vehicles
McMillan	Terry		I-584	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Babitsky	Pam		I-585	IX. Infrastructure Impacts	6. Home Charging
Babitsky	Pam		I-585	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
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Alexander	Kim		I-590	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Alexander	Kim		I-590	XIV. Rural Areas	4. Farmers and Loggers
Kimball	Chris		I-591	VI. Process and Policy Concerns	2. Opposition to a Mandate
Smith	Glen		I-593	II. Opposition to Rulemaking	
Smith	Kenneth		I-594	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Smith	Kenneth		I-594	X. Environmental Impacts	3. Battery Manufacturing Emissions
Niederstadt	David		I-595	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
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Snider	Arthur		I-596	II. Opposition to Rulemaking	
Franklin	Twila		I-597	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Franklin	Twila		I-597	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Franklin	Twila		I-597	XI. Economics and Security	1. Motor Vehicle Fuel Tax
Grimit	Michael		I-598	VI. Process and Policy Concerns	2. Opposition to a Mandate
Williamson	Dee		I-600	IX. Infrastructure Impacts	6. Public Charging
Williamson	Dee		I-600	X. Environmental Impacts	2. Electric Generation Emissions

Williamson	Dee		I-600	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Fortier	Karen		I-601	II. Opposition to Rulemaking	
Fortier	Karen		I-601	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Fortier	Karen		I-601	VI. Process and Policy Concerns	2. Opposition to a Mandate
Holm	Les		I-602	II. Opposition to Rulemaking	
Holm	Les		I-602	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Holm	Les		I-602	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Holm	Les		I-602	VI. Process and Policy Concerns	2. Opposition to a Mandate
Sholdt	Janice		I-603	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Sholdt	Janice		I-603	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Sholdt	Janice		I-603	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Sholdt	Janice		I-603	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Smith	Carol		I-604	II. Opposition to Rulemaking	
Smith	Carol		I-604	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Smith	Carol		I-604	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Metcalf	Matt		I-605	II. Opposition to Rulemaking	
Gray	Rod		I-606	II. Opposition to Rulemaking	
Gray	Rod		I-606	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Gray	Rod		I-606	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Wang	Fanny		I-607	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Kelly II	Richard		I-608	II. Opposition to Rulemaking	
Fox	Sharon		I-610	VI. Process and Policy Concerns	1. Following California
Fox	Sharon		I-610	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Fox	Sharon		I-610	IX. Infrastructure Impacts	6. Public Charging
Fox	Sharon		I-610	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Fox	Sharon		I-610	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Anonymous	Robert		I-611	II. Opposition to Rulemaking	
Lerud	Richard		I-612	XV. General Out-of-Scope Comments	
Morris	Mike		I-613	VI. Process and Policy Concerns	1. Following California
Anonymous	Tiffany		I-614	VI. Process and Policy Concerns	2. Opposition to a Mandate
Killian	Ronald		I-615	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Killian	Ronald		I-615	VI. Process and Policy Concerns	2. Opposition to a Mandate
Burkhardt	Janine		I-617	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Burkhardt	Janine		I-617	VI. Process and Policy Concerns	5. 2035 Timeline
Burkhardt	Janine		I-617	II. Opposition to Rulemaking	
Burkhardt	Janine		I-617	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Shofstall	Candace		I-618	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Shofstall	Candace		I-618	IX. Infrastructure Impacts	6. Public Charging
Shofstall	Candace		I-618	IX. Infrastructure Impacts	6. Home Charging
Shofstall	Candace		I-618	II. Opposition to Rulemaking	
Gregory	Clarice		I-619	XIII. Zero Emission Vehicle Technology Concerns	3. Towing

Whorley	Michelle		I-620	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Whorley	Michelle		I-620	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Whorley	Michelle		I-620	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Selthofer	Keith		I-621	VI. Process and Policy Concerns	1. Following California
Selthofer	Keith		I-621	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Selthofer	Keith		I-621	VI. Process and Policy Concerns	2. Opposition to a Mandate
Selthofer	Keith		I-621	VI. Process and Policy Concerns	4. Legal Concerns
Ford	Richard		I-622	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Piety	Bobbie		I-624	VI. Process and Policy Concerns	2. Opposition to a Mandate
Mongrain	Ray		I-625	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Mongrain	Ray		I-625	XV. General Out-of-Scope Comments	
Mongrain	Ray		I-625	VI. Process and Policy Concerns	1. Following California
Mongrain	Ray		I-625	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Mongrain	Ray		I-625	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Larsen	Dave		I-627	VI. Process and Policy Concerns	5. 2035 Timeline
Larsen	Dave		I-627	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Larsen	Dave		I-627	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Gibvoney	Daniel		I-628	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Gibvoney	Daniel		I-628	VII. Modes of Transportation	2. Hybrid Vehicles
Hosteny	Elizabeth		I-629	I. Support for Rulemaking	
McCart	Donald		I-630	II. Opposition to Rulemaking	
Hamilton	Matt		I-631	II. Opposition to Rulemaking	
Hamilton	Matt		I-631	VI. Process and Policy Concerns	5. 2035 Timeline
Chan	Guy		I-632	II. Opposition to Rulemaking	
Ozanich	Mark		I-633	I. Support for Rulemaking	
Smyth	Mike		I-634	X. Environmental Impacts	1. Climate Change
Smyth	Mike		I-634	VI. Process and Policy Concerns	4. Legal Concerns
Smyth	Mike		I-634	X. Environmental Impacts	2. Electric Generation Emissions
Woodland	Kevin		I-635	VI. Process and Policy Concerns	1. Following California
Woodland	Kevin		I-635	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Woodland	Kevin		I-635	II. Opposition to Rulemaking	
Woodland	Kevin		I-635	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Woodland	Kevin		I-635	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Woodland	Kevin		I-635	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Oakes	Norman		I-636	II. Opposition to Rulemaking	
Driscoll	Don		I-637	I. Support for Rulemaking	
Forbes	Ashley		I-638	II. Opposition to Rulemaking	
Davis	Robert		I-639	II. Opposition to Rulemaking	
Holm	Robert		I-640	II. Opposition to Rulemaking	
Bennetsen	Pamela		I-641	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
McBride	Natalie		I-642	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

McBride	Natalie		I-642	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
McBride	Natalie		I-642	XII. People and Employment	2. Labor Rights
McBride	Natalie		I-642	X. Environmental Impacts	3. Mining and Manufacturing Impacts
McBride	Natalie		I-642	II. Opposition to Rulemaking	
Richards	Emmett		I-643	VI. Process and Policy Concerns	2. Opposition to a Mandate
Richards	Emmett		I-643	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Burns	Mary Lou		I-644	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Burns	Mary Lou		I-644	XIV. Rural Areas	4. Farmers and Loggers
Burns	Mary Lou		I-644	VI. Process and Policy Concerns	2. Opposition to a Mandate
Siegle	Richard		I-645	VI. Process and Policy Concerns	2. Opposition to a Mandate
Johnsen	Hans		I-646	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Vio	Mae		I-647	XV. General Out-of-Scope Comments	
Kellum	Jack		I-648	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Kellum	Jack		I-648	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Kellum	Jack		I-648	IX. Infrastructure Impacts	6. Public Charging
Kellum	Jack		I-648	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Kellum	Jack		I-648	VI. Process and Policy Concerns	5. 2035 Timeline
Teats	Barry		I-649	IX. Infrastructure Impacts	6. Public Charging
Teats	Barry		I-649	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Teats	Barry		I-649	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

Teats	Barry		I-649	VI. Process and Policy Concerns	2. Opposition to a Mandate
Hooks, Phd, Pe (Retired)	Maurice L.		I-650	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-651	VI. Process and Policy Concerns	2. Opposition to a Mandate
Melsen	Rob		I-652	II. Opposition to Rulemaking	
Daniels	Richard		I-653	X. Environmental Impacts	2. Electric Generation Emissions
Daniels	Richard		I-653	XI. Economics and Security	2. General Economic Concerns
Daniels	Richard		I-653	XIV. Rural Areas	4. Farmers and Loggers
Daniels	Richard		I-653	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Berg	Donna		I-655	II. Opposition to Rulemaking	
Schmit	Dennis		I-656	VI. Process and Policy Concerns	2. Opposition to a Mandate
Schmit	Dennis		I-656	II. Opposition to Rulemaking	
Schmit	Dennis		I-656	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Schmit	Dennis		I-656	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Rowland	Tyler		I-657	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Rowland	Tyler		I-657	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Rowland	Tyler		I-657	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Rowland	Tyler		I-657	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Rowland	Tyler		I-657	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
B	L		I-659	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
McConnell	Jim		I-660	II. Opposition to Rulemaking	

Fitzpatrick	Kathleen		I-661	X. Environmental Impacts	2. Electric Generation Emissions
Fitzpatrick	Kathleen		I-661	XV. General Out-of-Scope Comments	
Fitzpatrick	Kathleen		I-661	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Fitzpatrick	Kathleen		I-661	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Emerson	Sj		I-662	I. Support for Rulemaking	
Anonymous	Anonymous		I-663	II. Opposition to Rulemaking	
Sharp	D.		I-664	II. Opposition to Rulemaking	
Sharp	D.		I-664	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Sharp	D.		I-664	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Sharp	D.		I-664	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Sharp	D.		I-664	VI. Process and Policy Concerns	1. Following California
Sharp	D.		I-664	VI. Process and Policy Concerns	4. Legal Concerns
Medved	Rich		I-665	IX. Infrastructure Impacts	6. Public Charging
Medved	Rich		I-665	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Medved	Rich		I-665	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Medved	Rich		I-665	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Medved	Rich		I-665	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Medved	Rich		I-665	XII. People and Employment	2. Labor Rights
Medved	Rich		I-665	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts

Medved	Rich		I-665	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Medved	Rich		I-665	VII. Modes of Transportation	2. Hybrid Vehicles
Dron	Eugene		I-666	II. Opposition to Rulemaking	
Trussell	Douglas		I-667	II. Opposition to Rulemaking	
Trussell	Douglas		I-667	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Trussell	Douglas		I-667	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Duensing	Eric		I-668	VI. Process and Policy Concerns	2. Opposition to a Mandate
Duensing	Eric		I-668	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Brown	Jordan		I-669	II. Opposition to Rulemaking	
Koffler	Ruth		I-670	II. Opposition to Rulemaking	
Koffler	Ruth		I-670	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Koffler	Ruth		I-670	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Koffler	Ruth		I-670	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Dye	Jeff		I-671	II. Opposition to Rulemaking	
Dressel	Jennifer		I-672	II. Opposition to Rulemaking	
Schultz	Richard		I-673	II. Opposition to Rulemaking	
Conner	Jeffrey		I-674	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Conner	Jeffrey		I-674	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Dahlen	Ronald		I-675	II. Opposition to Rulemaking	
Stelter	Eric		I-676	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Stelter	Eric		I-676	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Stelter	Eric		I-676	II. Opposition to Rulemaking	
Iddings	Marsha		I-677	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Iddings	Marsha		I-677	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Iddings	Marsha		I-677	VI. Process and Policy Concerns	2. Opposition to a Mandate
Drew	Brad		I-678	II. Opposition to Rulemaking	
Drew	Brad		I-678	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Cook	Shawn		I-679	VI. Process and Policy Concerns	2. Opposition to a Mandate
Ulrich	Ronald		I-680	XV. General Out-of-Scope Comments	
Lowman	Amanda		I-681	VI. Process and Policy Concerns	2. Opposition to a Mandate
Winchell	Gregory		I-682	II. Opposition to Rulemaking	
Dichesare	Teresa		I-683	II. Opposition to Rulemaking	
Bell	Rex		I-684	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Bell	Rex		I-684	X. Environmental Impacts	2. Electric Generation Emissions
Moulton	Paul		I-685	II. Opposition to Rulemaking	
Madison	David		I-686	II. Opposition to Rulemaking	
Crooks	Daniel		I-687	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Crooks	Daniel		I-687	XV. General Out-of-Scope Comments	
Life	Erik		I-688	VI. Process and Policy Concerns	1. Following California
Morrell	Joni		I-689	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Morrell	Joni		I-689	VI. Process and Policy Concerns	2. Opposition to a Mandate

Morrell	Joni		I-689	VI. Process and Policy Concerns	1. Following California
Brady	Frederick Michael		I-690	II. Opposition to Rulemaking	
Brady	Frederick Michael		I-690	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Brady	Frederick Michael		I-690	X. Environmental Impacts	2. Electric Generation Emissions
Melton	S L		I-691	VII. Modes of Transportation	2. Hybrid Vehicles
Melton	S L		I-691	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Deprati	Michael		I-692	XV. General Out-of-Scope Comments	
Galloway	Chad		I-693	II. Opposition to Rulemaking	
Brinkman	Patrick		I-694	II. Opposition to Rulemaking	
McMeins	Mary Lou		I-695	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
McMeins	Mary Lou		I-695	IX. Infrastructure Impacts	6. Public Charging
Diaz	Carlos		I-696	VI. Process and Policy Concerns	1. Following California
Wilbur	Travis		I-697	II. Opposition to Rulemaking	
Wilbur	Travis		I-697	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Wilbur	Travis		I-697	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Wilbur	Travis		I-697	VI. Process and Policy Concerns	1. Following California
Acosta	Marcus		I-698	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Acosta	Marcus		I-698	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Anderson	Bruce		I-699	II. Opposition to Rulemaking	
Samons	David		I-700	II. Opposition to Rulemaking	
Braun	Clayton		I-701	II. Opposition to Rulemaking	

Welinski	Karen		I-702	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Welinski	Karen		I-702	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Short-Conner	Ela		I-703	II. Opposition to Rulemaking	
Johnson	Pamela		I-704	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Miller	Reynaldo		I-705	II. Opposition to Rulemaking	
Singer	Tenney		I-706	VI. Process and Policy Concerns	2. Opposition to a Mandate
Stuht	Julie		I-707	VI. Process and Policy Concerns	3. Public Voting
Winsberg	Jolynn		I-708	II. Opposition to Rulemaking	
Fogle	Richard		I-709	II. Opposition to Rulemaking	
Engle	James		I-710	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Fox	John		I-711	II. Opposition to Rulemaking	
Fox	John		I-711	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Millbauer	Mark		I-712	II. Opposition to Rulemaking	
Murataya	Dr. Rodrigo		I-713	II. Opposition to Rulemaking	
Heinisch	Michael		I-714	IX. Infrastructure Impacts	6. Home Charging
Heinisch	Michael		I-714	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Heinisch	Michael		I-714	IX. Infrastructure Impacts	5. Battery Recycling Infrastructure
Heinisch	Michael		I-714	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Heinisch	Michael		I-714	VI. Process and Policy Concerns	
Heinisch	Michael		I-714	VI. Process and Policy Concerns	1. Following California
Emrey	Nichole		I-715	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Emrey	Nichole		I-715	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Pratt	Rick		I-716	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Beckman	Kenneth		I-717	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Beckman	Kenneth		I-717	II. Opposition to Rulemaking	
Beckman	Kenneth		I-717	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Buinger	Thomas		I-718	VI. Process and Policy Concerns	2. Opposition to a Mandate
Arnold	Charles		I-719	II. Opposition to Rulemaking	
Arnold	Charles		I-719	X. Environmental Impacts	2. Electric Generation Emissions
Gear	Tonya		I-720	VI. Process and Policy Concerns	2. Opposition to a Mandate
Gear	Tonya		I-720	II. Opposition to Rulemaking	
Young	Patrick		I-721	II. Opposition to Rulemaking	
Sackman	Michele		I-722	VI. Process and Policy Concerns	1. Following California
Sackman	Michele		I-722	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Sackman	Michele		I-722	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Deakins	Jacob		I-723	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Deakins	Jacob		I-723	X. Environmental Impacts	2. Electric Generation Emissions
Deakins	Jacob		I-723	VI. Process and Policy Concerns	2. Opposition to a Mandate
Dumas	Kevin		I-724	II. Opposition to Rulemaking	
Aumand	Jusden		I-725	II. Opposition to Rulemaking	
Prudden	George		I-726	XI. Economics and Security	4. Material Scarcity

Prudden	George		I-726	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Brumpton	Ryan		I-727	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Brumpton	Ryan		I-727	VI. Process and Policy Concerns	2. Opposition to a Mandate
Jaynes	Miguel		I-728	VI. Process and Policy Concerns	2. Opposition to a Mandate
King	Sandi		I-729	VI. Process and Policy Concerns	2. Opposition to a Mandate
Gilbertson	Jean		I-730	II. Opposition to Rulemaking	
Gilbertson	Jean		I-730	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Hurst	Tanya		I-731	II. Opposition to Rulemaking	
Moberg	Mark		I-732	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Moberg	Mark		I-732	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Moberg	Mark		I-732	XV. General Out-of-Scope Comments	
Johnson	Erika		I-733	II. Opposition to Rulemaking	
Stiff	Charles		I-734	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Stiff	Charles		I-734	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Garvey	Ray		I-735	VI. Process and Policy Concerns	2. Opposition to a Mandate
Garvey	Ray		I-735	XII. People and Employment	2. Labor Rights
Bacon	Abby		I-736	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Bacon	Abby		I-736	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Bacon	Abby		I-736	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply

Bacon	Abby		I-736	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Shives	Steve		I-737	II. Opposition to Rulemaking	
Sena	Berhane		I-738	II. Opposition to Rulemaking	
Burnett	Oly		I-739	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns
Evans	Tiffany		I-740	VI. Process and Policy Concerns	2. Opposition to a Mandate
Steffen	David		I-741	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Swanson	Marylyn		I-742	VI. Process and Policy Concerns	2. Opposition to a Mandate
Koester	Paul		I-743	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Koester	Paul		I-743	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Koester	Paul		I-743	VII. Modes of Transportation	2. Hybrid Vehicles
Koester	Paul		I-743	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Hertz	Jeanie		I-744	IX. Infrastructure Impacts	6. Public Charging
Ehr	Diane		I-745	II. Opposition to Rulemaking	
Waxman	Scott		I-746	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Waxman	Scott		I-746	IX. Infrastructure Impacts	6. Home Charging
Anonymous	Anonymous		I-747	IX. Infrastructure Impacts	6. Public Charging
Anonymous	Anonymous		I-747	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-747	II. Opposition to Rulemaking	
Berman	William		I-748	II. Opposition to Rulemaking	
Olson	Barb		I-749	VI. Process and Policy Concerns	2. Opposition to a Mandate

Shattuck	Sheryl		I-750	VI. Process and Policy Concerns	2. Opposition to a Mandate
Strickland	Forrest		I-751	II. Opposition to Rulemaking	
Strickland	Forrest		I-751	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Strickland	Forrest		I-751	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Silver	Georgina		I-752	VI. Process and Policy Concerns	2. Opposition to a Mandate
Silver	Georgina		I-752	II. Opposition to Rulemaking	
Conard	Leslie		I-753	VI. Process and Policy Concerns	2. Opposition to a Mandate
Johnson	Michael		I-754	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Palmer	Peter		I-755	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Bernardy	Maureen		I-756	VI. Process and Policy Concerns	2. Opposition to a Mandate
Bernardy	Maureen		I-756	XI. Economics and Security	5. Foreign Nation Dependency
Walker	Bob		I-757	VI. Process and Policy Concerns	1. Following California
Phaff	Keith		I-758	II. Opposition to Rulemaking	
Phaff	Keith		I-758	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Despain	Elizabeth		I-759	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Despain	Elizabeth		I-759	VI. Process and Policy Concerns	2. Opposition to a Mandate
Herman	Michael		I-760	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Herman	Michael		I-760	X. Environmental Impacts	2. Electric Generation Emissions
Zinter	Zack		I-761	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Zinter	Zack		I-761	XII. People and Employment	2. Labor Rights
Zinter	Zack		I-761	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Zinter	Zack		I-761	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Cloninger	Betty Jo		I-762	VI. Process and Policy Concerns	2. Opposition to a Mandate
Bradford	Caulder		I-763	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Bradford	Caulder		I-763	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Bradford	Caulder		I-763	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Brown	Jerome		I-764	II. Opposition to Rulemaking	
Hale	Douglas		I-765	X. Environmental Impacts	2. Electric Generation Emissions
Hale	Douglas		I-765	VI. Process and Policy Concerns	5. 2035 Timeline
Anonymous	Anonymous		I-766	VI. Process and Policy Concerns	1. Following California
Anonymous	Anonymous		I-766	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Anonymous	Anonymous		I-766	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Nelson	Edwin		I-767	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Otava	Jason		I-768	II. Opposition to Rulemaking	
Filipowicz	Alex		I-769	II. Opposition to Rulemaking	
Williams	Leah		I-770	II. Opposition to Rulemaking	
Layman	Paula		I-771	II. Opposition to Rulemaking	
Thornton	Paula		I-772	XI. Economics and Security	2. General Economic Concerns
Thornton	Paula		I-772	X. Environmental Impacts	3. Mining and Manufacturing Impacts

Thornton	Paula		I-772	XI. Economics and Security	2. General Economic Concerns
Blegen	Herman		I-773	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Barba	Anthony		I-774	X. Environmental Impacts	3. Battery Manufacturing Emissions
Barba	Anthony		I-774	VI. Process and Policy Concerns	2. Opposition to a Mandate
Barba	Anthony		I-774	II. Opposition to Rulemaking	
Barba	Anthony		I-774	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Panderson	Natalee		I-775	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Panderson	Natalee		I-775	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Panderson	Natalee		I-775	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Gourley	Nick		I-776	XV. General Out-of-Scope Comments	
Briggs	Nancy		I-777	II. Opposition to Rulemaking	
Briggs	Nancy		I-777	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Musselman	Barbara		I-778	II. Opposition to Rulemaking	
Kerlee	Denyse		I-779	II. Opposition to Rulemaking	
Kerlee	Burt		I-780	II. Opposition to Rulemaking	
Pollack	Philip		I-781	II. Opposition to Rulemaking	
Poyser	Rick		I-782	VI. Process and Policy Concerns	2. Opposition to a Mandate
Kesselring	Jerry		I-783	VI. Process and Policy Concerns	2. Opposition to a Mandate
Schneider	Brian		I-784	VI. Process and Policy Concerns	2. Opposition to a Mandate
Phillips	Catherine		I-785	II. Opposition to Rulemaking	
Phillips	Catherine		I-785	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability

Phillips	Catherine		I-785	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Vigna	David		I-786	II. Opposition to Rulemaking	
Vigna	David		I-786	VI. Process and Policy Concerns	2. Opposition to a Mandate
Chandler	David		I-787	II. Opposition to Rulemaking	
Meyer	Andy		I-788	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Meyer	Andy		I-788	X. Environmental Impacts	3. Battery Manufacturing Emissions
Lapierre	Ashley		I-789	II. Opposition to Rulemaking	
Lapierre	Ashley		I-789	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Rupe	Loren		I-790	II. Opposition to Rulemaking	
Rupe	Loren		I-790	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Rupe	Loren		I-790	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Rupe	Loren		I-790	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Anonymous	Anonymous		I-791	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Anonymous	Anonymous		I-791	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Gordon	Steve		I-792	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Johnson	Kevin		I-793	VI. Process and Policy Concerns	2. Opposition to a Mandate
Fleming	William		I-794	VI. Process and Policy Concerns	3. Public Voting
Fleming	William		I-794	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Filipowicz	Hailey		I-795	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability

Filipowicz	Hailey		I-795	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Filipowicz	Hailey		I-795	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Filipowicz	Hailey		I-795	VI. Process and Policy Concerns	2. Opposition to a Mandate
Shamion	Anthony		I-796	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Wright	Larry		I-797	VI. Process and Policy Concerns	2. Opposition to a Mandate
Croneberger	Robert		I-798	X. Environmental Impacts	2. Electric Generation Emissions
Croneberger	Robert		I-798	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Croneberger	Robert		I-798	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Croneberger	Robert		I-798	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
White	Fred		I-799	VI. Process and Policy Concerns	2. Opposition to a Mandate
West	Trish		I-800	XV. General Out-of-Scope Comments	
Edwards	Richard		I-801	VI. Process and Policy Concerns	2. Opposition to a Mandate
Haugen	Michele		I-802	II. Opposition to Rulemaking	
Chin	Kristina		I-803	VI. Process and Policy Concerns	2. Opposition to a Mandate
Chin	Kristina		I-803	VIII. Cost and Affordability	4. Financial Incentives
Moreau	Len		I-804	VI. Process and Policy Concerns	2. Opposition to a Mandate
Moreau	Len		I-804	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Moreau	Len		I-804	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns

Sanders	Monique		I-806	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-807	VI. Process and Policy Concerns	2. Opposition to a Mandate
Haugen	Bill		I-808	VI. Process and Policy Concerns	1. Following California
Arrell	Thomas		I-809	II. Opposition to Rulemaking	
Arrell	Thomas		I-809	XIII. Zero Emission Vehicle Technology Concerns	6. Emergency Vehicles
Arrell	Thomas		I-809	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Wooten	Lonnie		I-810	II. Opposition to Rulemaking	
Adams	Robert		I-811	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns
Davidson	Sandra		I-812	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Knight	Steven		I-813	II. Opposition to Rulemaking	
Klein	Norman		I-814	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Klein	Norman		I-814	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Klein	Norman		I-814	IX. Infrastructure Impacts	6. Public Charging
Klein	Norman		I-814	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Klein	Norman		I-814	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Klein	Norman		I-814	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Klein	Norman		I-814	VII. Modes of Transportation	2. Hybrid Vehicles
Klein	Norman		I-814	II. Opposition to Rulemaking	
Allen	Aaron		I-815	II. Opposition to Rulemaking	
Clifton	Liz		I-816	II. Opposition to Rulemaking	
Littlejohn	Shawn		I-817	II. Opposition to Rulemaking	

Elliott	Theresa		I-818	VI. Process and Policy Concerns	5. 2035 Timeline
Elliott	Theresa		I-818	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Elliott	Theresa		I-818	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Elliott	Theresa		I-818	IX. Infrastructure Impacts	6. Public Charging
Apley	Richard		I-819	VI. Process and Policy Concerns	2. Opposition to a Mandate
Apley	Richard		I-819	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Marshel	Michael		I-820	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Pemberton	James		I-821	XV. General Out-of-Scope Comments	
Antonino	Mark		I-822	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Antonino	Mark		I-822	X. Environmental Impacts	2. Electric Generation Emissions
Antonino	Mark		I-822	II. Opposition to Rulemaking	
Pemberton	Elena		I-823	II. Opposition to Rulemaking	
Cowan	Mavis		I-824	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Avey	Desiree		I-825	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Burris	Bill		I-826	II. Opposition to Rulemaking	
Bader	Gail		I-827	XIV. Rural Areas	5. Rural Affordability
Bader	Gail		I-827	XI. Economics and Security	1. Motor Vehicle Fuel Tax
Bader	Gail		I-827	IX. Infrastructure Impacts	6. Home Charging
Bader	Gail		I-827	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
McCollum	Steve		I-828	VI. Process and Policy Concerns	5. 2035 Timeline
Nelson	Joe		I-829	II. Opposition to Rulemaking	

Lamb	Deborah		I-830	II. Opposition to Rulemaking	
Lamb	Deborah		I-830	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Lamb	Deborah		I-830	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Lamb	Deborah		I-830	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Carter	Tim		I-831	VI. Process and Policy Concerns	3. Public Voting
Sabin	Carolyn		I-832	VI. Process and Policy Concerns	1. Following California
Tetreault	John		I-833	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Tetreault	John		I-833	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Knapp	Lynn		I-834	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Knapp	Lynn		I-834	VI. Process and Policy Concerns	2. Opposition to a Mandate
Knapp	Lynn		I-834	II. Opposition to Rulemaking	
Sheppard	Lance		I-835	XV. General Out-of-Scope Comments	
Hiebert	Julie		I-836	II. Opposition to Rulemaking	
Hiebert	Julie		I-836	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Hiebert	Julie		I-836	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Hiebert	Julie		I-836	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Hiebert	Julie		I-836	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Hiebert	Julie		I-836	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Dybevik	Eric		I-837	II. Opposition to Rulemaking	

Dittell	Mark		I-838	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Dittell	Mark		I-838	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Dittell	Mark		I-838	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Dittell	Mark		I-838	IX. Infrastructure Impacts	5. Battery Recycling Infrastructure
Dittell	Mark		I-838	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Dittell	Mark		I-838	IX. Infrastructure Impacts	6. Public Charging
Dittell	Mark		I-838	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Metzger	Rick		I-839	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Metzger	Rick		I-839	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Metzger	Rick		I-839	VI. Process and Policy Concerns	2. Opposition to a Mandate
Wilkinson	Brenda		I-841	VI. Process and Policy Concerns	2. Opposition to a Mandate
Wilkinson	Brenda		I-841	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Wilkinson	Brenda		I-841	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Wilkinson	Brenda		I-841	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Peoples	Terri		I-842	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Peoples	Terri		I-842	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Peoples	Terri		I-842	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Bertsch	Jim		I-843	VI. Process and Policy Concerns	1. Following California

Harding	Ed		I-844	VI. Process and Policy Concerns	6. State Fleets
Devries	Joyce		I-845	II. Opposition to Rulemaking	
Driggs	Diane		I-846	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Driggs	Diane		I-846	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Driggs	Diane		I-846	IX. Infrastructure Impacts	6. Public Charging
Driggs	Diane		I-846	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Driggs	Diane		I-846	II. Opposition to Rulemaking	
Self	Carl		I-848	VI. Process and Policy Concerns	3. Public Voting
Schneider	Jimme		I-849	VI. Process and Policy Concerns	2. Opposition to a Mandate
Schneider	Jimme		I-849	VI. Process and Policy Concerns	5. 2035 Timeline
Whorley	Jj		I-850	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Whorley	Jj		I-850	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Whorley	Jj		I-850	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Oleson	Kelli		I-851	VI. Process and Policy Concerns	2. Opposition to a Mandate
Anonymous	Anonymous		I-852	I. Support for Rulemaking	
Coleman	Catherine		I-853	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hughes	Colette		I-854	VI. Process and Policy Concerns	1. Following California
Hughes	Colette		I-854	VI. Process and Policy Concerns	2. Opposition to a Mandate
Anonymous	Anonymous		I-855	VI. Process and Policy Concerns	2. Opposition to a Mandate

Anonymous	Anonymous		I-855	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Friend	Dawn		I-856	II. Opposition to Rulemaking	
Friend	Dawn		I-856	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Friend	Dawn		I-856	VI. Process and Policy Concerns	2. Opposition to a Mandate
Golub	Alex		I-857	II. Opposition to Rulemaking	
Krader	Forrest		I-858	II. Opposition to Rulemaking	
Brackett	Robert		I-859	XV. General Out-of-Scope Comments	
Ebert	Rudy		I-860	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Baker	Linda		I-861	VI. Process and Policy Concerns	1. Following California
Baker	Linda		I-861	II. Opposition to Rulemaking	
Thrasher	Thomas		I-862	II. Opposition to Rulemaking	
Thrasher	Thomas		I-862	II. Opposition to Rulemaking	
Crumpacker	Michael		I-863	II. Opposition to Rulemaking	
Crumpacker	Michael		I-863	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Crumpacker	Michael		I-863	VI. Process and Policy Concerns	5. 2035 Timeline
Crumpacker	Michael		I-863	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Anderson	Glen		I-864	I. Support for Rulemaking	
Erwin	Emily		I-865	VI. Process and Policy Concerns	2. Opposition to a Mandate
Klos	Brenda		I-866	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Klos	Brenda		I-866	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Randall	Rob		I-867	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure

Randall	Rob		I-867	VIII. Cost and Affordability	2. Home Charging Station Affordability
Randall	Rob		I-867	VI. Process and Policy Concerns	2. Opposition to a Mandate
Ludke	Jerry		I-868	VI. Process and Policy Concerns	3. Public Voting
Ludke	Jerry		I-868	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Ludke	Jerry		I-868	XI. Economics and Security	5. Foreign Nation Dependency
Ludke	Jerry		I-868	IX. Infrastructure Impacts	5. Battery Recycling Infrastructure
Ludke	Jerry		I-868	X. Environmental Impacts	2. Electric Generation Emissions
Ludke	Jerry		I-868	VI. Process and Policy Concerns	2. Opposition to a Mandate
Rebman	Ed & Cheryl		I-869	VI. Process and Policy Concerns	2. Opposition to a Mandate
Anonymous	Anonymous		I-870	VI. Process and Policy Concerns	3. Public Voting
Anonymous	Anonymous		I-870	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Polyakovsky	Dmitry		I-871	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Polyakovsky	Dmitry		I-871	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Concie	Matt		I-872	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Hufnagel	Earl		I-874	VI. Process and Policy Concerns	1. Following California
Hufnagel	Earl		I-874	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Anonymous	Anonymous		I-875	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Anonymous	Anonymous		I-875	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts

Anonymous	Anonymous		I-875	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Anonymous	Anonymous		I-875	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Cross	Shawn		I-876	II. Opposition to Rulemaking	
Cross	Shawn		I-876	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Coffman	Rick		I-877	II. Opposition to Rulemaking	
Selby	John		I-878	I. Support for Rulemaking	
Barhitte	James & Susan		I-879	VI. Process and Policy Concerns	2. Opposition to a Mandate
Barhitte	James & Susan		I-879	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Barhitte	James & Susan		I-879	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Barhitte	James & Susan		I-879	II. Opposition to Rulemaking	
Kessler	Janet		I-880	II. Opposition to Rulemaking	
Jj	Gl		I-881	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Elsbree	Patricia		I-882	II. Opposition to Rulemaking	
Bhakti	Sara		I-883	I. Support for Rulemaking	
Keith	Elizabeth		I-884	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Keith	Elizabeth		I-884	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Keith	Elizabeth		I-884	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Keith	Elizabeth		I-884	II. Opposition to Rulemaking	
Hasting	Richard L		I-885	II. Opposition to Rulemaking	
Obrien	June		I-886	II. Opposition to Rulemaking	
Schwemmer	Gwen		I-887	II. Opposition to Rulemaking	
Schneider	John		I-888	IX. Infrastructure Impacts	2. General Electric Grid Concerns

Oconnor	Guylaen		I-889	I. Support for Rulemaking	
Curtz	Thad		I-890	I. Support for Rulemaking	
Mendenhall	Thomas		I-891	II. Opposition to Rulemaking	
Mendenhall	Thomas		I-891	XIII. Zero Emission Vehicle Technology Concerns	3. Towing
Mendenhall	Thomas		I-891	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-892	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-892	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Anonymous	Anonymous		I-892	XI. Economics and Security	5. Foreign Nation Dependency
Anonymous	Anonymous		I-892	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Anonymous	Anonymous		I-892	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Anonymous	Anonymous		I-892	IX. Infrastructure Impacts	6. Public Charging
Anonymous	Anonymous		I-892	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-892	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Linke	Cheryl		I-893	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Linke	Cheryl		I-893	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Linke	Cheryl		I-893	II. Opposition to Rulemaking	
Linke	Cheryl		I-893	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Cook	Steve		I-894	VI. Process and Policy Concerns	2. Opposition to a Mandate
Deshazo	Bear		I-895	II. Opposition to Rulemaking	
Vanderpol	Dan		I-897	VI. Process and Policy Concerns	2. Opposition to a Mandate

Vanderpol	Dan		I-897	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Johnston	Jeff		I-898	II. Opposition to Rulemaking	
Gerfin	Damon		I-899	II. Opposition to Rulemaking	
Gerfin	Damon		I-899	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Gerfin	Damon		I-899	VII. Modes of Transportation	3. Public Transit
White	David		I-900	II. Opposition to Rulemaking	
Steve	Johnston		I-901	II. Opposition to Rulemaking	
Mitchell	Julie		I-902	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Mitchell	Julie		I-902	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Mitchell	Julie		I-902	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Mitchell	Julie		I-902	XIII. Zero Emission Vehicle Technology Concerns	4. Battery Durability
Mitchell	Julie		I-902	XIV. Rural Areas	4. Farmers and Loggers
O'Neal	Don		I-906	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Anonymous	Anonymous		I-907	I. Support for Rulemaking	
Freyer	Cynthia		I-908	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Luru	Anton		I-910	II. Opposition to Rulemaking	
Bacon	Cheradee		I-911	XV. General Out-of-Scope Comments	
Crumpacker	Pamela		I-912	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Henley	Nancy		I-913	VI. Process and Policy Concerns	2. Opposition to a Mandate
Henley	Nancy		I-913	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

Henley	Nancy		I-913	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Gerlach	Darrin		I-914	XV. General Out-of-Scope Comments	
Whybark	Stephen		I-915	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Whybark	Stephen		I-915	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Trythall	Patrick		I-916	II. Opposition to Rulemaking	
Siptroth	Michael		I-917	I. Support for Rulemaking	
Shultz	Sandra		I-921	II. Opposition to Rulemaking	
Shultz	Sandra		I-921	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Shultz	Sandra		I-921	XI. Economics and Security	5. Foreign Nation Dependency
Shultz	Sandra		I-921	X. Environmental Impacts	2. Electric Generation Emissions
Shultz	Sandra		I-921	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Alford	Grant		I-922	II. Opposition to Rulemaking	
Alford	Grant		I-922	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Alford	Grant		I-922	II. Opposition to Rulemaking	
Alford	Grant		I-922	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Alford	Grant		I-922	VIII. Cost and Affordability	4. Financial Incentives
Connolly	Joyce		I-924	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Aldridge	Shelan		I-925	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Aldridge	Shelan		I-925	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Aldridge	Shelan		I-925	VI. Process and Policy Concerns	5. 2035 Timeline

Birkland	Debbie		I-926	II. Opposition to Rulemaking	
Birkland	Debbie		I-926	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Birkland	Debbie		I-926	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Miller	Mark		I-927	I. Support for Rulemaking	
Graff	Karen		I-929	VI. Process and Policy Concerns	2. Opposition to a Mandate
Graff	Karen		I-929	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Graff	Karen		I-929	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Graff	Karen		I-929	X. Environmental Impacts	6. Air Quality
Graff	Karen		I-929	II. Opposition to Rulemaking	
Tanzi	Ron		I-930	I. Support for Rulemaking	
Tanzi	Ron		I-930	VIII. Cost and Affordability	4. Financial Incentives
Prince	D		I-931	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Prince	D		I-931	VI. Process and Policy Concerns	5. 2035 Timeline
Prince	D		I-931	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Prince	D		I-931	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Prince	D		I-931	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Gettman	Dan		I-932	II. Opposition to Rulemaking	
Wright	Daniel		I-933	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-934	VII. Modes of Transportation	2. Hybrid Vehicles
Anonymous	Anonymous		I-934	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Anonymous	Anonymous		I-934	II. Opposition to Rulemaking	
Frix	Kasey		I-935	II. Opposition to Rulemaking	

A Ciuffo	Michael		I-936	I. Support for Rulemaking	
Luensmann	Matt		I-937	II. Opposition to Rulemaking	
Burley	Michael		I-938	VII. Modes of Transportation	4. Neighborhood Electric Vehicles and Transit
Nickerson	Ce		I-939	VI. Process and Policy Concerns	1. Following California
Fisher	Steve		I-940	I. Support for Rulemaking	
Tudor	Greg		I-941	I. Support for Rulemaking	
Trimble	D		I-942	VI. Process and Policy Concerns	3. Public Voting
Erlanson	Kurt		I-944	I. Support for Rulemaking	
Lynett	Kristin		I-945	II. Opposition to Rulemaking	
Estes	Jo		I-946	VI. Process and Policy Concerns	2. Opposition to a Mandate
Husting	Patrick		I-947	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Husting	Patrick		I-947	VII. Modes of Transportation	2. Hybrid Vehicles
Cooper	Lorren		I-948	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Cooper	Lorren		I-948	VIII. Cost and Affordability	2. Home Charging Station Affordability
Cooper	Lorren		I-948	XV. General Out-of-Scope Comments	
Kronenberg	Esther		I-949	I. Support for Rulemaking	
Joy	Kenneth		I-950	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Joy	Kenneth		I-950	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Joy	Kenneth		I-950	XV. General Out-of-Scope Comments	
Joy	Kenneth		I-950	XIV. Rural Areas	5. Rural Affordability
Joy	Kenneth		I-950	VI. Process and Policy Concerns	2. Opposition to a Mandate

Joy	Kenneth		I-950	VI. Process and Policy Concerns	1. Following California
Qualley	Linda		I-951	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Volin	Phyllis		I-954	II. Opposition to Rulemaking	
Volin	Phyllis		I-954	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Olsen	Wayne		I-955	I. Support for Rulemaking	
Morgan	Margaret-Mary		I-956	II. Opposition to Rulemaking	
Morgan	Margaret-Mary		I-956	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Morgan	Margaret-Mary		I-956	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Haugh	Kelly		I-957	VI. Process and Policy Concerns	2. Opposition to a Mandate
Haugh	Kelly		I-957	VII. Modes of Transportation	2. Hybrid Vehicles
Haugh	Kelly		I-957	XIV. Rural Areas	3. Rural Zero Emission Vehicle Technology Concerns
Anderson	Todd		I-958	VI. Process and Policy Concerns	
Vanderburg	Susan		I-960	I. Support for Rulemaking	
Anonymous	Anonymous		I-963	II. Opposition to Rulemaking	
Ruby	Michael		I-964	I. Support for Rulemaking	
Halpern	Charles		I-966	I. Support for Rulemaking	
Folsom	Tyler		I-967	I. Support for Rulemaking	
Dunbar	David		I-968	I. Support for Rulemaking	
Duncan	Brian		I-971	I. Support for Rulemaking	
Anonymous	Amy		I-973	I. Support for Rulemaking	
Bryn	Peter		I-976	I. Support for Rulemaking	
Colombi	Deborah		I-977	II. Opposition to Rulemaking	
Wozniak	Bill		I-979	II. Opposition to Rulemaking	

Wildermuth	Kevin		I-980	I. Support for Rulemaking	
Shelton	Anita		I-982	I. Support for Rulemaking	
Williams	W		I-985	I. Support for Rulemaking	
Benton	Bruce		I-986	I. Support for Rulemaking	
Romero	Michael		I-987	I. Support for Rulemaking	
Sweeney	Rosemary		I-991	I. Support for Rulemaking	
Schroeder	Kathy		I-992	I. Support for Rulemaking	
Dykstra	Karen		I-995	XIV. Rural Areas	5. Rural Affordability
Dykstra	Karen		I-995	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Dykstra	Karen		I-995	II. Opposition to Rulemaking	
Woolverton	Katherine		I-996	I. Support for Rulemaking	
Ghan	Steven		I-998	I. Support for Rulemaking	
Moon	Alaina		I-999	I. Support for Rulemaking	
Johnson	Angeline		I-1001	I. Support for Rulemaking	
Verhey	Steve		I-1002	I. Support for Rulemaking	
Rathbone	Lora		I-1003	I. Support for Rulemaking	
Trueit	Bill		I-1005	I. Support for Rulemaking	
Sharp	Neil		I-1007	II. Opposition to Rulemaking	
Olson	Carl		I-1008	I. Support for Rulemaking	
Hauser	Elizabeth		I-1009	I. Support for Rulemaking	
Daly	Wayne		I-1010	I. Support for Rulemaking	
Mills	Craig		I-1011	I. Support for Rulemaking	
Martin	Douglas		I-1012	I. Support for Rulemaking	
Spalding	Shelley		I-1013	I. Support for Rulemaking	
Demian	Dr.		I-1014	I. Support for Rulemaking	
Smith	Charles		I-1015	I. Support for Rulemaking	
Webster	Philippa		I-1016	I. Support for Rulemaking	
Nist	Erika		I-1017	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Nist	Erika		I-1017	XV. General Out-of-Scope Comments	

Nist	Erika		I-1017	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Cantwell	Jack Q		I-1018	I. Support for Rulemaking	
Dysart	Sherri		I-1020	I. Support for Rulemaking	
Banken	Julie		I-1021	I. Support for Rulemaking	
Johnson	Joshua		I-1022	II. Opposition to Rulemaking	
Johnson	Joshua		I-1022	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Johnson	Joshua		I-1022	II. Opposition to Rulemaking	
Burton	Elizabeth		I-1023	I. Support for Rulemaking	
Tuesley	Prescott		I-1025	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Tuesley	Prescott		I-1025	X. Environmental Impacts	2. Electric Generation Emissions
Taff	Gail		I-1026	I. Support for Rulemaking	
Siptroth	Michael		I-1027	I. Support for Rulemaking	
Hibler	Katrinka		I-1028	I. Support for Rulemaking	
Anonymous	Anonymous		I-1033	II. Opposition to Rulemaking	
Anonymous	Anonymous		I-1033	XI. Economics and Security	4. Material Scarcity
Anonymous	Anonymous		I-1033	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Anonymous	Anonymous		I-1033	X. Environmental Impacts	3. Battery Manufacturing Emissions
Anonymous	Anonymous		I-1033	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-1033	X. Environmental Impacts	2. Electric Generation Emissions
Anonymous	Anonymous		I-1033	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Anonymous	Anonymous		I-1033	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Anonymous	Anonymous		I-1033	IX. Infrastructure Impacts	6. Public Charging
Anonymous	Anonymous		I-1033	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies

Anonymous	Anonymous		I-1033	IX. Infrastructure Impacts	3. Electric Utility Monopolies
Anonymous	Anonymous		I-1033	VI. Process and Policy Concerns	1. Following California
Anonymous	Anonymous		I-1033	IX. Infrastructure Impacts	6. Public Charging
Anonymous	Anonymous		I-1033	VII. Modes of Transportation	7. Cleaner Fossil Fuel Vehicles
Dorian	John		I-1035	I. Support for Rulemaking	
Bulley	Kevin		I-1036	I. Support for Rulemaking	
Warden	Darin		I-1037	II. Opposition to Rulemaking	
Warden	Darin		I-1037	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Warden	Darin		I-1037	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Easton	Debbie		I-1038	VI. Process and Policy Concerns	2. Opposition to a Mandate
Easton	Debbie		I-1038	II. Opposition to Rulemaking	
Babitsky	Pam		I-1039	II. Opposition to Rulemaking	
Babitsky	Pam		I-1039	XV. General Out-of-Scope Comments	
Babitsky	Pam		I-1039	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Babitsky	Pam		I-1039	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Borg	Glenn		I-1040	II. Opposition to Rulemaking	
Reneau	John		I-1041	VI. Process and Policy Concerns	1. Following California
Anonymous	Anonymous		I-1042	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Anonymous	Anonymous		I-1042	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Anonymous	Anonymous		I-1042	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Anonymous	Anonymous		I-1042	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability

Mains	Tom		I-1043	VI. Process and Policy Concerns	1. Following California
Mains	Tom		I-1043	XIV. Rural Areas	5. Rural Affordability
Mains	Tom		I-1043	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Mains	Tom		I-1043	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Mains	Tom		I-1043	II. Opposition to Rulemaking	
Volin	Phyllis		I-1044	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Dutky	Paul		I-1045	I. Support for Rulemaking	
Anderson	Tad		I-1048	I. Support for Rulemaking	
Giddings	France		I-1049	I. Support for Rulemaking	
Molloy	Rachel		I-1050	I. Support for Rulemaking	
Clinton	David		I-1051	XIV. Rural Areas	4. Farmers and Loggers
Jones	Philip		I-1052	I. Support for Rulemaking	
Kellogg	Devon		I-1053	I. Support for Rulemaking	
Doornink	Karen		I-1054	II. Opposition to Rulemaking	
Hunter	Rhonda		I-1055	I. Support for Rulemaking	
Bone	Margie		I-1056	I. Support for Rulemaking	
Wilcox	Flannery		I-1057	I. Support for Rulemaking	
Rousu	Dwight		I-1058	I. Support for Rulemaking	
Baker	Carl		I-1059	I. Support for Rulemaking	
Anderson	Glen		I-1060	I. Support for Rulemaking	
Cárdenas	Roxanna		I-1061	I. Support for Rulemaking	
Morris	Arvia		I-1063	I. Support for Rulemaking	
Rase	Gail		I-1064	VI. Process and Policy Concerns	2. Opposition to a Mandate
Rase	Gail		I-1064	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Rase	Gail		I-1064	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns

Rase	Gail		I-1064	XI. Economics and Security	5. Foreign Nation Dependency
Rase	Gail		I-1064	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Rase	Gail		I-1064	VI. Process and Policy Concerns	2. Opposition to a Mandate
Cavanagh	Cindy		I-1069	VI. Process and Policy Concerns	5. 2035 Timeline
Wright	Shane		I-1070	XIV. Rural Areas	4. Farmers and Loggers
Wright	Shane		I-1070	XV. General Out-of-Scope Comments	7. Vehicle Use in Emergencies
Clarke	Lynne		I-1071	II. Opposition to Rulemaking	
Roe	Denise		I-1073	II. Opposition to Rulemaking	
Reinig	Marjie		I-1074	I. Support for Rulemaking	
Ford	Richard		I-1075	II. Opposition to Rulemaking	
Adams	Dan		I-1076	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Adams	Dan		I-1076	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Adams	Dan		I-1076	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Adams	Dan		I-1076	IX. Infrastructure Impacts	6. Public Charging
Adams	Dan		I-1076	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Adams	Dan		I-1076	VIII. Cost and Affordability	3. Maintenance and Battery Replacement Affordability
Adams	Dan		I-1076	XIII. Zero Emission Vehicle Technology Concerns	5. Safety Concerns
Adams	Dan		I-1076	II. Opposition to Rulemaking	
Adams	Dan		I-1076	XIII. Zero Emission Vehicle Technology Concerns	3. Cold Weather
Adams	Dan		I-1076	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Anonymous	Anonymous		I-1077	I. Support for Rulemaking	

Mulligan	John		I-1078	I. Support for Rulemaking	
Burr	Robert		I-1079	I. Support for Rulemaking	
Burr	Robert		I-1079	VI. Process and Policy Concerns	5. 2035 Timeline
Burr	Robert		I-1079	VIII. Cost and Affordability	4. Financial Incentives
Ramsay	David		I-1080	I. Support for Rulemaking	
Benny	Thessalonika		I-1081	I. Support for Rulemaking	
London	Janel		I-1082	I. Support for Rulemaking	
Hodgson	Laura		I-1083	I. Support for Rulemaking	
Hodgson	Laura		I-1083	VII. Modes of Transportation	2. Hybrid Vehicles
Hodgson	Laura		I-1083	IX. Infrastructure Impacts	6. Public Charging
Hodgson	Laura		I-1083	VIII. Cost and Affordability	2. Home Charging Station Affordability
Hodgson	Laura		I-1083	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Hodgson	Laura		I-1083	VI. Process and Policy Concerns	5. 2035 Timeline
Hodgson	Laura		I-1083	IX. Infrastructure Impacts	6. Public Charging
Hodgson	Laura		I-1083	IX. Infrastructure Impacts	6. Home Charging
Hodgson	Laura		I-1083	XI. Economics and Security	1. Motor Vehicle Fuel Tax
Hodgson	Laura		I-1083	VI. Process and Policy Concerns	5. 2035 Timeline
Hodgson	Laura		I-1083	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Hodgson	Laura		I-1083	XV. General Out-of-Scope Comments	
Hodgson	Laura		I-1083	VI. Process and Policy Concerns	1. Following California
Darcy	Elizabeth		I-1084	X. Environmental Impacts	4. Battery Recycling and Disposal Impacts
Darcy	Elizabeth		I-1084	XIII. Zero Emission Vehicle Technology Concerns	3. Towing

Darcy	Elizabeth		I-1084	XIII. Zero Emission Vehicle Technology Concerns	3. Battery Charging and Range
Darcy	Elizabeth		I-1084	IX. Infrastructure Impacts	6. Public Charging
Darcy	Elizabeth		I-1084	XIII. Zero Emission Vehicle Technology Concerns	7. Vehicle Use in Emergencies
Darcy	Elizabeth		I-1084	XIV. Rural Areas	5. Rural Affordability
Hicks	Russell		I-1085	XV. General Out-of-Scope Comments	
Frei	Judy		I-1086	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Frei	Judy		I-1086	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Frei	Judy		I-1086	II. Opposition to Rulemaking	
Potts	Randall		I-1111	I. Support for Rulemaking	
Caron	Catherine		I-1152	I. Support for Rulemaking	
Stuvek	Brenda		I-1214	I. Support for Rulemaking	
Parker	David		I-1216	I. Support for Rulemaking	
Bhakti	Sara		I-1281	I. Support for Rulemaking	
Aseltine	Sandra		I-1355	I. Support for Rulemaking	
Allen	Noel		I-1372	I. Support for Rulemaking	
Koyanagi	Rick		I-1377	II. Opposition to Rulemaking	
Harris	Matt	Washington State Potato Commission	A-2	II. Opposition to Rulemaking	
Harris	Matt	Washington State Potato Commission	A-2	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Harris	Matt	Washington State Potato Commission	A-2	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Harris	Matt	Washington State Potato Commission	A-2	VI. Process and Policy Concerns	1. Following California

Harris	Matt	Washington State Potato Commission	A-2	XIV. Rural Areas	4. Farmers and Loggers
Harris	Matt	Washington State Potato Commission	A-2	XIV. Rural Areas	6. Agricultural and Forestry Resources
Harris	Matt	Washington State Potato Commission	A-2	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Bosisio	Landon	Puget Sound Clean Air Agency	A-3	III. Fleet Reporting Requirements	
Bosisio	Landon	Puget Sound Clean Air Agency	A-3	I. Support for Rulemaking	
Nelson	Marv		B-1	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels
Flodstrom	Eric	Puget Sound Transfer	B-3	II. Opposition to Rulemaking	
Flodstrom	Eric	Puget Sound Transfer	B-3	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Washburn	Shauna	United Moving & Storage	B-4	II. Opposition to Rulemaking	
Washburn	Shauna	United Moving & Storage	B-4	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Washburn	Shauna	United Moving & Storage	B-4	VI. Process and Policy Concerns	2. Opposition to a Mandate
Washburn	Shauna	United Moving & Storage	B-4	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Washburn	Shauna	United Moving & Storage	B-4	IX. Infrastructure Impacts	1. General Infrastructure Concerns
Washburn	Shauna	United Moving & Storage	B-4	IX. Infrastructure Impacts	2. General Electric Grid Concerns

Caffall	Clark	combined forestry & marine services, inc.	B-5	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Burhenn	Curt	CLB Safety Compliance, LLC	B-6	VI. Process and Policy Concerns	5. 2035 Timeline
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Burhenn	Curt	CLB Safety Compliance, LLC	B-6	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Pederson	Brian	Pederson Bros., Inc.	B-7	II. Opposition to Rulemaking	
Vulliet	Richard	Energy Works LLC	B-8	II. Opposition to Rulemaking	
Van Allen	Kris	KETTLE RIVER DEVELOPMENT & CONSTRUCTION LLC	B-9	II. Opposition to Rulemaking	
Anonymous	Anonymous		B-10	II. Opposition to Rulemaking	
Inc.	Gettman'S Rod		B-11	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Inc.	Gettman'S Rod		B-11	XII. People and Employment	1. Employment Impacts
Christensen	Tony	Christensen Inc	B-12	II. Opposition to Rulemaking	
Christensen	Tony	Christensen Inc	B-12	XIV. Rural Areas	5. Rural Affordability
Christensen	Tony	Christensen Inc	B-12	VII. Modes of Transportation	1. Hydrogen Fuel Cell Vehicles
Christensen	Tony	Christensen Inc	B-12	XIV. Rural Areas	1. Rural and WIlderness Charging Infrastructure
Ballard	Scott	Ballard Ambulance	B-13	XIII. Zero Emission Vehicle Technology Concerns	6. Emergency Vehicles
Hermann	Bill	Hermann Bros. Logging & Const. Inc.	B-14	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles

Hermann	Bill	Hermann Bros. Logging & Const. Inc.	B-15	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Mirviss	Lillian	Lucid USA, Inc.	B-16	VI. Process and Policy Concerns	5. 2035 Timeline
Mirviss	Lillian	Lucid USA, Inc.	B-16	IV. Credit Market	
Van Heeke	Tom	Rivian Automotive	B-17	I. Support for Rulemaking	
Van Heeke	Tom	Rivian Automotive	B-17	VIII. Cost and Affordability	4. Financial Incentives
Yeager	Jackie	Cummins Inc.	B-18	V. Heavy-Duty Omnibus	
Yeager	Jackie	Cummins Inc.	B-18	VI. Process and Policy Concerns	1. Following California
Van Heeke	Tom	Rivian Automotive	B-19	I. Support for Rulemaking	
Sachs	Sarah	Ceres	O-1	I. Support for Rulemaking	
Metz	Matthew	Coltura	O-2	I. Support for Rulemaking	
French	Timothy	Truck & Engine Manufacturers Association	O-3	II. Opposition to Rulemaking	
French	Timothy	Truck & Engine Manufacturers Association	O-3	V. Heavy-Duty Omnibus	
French	Timothy	Truck & Engine Manufacturers Association	O-3	V. Heavy-Duty Omnibus	
Tack-Hooper	Molly	EarthJustice, Natural Resources Defense Council, and Duwamish River Community Coalition	O-4	I. Support for Rulemaking	

Tack-Hooper	Molly	EarthJustice, Natural Resources Defense Council, and Duwamish River Community Coalition	O-4	I. Support for Rulemaking	
Tack-Hooper	Molly	EarthJustice, Natural Resources Defense Council, and Duwamish River Community Coalition	O-4	XII. People and Employment	3. Environmental Justice
Tack-Hooper	Molly	EarthJustice, Natural Resources Defense Council, and Duwamish River Community Coalition	O-4	III. Fleet Reporting Requirements	
Petty	Nirae	Urban League of Metropolitan Seattle	O-5	XII. People and Employment	3. Environmental Justice
Piedfort	Jesse	Sierra Club Washington State Chapter	O-6	I. Support for Rulemaking	
Drayton	Annabel	Joint Comment	O-7	I. Support for Rulemaking	
Drayton	Annabel	Joint Comment	O-7	XII. People and Employment	3. Environmental Justice
Drayton	Annabel	Joint Comment	O-7	VII. Modes of Transportation	3. Public Transit
Drayton	Annabel	Joint Comment	O-7	III. Fleet Reporting Requirements	
Bliley	Chris	Growth Energy	O-8	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels

Missik	Leah	Climate Solutions	O-9	I. Support for Rulemaking	
Missik	Leah	Climate Solutions	O-9	XII. People and Employment	3. Environmental Justice
Missik	Leah	Climate Solutions	O-9	VII. Modes of Transportation	3. Public Transit
Missik	Leah	Climate Solutions	O-9	III. Fleet Reporting Requirements	
Miller	Tom	Alliance for Automotive Innovation	O-10	XV. General Out-of-Scope Comments	
Miller	Tom	Alliance for Automotive Innovation	O-10	IV. Credit Market	
Miller	Tom	Alliance for Automotive Innovation	O-10	VIII. Cost and Affordability	1. Equity and Electric Vehicle Affordability
Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	6. Public Charging
Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	6. Home Charging
Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Miller	Tom	Alliance for Automotive Innovation	O-10	VIII. Cost and Affordability	4. Financial Incentives
Miller	Tom	Alliance for Automotive Innovation	O-10	VI. Process and Policy Concerns	6. State Fleets

Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	6. Public Charging
Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	2. General Electric Grid Concerns
Miller	Tom	Alliance for Automotive Innovation	O-10	VIII. Cost and Affordability	4. Financial Incentives
Miller	Tom	Alliance for Automotive Innovation	O-10	IX. Infrastructure Impacts	6. Home Charging
Miller	Tom	Alliance for Automotive Innovation	O-10	XV. General Out-of-Scope Comments	
Solak	Matthew	Pacific Propane Gas Association	O-11	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels
Stewart	Wes	Sierra Club Washington Chapter	O-12	I. Support for Rulemaking	
Call	Sheri	Washington Trucking Associations	O-13	VII. Modes of Transportation	5. Heavy-Duty Electric Vehicles
Slowik	Peter	International Council on Clean Transportation	O-14	I. Support for Rulemaking	
Kilgore	Janine	POET, LLC	O-15	VII. Modes of Transportation	6. Renewable Fuels and Other Liquid Fuels
Detwiler	Michelle	Renewable Hydrogen Alliance	O-16	I. Support for Rulemaking	
Detwiler	Michelle	Renewable Hydrogen Alliance	O-16	IV. Credit Market	

Detwiler	Michelle	Renewable Hydrogen Alliance	O-16	VI. Process and Policy Concerns	2. Opposition to a Mandate
Beyer	Matthew	Union of Concerned Scientists	O-17	I. Support for Rulemaking	
Beyer	Matthew	Union of Concerned Scientists	O-17	III. Fleet Reporting Requirements	
Verburg	Jim	WSPA	O-18	VI. Process and Policy Concerns	4. Legal Concerns
Herke	Mark	Yakima County Farm Bureau	O-19	II. Opposition to Rulemaking	
Herke	Mark	Yakima County Farm Bureau	O-19	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Herke	Mark	Yakima County Farm Bureau	O-19	IX. Infrastructure Impacts	4. Blackouts and Insufficient Electricity Supply
Herke	Mark	Yakima County Farm Bureau	O-19	XIV. Rural Areas	4. Farmers and Loggers
Herke	Mark	Yakima County Farm Bureau	O-19	X. Environmental Impacts	3. Mining and Manufacturing Impacts
Herke	Mark	Yakima County Farm Bureau	O-19	VI. Process and Policy Concerns	2. Opposition to a Mandate
Herke	Mark	Yakima County Farm Bureau	O-19	VI. Process and Policy Concerns	1. Following California
French	Tim	Truck and Engine Manufacturers Association	O-20	V. Heavy-Duty Omnibus	
Wang	Vivian	Northwest Energy Coalition	O-21	I. Support for Rulemaking	
Cooley	Christine	Puget Sound Clean Air Agency	O-22	I. Support for Rulemaking	

Harris	Kathy	Natural Resources Defense Council	O-23	I. Support for Rulemaking	
Hampton	Adrienne	Duwamish River Community Coalition	O-24	I. Support for Rulemaking	
Verburg	Jim	WSPA	O-25	VI. Process and Policy Concerns	4. Legal Concerns
Piedfort	Jesse	Sierra Club	O-26	I. Support for Rulemaking	

Response to Comments

Ecology announced this rulemaking on January 18, 2022. On September 7, 2022, following a series of public stakeholder meetings and an informal comment period, Ecology published a proposed rule for public comment. The public comment period was held from September 7, 2022, to October 19, 2022. A public hearing was also held via webinar on October 12, 2022.

This document responds to the public comments we received during the formal public comment period. Comments have been summarized for readability, conciseness, and inclusion with Ecology's responses. You can view original comments in full at our online comment website. These comments remain available online for two years after the rule adoption date, are maintained as part of the permanent rulemaking record, and can be made available on request.

We grouped comments and organized them by topic. This is a complex rulemaking with a high degree of public visibility, and numerous issues and questions were brought forward during the comment process. Many comments reference multiple topics, and we made efforts to group comments together and respond in an organized manner. Additionally, we have attempted to reference where similar topics are addressed elsewhere in the document.

Topics

Glossary

BIL – Bipartisan Infrastructure Law
A 2021 federal law that provides funding for a variety of infrastructure projects nationwide, including climate-relevant projects. Officially known as the Infrastructure Investment and Jobs Act (IIJA).

CARB – California Air Resources Board
CARB is the "clean air agency" of the California state government. Per RCW 70A.30.010 and Section 177 of the federal Clean Air Act, Ecology is required to adopt rules to implement CARB's motor vehicle emission standards within the state of Washington.

CETA – Clean Energy Transformation Act
A 2019 Washington state law that reorients utilities towards a 100% clean electricity supply by 2045, phasing out coal by 2025 and becoming carbon-neutral by 2030.

EV – Electric Vehicle
A vehicle that uses one or more electric motors and is charged with electricity.

EV Council *or* IEVCC – Washington Interagency Electric Vehicle Coordinating Council

FCEV – Fuel Cell Electric Vehicle
A type of electric vehicle that uses a hydrogen fuel cell to power its onboard motor.

ICCT – International Council on Clean Transportation
An independent nonprofit that provides scientific and technical analysis to environmental regulators relevant to clean transportation methods.

ICE *or* ICEV – Internal Combustion Engine Vehicle
Vehicles that are powered with an internal combustion engine only; i.e., gas and diesel-powered cars that are not hybrid vehicles.

IRA – Inflation Reduction Act
A 2022 federal law that provides funding for a variety of climate-relevant programs, grants, and policies.

PHEV – Plug-In Hybrid Electric Vehicle
Vehicles that are powered by a battery pack that can be recharged through a charging cable, in addition to an internal combustion engine-powered generator. PHEVs are considered "partial ZEVs" or "transitional ZEVs" because they emit no tailpipe pollution while operating via the battery pack.

ZEV - Zero Emission Vehicle
"Zero emission" only refers to pollution emitted during vehicle operation. A ZEV may include battery electric vehicles, fuel cell electric vehicles, or plug-in hybrid electric vehicles. While there are emissions associated with the manufacturing of ZEVs, and emissions when the electricity that is generated to fuel them comes from fossil fuel sources, their emissions are much lower than ICEVs over the full vehicle lifecycle.

General Comments on the Clean Vehicles Program

I. Support for Rulemaking

Commenters: I-6 (Frost); I-15 (Kersting); I-19 (Merryman); I-24 (Fairbanks); I-27 (Bishop); I-30 (Reising); I-33 (Anonymous); I-41 (Nevius); I-59 (Bos); I-68 (Zora); I-73 (Gehl); I-86 (Rigby); I-473 (Saint-Louis); I-476 (Lusk); I-490 (Smithson); I-502 (Darilek); I-507 (Boatsman); I-522 (Nelson); I-527 (Bhakti); I-536 (Beaver); I-537 (Waddington); I-538 (Sharpe); I-539 (Davis); I-546 (Benedict); I-548 (Russell); I-557 (Martinez); I-561 (Osmer); I-564 (Ellsworth); I-574 (Freeman); I-575 (Strang); I-629 (Hosteny); I-633 (Ozanich); I-637 (Driscoll); I-662 (Emerson); I-852 (Anonymous); I-864 (Anderson); I-878 (Selby); I-883 (Bhakti); I-889 (O'Connor); I-890 (Curtz); I-907 (Anonymous); I-917 (Siptroth); I-927 (Miller); I-930 (Tanzi); I-936 (A. Ciuffo); I-940 (Fisher); I-941 (Tudor); I-944 (Erlanson); I-949 (Kronenberg); I-955 (Olsen); I-960 (Vanderburg); I-964 (Ruby); I-966 (Halpern); I-967 (Folsom); I-968 (Dunbar); I-971 (Duncan); I-973 (Anonymous); I-976 (Bryn); I-980 (Wildermuth); I-982 (Shelton); I-985 (Williams); I-986 (Benton); I-987 (Romero); I-991 (Sweeney); I-992 (Schroeder); I-996 (Woolverton); I-998 (Ghan); I-999 (Moon); I-1001 (Johnson); I-1002 (Verhey); I-1003 (Rathbone); I-1005 (Trueit); I-1008 (Olson); I-1009 (Hauser); I-1010 (Daly); I-1011 (Mills); I-1012 (Martin); I-1013 (Spalding); I-1014 (Demian); I-1015 (Smith); I-1016 (Webster); I-1018 (Cantwell); I-1020 (Dysart); I-1021 (Banken); I-1023 (Burton); I-1026 (Taff); I-1027 (Siptroth); I-1028 (Hibler); I-1035 (Dorian); I-1036 (Bulley); I-1045 (Dutky); I-1048 (Anderson); I-1049 (Giddings); I-1050 (Molloy); I-1052 (Jones); I-1053 (Kellogg); I-1055 (Hunter); I-1056 (Bone); I-1057 (Wilcox); I-1058 (Rousu); I-1059 (Baker); I-1060 (Anderson); I-1061 (Cárdenas); I-1063 (Morris); I-1074 (Reinig); I-1077 (Anonymous); I-1078 (Mulligan); I-1079 (Burr); I-1080 (Ramsay); I-1081 (Benny); I-1082 (London); I-1083 (Hodgson); I-1111 (Potts); I-1152 (Caron); I-1214 (Stuvek); I-1216 (Parker); I-1281 (Bhakti); I-1355 (Aseltine); I-1372 (Allen); A-3 (Puget Sound Clean Air Agency); B-17 (Rivian Automotive); O-1 (Ceres); O-2 (Coltura); O-4 (EarthJustice Natural Resources Defense Council and Duwamish River Community Coalition); O-6 (Sierra Club Washington State Chapter); O-7 (Joint Comment); O-9 (Climate Solutions); O-12 (Sierra Club Washington Chapter); O-14 (International Council on Clean Transportation); O-16 (Renewable Hydrogen Alliance); O-17 (Union of Concerned Scientists).

Summary: These commenters expressed support for implementing chapter 173-423 WAC as proposed. Many of the commenters cited the rule's role in reducing Washington's climate impacts, as well as benefits to air quality and public health, especially for overburdened communities.

Response: Thank you for your comments. With the adoption of this rule, Ecology is implementing the Motor Vehicle Emission Standards law (RCW 70A.30.010[2]), which requires Ecology to adopt rules to implement California's motor vehicle emission standards. Reducing pollution and greenhouse gas emissions from transportation is critical for Washington in meeting its climate change goals and improving air quality. These statewide greenhouse gas emission

[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.30

limits were established in the Limiting Greenhouse Gas Emissions law (RCW 70A.45.020[3]), which requires the state to reach "net zero" emissions by 2050.

II. Opposition to Rulemaking

Commenters: I-5 (Landau); I-8 (Ogilvie); I-9 (Moore); I-10 (Thompson); I-11 (Kay); I-21 (Wilber); I-22 (Countryman); I-32 (Lyons); I-36 (Rylander); I-42 (Inc.); I-43 (Chavre); I-45 (Penner); I-49 (Dressler); I-50 (Anonymous); I-52 (Anderson); I-53 (Smith); I-54 (Carpenter); I-55 (Mooney); I-56 (Howard); I-57 (Anonymous); I-58 (Anonymous); I-62 (Anonymous); I-64 (Ingram); I-65 (Hollatz); I-66 (Dineen); I-69 (Updegrove); I-71 (Schinnell); I-72 (Anonymous); I-75 (Anonymous); I-76 (Silvey); I-83 (Anonymous); I-89 (Anonymous); I-91 (Tadlock); I-92 (Gipe); I-93 (Rapp); I-94 (Bond); I-95 (Powell); I-96 (Donaldson); I-98 (Anonymous); I-99 (Polehn); I-100 (Chavre); I-101 (Dail); I-102 (Kidd); I-105 (Irvin); I-108 (Bieda); I-109 (Rowley); I-111 (Christensen); I-112 (Williams); I-113 (Anonymous); I-115 (Clark); I-116 (Johansen); I-117 (York); I-118 (Fannon); I-120 (Rosemary); I-126 (Webster); I-127 (Deford); I-128 (Paul); I-129 (Semans); I-133 (Hadley); I-134 (Rohlfing); I-135 (Olson); I-136 (Anonymous); I-138 (Smith); I-143 (Underwood); I-146 (Anonymous); I-148 (Reichenbach); I-149 (Lewis); I-151 (Allison); I-152 (Turner); I-153 (Reinhart); I-155 (Cook); I-167 (Page); I-170 (Paris); I-173 (Anonymous); I-174 (Gilbertson); I-176 (Coggins); I-177 (Anonymous); I-178 (Rees); I-184 (Sanders); I-185 (Shier); I-190 (Anonymous); I-191 (Basler); I-196 (Roosendaal); I-198 (Lebrun); I-202 (Lee); I-208 (Divelbiss); I-210 (Coyne); I-211 (Shaputis); I-213 (Weiss); I-214 (Schimelfening); I-215 (Cowman); I-216 (Christensen); I-226 (Falk); I-227 (Anderson); I-233 (Heenan); I-234 (A. Kildall); I-237 (Swanson); I-238 (Smith); I-242 (Avila); I-243 (Hiatt); I-244 (McMillan); I-247 (Wixom); I-249 (Wilson); I-252 (Childs); I-254 (Post); I-262 (King); I-263 (Wright); I-264 (Messerly); I-271 (McAdams); I-273 (Weise); I-275 (Roeder); I-279 (Downs); I-280 (Downs); I-282 (Dekock); I-283 (De Ru); I-285 (Joy); I-287 (Lane); I-288 (Anonymous); I-289 (Lindell); I-290 (Bell); I-291 (McKinzie); I-292 (Sheehy); I-293 (Marsolek); I-294 (Marsolek); I-295 (Milke); I-296 (Anonymous); I-297 (Anonymous); I-300 (Fritz); I-302 (Way); I-303 (Scott); I-304 (Trimble); I-305 (Keel); I-306 (Conley); I-310 (Hofer); I-322 (Severy); I-324 (Valdez); I-327 (Berkell); I-331 (Kellum); I-332 (Anonymous); I-334 (Brady); I-335 (Wallin); I-337 (Hayes); I-339 (Palmer); I-343 (Thomas); I-344 (Butler); I-346 (Dean); I-349 (Leavens); I-355 (Lampe); I-361 (Lehtinen); I-362 (Strom); I-379 (Kwasny); I-381 (McMurry); I-382 (Rasmussen); I-385 (Yuhl); I-388 (Macgugan); I-390 (Macgugan); I-420 (Leghorn); I-423 (Holzman); I-426 (Anonymous); I-427 (Motz); I-433 (Gildea); I-441 (Berntsen); I-442 (Michlig); I-443 (Didier); I-445 (Goehner); I-446 (Widman); I-453 (Mierke); I-454 (O'Neal); I-455 (Anonymous); I-456 (Rowell); I-459 (Anonymous); I-460 (Anderson); I-464 (Smith); I-467 (Shawver); I-468 (Bertschinger); I-471 (Smith); I-474 (Greenough); I-477 (Hammer); I-483 (Gittings); I-484 (Staudinger); I-485 (Turner); I-486 (Tropp); I-488 (Bilka); I-493 (Weller); I-494 (Restivo); I-495 (Som-Mueller); I-498 (Moreland); I-499 (Hogan); I-503 (Bolt); I-513 (Hallowell); I-515 (Davenport); I-519 (Robinson); I-523 (Anonymous); I-531 (Flatness); I-533 (Pietila); I-542 (S); I-543 (Wyllie); I-545 (Anonymous); I-552 (Belzak); I-554 (Garver); I-555 (Wright); I-566 (Flatness); I-567 (Kelly); I-577 (Noll); I-579 (Cole); I-580 (Wedge); I-582 (Middaugh); I-587 (Bottts); I-593 (Smith); I-596 (Snider); I-601 (Fortier); I-602 (Holm); I-604 (Smith); I-605

[3] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.45

(Metcalf); I-606 (Gray); I-611 (Anonymous); I-617 (Burkhardt); I-618 (Shofstall); I-630 (McCart); I-631 (Hamilton); I-632 (Chan); I-635 (Woodland); I-636 (Oakes); I-638 (Forbes); I-639 (Davis); I-640 (Holm); I-642 (McBride); I-650 (Hooks); I-652 (Melsen); I-655 (Berg); I-656 (Schmit); I-660 (McConnell); I-663 (Anonymous); I-664 (Sharp); I-666 (Dron); I-667 (Trussell); I-669 (Brown); I-670 (Koffler); I-671 (Dye); I-672 (Dressel); I-673 (Schultz); I-675 (Dahlen); I-676 (Stelter); I-678 (Drew); I-682 (Winchell); I-683 (Dichesare); I-685 (Moulton); I-686 (Madison); I-690 (Brady); I-693 (Galloway); I-694 (Brinkman); I-697 (Wilbur); I-699 (Anderson); I-700 (Samons); I-701 (Braun); I-703 (Short-Conner); I-705 (Miller); I-708 (Winsberg); I-709 (Fogle); I-711 (Fox); I-712 (Millbauer); I-713 (Murataya); I-717 (Beckman); I-719 (Arnold); I-720 (Gear); I-721 (Young); I-724 (Dumas); I-725 (Aumand); I-730 (Gilbertson); I-731 (Hurst); I-733 (Johnson); I-737 (Shives); I-738 (Sena); I-745 (Ehr); I-747 (Anonymous); I-748 (Berman); I-751 (Strickland); I-752 (Silver); I-758 (Phaff); I-764 (Brown); I-768 (Otava); I-769 (Filipowicz); I-770 (Williams); I-771 (Layman); I-774 (Barba); I-777 (Briggs); I-778 (Musselman); I-779 (Kerlee); I-780 (Kerlee); I-781 (Pollack); I-785 (Phillips); I-786 (Vigna); I-787 (Chandler); I-789 (Lapierre); I-790 (Rupe); I-802 (Haugen); I-806 (Sanders); I-809 (Arrell); I-810 (Wooten); I-813 (Knight); I-814 (Klein); I-815 (Allen); I-816 (Clifton); I-817 (Littlejohn); I-822 (Antonino); I-823 (Pemberton); I-826 (Burris); I-829 (Nelson); I-830 (Lamb); I-834 (Knapp); I-836 (Hiebert); I-837 (Dybevik); I-845 (Devries); I-846 (Driggs); I-856 (Friend); I-857 (Golub); I-858 (Krader); I-861 (Baker); I-862 (Thrasher); I-863 (Crumpacker); I-876 (Cross); I-877 (Coffman); I-879 (Barhitte); I-880 (Kessler); I-882 (Elsbree); I-884 (Keith); I-885 (Hasting); I-886 (Obrien); I-887 (Schwemmer); I-891 (Mendenhall); I-892 (Anonymous); I-893 (Linke); I-895 (Deshazo); I-898 (Johnston); I-899 (Gerfin); I-900 (White); I-901 (Steve); I-910 (Luru); I-916 (Trythall); I-921 (Shultz); I-922 (Alford); I-926 (Birkland); I-929 (Graff); I-932 (Gettman); I-933 (Wright); I-934 (Anonymous); I-935 (Frix); I-937 (Luensmann); I-945 (Lynett); I-954 (Volin); I-956 (Morgan); I-963 (Anonymous); I-977 (Colombi); I-979 (Wozniak); I-995 (Dykstra); I-1007 (Sharp); I-1022 (Johnson); I-1033 (Anonymous); I-1037 (Warden); I-1038 (Easton); I-1039 (Babitsky); I-1040 (Borg); I-1043 (Mains); I-1054 (Doornink); I-1071 (Clarke); I-1073 (Roe); I-1075 (Ford); I-1076 (Adams); I-1086 (Frei); A-2 (Washington State Potato Commission); B-3 (Puget Sound Transfer); B-4 (United Moving & Storage); B-7 (Pederson Bros. Inc.); B-8 (Energy Works LLC); B-9 (Kettle River Development & Construction LLC); B-10 (Anonymous); B-12 (Christensen Inc); O-3 (Truck & Engine Manufacturers Association); O-19 (Yakima County Farm Bureau).

Summary: These commenters expressed opposition to adopting the proposed amendments to Chapter 173-423 WAC. Commenters expressed a range of general opinions displaying opposition to this rule. We responded to any specific issues or concerns raised by these commenters in the following sections, however, many of these commenters did not give specific reasoning for their opposition.

Response: Ecology thanks you for taking time to comment on this rule. We have read and noted your disagreement with this rulemaking. However, we are mandated to adopt the rule changes in Advanced Clean Cars II by the Legislature in the Motor Vehicle Emission Standards Law (RCW 70A.30.010). Adopting these rules will help the state reach its scientifically-driven greenhouse gas emission limits, which require the state to reach "net zero" emissions by 2050. It is critical that we take steps as soon as practical to reduce vehicle pollution, given that transportation is Washington's largest single source of greenhouse gas emissions. Setting a 2035 target allows

Washington to meet these environmental goals while giving the market time to adjust and produce ZEVs that will meet the needs of all of Washington's residents.

If you have other specific concerns about this rule, see the following sections which delve into specific aspects, issues, and concerns commenters have had with the proposed rule changes.

III. Fleet Reporting Requirement

Commenters: A-3 (Puget Sound Clean Air Agency); O-4 (EarthJustice Natural Resources Defense Council and Duwamish River Community Coalition); O-7 (Joint Comment); O-9 (Climate Solutions); O-17 (Union of Concerned Scientists).

Summary: These commenters expressed support for Ecology's one-time fleet reporting requirement and offered further recommendations to strengthen the rule. These recommendations include:

- Offering guidance and informational materials to fleet operators to streamline the reporting process.
- Implementing annual fleet reporting requirements in a future rulemaking.
- Establishing a drayage truck registry in Washington State.

Response: Thank you for your comments. The one-time fleet reporting requirement will allow Ecology to assess opportunities for reducing fleet emissions across the state.

We will consider conducting additional fleet reporting efforts in future rulemakings. Currently, Ecology has very little data on fleets, and we need time to assess the results from next year's reporting period and evaluate potential emission reduction strategies before committing to additional reporting periods. In addition, given the phasing of ZEV rules for medium- and heavy-duty vehicles in Washington, there is unlikely to be large year-to-year turnover in vehicle fleets in the near future. However, we will continue to assess the situation and in future rulemakings will consider implementing fleet reporting periods on an annual or semi-regular basis.

With respect to drayage trucks, we note that the Northwest Seaport Alliance already maintains a registry of drayage trucks[4] operating in the Ports of Seattle and Tacoma. Ecology may consider enacting a statewide registry requirement in a future rulemaking that specifically focuses on limiting emissions from the trucking and logistics industries. We will also conduct outreach to drayage operators and other fleet managers with respect to the reporting requirement and other Ecology rules.

Finally, we are in the process of developing an IT system to carry out the fleet reporting requirement and plan to create informational and guidance documents to help streamline the

[4] https://www.portseattledtradmin.org

reporting process. Ecology staff will also be available to assist fleet managers with the requirement as needed.

Commenter: Anonymous (I-136)

Summary: This commenter opposes the fleet reporting requirement and perceives it as intrusive.

Response: Thank you for your comment. While we recognize your concerns, we disagree that the reporting requirement is intrusive or invades the privacy of fleet managers. The requirement is based on similar rules in California and Oregon and will not publish identifying or confidential information about any business operating in Washington state. The intent of this requirement is to obtain preliminary data that can help Ecology develop strategies to reduce emissions in a practical, cost-effective way for fleet owners and managers.

IV. Credit Market

Commenter: B-16 **(**Lucid USA, Inc.)

Summary: This commenter asked Ecology to consider offering Exceptional Efficiency Credits to automakers that produce and sell high-efficiency ZEVs in Washington. They also asked Ecology to eliminate pooling as a compliance mechanism with the ZEV rule.

Response: We appreciate you taking the time to comment and agree that high-efficiency, long-range ZEV models are integral to accelerating the ZEV transition. However, Ecology lacks the authority to implement ZEV credits for model years 2025 and thereafter that are different than the credits offered by the California Air Resources Board (CARB). Any additional credit offerings would have to originate in the CARB rulemaking process.

Ecology believes that current credit offerings are sufficient for stimulating the adoption of higher-efficiency ZEVs. Battery ranges of popular EV models have improved rapidly over the past several years and are projected to further increase, even in the absence of credits specifically targeted at high-efficiency ZEV development. See section *XIII.1 - Battery Charging & Range* for more details. Additionally, the new standards require EVs to have a minimum of a 200-mile range to receive full credits.

With respect to pooling, which is a flexibility mechanism in ACC II to allow automakers to shift a limited number of credits from one state to another, Ecology does not have the option to eliminate that flexibility mechanism from the rule due to identicality requirements in Section 177 of the Clean Air Act. That is, the Washington program has to be identical to the California program.

Commenter: O-10 **(**Alliance for Automotive Innovation)

Summary: This commenter asked Ecology to offer proportional credits in addition to early action credits. Under the proposed proportional credit system, each auto manufacturer would receive a starting credit bank proportional to the number of credits they have accrued for

California ZEV sales under the Advanced Clean Cars I rule. The commenter argued that by not offering proportional credits, Ecology was making its ZEV standards more stringent than California's.

Response: Ecology appreciates this comment but disagrees that the rule's lack of a proportional credit system will make Washington's ZEV standards stricter than California's. Washington currently has the second-highest ZEV adoption rate in the country, and automakers are projected to receive ample early action credits for model year 2023 and 2024 sales. Per our analysis from earlier this year,[5] the early action credit system will produce enough total credits for automakers to meet the 15% cap on historical credits offered for compliance in MYs 2026 – 2030. Thus, while a proportional credit system would create more total credits than the early action credit system, it would make little practical difference as both options would generate enough credits to meet the compliance cap.

Offering proportional credits would also enable double counting by granting automakers Washington ZEV credits for vehicle sales that occurred in California. In addition, offering specific credits for Washington sales incentivizes manufacturers to produce ZEVs for sale in the state, increasing residents' access to ZEVs.

If Ecology were to offer both proportional credits *and* early action credits, as suggested by the commenter, automakers would receive approximately 530,000 total credits. This large number of credits would likely be impractical and make little difference in easing compliance for manufacturers, given the cap on historical credit usage.

V. Heavy-Duty Omnibus

Commenters: B-18 (Cummins Inc.); O-3 (Truck & Engine Manufacturers Association).

Summary: These commenters expressed opposition to Ecology adopting the Heavy-Duty Omnibus rule and associated amendments, arguing that the rule is infeasible and counterproductive since most manufacturers will not produce compliant trucks by model year 2026/2027. One commenter also expressed opposition to applying the Heavy-Duty Omnibus rule to chassis-certified medium-duty vehicles, as required by ACC II's new low-emission vehicle standards.

Response: Thank you for your comments. Ecology is required by statute to implement rules to adopt California's motor vehicle emission standards per the Motor Vehicle Emission Standards law (RCW 70A.30.010). The Heavy-Duty Omnibus regulation is considered an "emission standard," as it places limits on the amount of nitrogen oxides and particulate matter that can be produced by heavy-duty engines sold starting in model year 2026.

[5] https://ecology.wa.gov/DOE/files/a9/a9ff6713-a563-4689-9275-b99c12be4e5a.pdf

We appreciate your concerns about manufacturer compliance and potentially counterproductive effects, but we disagree with the conclusion that manufacturers will be unable to comply with the rule. Please see CARB's Final Statement of Reasons[6] for the rule, which contains comprehensive responses to many of the same issues raised here.

VI. Process and Policy Concerns

1. Following California

Commenters: I-26 (Anonymous); I-35 (Heye); I-36 (Rylander); I-46 (Sheary); I-50 (Anonymous); I-70 (S.); I-76 (Silvey); I-79 (Hadfield); I-83 (Anonymous); I-85 (Simpson); I-87 (Silvey); I-121 (Snider); I-186 (Angliss); I-220 (Gengler); I-230 (McPherson); I-236 (Lunkes); I-273 (Weise); I-323 (Gonzalez); I-347 (Snider); I-351 (Anderson); I-367 (Collins); I-370 (Mouser); I-407 (Habowski); I-434 (Lee); I-439 (Pekarek); I-451 (Sanders); I-457 (Bright); I-463 (Anonymous); I-469 (Citizen); I-493 (Weller); I-495 (Som-Mueller); I-497 (Brierley); I-516 (Bjerstedt); I-518 (Downs); I-530 (Moser); I-586 (Zeller); I-610 (Fox); I-613 (Morris); I-621 (Selthofer); I-625 (Mongrain); I-635 (Woodland); I-664 (Sharp); I-688 (Life); I-689 (Morrell); I-696 (Diaz); I-697 (Wilbur); I-714 (Heinisch); I-722 (Sackman); I-757 (Walker); I-766 (Anonymous); I-808 (Haugen); I-832 (Sabin); I-843 (Bertsch); I-854 (Hughes); I-861 (Baker); I-874 (Hufnagel); I-939 (Nickerson); I-950 (Joy); I-1033 (Anonymous); I-1041 (Reneau); I-1043 (Mains); I-1083 (Hodgson); O-19 (Yakima County Farm Bureau).

Summary: These commenters objected to Washington adopting California's vehicle emission standards. Some wondered why Ecology did not create its own standards instead of adopting California's. Other commenters expressed concern about following rules created by an out-of-state administrative agency, while others expressed general opposition to following any rule created by California's government.

Response: We appreciate you taking the time to comment. This aspect of the rule is governed by Section 177 of the federal Clean Air Act,[7] which requires states to either follow federal regulations or adopt an identical version of California's more stringent standards, provided the California standards have been approved by the EPA. States are not allowed to create their own emission standards or adopt a modified version of California's regulations.

Under the Washington Motor Vehicle Emission Standards Law (RCW 70A.30.010), which passed the Legislature and was signed into law by Governor Inslee on March 25, 2020, Washington chose to adopt California's standards. The law directs Ecology to "adopt rules to implement the motor vehicle emission standards of the state of California, including the zero-

[6] California Air Resources Board. "Final Statement of Reasons for Rulemaking, Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments." Published August 27, 2020. https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/hdomnibuslownox/fsor.pdf.
[7] https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7507.htm

emission vehicle program" and to amend the rules from time to time to maintain consistency with California's standards.

Washington's lawmakers chose to follow California's regulations because of their climate, environmental, and public health advantages over federal rules. Perhaps most importantly, these rules will help the state comply with greenhouse gas emission reduction limits set in the Limiting Greenhouse Gas Emissions law (RCW 70A.45.020), which require the state to reduce emissions over time, reaching "net zero" emissions by 2050. Over a dozen other states have also adopted California's standards under Section 177 of the Clean Air Act.

With respect to the concerns about outsourcing rulemaking to an out-of-state administrative body: Ecology is following a law that was publicly considered and approved by Washington's elected representatives and is consistent with federal law.

Finally, several comments expressed discontent with California's political leaders and public policies, which are unrelated to vehicle emission standards. These comments are outside the scope of this rulemaking and Ecology is unable to respond to them.

Commenter: I-1083 (Laura Hodgson)

Comment: "In WAC 173-423-040 (definitions for Clean Vehicles Program), the definitions refer to definitions in California statute. This requires the user to look up another state's code to find OUR definitions. That seems like a poor practice for a WAC. Please change the text in the definitions to say what the words mean and not make us chase a definition in another state's code."

Response: Thank you for your comment. Ecology is required by state and federal law to adopt an identical version of the motor vehicle emission standards set in the California Code of Regulations. While adoption by reference does require a reader to look up the California Code of Regulations that are referenced, this also provides clarity in preventing accidental variances or requiring the reader to compare Washington definitions with California's to determine whether they are identical or where they might vary.

2. Opposition to a Mandate

Commenters: I-1 (Anonymous); I-17 (Blomquist); I-18 (Hewlett); I-20 (Bielas); I-26 (Anonymous); I-32 (Lyons); I-41 (Nevius); I-50 (Anonymous); I-52 (Anderson); I-66 (Dineen); I-71 (Schinnell); I-75 (Anonymous); I-77 (Jones); I-99 (Polehn); I-120 (Rosemary); I-130 (Gill); I-132 (Chermak); I-134 (Rohlfing); I-137 (Rohlfing); I-144 (Kimball); I-145 (Tyrian); I-149 (Lewis); I-160 (DeChenne); I-169 (Anonymous); I-172 (Gatchell); I-175 (Schneider); I-178 (Rees); I-184 (Sanders); I-192 (Gallagher); I-195 (Hughes); I-199 (Knoch); I-203 (Lapierre); I-221 (Pagon); I-226 (Falk); I-275 (Roeder); I-286 (Tadlock); I-294 (Marsolek); I-301 (Goellner); I-307 (Galante); I-308 (Siegle); I-311 (Guthrie); I-314 (Kinder); I-316 (Fallstrom); I-319 (Wilson); I-321 (Pagon); I-323 (Gonzalez); I-325 (Depoe); I-330 (Kusel); I-333 (Parker); I-335 (Wallin); I-345 (Ryan); I-353 (Cox); I-359 (Streifel); I-367 (Collins); I-371 (Irvin); I-372 (Hansen); I-399 (Jensen); I-405 (Sanner); I-412 (Rust); I-417 (Shelton); I-425 (Christensen); I-428 (Clay); I-434 (Lee); I-438 (Jennings); I-441 (Berntsen); I-443 (Didier); I-445 (Goehner); I-

446 (Widman); I-447 (White); I-451 (Sanders); I-466 (Soloski); I-503 (Bolt); I-508 (Wohleb); I-515 (Davenport); I-518 (Downs); I-540 (Hurd); I-541 (Mattison); I-544 (Erickson); I-553 (Belzak); I-565 (Lawson); I-581 (Moller); I-591 (Kimball); I-601 (Fortier); I-614 (Anonymous); I-615 (Killian); I-621 (Selthofer); I-624 (Piety); I-643 (Richards); I-644 (Burns); I-645 (Siegle); I-649 (Teats); I-651 (Anonymous); I-656 (Schmit); I-668 (Duensing); I-677 (Iddings); I-679 (Cook); I-681 (Lowman); I-689 (Morrell); I-714 (Heinisch); I-718 (Buinger); I-720 (Gear); I-723 (Deakins); I-727 (Brumpton); I-728 (Jaynes); I-729 (King); I-735 (Garvey); I-740 (Evans); I-742 (Swanson); I-749 (Olson); I-750 (Shattuck); I-752 (Silver); I-753 (Conard); I-759 (Despain); I-774 (Barba); I-784 (Schneider); I-786 (Vigna); I-793 (Johnson); I-795 (Filipowicz); I-797 (Wright); I-799 (White); I-801 (Edwards); I-803 (Chin); I-804 (Moreau); I-807 (Anonymous); I-834 (Knapp); I-849 (Schneider); I-854 (Hughes); I-855 (Anonymous); I-856 (Friend); I-868 (Ludke); I-869 (Rebman); I-879 (Barhitte); I-894 (Cook); I-913 (Henley); I-929 (Graff); I-950 (Joy); I-957 (Haugh); I-958 (Anderson); I-1038 (Easton); I-1064 (Rase); B-4 (United Moving & Storage); O-16 (Renewable Hydrogen Alliance); O-19 (Yakima County Farm Bureau).

Summary: Commenters expressed opposition to the rulemaking, arguing that they should have the freedom to choose a vehicle that best suits their needs. Many expressed that the rule is an overreach of government control and an imposition on freedom. Others claimed that any increase in ZEV sales should come through private markets, not government standards.

Response: Thank you for your comments. While we appreciate your concerns about freedom of choice, this rule does not require anyone to purchase any vehicle.

The rule imposes a *sales mandate* on automakers that requires them to make ZEVs 35% of their new vehicle sales in Washington in model year 2026, with that percentage increasing annually until the phase-out period ends in 2035. However, the rule does not require that anyone purchase an electric vehicle or force anyone to relinquish their gasoline or diesel-powered vehicle. We are aware that there has been public confusion on this point and offer the following points to clarify the facts on this rule:

- No additional restrictions are placed on currently owned vehicles, and individuals will not be forced to purchase a ZEV or give up their current vehicle. Washington is requiring ZEVs to make up an increasing share of the *new* vehicle market over the next 12 years, but that is the extent of the rule.
- New gasoline- and diesel-powered vehicles will continue to be legal for sale in Washington through model year 2034. By this year, it is widely expected that advancements in technology, supply chains, and battery cost/performance will allow ZEVs to eclipse conventionally powered vehicles in affordability, range, and performance, even leaving their environmental benefits aside. There will also be a much broader network of charging stations; the Washington State Interagency EV Coordinating Council (IEVCC) is currently scoping plans to add numerous public fast charging stations to Washington's roadways, in addition to those being added around the state by private sector businesses. Please see the sections *VIII – Cost and Affordability*, *XIII - ZEV Tech Concerns*, and *IX.7 – Public Charging* for more information.
- In addition to battery-electric vehicles, new hydrogen fuel cell vehicles and plug-in hybrid electric vehicles will all continue to be legal for sale in Washington after 2035.

While we expect battery-electric vehicles to make up the bulk of light-duty vehicle sales, plug-in hybrids and hydrogen vehicles may better fit the needs of drivers that regularly drive extreme distances, need additional power for heavy towing, frequently drive off-road or in very remote areas, or have other unique use cases.

- This rule only applies to light-duty vehicles weighing under 8,500 pounds. Certain trucks, vans, and large SUVs sold for personal use exceed this weight threshold and will not be covered by this rule. Automakers can choose to follow these rules for vehicles weighing 8,500 – 10,000 pounds if they wish to generate compliance credits for ZEV sales, but they are not required to.

Thus, drivers across the state will still have a variety of vehicle models to choose from that meet a diverse range of needs and preferences.

While ZEVs are gaining popularity through the private market (Washington currently has the second-highest ZEV sales percentage in the country, even in the absence of ZEV sales requirements), this rulemaking allows Ecology to accelerate the transition in a way that is both convenient and affordable for residents and allows the state to meet its climate and environmental goals:

- First, it will keep Washington state on track to meet its scientifically-driven greenhouse gas emission limits, which require the state to reach "net zero" emissions by 2050. It is critical that we take steps as soon as practical to reduce vehicle pollution, given that transportation is Washington's largest single source of greenhouse gas emissions. Setting a 2035 mandate allows Washington to immediately begin reducing emissions while giving time for the market to adjust and produce ZEVs that will meet the needs of all of Washington's residents.
- Second, it will provide a signal to manufacturers to further increase ZEV production and the types of ZEVs offered to potential buyers. Since manufacturers will have to sell ZEVs to a more diverse group of buyers, they will be incentivized to produce models that are affordable and meet unique use cases, such as towing and long-range trips. While these efforts are already ongoing, this rulemaking will further accelerate the trend and allow Washingtonians to realize the benefit of ZEV vehicles on an earlier timeline.

3. Public Voting

Commenters: I-16 (Crocker); I-23 (Anonymous); I-26 (Anonymous); I-31 (Owens); I-38 (Enochs); I-99 (Polehn); I-123 (White); I-125 (Sharrar); I-126 (Webster); I-128 (Paul); I-172 (Gatchell); I-213 (Weiss); I-226 (Falk); I-250 (Potter); I-306 (Conley); I-324 (Valdez); I-380 (Creasey); I-455 (Anonymous); I-707 (Stuht); I-794 (Fleming); I-831 (Carter); I-848 (Self); I-868 (Ludke); I-870 (Anonymous); I-942 (Trimble).

Summary: These commenters expressed frustration that Ecology was implementing these rules without a public vote and asked that Ecology send the rule to voters for final approval.

Response: Thank you for your comments on the process behind this rulemaking. Ecology does not have the ability to authorize or implement a statewide vote on approval of this rule, so this

issue is outside the scope of the rulemaking. The state Legislature passed a law in 2020 adopting California's motor vehicle emission standards and directing Ecology to create rules to implement the standards, including the zero-emission vehicle program. This year's rulemaking is necessary for Ecology to comply with that law and update state rules to meet California's most recent regulations. This process follows procedures set out in Washington's Administrative Procedure Act (34.05 RCW[8]) and Section 177 of the federal Clean Air Act (please see Section *VI.1 – Following California* for more information).

4. Legal Concerns

Commenters: O-18 (WSPA)

Summary: This commenter claims that the ACC II Program is a technology mandate, not an emissions standard, and raises the issue of preemption under the Energy Policy and Conservation ACT (EPCA). The commenter also states that in the process of conducting this rulemaking, Ecology has potentially not conducted required analysis under the Washington Administrative Procedures Act (APA), the State Environmental Policy Act (SEPA), and Regulatory Fairness Act (RFA). The commenter expresses that the Clean Vehicles rule is a "significant legislative rule" under the APA that requires an economic analysis of all aspects of the rule, including full costs of implementing the ACC II program.

Response: Ecology appreciates this comment but disagrees with the assertion that the ACC II rule imposes a technology mandate and does not meet the definition of an "emissions standard". The zero-emission vehicle standard is technology-neutral; multiple vehicle technologies comply with the rule, including battery-electric vehicles, hydrogen-powered vehicles, and plug-in hybrid electric vehicles (which emit zero tailpipe pollution until their on-board battery depletes). If additional technologies are developed that can power a vehicle and emit no tailpipe pollution during vehicle operation, it is possible they could also be used for compliance under the rule. The rule also imposes no restrictions on the sale of used gasoline and diesel-powered vehicles.

The issue of preemption under the EPCA is outside the scope of this rulemaking. However, Ecology notes that the National Highway Traffic Safety Administration (NHTSA) repealed the SAFE I rule on December 21, 2021, which had previously preempted enforcement of California's emissions standards, and concluded that its prior determination "overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests."[9]

Regarding APA, RFA, and SEPA compliance, Ecology welcomes these issues being raised but respectfully disagrees that this rulemaking forgoes required analyses. Full responses regarding Ecology's compliance with these requirements are provided below.

Administrative Procedure Act

[8] https://apps.leg.wa.gov/RCW/default.aspx?cite=34.05
[9] https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy

The primary function of the APA's economic analysis process is to evaluate an agency's rulemaking options to determine whether probable benefits of the rule outweigh probable costs. We note that that the Legislature adopted California's vehicle emission standards under RCW 70A.30.010 and directed Ecology to promulgate and update our rules accordingly, going so far as explicitly directing Ecology to implement the zero-emission vehicle program. Thus, Ecology has no authority to consider alternative regulations to the Advanced Clean Cars II and Heavy-Duty Omnibus rules adopted by California:

the legislature adopts the California motor vehicle emission standards in Title 13 of the California Code of Regulations. The department of ecology shall adopt rules to implement the motor vehicle emission standards of the state of California, including the zero emission vehicle program, and shall amend the rules from time to time, to maintain consistency with the California motor vehicle emission standards and 42 U.S.C. Sec. 7507 (section 177 of the federal clean air act).

When Ecology is required by statute to adopt a rule in full, an economic analysis would not contribute to informing the rulemaking's outcome. Ecology has no potential alternatives to the adoption of ACC II and the Heavy-Duty Omnibus rules that could be considered in a cost-benefit analysis that evaluates different rulemaking options, as that decision has already been made by the Legislature.

The APA recognizes this distinction at RCW 34.05.328 (5)(b)(v),[10] which provides that the provisions for significant legislative rules do not apply when the rule content is "explicitly and specifically dictated by statute." Nondiscretionary rulemaking decisions that are dictated by statute are not "significant legislative rules" where the agency is exercising a delegated substantive lawmaking function. The APA's procedures for significant legislative rules are focused on providing information that helps evaluate an agency's rulemaking, not information that helps evaluate the legislature's policy decisions set forth in statute. Accordingly, the procedural requirements of RCW 34.05.328, including the requirement for an economic analysis, do not apply to the aspects of rulemaking where the content of the rule is dictated by statute. RCW 34.05.328(5)(b). *E.g. Bassett v. Department of Ecology,* 8 Wn. App.2d 284, 438 P.3d 563 (2019).

Ecology has conducted and provided Final Regulatory Analyses of the one-time fleet reporting requirement and the credit provisions for new light-duty ZEV sales in MY 2023 and 2024. Both rules were created under Ecology's discretion and authority as supporting regulations to the ACC II and Heavy-Duty Omnibus standards that were adopted by the Legislature. Therefore, an economic analysis for these rules both makes sense and falls under the APA's statutory requirements; unlike the ACC II and Heavy-Duty Omnibus standards, Ecology has the authority to revise these rules and evaluate potential alternatives because of issues identified during the cost-benefit analysis.

While an economic analysis of the ACC II and Heavy-Duty Omnibus rules is both impractical and not required under the APA for the reasons described above, we note that CARB has

[10] https://app.leg.wa.gov/RCW/default.aspx?cite=34.05.328

performed full cost-benefit analyses of both rules.[11] Both rules were found to result in cumulative net benefits for the state, with the ACC II rule having a benefit-cost ratio of 1.43 and the Heavy-Duty Omnibus rule having a ratio of 8.23.

Regulatory Fairness Act

WSPA expresses concern that Ecology fails to comply with the RFA by disregarding the costs of compliance with the Advanced Clean Cars II rule for small businesses. However, RCW 19.85.025(3) states that the requirements of the RFA do not apply to the adoption of a rule described in RCW 34.05.310(4), which include "rules the context of which is explicitly and specifically dictated by statute" (RCW 34.05.310(4)(e)).

Ecology is therefore exempt from performing a small business economic impact statement (SBEIS) on its adoption by reference of California's ACC II rule, as the content of that rule is "explicitly and specifically dictated by statute" in RCW 70A.30.010, as discussed above in the explanation of why these portions of the rule are exempt from the requirements for significant legislative rules under RCW 34.05.328. On the other hand, Ecology has performed economic analyses and an SBEIS on the parts of the rulemaking which are not expressly required by statute, which include the early action ZEV credits and the one-time fleet reporting requirement. Just like the requirements for significant legislative rules under RCW 34.05.328, the requirement to prepare a small business impact statement under RCW 19.85 makes sense for portions of the rule for which Ecology has discretion under the statute, but does not make sense, and is not required, where Ecology has no such discretion.

SEPA

WSPA comments that Ecology has not conducted required analysis under SEPA because it does not fully address certain environmental impacts from Ecology adopting the ACC II rule, such as emissions in the EV manufacturing process, adverse impacts from battery disposal, and increased demand for electricity. However, it is the legislature in passing RCW 70A.30.010, not Ecology in this rulemaking, that has made the policy decision for Washington State to adopt California's motor vehicle emission standards. All actions of the state legislature are categorically exempted from SEPA analyses under WAC 197-11-800(10).[12] WSPA's claim that Ecology has failed to consider the total environmental impacts of adopting California's motor vehicle emissions standards seems to ignore this; ACC II is a California emissions standard that Ecology is required by the state legislature to adopt into Washington's rules and implement.

The portions of the rule that simply specify provisions of California's standards that are adopted by reference are categorically exempt from the SEPA process, while portions of the rule that implement these standards and have been developed by Ecology are not. Ecology has issued a Revised Determination of Non-Significance (DNS) to confirm which aspects of the rule are covered under SEPA and clarify other details on environmental impacts.

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[11] See https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappf.pdf for the ACC II rule https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2020/hdomnibuslownox/appc3.pdf for the HD Omnibus rule.
[12] https://app.leg.wa.gov/WAC/default.aspx?cite=197-11-800

Ecology's SEPA review was conducted only on the parts of the rulemaking over which Ecology has discretion under RCW 70A.30.010: the early action ZEV credits and the fleet reporting requirement. The fleet reporting requirement and the update of federal air quality standards in WAC 173-400 have no projected environmental impacts. Therefore, the only part of the rule with a potentially significant adverse impact is the provision of early action ZEV credits. This part of the rule is not a sales requirement or mandate, but an optional provision under which automakers can choose to receive ZEV credits for sales of ZEVs in MYs 2023 and 2024.

To meet the threshold for a "significant" action under SEPA, there must be a "reasonable likelihood of more than a moderate adverse impact on environment quality" which depends on the "context and intensity" of projected impacts (WAC 197-11-794[13]). It is extremely unlikely that providing optional early action ZEV credits to manufacturers will by itself create the types of potential adverse impacts identified by WSPA, such as the construction of new gas plants to provide electricity to vehicles and an increased potential of wildfire ignition due to new transmission and distribution infrastructure. Therefore, Ecology issued a Determination of Non-Significance for this rulemaking as any adverse impacts associated with early action ZEV credits are assessed to be minor and below the threshold of significance.

Finally, WSPA comments that Ecology fails to comply with SEPA because it does not address alternatives to the proposed rules, such as WSPA's low-carbon fuels proposal. Again, such an analysis is not required by SEPA and is irrelevant in the face of the statutory requirement that Ecology adopt by reference emission standards set by CARB, with no authority to consider alternative regulations to the adoption of California's motor vehicle emissions standards.

Commenters: I-111 (Christensen); I-128 (Paul); I-246 (Smith); I-374 (Duggins); I-375 (Smith); I-621 (Selthofer); I-634 (Smyth); I-664 (Sharp).

Summary: These commenters raised various legal objections to this rulemaking. Most claimed that the rule violates the U.S. Constitution or claimed that it is illegal to mandate citizens to purchase a certain type of vehicle.

Response: Thank you for taking the time to comment on this rule. The Motor Vehicle Emission Standards law (RCW 70A.30.010), which passed the state Legislature and was signed into law by Governor Inslee in 2020, directs Ecology to adopt rules to implement California's motor vehicle emission standards. Washington has authority to adopt California's rules through Sections 177 and 209 of the Clean Air Act. Section 209[14] allows California to adopt its own vehicle emission standards, pending approval of a waiver from the U.S. Environmental Protection Agency, and Section 177[15] allows states other than California to adopt the California motor vehicle standards approved by the EPA.

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[13] https://app.leg.wa.gov/WAC/default.aspx?cite=197-11-794
[14] https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapII-partA-sec7543.htm
[15] https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7507.htm

The EPA approved California's waiver for the Advanced Clean Cars I regulation on March 14, 2022. On January 31, 2022, CARB submitted a request that EPA grant a waiver of preemption for the Heavy-Duty Omnibus regulations, and we anticipate that CARB will submit a similar request regarding the Advanced Clean Cars II regulation. While EPA must approve waivers before the ACC II and Heavy-Duty Omnibus standards can be enforced, we have no reason to believe EPA will reject CARB's applications.

5. 2035 Timeline

Commenters: I-37 (Vangelder); I-51 (S.); I-61 (Anonymous); I-72 (Anonymous); I-81 (Spencer); I-81 (Spencer); I-90 (Rindal); I-125 (Sharrar); I-159 (Ferro); I-165 (Knudtsen); I-197 (Pellegrino); I-217 (Newbold); I-224 (Halliwill); I-225 (Bender); I-228 (Hubbard); I-229 (Morrow); I-248 (Shields); I-320 (O'Donnell); I-324 (Valdez); I-425 (Christensen); I-432 (Hamm); I-470 (Bride); I-474 (Greenough); I-479 (Croonquist); I-481 (Burris); I-491 (Owens); I-495 (Som-Mueller); I-617 (Burkhardt); I-627 (Larsen); I-631 (Hamilton); I-648 (Kellum); I-765 (Hale); I-818 (Elliott); I-828 (McCollum); I-849 (Schneider); I-863 (Crumpacker); I-925 (Aldridge); I-931 (Prince); I-1069 (Cavanagh); I-1079 (Burr); I-1083 (Hodgson); B-6 (CLB Safety Compliance LLC); B-16 (Lucid USA Inc.).

Summary: These commenters expressed concerns about the 2035 target date for phasing out the sale of new gasoline- and diesel-powered cars due to a perceived lack of infrastructure planning and other factors. Some commenters also expressed significant concerns with the aspirational goal of 100 percent ZEV light-duty vehicle sales in 2030 set by Engrossed Substitute Senate Bill 5689 (Move Ahead Washington), or asked Ecology to adopt the 2030 goal as an enforceable mandate.

Response: Ecology is required by statute to follow motor vehicle emission standards set by CARB, which set the 2035 end date following a multiyear rulemaking process that included multiple comment periods and considerations of alternative policies. We recognize that this appears to be a short timeline for transitioning to new vehicle technologies. However, based on the available evidence and industry trends, we believe that the 2035 timeline is achievable and will allow Washington to meet its scientifically-driven climate goals while still giving drivers the freedom to purchase and use vehicles that meet their transportation needs.

- First, Washington residents are already adopting electric vehicles and other ZEVs at a high rate – they made up approximately 11%[16] of new vehicle sales in Washington in the second quarter of 2022. In addition, numerous studies have projected that light-duty electric vehicles with 400 or more miles of battery range will reach price parity with ICEVs before 2035. Please see the sections *VIII - Cost and Affordability* and *XIII – Zero Emission Vehicle Technology Concerns* for more detail. This means that by the time ICEVs are mostly or fully phased out of the new vehicle market, electric vehicles will already a practical and convenient option for most vehicle users. Residents will still have

[16] Alliance for Automotive Innovation. "Get Connected: Electric Vehicle Quarterly Report (2022 Q2)". https://www.autosinnovate.org/posts/papers-reports/Get%20Connected%20Electric%20Vehicle%20Quarterly%20Report%202022%20Q2%209-13-22.pdf

the option of purchasing new plug-in hybrids or hydrogen-powered vehicles, as well as used gasoline and diesel-powered vehicles, if EVs on the market do not meet their needs.

- Second, Ecology and nine other state agencies are collaborating on the Interagency Electric Vehicle Coordinating Council (IEVCC) to create transportation electrification strategies and ensure there is adequate public charging access in Washington. The IEVCC will consult with a stakeholder advisory panel and implementation partners such as electric utilities, transportation planning organizations, tribal governments, and industry representatives. The state is also using National Electric Vehicle Infrastructure (NEVI) funds to locate public fast charging stations on major highways across Washington. Ecology notes that these are preliminary actions that do not preclude additional efforts to develop additional charging infrastructure, address equity concerns, and create alternative sources of transportation funding. This also does not include industry actions to increase charging networks, which many automakers and others have begun investing in.

- Third, state energy policies require utilities to transition to clean energy sources while maintaining grid reliability. While electric vehicles will add demand to the grid, this is something already being considered utility planners across the state. The addition of cost-effective clean energy to Washington's grid will further decrease greenhouse gas emissions from EV use and charging.

With respect to the 2030 ZEV goal set in the "Move Ahead Washington" transportation package, Ecology notes that this is an aspirational goal that is not enforceable by law, although the IEVCC will be incorporating this goal into their Transportation Electrification Strategy. This policy is also outside the scope of this rulemaking, as it is unrelated to the California motor vehicle emission standards adopted by the legislature that Ecology is required by statute to implement.

6. State Fleets

Commenter: I-71 (Schinnell); I-72 (Anonymous); I-99 (Polehn); I-844 (Harding); O-10 (Alliance for Automotive Innovation).

Summary: These commenters expressed frustration that this mandate was not required for state vehicles and travel.

Response: Thank you for your comments. It is important that all emitting vehicles be transitioned to zero emission technology as soon as feasible to ensure maximum emissions reduction and maximum climate damage mitigation. It is also important for the state to lead by example. That is why in November 2021, Governor Inslee signed Executive Order 21-04,[17] mandating that state fleets transition to 100% zero-emission by 2035 for light-duty trucks and passenger vehicles. Medium- and heavy-duty vehicles must transition by 2040. Ecology notes that this executive order is stronger than the mandate in this rule as the executive order is not a sales mandate, but rather a fleet composition mandate. The State Efficiency and Environmental

[17] https://www.governor.wa.gov/sites/default/files/exe_order/21-04%20-%20Zero%20Emission%20Vehicles.pdf

Performance Office (SEEP) in the Department of Commerce has been charged with developing a plan to transition state fleets and providing guidance to agencies on the transition.

VII. Modes of Transportation

1. Hydrogen Fuel Cell Vehicles

Commenters: I-103 (Forsberg); I-154 (King); I-157 (Oates); I-174 (Gilbertson); I-260 (Cribbin); I-282 (Dekock); I-293 (Marsolek); I-303 (Scott); I-425 (Christensen); I-542 (S); I-730 (Gilbertson); I-743 (Koester); B-12 (Christensen Inc).

Summary: These commenters encouraged Ecology to consider hydrogen-powered vehicles in its rulemaking and promoted them as a favorable alternative to battery-electric vehicles.

Response: We appreciate your comments and agree that fuel cell vehicles and other hydrogen-powered vehicles can play an important role in our transition to cleaner transportation options. Hydrogen-powered vehicles produce no tailpipe pollution and are therefore considered a zero-emission vehicle under the rules Ecology is adopting. Auto manufacturers will earn ZEV credits for selling hydrogen-powered vehicles, and vehicles of this type can continue to be sold in Washington after MY 2034. The rules do not mandate that vehicles be powered by a certain type of technology, as long as the vehicle either produces no tailpipe pollution during operation or meets the definition of a plug-in hybrid electric vehicle (PHEV).

2. Hybrid Vehicles

Commenters: I-26 (Anonymous); I-87 (Silvey); I-92 (Gipe); I-103 (Forsberg); I-114 (Heitzman); I-128 (Paul); I-244 (McMillan); I-291 (McKinzie); I-377 (Anonymous); I-396 (Magnussen); I-435 (Lynn); I-501 (Kuk); I-584 (McMillan); I-628 (Gibvoney); I-665 (Medved); I-691 (Melton); I-743 (Koester); I-814 (Klein); I-934 (Anonymous); I-947 (Husting); I-957 (Haugh); I-1083 (Hodgson); B-12 (Christensen Inc).

Summary: These commenters asked why hybrid vehicles were not considered in Ecology's rulemaking and advocated that Ecology push for more hybrid vehicles instead of electric vehicles and other ZEVs.

Response: The rules Ecology is adopting allow for the continued sale of plug-in hybrid electric vehicles (PHEVs) after model year 2034. PHEVs will be permitted to make up a maximum of 20% of a manufacturer's ZEV credit compliance obligations in a model year. New PHEV sales will be permitted in model year 2035 and thereafter and may be more suitable for rural and agricultural communities that have longer distance driving needs than other vehicle use cases.

Ecology is required by law to implement California's standards, which do not consider hybrid vehicles without a plug-in option to be a zero-emission vehicle. Therefore, adopting regulations to increase the purchase and use of conventional hybrid vehicles is outside the scope of this rulemaking.

However, new conventional hybrid vehicles can continue to be sold through model year 2034 and used hybrids can be sold in model year 2035 and thereafter. While hybrid vehicles have lower emissions during operation than ICEVs, they have higher lifecycle emissions than battery-electric vehicles. Please see the *X.3 – Battery Manufacturing Emissions* section for more information. EVs are also expected to become a more convenient and economical option than hybrids in the future due to lower battery costs, increased fuel savings, and other factors.

3. Public Transit

Commenters: I-19 (Merryman); I-29 (Menges); I-270 (Reynolds); I-508 (Wohleb); I-899 (Gerfin); O-7 (Joint Comment); O-9 (Climate Solutions).

Summary: Commenters expressed frustration with Washington's public transit system and claimed it could not replace vehicle ownership or support a transition to zero-emission vehicles. One commenter expressed that there is no feasible zero-emission option for transit busses currently.

Response: Thank you for your comments. While public transit is a convenient, affordable, and environmentally friendly option for many Washington residents, we understand that it does not work for everyone. It is certainly not the intention of the rule to coerce or force anyone to replace vehicle ownership with riding public transit. The rules do not place any restrictions on current vehicles, do not ban sales of used gas and diesel-powered vehicles, and only mandate that 100% of new vehicle sales are ZEVs once they are widely expected to meet or exceed price and performance parity with conventionally powered vehicles.

Ecology supports increasing convenient, equitable, and safe mass transit options, but it is not within the scope of this rulemaking, which governs emission standards for light-duty and passenger vehicles. Mass transit issues are addressed in other Ecology rules such as the Greenhouse Gas Emissions - Cap and Invest Program (RCW 70A.65) formed as part of the Climate Commitment Act. For example, a significant portion of proceeds from auctions under the program will be directed to the Carbon Emissions Reduction Account (CERA), which funds projects to reduce transportation emissions and increase access to public and alternative transportation.[18] The state Legislature will ultimately appropriate the funds to specific projects.

Further, transitioning to zero-emission busses (ZEBs) is also not within the scope of this rule. Ecology may choose to adopt new emission standards for public transit busses at a later date. While it is a developing market in its early stages, several ZEB models exist, and transit agencies are already transitioning to ZEB fleets.[19]

[18] See https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Auction-proceeds for more information on CERA and other accounts funded by proceeds from the cap-and-invest auctions.
[19] For example, the Antelope Valley Transit Authority in Southern California has an all-electric fleet of 88 electric buses, vans, and commuter coaches. https://www.avta.com/about-our-fleet.php

4. Neighborhood Electric Vehicles and Transit

Commenter: I-938 (Burley)

Summary: This commenter was supportive of the rulemaking but encouraged Ecology to adopt additional rules to further decrease greenhouse gas emissions and air pollution from transportation. The commenter urged Ecology to adopt rules to promote increased use of mass transit and electric bikes, scooters, and other neighborhood electric vehicles (NEVs).

Response: Thank you for your comment. While it is outside the scope of our current rulemaking to reduce emissions from motor vehicles, Ecology agrees that Washington residents should have access to safe and convenient mass transit options. We support efforts by the Washington State Department of Transportation (WSDOT) and local and regional transit agencies to expand light rail systems, rapid bus routes, and other public transit systems. Funds from Ecology's Climate Commitment Account will expand safe, equitable, and convenient public transit access. Ecology will continue to explore adopting additional rules that support alternative forms of transit to passenger vehicles.

Further, Ecology is a member of the Interagency Electric Vehicle Coordinating Council (IEVCC) that was created in early 2022 by the Move Ahead Washington transportation package. The IEVCC oversees developing a statewide transportation electrification strategy that considers all zero-emission vehicles, including e-bikes and other NEVs. There are also efforts at the local government level to promote and expand the use of e-bikes and other electric transit options.

While NEVs and public transit may be an excellent option for urban and suburban residents, they will likely be less practical for rural communities – demonstrating the need for a multilayered statewide strategy that considers multiple methods of transportation. Together, these efforts will serve to increase Washingtonians' access to affordable, clean, and practical transit options.

5. Heavy-Duty Electric Vehicles

Commenter: I-201 (Newton); I-231 (Faulken); I-262 (King); I-263 (Wright); I-273 (Weise); I-320 (O'Donnell); I-445 (Goehner); I-500 (Ezzell); I-792 (Gordon); I-934 (Anonymous); A-2 (Washington State Potato Commission); B-4 (United Moving & Storage); B-5 (Combined Forestry & Marine Services Inc.); B-14 (Hermann Bros. Logging & Const. Inc.); B-15 (Hermann Bros. Logging & Const. Inc.); O-13 (Washington Trucking Associations).

Summary: The commenters expressed opposition to imposing ZEV and EV requirements on medium- and heavy-duty vehicles. They comment that technology is not ready to support a requirement and that it would impose unacceptable costs on businesses and industries. One commenter also expressed opposition to Ecology adopting CARB's proposed Advanced Clean Fleets rule.

Response: Thank you for your comments. Ecology is not adopting any ZEV requirements for medium- and heavy-duty vehicles this year, so these comments are outside the scope of this rulemaking. In November 2021, Ecology adopted by reference California's Advanced Clean

Trucks (ACT) rule, which sets ZEV sales requirements for Class 2b-8 vehicles starting in MY 2025.

The ACT rule does not completely phase out sales of gasoline- and diesel-powered trucks. By 2035, the rule requires that new vehicle sales must be 55% ZEV for Class 2b-3 vehicles, 75% ZEV for Class 4-8 vehicles, and 40% ZEV for Class 7-8 tractors. They also do not mandate electric vehicles; while battery-electric trucks are an option, hydrogen-powered and plug-in hybrid drivetrains also comply with the ZEV requirement.

Lastly, Ecology is not planning to adopt CARB's Advanced Clean Fleets rule this year, so that issue is outside the scope of this rulemaking. The rule is still under proposal in California and Ecology is not able to adopt rules that have not been approved by CARB.

6. Renewable Fuels and Other Liquid Fuels

Commenters: I-82 (Swamatha); I-258 (Nasby); I-425 (Christensen); B-1 (Nelson); O-8 (Growth Energy); O-11 (Pacific Propane Gas Association); O-15 (POET LLC).

Summary: These commenters encouraged Ecology to enact policies supporting the use of low-carbon fuels as an alternative to ZEVs. Alternative fuels mentioned include renewable natural gas, biodiesel, bioethanol, and propane.

Response: Ecology recognizes the importance of low-carbon fuels within Washington's strategies to decarbonize our transportation sector and meet state climate goals. Low-carbon fuels are critical within the implementation of another Ecology rule, the Clean Fuel Standard (Chapter 70A.535 RCW[20]), which requires fuel suppliers to gradually reduce the carbon intensity of transportation fuels over time.

However, these fuels are outside the scope of this year's rulemaking because Ecology is required by statute to follow California's emission standards and its ZEV program. While vehicles using low-carbon fuels generally produce fewer harmful emissions, they still produce tailpipe pollution and are therefore not considered ZEVs. If alternative fuel technologies advance to the point that no on-board emissions occur during vehicle operation, it is possible they could be used for compliance under Ecology's emission standards for light-duty vehicles.

7. Cleaner Fossil Fuel Vehicles

Commenters: I-37 (Vangelder); I-50 (Anonymous); I-293 (Marsolek); I-363 (Miles); I-396 (Magnussen); I-585 (Babitsky); I-734 (Stiff); I-743 (Koester); I-922 (Alford); I-1033 (Anonymous)

Summary: These commenters expressed the view that contemporary ICEVs are already clean by historical standards. They questioned why Ecology is adopting ZEV rules instead of encouraging the purchase of cleaner, lower-emitting ICEVs.

[20] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.535

Response: Thank you for your comments. While it is true that contemporary ICEVs produce less emissions on a per-vehicle basis than older ICEVs, vehicle pollution remains high in Washington. Light-duty vehicles make up approximately 22% of Washington's greenhouse gas emissions and are a significant source of air pollution. Transitioning to ZEVs is critical to Washington meeting its climate and environmental goals, including the legislative mandate to reduce emissions to "net zero" by 2050.

In addition, this rulemaking extends low emission standards for gas and diesel-powered vehicles sold in the state in model years 2026 – 2034. These updated standards follow previous rules set in Washington to clean up transportation pollution and transition to cleaner cars. Together with the ZEV sales requirement, the new low emission standards are intended to further decrease vehicle pollution in Washington.

VIII. Cost and Affordability

1. Equity and Electric Vehicle Affordability

Commenters: I-3 (Robertson); I-5 (Landau); I-7 (Hayden); I-9 (Moore); I-16 (Crocker); I-26 (Anonymous); I-28 (Donovan); I-33 (Anonymous); I-38 (Enochs); I-41 (Nevius); I-46 (Sheary); I-54 (Carpenter); I-55 (Mooney); I-67 (Schoonmaker); I-69 (Updegrove); I-70 (S.); I-72 (Anonymous); I-75 (Anonymous); I-78 (Bonneville); I-82 (Swamatha); I-83 (Anonymous); I-88 (Wanpler); I-93 (Rapp); I-97 (Rapp); I-102 (Kidd); I-106 (Robertson); I-115 (Clark); I-116 (Johansen); I-125 (Sharrar); I-130 (Gill); I-134 (Rohlfing); I-134 (Rohlfing); I-136 (Anonymous); I-137 (Rohlfing); I-138 (Smith); I-143 (Underwood); I-145 (Tyrian); I-148 (Reichenbach); I-150 (Smith); I-152 (Turner); I-154 (King); I-156 (Campos); I-157 (Oates); I-160 (DeChenne); I-163 (Vanderbie); I-171 (Mayer); I-172 (Gatchell); I-173 (Anonymous); I-175 (Schneider); I-179 (Leutschaft); I-181 (Nartea); I-184 (Sanders); I-185 (Shier); I-187 (Murdock); I-192 (Gallagher); I-195 (Hughes); I-201 (Newton); I-203 (Lapierre); I-205 (Reeder); I-216 (Christensen); I-217 (Newbold); I-219 (Sexton); I-220 (Gengler); I-222 (Haddick); I-230 (McPherson); I-231 (Faulken); I-233 (Heenan); I-238 (Smith); I-239 (Hunt); I-241 (Pomerinke); I-247 (Wixom); I-249 (Wilson); I-254 (Post); I-259 (Waggoner); I-262 (King); I-268 (Hoffman); I-270 (Reynolds); I-271 (McAdams); I-274 (Hildebrant); I-275 (Roeder); I-284 (Palmer); I-286 (Tadlock); I-306 (Conley); I-309 (Higley); I-311 (Guthrie); I-312 (Blodgett); I-314 (Kinder); I-318 (Sanner); I-328 (Holm); I-329 (Ymous); I-332 (Anonymous); I-340 (Shores); I-341 (Beauchamp); I-342 (Rigtrup); I-343 (Thomas); I-346 (Dean); I-350 (Taylor); I-353 (Cox); I-356 (Black); I-357 (Deibert); I-359 (Streifel); I-360 (Wissel); I-363 (Miles); I-364 (Howe); I-365 (Black); I-367 (Collins); I-371 (Irvin); I-376 (Bretz); I-387 (Johansen); I-389 (Almeida); I-395 (Bond); I-396 (Magnussen); I-403 (Gugeler); I-415 (Jeffers); I-419 (Cammann); I-420 (Leghorn); I-425 (Christensen); I-431 (Seng); I-432 (Hamm); I-433 (Gildea); I-437 (Watkinson); I-439 (Pekarek); I-456 (Rowell); I-457 (Bright); I-458 (Gatts); I-475 (Strohmeyer); I-478 (Lewis); I-480 (Horn); I-481 (Burris); I-482 (Weir); I-492 (Saum); I-495 (Som-Mueller); I-496 (Anonymous); I-498 (Moreland); I-508 (Wohleb); I-515 (Davenport); I-518 (Downs); I-519 (Robinson); I-523 (Anonymous); I-534 (George); I-540 (Hurd); I-541 (Mattison); I-543 (Wyllie); I-559 (Starkey); I-560 (McNamee); I-562 (Geiger); I-563 (Day); I-565 (Lawson); I-572 (Ferris);

I-576 (Kreis); I-578 (Padur); I-580 (Wedge); I-583 (Dunn); I-584 (McMillan); I-595 (Niederstadt); I-597 (Franklin); I-603 (Sholdt); I-615 (Killian); I-617 (Burkhardt); I-620 (Whorley); I-625 (Mongrain); I-627 (Larsen); I-641 (Bennetsen); I-642 (McBride); I-644 (Burns); I-649 (Teats); I-659 (B); I-665 (Medved); I-674 (Conner); I-677 (Iddings); I-684 (Bell); I-689 (Morrell); I-695 (McMeins); I-698 (Acosta); I-710 (Engle); I-714 (Heinisch); I-726 (Prudden); I-727 (Brumpton); I-732 (Moberg); I-736 (Bacon); I-754 (Johnson); I-758 (Phaff); I-761 (Zinter); I-775 (Panderson); I-788 (Meyer); I-791 (Anonymous); I-798 (Croneberger); I-809 (Arrell); I-812 (Davidson); I-814 (Klein); I-818 (Elliott); I-820 (Marshel); I-824 (Cowan); I-825 (Avey); I-833 (Tetreault); I-834 (Knapp); I-838 (Dittell); I-839 (Metzger); I-842 (Peoples); I-846 (Driggs); I-850 (Whorley); I-853 (Coleman); I-856 (Friend); I-863 (Crumpacker); I-866 (Klos); I-870 (Anonymous); I-872 (Concie); I-875 (Anonymous); I-876 (Cross); I-879 (Barhitte); I-881 (Jj); I-884 (Keith); I-893 (Linke); I-899 (Gerfin); I-902 (Mitchell); I-906 (O'Neal); I-908 (Freyer); I-912 (Crumpacker); I-913 (Henley); I-915 (Whybark); I-925 (Aldridge); I-926 (Birkland); I-929 (Graff); I-931 (Prince); I-950 (Joy); I-951 (Qualley); I-1042 (Anonymous); I-1086 (Frei); B-4 (United Moving & Storage); B-11 (Gettman's Rod Inc.); O-10 (Alliance for Automotive Innovation).

Summary: These commentors expressed concerns that electric vehicles would remain too expensive for many Washingtonians, such as those with low- or middle-incomes, those on fixed incomes, and those who live in rural areas.

Response: Ecology acknowledges commenters' concerns about the price of zero-emission vehicles (ZEVs), whether hydrogen or electric. Many Washingtonians rely on their own automobile to move around daily between work, home, school, and other places and are used to a gasoline or diesel-powered vehicle. Because Ecology must adopt the California rules by reference and lacks the authority to modify them (see section *VI.1 – Following California*), considerations of affordability are outside the scope of this rulemaking. However, the California Air Resources Board (CARB) addressed affordability concerns in their Initial Statement of Reasons (ISOR), for their Advanced Clean Cars II rule, section VI.E.[21] As this is an important topic that has received significant public attention, we will provide a brief discussion on the issue of ZEV costs below.

To-date, many ZEV models have been marketed as luxury vehicles which may have led to a public perception that ZEVs are not affordable for the average consumer. However, lower-cost models, including high-range models, are increasingly available and industry trends indicate that they will become more prevalent, offer extended battery range, and cost less.

Modeling conducted by CARB[22] and the International Council on Clean Transportation (ICCT)[23] both project decreasing ZEV costs over the next decade. This price decline is driven by falling battery costs and increased economies of scale as automakers increase production to meet market

[21] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf
[22] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf
[23] Slowik, Peter, et al. "Assessment of light-duty electric vehicle costs and consumer benefits in the United States in the 2022–2035 time frame." *International Council on Clean Transportation.* Published October 18, 2022. https://theicct.org/publication/ev-cost-benefits-2035-oct22/

demand. Manufacturing and materials costs for lithium-ion batteries, the primary battery type used in current EV manufacturing, have also fallen significantly over the past decade.[24]

Per the ICCT's analysis, lower-range EVs (i.e., 150-mile ranges) are projected to be at price parity with comparable classes of internal combustion engine vehicles (ICEVs) starting in 2024 while larger vehicles such as pickups with large ranges (e.g., 400-mile ranges) are projected to reach price parity around 2033. These cost estimates include the cost of installing home charging stations, such as Level 2 chargers. Note that this rule requires that a new ZEV include a convenience charging cable that supports Level 1 charging in a 120v outlet and Level 2 charging in a 240v outlet.

The early action credits included in this rule are expected to slightly increase ZEV sales in 2023 and 2024. Increased ZEV sales will support a robust used ZEV market on an earlier timeline, offering even more ZEVs at lower prices for consumers. We expect the used ZEV market will expand over time and increase the availability of used ZEVs, which are more accessible to many households that cannot afford new vehicles. This rule creates specific incentives for automakers to sell lower-cost ZEVs as they earn an additional 0.1 credit for each MY2026 – 2028 vehicle that is sold below $20,275 (passenger car) or $26,670 (light-duty truck).

Additionally, consumers will have other options to choose from besides a new or used ZEV. This rule does not prohibit the use of an ICEV in Washington. New ICEVs will be available for sale through 2034, albeit in decreasing quantities over time. ICEVs will remain on the road and continue to be available in the used vehicle market. New plug-in hybrid electric vehicles (PHEVs) will continue to be legal for sale in Washington after MY2035, although they can only represent a maximum of 20% of an automaker's sales in the state.

The federal government offers many types of incentives to support ZEV purchases. Specifically, starting in 2023, the federal Inflation Reduction Act (passed in August 2022) will offer consumers a tax credit of up to $4,000 towards the purchase of a used ZEV and up to $7,500 towards the cost of a new ZEV, plug-in hybrid vehicle (PHEV), or commercial clean vehicle. The legislation also removes a production cap that had previously phased out high-volume ZEV manufacturers such as Tesla and General Motors, making these vehicles eligible for tax credits again. Starting in 2024, consumers will be able to claim the rebates/tax credits at the point of sale and not have to wait until they file their taxes, receiving savings immediately. This change in the federal tax incentive structure will especially help those who cannot wait for a tax credit, which was not previously received at the same time as the vehicle purchase.

Washington state offers additional incentives for ZEV purchases. Both new ZEVs purchased in Washington (for up to $45,000) and used ZEVs (purchased for up to $30,000) are fully or partially exempt from state sales taxes. Used ZEVs can receive a tax credit of either $4,000 or 30% of the price of the vehicle, whichever is less. These tax credits, along with lower

[24] Ziegler, Micah and Trancik, Jessika. "Re-examining rates of lithium-ion battery technology improvement and cost decline". *Energy & Environmental Science*. 23 Mar 2021, https://pubs.rsc.org/en/content/articlelanding/2021/EE/D0EE02681F

maintenance costs and fuel costs compared to other vehicles, decrease the ownership costs of ZEVs over time. See section *VIII.4 – Financial Incentives* for more information.

Finally, total cost of ownership (TCO) analyses from CARB and the ICCT have determined that first-owner savings will range from $3,216 to $9,000[25] when compared to an ICEV. This is due to lower maintenance, insurance, and fuel costs. How much is saved depends on when the vehicle is purchased. This will help drive long-term affordability for consumers. For more information, see section *VIII.3 – Battery Replacement and Maintenance Affordability*.

2. Home Charging Station Affordability

Commenters: I-3 (Robertson); I-5 (Landau); I-7 (Hayden); I-38 (Enochs); I-46 (Sheary); I-128 (Paul); I-137 (Rohlfing); I-147 (Stolle); I-234 (Kildall); I-867 (Randall); I-948 (Cooper); I-1083 (Hodgson).

Summary: Commenters expressed that homeowners would not be able to afford to install a charging station in their homes.

Response: Ecology appreciates the comments on home charging station affordability. Home charging stations provide flexibility and reduced "fuel" costs over using public charging stations for those able to charge their vehicles at home. They do represent an additional upfront cost on top of the investment in the vehicle. All major cost projections for EVs, such as the CARB and ICCT analyses referenced in this report, include the cost of installing a Level 2 home charging station. Prices can range from $300 for a replacement Level 1 charger to $4,500 for a Level 2 charger (and requisite home wiring upgrades) for two vehicles. The average Level 2 charging station materials and installation cost is roughly $1,300 but ranges from $1,000-$2,500 depending on the home's needs. These prices are projected to slightly decline in the future as more electric vehicles hit the market.[26]

Homeowners that already have three-prong 240-volt outlets located near where they park their vehicle will be able to easily plug in a Level 2 charging station or cord and charge their EV. This 240v outlet is the same that powers electric clothes dryers and electric ovens. Older homes may lack this outlet and not have the ability to add one to their electric panel. An electric panel upgrade can be expensive, but options exist to bypass the panel and provide a 240v outlet at a much lower cost (60 – 80%) than an electric panel.[27]

Even with a 240-volt outlet, some homeowners may not be able to afford a Level 2 charger, as these commenters noted. There are federal incentives for home charging stations that can help with this, including a tax credit of 30% of the cost of hardware and installation, up to $1,000. This tax credit is available through December 31st, 2032. Beginning in 2023, the credit will also

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[25] See the CARB and ICCT analyses cited earlier in this section.
[26] Nicholas, Michael. "Estimating electric vehicle charging infrastructure costs across major U.S. metropolitan areas." *International Council on Clean Transportation*. August 2019, https://theicct.org/sites/default/files/publications/ICCT_EV_Charging_Cost_20190813.pdf
[27] Lewis, Michelle. Siemens' new home EV charger adapter ends need for electrical panel upgrades (electrek.co). July 27, 2022.

apply to bi-directional charges, which enable EVs to serve as grid-connected batteries typically earning bill credits from their utility for providing this service, and providing backup power for the home during blackouts.

Ecology notes that those not living in detached homes with off-street parking face additional barriers to home charging. For more on this topic, see section *IX.6 – Home Charging*.

3. Maintenance and Battery Replacement Affordability

Commenters: I-50 (Anonymous); I-52 (Anderson); I-55 (Mooney); I-78 (Bonneville); I-96 (Donaldson); I-112 (Williams); I-120 (Rosemary); I-128 (Paul); I-270 (Reynolds); I-286 (Tadlock); I-305 (Keel); I-327 (Berkell); I-331 (Kellum); I-348 (Bullock); I-359 (Streifel); I-363 (Miles); I-431 (Seng); I-469 (Citizen); I-512 (Moline); I-556 (Ross); I-567 (Kelly); I-569 (Edinger); I-661 (Fitzpatrick); I-665 (Medved); I-670 (Koffler); I-722 (Sackman); I-736 (Bacon); I-818 (Elliott); I-830 (Lamb); I-838 (Dittell); I-841 (Wilkinson); I-892 (Anonymous); I-893 (Linke); I-1076 (Adams).

Summary: Commenters here are worried that the cost of replacement batteries and ongoing maintenance for electric vehicles will be prohibitively expensive for most consumers.

Response: Lifetime maintenance costs of an EV are significantly lower than internal combustion engine vehicles (ICEVs) in analyses conducted by the Department of Energy,[28] the International Council on Clean Transportation (ICCT),[29] and CARB,[30] amongst others.

The analyses find multiple factors contributing to lower maintenance costs. The first is that EVs do not need oil changes. They also have fewer automotive parts than their ICEV counterparts. This creates fewer points of failure for the vehicle. EVs also do not need the same amount of maintenance for the battery, motor, and electronics as an ICEV. Similarly, fewer fluids are needed for the engine. Finally, EVs have far less brake wear due to regenerative braking. This is a system that converts kinetic energy from the motion of the car into electric charge for the battery, reducing the need for brake pads in most circumstances and extending a battery's range.

These lower maintenance costs are significant and can help EVs give first owners net financial benefits relative to a similar ICEV. These benefits are projected between $3,216 and $9,000[31] over the life of the car. Those savings are also inclusive of the cost of home-charging equipment.

This rule also establishes durability and warranty requirements for electric vehicles (EVs). Batteries must meet durability requirements of either 10 years or 150,000 miles, and warranties must be provided by the manufacturer to the buyer for 8 years or 100,000 miles. For more on battery durability, see section *XIII.4 – Battery Durability* below.

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[28] U.S. Department of Energy. Alternative Fuels Data Center: Maintenance and Safety of Electric Vehicles (energy.gov).
[29] https://theicct.org/publication/ev-cost-benefits-2035-oct22/
[30] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf
[31] These estimates are from the CARB and ICCT analyses cited elsewhere in this section.

Battery replacement costs currently range from $5,000 – $15,000 depending on the make, model, and type of battery. These costs have fallen significantly over the past decade and are expected to continue to fall to under $100 per kWh by 2030, potentially as low as $74 per kWh.[32] Cheaper batteries will reduce replacement and maintenance costs, if they are incurred.

4. Financial Incentives

Commenters: I-1 (Anonymous); I-72 (Anonymous); I-74 (Rohrbach); I-340 (Shores); I-475 (Strohmeyer); I-564 (Ellsworth); I-803 (Chin); I-922 (Alford); I-930 (Tanzi); I-1079 (Burr); B-17 (Rivian Automotive); O-10 (Alliance for Automotive Innovation).

Summary: These commenters expressed a desire for additional financial incentives in addition to the federal rebates and state tax exemptions currently available.

Response: Thank you for taking the time to comment on this rule. We are aware of various efforts at the state and federal level pursuing additional ZEV incentives, including efforts to offer EV purchase rebates in Washington.[33] Nothing in this rulemaking precludes the ability for state and federal lawmakers to authorize additional incentives.

As the rules take effect and automakers produce more lower-priced ZEV models, we also anticipate that the total ownership costs of EVs and other ZEVs will gain cost parity with ICEVs. Please see our other responses in *VIII - Cost and Affordability* for more information. This trend should serve to decrease the need for additional financial incentives over time.

IX. Infrastructure Impacts

1. General Infrastructure Concerns

Commenters: I-16 (Crocker); I-37 (Vangelder); I-40 (T); I-50 (Anonymous); I-77 (Jones); I-80 (Czaban); I-91 (Tadlock); I-102 (Kidd); I-128 (Paul); I-136 (Anonymous); I-141 (Larsen); I-152 (Turner); I-181 (Nartea); I-183 (Middaugh); I-199 (Knoch); I-213 (Weiss); I-215 (Cowman); I-216 (Christensen); I-220 (Gengler); I-224 (Halliwill); I-234 (A. Kildall); I-270 (Reynolds); I-271 (McAdams); I-273 (Weise); I-286 (Tadlock); I-309 (Higley); I-319 (Wilson); I-329 (Ymous); I-331 (Kellum); I-343 (Thomas); I-356 (Black); I-373 (Cowman); I-395 (Bond); I-421 (Franklin); I-428 (Clay); I-441 (Berntsen); I-481 (Burris); I-488 (Bilka); I-509 (Church); I-648 (Kellum); I-657 (Rowland); I-664 (Sharp); I-676 (Stelter); I-678 (Drew); I-702 (Welinski); I-711 (Fox); I-717 (Beckman); I-723 (Deakins); I-736 (Bacon); I-775 (Panderson); I-794 (Fleming); I-830

[32] Ziegler, Micah and Trancik, Jessika. "Re-examining rates of lithium-ion battery technology improvement and cost decline". *Energy & Environmental Science*. 23 Mar 2021, https://pubs.rsc.org/en/content/articlelanding/2021/EE/D0EE02681F

[33] See pg. 52 of the proposed 2022 supplemental budget for more detail. https://ofm.wa.gov/sites/default/files/public/budget/statebudget/highlights/budget22/2022_BudgetHighlights.pdf

(Lamb); I-838 (Dittell); I-839 (Metzger); I-855 (Anonymous); I-875 (Anonymous); I-925 (Aldridge); I-926 (Birkland); I-1086 (Frei); B-4 (United Moving & Storage).

Summary: Commenters here are concerned about infrastructure broadly defined, stating multiple concerns. These comments are bundled together as they do not specify which part of infrastructure (home chargers, public chargers, electric generation, transmission, hydrogen refueling centers, etc.) they are concerned with. Comments include the following:

- That it will be "too expensive" for the state to build out the needed infrastructure for ZEVs
- That infrastructure "isn't ready" and this mandate should wait for it to be "ready"
- That building infrastructure will take too long
- That infrastructure can't be built in certain parts of the state, with commenters listing places such as downtown Seattle, rural areas, and recreation areas
- That infrastructure demand will outpace supply

Response: Thank you for your comments. This section, *IX – Infrastructure,* covers a variety of topics related to infrastructure concerns, such as impacts to the electrical grid, the expansion of public and home charging, battery recycling efforts, and related topics. For more information about these topics, we encourage you to look at subsections 2 – 6 below in section IX.

However, we would like to note that this is a motor vehicle emissions rule and therefore has little bearing on infrastructure to support ZEVs. Concerns related to infrastructure are mostly outside the scope of this rule. Given the high public interest in this topic, we provide the below information for transparency and to make commenters aware of state, federal, and other efforts to support the ZEV transition.

There are also many ongoing efforts to expand all parts of the infrastructure that impacts ZEVs. The state has submitted a plan to the federal government to receive National Electric Vehicle Infrastructure (NEVI) funds which will expand public charging along all major transportation corridors. The state also established the Interagency Electric Vehicle Coordinating Council (IEVCC) that is tasked with developing a statewide transportation electrification strategy by the end of 2023.

These efforts are layered on top of existing private networks, such as Tesla's SuperCharger network, and efforts by businesses as diverse as fast-food chains and pharmacies to install chargers in parking lots. Utilities are required to plan for the extra electrical generation needed and to ensure their power mix increasingly comes from emissions-free sources. All these efforts apply to both charging for light-duty vehicles such as passenger cars and special charging for heavy-duty vehicles such as semi-trucks.

Again, for more on all these issues, see the following subsections 2 through 7 below, all in this section (*XI – Infrastructure*).

2. General Electric Grid Concerns

Commenters: I-7 (Hayden); I-59 (Bos); I-70 (S.); I-84 (Luffman); I-131 (Stewart); I-134 (Rohlfing); I-138 (Smith); I-145 (Tyrian); I-162 (Moline); I-165 (Knudtsen); I-182 (Godfrey); I-207 (Bennington); I-208 (Divelbiss); I-209 (McCotter); I-231 (Faulken); I-309 (Higley); I-322 (Severy); I-349 (Leavens); I-361 (Lehtinen); I-363 (Miles); I-441 (Berntsen); I-469 (Citizen); I-471 (Smith); I-498 (Moreland); I-573 (Anonymous); I-582 (Middaugh); I-635 (Woodland); I-687 (Crooks); I-698 (Acosta); I-767 (Nelson); I-791 (Anonymous); I-836 (Hiebert); I-850 (Whorley); I-888 (Schneider); I-1037 (Warden); I-1043 (Mains); O-10 (Alliance for Automotive Innovation).

Summary: These commenters expressed concern about the costs of upgrading the electric grid to meet EV charging needs, as well as the impact of EV charging on electricity costs. Many expressed opposition to removing nuclear power and fossil fuels from Washington's energy grid, or not considering new power generation using these sources. Some commenters also expressed opposition to removing the Lower Snake River Dams and other hydroelectric dams in the state.

Response: Thank you for your comments. Washington's energy mix and resource adequacy needs are governed by other rules and regulations and are outside the scope of this rule governing motor vehicle emissions. The Electric Utility Resource Plans Law (19.280 RCW) requires utilities to make long-term plans to meet anticipated future demand needs, such as the additional load from EV charging.

The Clean Energy Transformation Act (19.405 RCW) requires utilities to transition away from fossil fuels, but it does not ban or discourage the use of nuclear or hydroelectric sources. In fact, Washington utilities are currently exploring the use of small modular nuclear reactors to increase electric capacity with new, carbon-free sources.[34] Adding additional clean energy resources to Washington's grid will further decrease emissions from electric vehicle charging and the transportation sector.

Cost estimates for electric grid upgrade costs and the impacts of EV charging on electricity rates vary widely, and they are beyond the scope of this rule. However, while Ecology makes no assessment on the impacts of EVs on electric rates, evidence suggests that EV charging generates more utility revenue than associated costs and puts downward pressure on rates, making electricity cheaper for customers.[35] Utilities plan for both near- and long-term EV charging impacts. Demand increases can be managed through time of use rates, load shifting, and other strategies that reduce impacts to electric grid reliability.

Finally, the Lower Snake River dams are owned by the federal government and removing them would require approval from U.S. Congress, not Ecology.

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[34] For example, please see the Grant Public Utility District's discussion on using small modular nuclear reactors as a source of baseload power. https://www.grantpud.org/nuclear

[35] Frost, Jason. "Electric Vehicles are Driving Electric Rates Down." *Synapse Energy*. June 2020. https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18-122.pdf

3. Electric Utility Monopolies

Commenter: I-1033 **(**Anonymous)

Summary: This commenter expressed concern that the rule will place too much power in electric utilities, as drivers will have to pay their electric company to power their vehicle instead of fueling the vehicle from a choice of different of gas stations.

Response: Thank you for your comment. This rule does not concern electric utility or gas regulations, so this issue is outside the scope of this rulemaking. However, Ecology notes that electric utilities are tightly regulated by state and federal law and must charge fair and reasonable prices for their service. Transitioning to EVs will likely decrease total energy expenditures, as electricity for EVs is more affordable and less prone to price fluctuations than gasoline.

4. Blackouts and Insufficient Electricity Supply

Commenters: I-2 (Engebo); I-3 (Robertson); I-4 (Moore); I-5 (Landau); I-8 (Ogilvie); I-9 (Moore); I-14 (Spier); I-18 (Hewlett); I-29 (Menges); I-33 (Anonymous); I-35 (Heye); I-38 (Enochs); I-39 (Sweet); I-44 (Adsitt); I-48 (Lawrence); I-51 (S.); I-54 (Carpenter); I-56 (Howard); I-57 (Anonymous); I-59 (Bos); I-61 (Anonymous); I-62 (Anonymous); I-64 (Ingram); I-69 (Updegrove); I-70 (S.); I-75 (Anonymous); I-77 (Jones); I-79 (Hadfield); I-82 (Swamatha); I-83 (Anonymous); I-93 (Rapp); I-96 (Donaldson); I-99 (Polehn); I-102 (Kidd); I-106 (Robertson); I-114 (Heitzman); I-116 (Johansen); I-120 (Rosemary); I-125 (Sharrar); I-128 (Paul); I-132 (Chermak); I-137 (Rohlfing); I-138 (Smith); I-145 (Tyrian); I-150 (Smith); I-151 (Allison); I-153 (Reinhart); I-154 (King); I-157 (Oates); I-159 (Ferro); I-161 (Geloneck); I-162 (Moline); I-164 (Anonymous); I-175 (Schneider); I-180 (Redmon); I-182 (Godfrey); I-185 (Shier); I-186 (Angliss); I-191 (Basler); I-192 (Gallagher); I-193 (Robinson); I-200 (Anonymous); I-203 (Lapierre); I-206 (Bayley); I-208 (Divelbiss); I-211 (Shaputis); I-219 (Sexton); I-230 (McPherson); I-231 (Faulken); I-232 (Kindness); I-238 (Smith); I-239 (Hunt); I-241 (Pomerinke); I-246 (Smith); I-248 (Shields); I-249 (Wilson); I-252 (Childs); I-254 (Post); I-257 (Hay); I-263 (Wright); I-268 (Hoffman); I-275 (Roeder); I-276 (Dennis); I-280 (Downs); I-293 (Marsolek); I-303 (Scott); I-305 (Keel); I-307 (Galante); I-311 (Guthrie); I-314 (Kinder); I-322 (Severy); I-324 (Valdez); I-331 (Kellum); I-333 (Parker); I-335 (Wallin); I-341 (Beauchamp); I-346 (Dean); I-357 (Deibert); I-361 (Lehtinen); I-363 (Miles); I-369 (Anonymous); I-377 (Anonymous); I-387 (Johansen); I-397 (Stanzel); I-401 (Waldock); I-402 (Annis); I-403 (Gugeler); I-404 (Geloneck); I-418 (Bell); I-419 (Cammann); I-427 (Motz); I-432 (Hamm); I-433 (Gildea); I-434 (Lee); I-436 (Grover); I-438 (Jennings); I-442 (Michlig); I-443 (Didier); I-444 (Schreiner); I-451 (Sanders); I-454 (O'Neal); I-456 (Rowell); I-461 (Bickerton); I-465 (Torre); I-466 (Soloski); I-471 (Smith); I-482 (Weir); I-491 (Owens); I-492 (Saum); I-495 (Som-Mueller); I-498 (Moreland); I-499 (Hogan); I-501 (Kuk); I-515 (Davenport); I-518 (Downs); I-523 (Anonymous); I-540 (Hurd); I-542 (S); I-544 (Erickson); I-547 (Bricker); I-551 (Sieloff); I-554 (Garver); I-559 (Starkey); I-563 (Day); I-565 (Lawson); I-569 (Edinger); I-572 (Ferris); I-578 (Padur); I-580 (Wedge); I-581 (Moller); I-585 (Babitsky); I-594 (Smith); I-595 (Niederstadt); I-597 (Franklin); I-606 (Gray); I-607 (Wang); I-610 (Fox); I-617 (Burkhardt); I-620 (Whorley); I-621 (Selthofer); I-622 (Ford); I-625 (Mongrain); I-635 (Woodland); I-642 (McBride); I-643 (Richards); I-646 (Johnsen); I-657 (Rowland); I-664 (Sharp); I-665 (Medved);

I-667 (Trussell); I-668 (Duensing); I-670 (Koffler); I-674 (Conner); I-691 (Melton); I-697 (Wilbur); I-702 (Welinski); I-714 (Heinisch); I-715 (Emrey); I-716 (Pratt); I-732 (Moberg); I-736 (Bacon); I-741 (Steffen); I-743 (Koester); I-746 (Waxman); I-747 (Anonymous); I-751 (Strickland); I-755 (Palmer); I-759 (Despain); I-763 (Bradford); I-773 (Blegen); I-774 (Barba); I-789 (Lapierre); I-790 (Rupe); I-795 (Filipowicz); I-814 (Klein); I-833 (Tetreault); I-838 (Dittell); I-841 (Wilkinson); I-842 (Peoples); I-846 (Driggs); I-860 (Ebert); I-863 (Crumpacker); I-866 (Klos); I-871 (Polyakovsky); I-891 (Mendenhall); I-892 (Anonymous); I-902 (Mitchell); I-921 (Shultz); I-922 (Alford); I-924 (Connolly); I-931 (Prince); I-948 (Cooper); I-954 (Volin); I-1017 (Nist); I-1022 (Johnson); I-1025 (Tuesley); I-1033 (Anonymous); I-1039 (Babitsky); I-1042 (Anonymous); I-1076 (Adams); I-1083 (Hodgson); A-2 (Washington State Potato Commission); B-3 (Puget Sound Transfer); B-6 (CLB Safety Compliance LLC); O-10 (Alliance for Automotive Innovation); O-19 (Yakima County Farm Bureau).

Summary: These commenters expressed concerns that the additional load from EV charging could threaten electric grid reliability and lead to blackouts and brownouts. Some of these commenters referenced the California Independent System Operator's (CAISO) issuance of a "Flex Alert" during a record-breaking heat wave earlier this year that asked residents to temporarily refrain from residential EV charging.

Response: Thank you for your comments. While Ecology recognizes commenters' concerns about grid impacts, enacting rules and strategies to meet anticipated charging loads is handled by electric utilities, the state Department of Commerce, and the Utilities and Transportation Commission (UTC) and are thus beyond the scope of Ecology regulations to reduce motor vehicle emissions. The paragraphs below provide a summary of policies governing resource planning and describe what utilities are doing to manage current and predicted EV loads.

State electric resource planning is governed by the Electric Utility Resource Plans law (19.280 RCW), which requires all state electric utilities to develop and update integrated resource plans (IRPs) on a biannual basis and make them available to the public. IRPs include future load forecasts (including the load from EV charging), identification of probable resource options to meet forecasted loads, and details on power costs and resource management. Other major electric utility policies include the Energy Independence Act (19.285 RCW), which sets targets for energy efficiency and use of renewable energy, and the Clean Energy Transformation Act (CETA) (19.405 RCW), which requires utilities to phase out the use of fossil fuels in their energy portfolio over time.

A review of recent IRPs issued by major Washington utilities such as Avista, Puget Sound Energy, Benton PUD, and Seattle City Light shows that all IRPs considered future EV loads in long-term resource planning and included plans to address this additional demand. While these plans predate Ecology's rulemaking, any additional anticipated electric loads resulting from increased EV usage will be accounted for in utilities' subsequent reports.

In addition, state laws governing electric utilities allow for the creation of Electrification of Transportation Plans (RCW 80.28.365), which allows utilities regulated by the UTC (i.e., investor and consumer-owned utilities) to submit plans about "programs, services, or incentives

to support electrification of transportation" that can include assessments about the "impact of electrification on the utility's load".

While EV charging will likely add demand to the electric grid, such increases can be managed with demand management programs, efficiency gains, and the development of additional power sources. State utilities are making significant investments to bring additional clean electricity sources onto the grid, both to comply with CETA and meet Washingtonians' energy needs over the upcoming decades. The use of demand response strategies and time of use rates will also minimize the impacts of EV charging the energy grid, while saving individuals and businesses money by programming vehicles to charge during low demand periods with cheaper electric rates.

As a risk reduction measure, CETA also allows utilities to obtain short-term waivers of clean energy standards if needed to protect grid reliability.

Furthermore, although Ecology's rulemaking will accelerate the ZEV transition, utilities have already been planning for this development for some time. Washington utilities have already needed to plan for increased load from EV charging, given that approximately 110,000 EVs are already registered in Washington and that ZEVs currently make up 11% of new vehicle sales. The 2021 Northwest Power Plan, for example, forecasts electric load from transportation increasing significantly over the next 20 years, but also notes that the electrification of light-duty cars, trucks, and vans "results in [a] cleaner and more efficient use of energy".[36]

Finally, California's grid reliability issues and CAISO's decision to issue a Flex Alert during the September 2022 heatwave are outside the scope of this rulemaking. Washington and California have notably different energy portfolios, resource needs, and climates, and any direct comparison between the two has little applicability to the ZEV rule. However, it should be noted that CAISO was able to prevent blackouts by implementing energy conservation measures,[37] which included numerous measures aside from simply limiting EV charging. Finally, the limit on residential EV charging was voluntary, did not occur during hours when EVs are typically charged, and did not affect public fast chargers.

5. Battery Recycling Infrastructure

Commenters: I-377 (Anonymous); I-556 (Ross); I-714 (Heinisch); I-838 (Dittell); I-868 (Ludke).

Summary: Commenters were concerned about the lack of perceived infrastructure built around battery recycling, reuse, and disposal, worrying that there would be no way to process expired batteries and therefore creating toxic waste and other impacts.

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[36] Northwest Power and Conservation Council. "The 2021 Northwest Power Plan". https://www.nwcouncil.org/fs/17680/2021powerplan_2022-3.pdf

[37] Newburger, Emma. "California avoids widespread rolling blackouts as heat strains grid". *CNBC.* September 7, 2022. https://www.cnbc.com/2022/09/07/california-avoids-widespread-rolling-blackouts-as-heat-strains-grid.html

Response: Thank you for your comments. Ecology recognizes the concerns of commenters about battery recycling infrastructure. As mentioned in section *X.4 – Battery Recycling and Disposal Impacts*, there are currently 14 recycling plants in the US that are either in planning, pilot, or commercial stages. None are in Washington, although one is planned for Oregon. Five have reached commercial operations.

Some batteries are beginning to be manufactured with recycling in mind. Manufacturers in China have been legally responsible since 2018 for recycling their batteries, and they have the largest EV market globally.[38] The EU and California are considering similar regulations. Labelling requirements in this rule will require manufacturers to note battery chemistry on battery packs, facilitating recycling efforts.

Private companies, including automakers and others, also offer EV recycling services. Some organizations pick up battery packs from individuals and businesses and ship them to recycling centers elsewhere, and they advertise that these pickups can occur anywhere in the US.

6. Home Charging

Commenters: I-63 (Funkhouser); I-87 (Silvey); I-170 (Paris); I-189 (Anonymous); I-203 (Lapierre); I-254 (Post); I-275 (Roeder); I-306 (Conley); I-342 (Rigtrup); I-367 (Collins); I-419 (Cammann); I-431 (Seng); I-446 (Widman); I-495 (Som-Mueller); I-556 (Ross); I-585 (Babitsky); I-618 (Shofstall); I-714 (Heinisch); I-746 (Waxman); I-827 (Bader); I-1083 (Hodgson); O-10 (Alliance for Automotive Innovation).

Summary: These commenters expressed concerns over the cost of installing a charging station at their homes or the inability to do so without expensive electrical panel upgrades. Other commenters expressed concern about residents in multi-unit dwellings without access to a dedicated parking spot or a garage and the inability to install a charging station.

Response: Ecology appreciate commenters' concerns. Home charging can consist of as simple as a charging cable plugged into a standard 110-volt outlet, or it can involve a dedicated 240-volt Level 2 charger installed at the home. To help homeowners pay for the costs of installing a charger, many utilities offer rebates for the equipment, the installation costs, or both. According to the US Department of Energy's Alternative Fuels Data Center, several utilities in Washington offer home EV charger rebates. Some automakers have periodically included a home charger as a promotion with the purchase of an EV. This rule ensures that all new EV sales will include a Level 1 and Level 2 convenience charging cord, although Level 2 charging will only work with an existing 240v outlet.[39]

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[38] "China puts responsibility for battery recycling on makers of electric vehicles". *Reuters*. 25 Feb 2018, https://www.reuters.com/article/us-china-batteries-recycling/china-puts-responsibility-for-battery-recycling-on-makers-of-electric-vehicles-idUSKCN1GA0MG

[39] Level 1 charging uses a typical household outlet and typically provides 3-5 miles of range per hour. Level 2 charging is the most common method of home charging and provides approximately 15-40 miles of driving range per hour, dependent on factors like amperage and efficiency of the vehicle. Direct current fast chargers, or DCFC, are the fastest method of charging EVs and are generally only available at public charging stations.

Many older homes may not have the electrical panel capacity to be able to add a new 240-volt circuit for an EV charger without costly panel upgrades or replacement. However, a cost-effective solution has been developed by Siemens and ConnectDER[40] that provides a connection behind the meter but in front of the panel, promising a 240-volt EV charger connection for a 60-80% cost savings over a panel upgrade. Other possible solutions involve splitting the 240-volt circuit that powers the home's oven or clothes dryer to provide an economical solution to home charger installation.

Issues of home charging for residents of multiple-unit dwellings (MUDs) and others without dedicated off-street parking are a bit harder to solve. Options and solutions are emerging, including installing low-cost Level 2 chargers on utility and light poles, which is being piloted in the Seattle area and in other major cities. These chargers draw from the existing 240-volt electricity supply to the streetlight to power an EV charger mounted on the light pole. London, a very dense city with extremely limited parking options for urban residents, has been deploying a similar solution for some time and now has more than 4,000 light pole mounted EV chargers[41] for use by residents without dedicated parking.

Finally, to help residents of condominiums and other common interest communities install EV chargers, in 2022 the Washington Legislature eliminated onerous restrictions or outright bans to charger installation imposed by condominium owners' associations (HB 1793). An association can no longer prevent a resident from installing an EV charger within the complex's parking area or garage, provided the resident complies with the provisions in the law.

7. Public Charging

Commenters: I-1 (Anonymous); I-2 (Engebo); I-6 (Frost); I-16 (Crocker); I-30 (Reising); I-46 (Sheary); I-56 (Howard); I-63 (Funkhouser); I-71 (Schinnell); I-72 (Anonymous); I-75 (Anonymous); I-78 (Bonneville); I-81 (Spencer); I-93 (Rapp); I-125 (Sharrar); I-145 (Tyrian); I-170 (Paris); I-173 (Anonymous); I-201 (Newton); I-253 (George); I-267 (Reid); I-304 (Trimble); I-332 (Anonymous); I-425 (Christensen); I-431 (Seng); I-433 (Gildea); I-445 (Goehner); I-474 (Greenough); I-512 (Moline); I-542 (S); I-556 (Ross); I-560 (McNamee); I-585 (Babitsky); I-590 (Alexander); I-600 (Williamson); I-610 (Fox); I-618 (Shofstall); I-648 (Kellum); I-649 (Teats); I-665 (Medved); I-695 (McMeins); I-744 (Hertz); I-747 (Anonymous); I-814 (Klein); I-818 (Elliott); I-838 (Dittell); I-846 (Driggs); I-892 (Anonymous); I-1033 (Anonymous); I-1076 (Adams); I-1083 (Hodgson); I-1084 (Darcy); O-10 (Alliance For Automotive Innovation).

Summary: These commenters expressed concerns over an insufficient number of public charging stations, especially in rural areas, to support longer cross-state road trips. Some

[40] Lewis, Michelle. "Siemens' new home EV charger adapter ends need for electrical panel upgrades." *Electrek*. July 27, 2022. https://electrek.co/2022/07/27/siemens-home-ev-charger-adapter/

[41] Flaccus, Gillian. "Renters struggle to access public electric vehicle charging as cities look for solutions." *PBS NewsHour.* October 25, 2022. https://www.pbs.org/newshour/nation/renters-struggle-to-access-public-electric-vehicle-charging-as-cities-look-for-solutions

commenters expressed concerns about reliability of existing EV chargers and the length of time needed to return "an EV battery to sufficient charge to continue a trip.

Response: Ecology recognizes commenters' concerns about the prevalence and functionality of public charging stations. Currently, Washington has 3,744 publicly accessible Level 2 charger ports at 1,714 stations and 1,052 DCFC ports at 234 stations, according to Atlas Public Policy's EV Charger Deployment Dashboard. Numerous state and federal initiatives are providing funds to build out the EV charger network along highways and in communities throughout the state.

Federal funding through the National Electric Vehicle Initiative (NEVI), part of the Infrastructure Investment and Jobs Act (IIJA) of 2021, is providing Washington $71 million over 5 years to complete a charging network at 50-mile intervals along major highways. The NEVI program requires 4 DCFC ports at each station and requires at least 95% uptime for the chargers. (The NEVI Plan published by WSDOT provides details on this program.) Other federal programs in the IIJA and the 2022 Inflation Reduction Act (IRA) provide additional funding for electric vehicle supply equipment (EVSE; another name for a charging station) construction throughout the state.

State funds for EVSE are also provided through the Climate Commitment Act and the Clean Fuels Standard, along with general funds budgeted by the Legislature. WSDOT administers the state funded Zero Emission Vehicle Infrastructure Partnerships (ZEVIP) program to build DCFC charging stations in communities throughout the state. Also, some of the funding provided through the state and federal Volkswagen Settlement is being used for grants to install publicly accessible charging stations.

As discussed in other sections, projections indicate that advances in EV battery chemistry and architecture will allow for much quicker charging speeds in the near future. Current DCFC stations operate at a minimum of 150-kW per port, with some offering 350-kW per port. As EV battery design continues to improve to allow for higher charging rates, charging times will be greatly reduced. For instance, a new battery design developed by EC Power[42] [43] promises a 10-minute charge and will begin mass-production in 2024. Solid state batteries are another development coming in a few years that will drastically reduce charging speeds.

X. Environmental Impacts

1. Climate Change

Commenters: I-37 (Vangelder); I-44 (Adsitt); I-91 (Tadlock); I-99 (Polehn); I-120 (Rosemary); I-137 (Rohlfing); I-148 (Reichenbach); I-149 (Lewis); I-169 (Anonymous); I-223 (Bannon); I-225 (Bender); I-235 (McGarvey); I-291 (McKinzie); I-311 (Guthrie); I-312 (Blodgett); I-314 (Kinder); I-317 (Erwiin); I-634 (Smyth).

[42] Wang, CY., Liu, T., Yang, XG. et al. "Fast charging of energy-dense lithium-ion batteries." Nature 611, 485–490 (2022). https://doi.org/10.1038/s41586-022-05281-0

[43] Bond, Camille. "Next up for EV batteries: The 10-minute recharge". *E&E News.* 14 Nov. 2022. https://subscriber.politicopro.com/article/eenews/2022/11/14/next-up-for-ev-batteries-the-10-minute-recharge-00063200

Summary: The commenters state that Ecology's rulemaking will have little impact on global climate change. Others express alternative theories about anthropogenic (human-caused) climate change or deny the existence of it altogether.

Response: Thank you for your comments. Debating the existence and causes of anthropogenic climate change is outside the scope of this rulemaking. However, the link between human activity and rising global temperatures has been well-documented in numerous scientific studies and reports, such as the Intergovernmental Panel on Climate Change's Sixth Assessment Report.[44]

The Washington Limiting Greenhouse Gas Emissions law (RCW 70A.45.020) requires the state to progressively limit anthropogenic emissions of greenhouse gasses over the next three decades, with the state reaching "net zero" emissions by 2050. Such decreases will be highly unlikely without the implementation of vehicle emission standards that substantially limit future GHG emissions from on-road gas and diesel use.

The transportation sector accounts for approximately 45% of Washington's GHG emissions, and approximately half of those emissions come from on-road gasoline use.[45] Further, the US is a signatory to the Paris Agreement, which requires countries to pursue efforts to limit the global temperature increase in the 21st century to 1.5 degrees Celsius; climate policies like the ones being implemented in Washington are critical to the US and the world meeting these targets.

While Washington's GHG emissions are small on a global scale, climate change is a worldwide problem that requires collective action across the globe. Reducing transportation emissions will also have co-benefits for the local environment, economy, and public health of Washington. Further, it also sends a positive signal to other states and countries that transportation decarbonization is achievable and that Washington is willing to back up its public commitments.

Accelerating the deployment of ZEVs and ZEV infrastructure in Washington may also facilitate technological improvements that result in positive externalities, i.e. have beneficial impacts far beyond the borders of Washington.

2. Electric Generation Emissions

Commenters: I-9 (Moore); I-37 (Vangelder); I-51 (S.); I-52 (Anderson); I-84 (Luffman); I-92 (Gipe); I-121 (Snider); I-142 (Hansen); I-153 (Reinhart); I-156 (Campos); I-185 (Shier); I-222 (Haddick); I-250 (Potter); I-263 (Wright); I-327 (Berkell); I-335 (Wallin); I-342 (Rigtrup); I-365 (Black); I-372 (Hansen); I-374 (Duggins); I-412 (Rust); I-414 (Westphal); I-416 (Cleveland); I-427 (Motz); I-446 (Widman); I-471 (Smith); I-491 (Owens); I-501 (Kuk); I-560 (McNamee); I-563 (Day); I-569 (Edinger); I-583 (Dunn); I-600 (Williamson); I-634 (Smyth); I-653 (Daniels); I-661 (Fitzpatrick); I-684 (Bell); I-690 (Brady); I-719 (Arnold); I-723 (Deakins); I-760

[44] The IPCC provides comprehensive reports about climate change causes and potential impacts on the world. Its Synthesis Report of the Sixth Assessment Report at https://www.ipcc.ch/ar6-syr/.
[45] This data comes from Washington's latest Greenhouse Gas Emissions Inventory. Page 23 of the inventory provides a chart of the predominant greenhouse gas sources in the state, including on-road gasoline and diesel use.

(Herman); I-765 (Hale); I-798 (Croneberger); I-822 (Antonino); I-868 (Ludke); I-921 (Shultz); I-1025 (Tuesley); I-1033 (Anonymous).

Summary: Commenters said that EVs will contribute to climate change by switching to carbon-intensive electricity, stating that the electric grid was already very carbon-intensive, that renewable energy technologies are carbon-intensive to produce, or that renewable energy would not be able to meet the increased demand and therefore fossil fuel sources (coal, natural gas) would be used to fill the gap – increasing overall greenhouse gas emissions.

Response: Ecology appreciates commenters' concerns about the impact this rule will have on our climate. This rule is intended to help limit climate-warming greenhouse gas emissions from our state, as transportation is the single largest sector in the state contributing to climate change. However, there is no likely scenario where this rule will increase emissions or climate damages.

In Washington, most of the state's energy comes from clean and renewable sources. Only 23% comes from coal and natural gas, with 64.5% coming from hydro, nuclear, and wind. The percentage of fossil fuels in our mix will fall between now and 2030, as the Clean Energy Transformation Act (CETA) (RCW 19.405) passed in 2019 requires utilities operating in the state to provide 100% carbon neutral electricity by 2030.

Finally, analysis has indicated that even in scenarios where EVs are charged using coal-fired power (or natural gas), they still produce fewer emissions than comparable internal combustion engine vehicles (ICEV) over the same range in nearly all scenarios due to their increased energy efficiency.[46] ICEVs lose significant portions of their energy through heat and other inefficiencies.[47] Thus, this rule will serve to reduce emissions from the transportation sector and help the state reach its climate goals.

One commenter claimed that renewable energy sources, such as solar and wind, have a carbon footprint 80 times the size of a gasoline engine during manufacturing. This analysis suggests that increasing renewable energy production would also increase the lifecycle emissions of ZEVs. Ecology was not able to verify a source for this claim. However, full lifecycle analyses of EVs consistently indicate that total EV emissions are lower than emissions from comparable ICEVs; higher emissions during manufacturing of EVs are offset by lower emissions during operation (i.e., when the cars are driven).

For more information on lifecycle emissions, see section *X.3 – Battery Manufacturing Emissions* below. Furthermore, fossil fuel sources often require greater "embodied energy,"[48] or the energy required to construct power stations and deliver fuel and other supplies to them, than renewables. Nuclear requires half the embodied energy of coal, while wind and solar require even less.

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[46] U.S. Environmental Protection Agency. "Electric Vehicle Myths." https://www.epa.gov/greenvehicles/electric-vehicle-myths

[47] Albatayneh, Aiman, et al. "Comparison of the Overall Energy Efficiency for Internal Combustion Engine Vehicles and Electric Vehicles". *Environmental and Climate Technologies,* 2020 Jan. https://ui.adsabs.harvard.edu/abs/2020SJRUE..24..669A/abstract

[48] Evans, Simon. "Solar, wind and nuclear have 'amazingly low' carbon footprints, study finds." *Carbon Brief.* August 12, 2017. https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints/

Therefore, ZEVs and renewables under all scenarios in Washington produce significantly fewer emissions than ICEVs, even when accounting for their entire lifecycle and using the most carbon-intensive processes and fuel sources.

3. Battery Manufacturing Emissions

Commenters: I-2 (Engebo); I-84 (Luffman); I-87 (Silvey); I-134 (Rohlfing); I-137 (Rohlfing); I-186 (Angliss); I-223 (Bannon); I-235 (McGarvey); I-298 (Harvey); I-365 (Black) I-452 (McPherson); I-569 (Edinger); I-594 (Smith); I-774 (Barba); I-788 (Meyer); I-1033 (Anonymous).

Summary: These commenters claimed that electric vehicles are worse for the environment than gas and diesel-powered vehicles. While various reasons were provided, most commenters expressed that the additional emissions from manufacturing batteries and mining raw materials such as lithium, nickel, and copper outweighed the environmental benefits EVs achieve in the vehicle operation stage.

Response: Ecology recognizes commenters' concerns about the environmental impacts of raw material sourcing and battery manufacturing. The term "zero-emission vehicle" refers to harmful tailpipe emissions only, and there are emissions in the manufacturing process for electric vehicles. However, extensive research has been conducted on the environment impacts of electric vehicles, and the results are clear: EVs produce far less emissions over their lifecycle than ICEVs, even accounting for emissions in the manufacturing stage.

Manufacturing emissions are generally higher for electric vehicles due to the smelting from mining for raw materials, the energy used for constructing batteries, and other reasons. However, studies and modeling show this initial deficit is quickly reversed as vehicles enter operation, or general use. Electric vehicles generate no tailpipe emissions; their only emissions are from the energy production needed to charge the vehicles, which is dependent on the proportion of fossil fuels in the grid an EV is charging from.

On a low-emissions grid like Washington's that operates predominantly on hydropower and other clean sources, ICEVs quickly overtake EVs in terms of lifecycle greenhouse gas emissions. EVs operating in higher-emission grids that rely on coal and natural gas have lower marginal benefits, but still produce fewer emissions than ICEVs over vehicle lifetime. For more information on Washington's grid, see section *X.2 – Electric Generation Emissions* above.

In one of the many studies confirming the environmental benefits of EVs, the Fuels Institute[49] found that EVs operating in low-carbon electric grids such as Washington's reach emissions parity with ICEVs at 19,000 miles. After that milestone is reached, EVs accrue substantial environmental benefits over ICEVs because the emissions from electricity generation are

[49] "Life Cycle Analysis Comparison: Electric and Internal Combustion Engine Vehicles." *Fuels Institute*. January 25, 2022. https://web.archive.org/web/20220330135439/https://www.fuelsinstitute.org/getattachment/Research/Reports/Life-Cycle-Analysis-Comparison-Electric-and-Intern/LCA-Webinar-Slides.pdf?lang=en-US

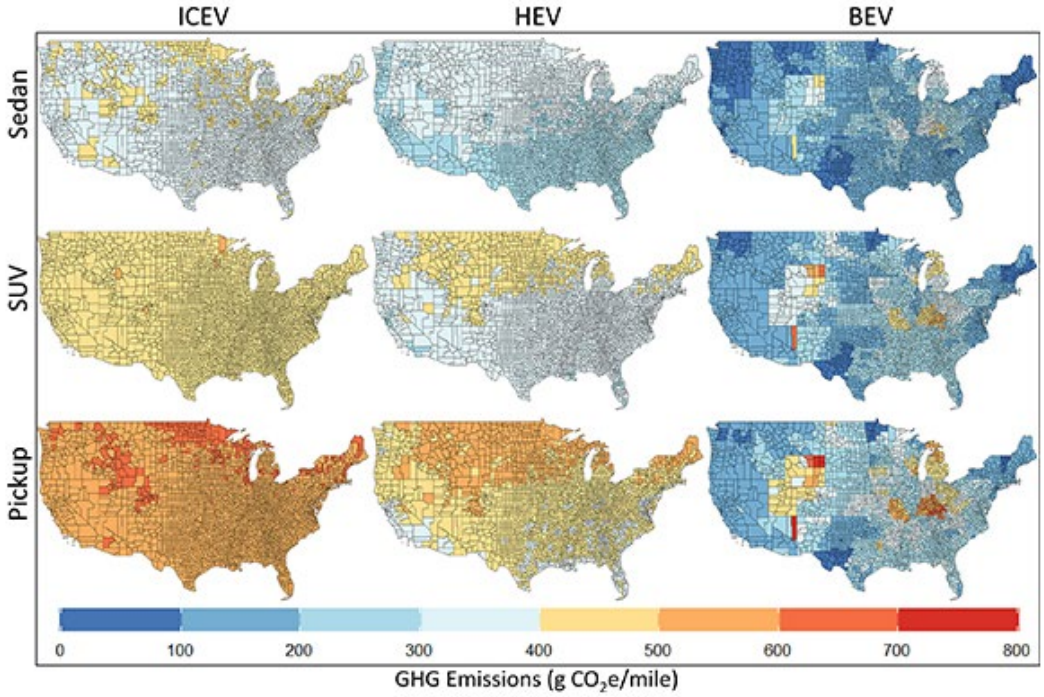
significantly lower than the emissions associated with oil and gas production, transport, and use. Most vehicles are driven significantly more than 19,000 miles over their lifespan. Over a 200,000-mile lifecycle, the study found that ICEVs produce 64 tons of greenhouse gas emissions as opposed to only 17 tons for EVs – a 74% decrease.

Similarly, an additional study by the University of Michigan indicates that electric sedans reach emissions parity with ICE sedans at between 1.4 and 1.5 years, whereas electric SUVs and trucks reach parity at 1.6 – 1.9 years and 1.6 years, respectively.[50] An additional analysis prepared for the City of Vancouver, British Columbia – which, like Washington, is heavily dependent on hydropower – also found that EVs have significant lifecycle emission reductions compared to ICEVs.[51]

A study by the International Council on Clean Transportation (ICCT) also confirmed that electric vehicles produce substantially lower greenhouse gas emissions than ICEVs, even when accounting for battery manufacturing.[52] The study found that using alternative liquid fuels such as e-fuels and biodiesel only produces marginal benefits, given the high electricity use needed for e-fuel production and the limited production availability of biofuels.

As shown in the below diagram that was featured in the University of Michigan study, electric vehicles operated in Washington have some of the lowest GHG emission rates on a per-mile basis (shown in the areas in dark and light blue). This is due to Washington's low-carbon energy mix, which results in low greenhouse gas emissions from EV charging. Hydro, nuclear, and wind made up over two-thirds of the state's energy consumption in 2020,[53] the most recent year with public data available.

[50] Woody, Maxwell, *et al.* "Corrigendum: The role of pickup truck electrification in the decarbonization of light-duty vehicles". *Environmental Research Letters.* 2022. https://iopscience.iop.org/article/10.1088/1748-9326/ac7cfc
[51] Kukreja, Balpreet. "Life Cycle Analysis of Electric Vehicles: Quantifying the Impact". August 2018. https://sustain.ubc.ca/sites/default/files/2018-63%20Lifecycle%20Analysis%20of%20Electric%20Vehicles_Kukreja_0.pdf
[52] Bieker, Georg. "A global comparison of the life-cycle greenhouse gas emissions of combustion engine and electric passenger cars." *International Council on Clean Transportation.* July 2021. https://theicct.org/wp-content/uploads/2021/07/Global-Vehicle-LCA-White-Paper-A4-revised-v2.pdf
[53] https://www.commerce.wa.gov/growing-the-economy/energy/fuel-mix-disclosure/



Washington has set robust standards to add further clean energy sources in the upcoming years with the passage of the Clean Energy Transformation Act (CETA) (RCW 19.405). This action will likely decrease the GHG emissions from EV charging in Washington. While some Washington utilities currently purchase coal from out-of-state, they are required to phase-out coal from their portfolio by 2025, the same year Ecology's new ZEV rule takes effect. Natural gas – which is also a fossil fuel, albeit cleaner than coal – will also eventually be removed from the grid, reducing emissions even further.

Finally, EVs are expected to become cleaner in the future due to more environmentally friendly mining practices, the addition of renewables and clean energy to energy portfolios, and the increased use of battery recycling and re-use of raw materials. New federal rules in the Inflation Reduction Act also heavily incentivize domestic raw material production or imports from countries with a free trade agreement with the United States, as automakers must comply with the new sourcing requirements to receive full tax credits. While the total impacts of this new policy are difficult to game out at this point, it should serve to move mining to more geopolitically friendly countries with more stringent environmental and labor standards.

4. Battery Recycling and Disposal Impacts

Commenters: I-2 (Engebo); I-84 (Luffman); I-87 (Silvey); I-134 (Rohlfing); I-137 (Rohlfing); I-223 (Bannon); I-9 (Moore); I-14 (Spier); I-29 (Menges); I-35 (Heye); I-40 (T); I-51 (S.); I-59 (Bos); I-69 (Updegrove); I-81 (Spencer); I-87 (Silvey); I-93 (Rapp); I-103 (Forsberg); I-133 (Hadley); I-173 (Anonymous); I-185 (Shier) I-220 (Gengler); I-222 (Haddick); I-244 (McMillan); I-263 (Wright); I-275 (Roeder); I-278 (Petershagen); I-283 (De Ru); I-288 (Anonymous); I-291 (McKinzie); I-303 (Scott); I-315 (Cole); I-324 (Valdez); I-336 (Zimmaro);

I-337 (Hayes); I-365 (Black); I-401 (Waldock); I-405 (Sanner); I-431 (Seng); I-433 (Gildea); I-445 (Goehner); I-446 (Widman); I-452 (McPherson); I-456 (Rowell); I-482 (Weir); I-492 (Saum); I-508 (Wohleb); I-515 (Davenport); I-542 (S); I-556 (Ross); I-569 (Edinger); I-573 (Anonymous); I-584 (McMillan); I-585 (Babitsky); I-600 (Williamson); I-606 (Gray); I-649 (Teats); I-656 (Schmit); I-664 (Sharp); I-665 (Medved); I-722 (Sackman); I-795 (Filipowicz); I-814 (Klein); I-841 (Wilkinson); I-875 (Anonymous); I-879 (Barhitte); I-884 (Keith); I-892 (Anonymous); I-897 (Vanderpol); I-902 (Mitchell); I-915 (Whybark); I-921 (Shultz); I-931 (Prince); I-1017 (Nist); I-1039 (Babitsky); I-1042 (Anonymous); I-1064 (Rase); I-1076 (Adams); I-1083 (Hodgson); I-1084 (Darcy).

Summary: Commenters expressed multiple worries about what will happen to the batteries in an EV when they have exceeded their useful life. Most who commented on this issue were worried about environmental issues, such as a proliferation of hazardous waste in soils and groundwater and a lack of biodegradability, saying that the issue of battery disposal would be a larger environmental problem than carbon emissions. Some commenters were concerned about the high costs and energy-intensive nature of recycling batteries, leading to low levels of recycling.

Response: Ecology appreciates the concern of commenters about waste from the lithium-ion battery packs and other battery technology that electric vehicles (EVs) generate. However, this rule is primarily a motor vehicle emissions law that Ecology has been directed to adopt by the Legislature, and therefore battery recycling efforts and impacts are outside the scope of this rulemaking. Due to the public interest in this topic, we provide some information below on battery end-of-lifecycle practices for transparency. The industry has moved quickly and many commenters may be unaware of advancements in battery reuse and recycling.

Retired batteries can be reused, repurposed, recycled, or ultimately discarded in a hazardous waste landfill. Due to the multiple use cases for batteries, they are rarely completely disposed of. Private companies, automakers, and others offer EV recycling services. Recycling and reuse of batteries lowers the cost of battery repairs and provides a more sustainable supply of raw materials for manufacturers.

First, we will discuss the ways EV batteries can be reused and repurposed. This is usually the first solution for an existing battery that has been removed. Modules with minimal degradation that are not defective or damaged can be refurbished and used as replacement battery packs in a similar model vehicle. Nissan and Tesla offer these for purchase or to cover batteries under warranty. Nissan has also repurposed EV batteries for energy storage or for use in the machines in their factories. Energy storage for the larger electrical grid or for microgrids makes sense for older batteries as there are not as many concerns about size or weight as in a vehicle, so many old batteries can be combined cheaply to make affordable energy storage.

This reuse is possible because post-vehicle, batteries are expected to retain up to 80% charging capacity, per battery durability guidelines from the California Air Resources Board which Ecology is also adopting in this rule. These battery durability requirements come into effect with model year (MY) 2030, although there are 70% durability requirements for MY2026 – 2029. These durability requirements are 70% on average for 70% of a given automaker's fleet and rise to 80% for the entire fleet in MY2030. The durability must be guaranteed for 10 years or

150,000 miles. In practice, durability often extends beyond this and promising new battery technologies like solid-state batteries may significantly increase battery durability.

If a battery cannot be reused, its basic components can be recycled and converted into new batteries with no quality reductions. There are three forms of recycling: hydro- and pyro-metallurgical recycling and direct recycling. Both hydro- and pyro-metallurgical recycling of processes are commercially available in the United States, while direct recycling is still in pilot stages.

Pyrometallurgy is an economically viable way to recover 90% – 95% of cobalt and nickel from batteries using heat. Hydrometallurgy uses chemicals to break down batteries and requires less energy than pyrometallurgy, but can be more costly due to the chemicals needed for the process. Direct recycling is a third method that can recover electrode materials in good enough condition to be used as direct inputs in battery production, without separating individual materials. This is the least energy intensive of the processes but does not work with mixed battery chemistries and is the furthest from full commercialization.

All three of these processes are rapidly changing as there is great interest in increasing recycling efforts. We are aware that numerous businesses, research universities, and other entities are researching methods of forming a circular economy for EV batteries, although there are numerous technological and economic hurdles to overcome before this might be feasible.

Both reuse and recycling efforts at the manufacturing level are increasingly being implemented. If batteries are manufactured with the intent of being reused, repurposed, or recycled, then costs during the transition between uses can be much lower. Policy has driven this shift; manufacturers in China have been legally responsible since 2018 for recycling their batteries. The EU and California are considering similar regulations. This rule also introduces battery labeling requirements to facilitate recycling efforts.

5. Mining and Manufacturing Impacts

Commenters: I-17 (Blomquist); I-18 (Hewlett); I-50 (Anonymous); I-51 (S.); I-57 (Anonymous); I-59 (Bos); I-62 (Anonymous); I-69 (Updegrove); I-70 (S.); I-81 (Spencer); I-82 (Swamatha); I-93 (Rapp); I-94 (Bond); I-120 (Rosemary); I-125 (Sharrar); I-142 (Hansen); I-145 (Tyrian); I-149 (Lewis); I-153 (Reinhart); I-156 (Campos); I-160 (DeChenne); I-163 (Vanderbie); I-166 (Brooks); I-168 (Cooke); I-169 (Anonymous); I-172 (Gatchell); I-173 (Anonymous); I-178 (Rees); I-180 (Redmon); I-185 (Shier); I-186 (Angliss); I-191 (Basler); I-201 (Newton); I-206 (Bayley); I-222 (Haddick); I-223 (Bannon); I-235 (McGarvey); I-242 (Avila); I-247 (Wixom); I-249 (Wilson); I-273 (Weise); I-274 (Hildebrant); I-283 (De Ru); I-286 (Tadlock); I-287 (Lane); I-291 (McKinzie); I-305 (Keel); I-307 (Galante); I-311 (Guthrie); I-312 (Blodgett); I-314 (Kinder); I-315 (Cole); I-324 (Valdez); I-331 (Kellum); I-346 (Dean); I-349 (Leavens); I-363 (Miles); I-368 (Avila); I-371 (Irvin); I-377 (Anonymous); I-403 (Gugeler); I-410 (Kobilan); I-414 (Westphal); I-416 (Cleveland); I-420 (Leghorn); I-425 (Christensen); I-427 (Motz); I-428 (Clay); I-430 (McGarvey); I-432 (Hamm); I-438 (Jennings); I-442 (Michlig); I-446 (Widman); I-451 (Sanders); I-488 (Bilka); I-495 (Som-Mueller); I-498 (Moreland); I-500 (Ezzell); I-508 (Wohleb); I-541 (Mattison); I-551 (Sieloff); I-556 (Ross); I-565 (Lawson); I-572 (Ferris); I-581 (Moller); I-584 (McMillan); I-590 (Alexander); I-603 (Sholdt); I-627 (Larsen); I-

628 (Gibvoney); I-635 (Woodland); I-642 (McBride); I-656 (Schmit); I-657 (Rowland); I-661 (Fitzpatrick); I-676 (Stelter); I-677 (Iddings); I-704 (Johnson); I-717 (Beckman); I-751 (Strickland); I-760 (Herman); I-761 (Zinter); I-763 (Bradford); I-772 (Thornton); I-775 (Panderson); I-819 (Apley); I-822 (Antonino); I-836 (Hiebert); I-868 (Ludke); I-871 (Polyakovsky); I-874 (Hufnagel); I-884 (Keith); I-893 (Linke); I-929 (Graff); I-947 (Husting); I-995 (Dykstra); I-1033 (Anonymous); I-1037 (Warden); I-1042 (Anonymous); I-1044 (Volin); I-1064 (Rase); B-6 (CLB Safety Compliance LLC); O-19 (Yakima County Farm Bureau).

Summary: Commenters are concerned about the environmental impacts of mining and manufacturing EVs. Issues brought forward by these comments include the following claims:

- Mining rare earth materials for EVs and renewables damages local ecosystems and creates further emissions
- Operation of electric vehicles create microparticles from tire degradation that pollute the local environment
- Multiple comments stated specifically that 500,000 lbs. of material and gallons of water must be used to make one 1,000 lb. battery
- Mining for EV materials is more harmful to the local environment than oil drilling
- Mining will occur in countries with few environmental regulations and therefore cause unnecessary environmental harm
- Environmental impacts of mining for materials are more damaging than climate change
- EV material mining emits enough greenhouse gases to be equal to an ICEV's lifetime emissions

Response: Ecology appreciates the concerns of commenters around the environmental impacts of sourcing raw materials such as lithium, cobalt, manganese, and aluminum for EVs. While these issues are outside the scope of this rulemaking, which adopts California's updated motor vehicle emissions standards as mandated by the Legislature (see RCW 70A.30.010), we provide the information below for transparency and because of the heightened public interest in this topic.

Multiple commenters claim that mining for EV material damages local ecosystems and therefore ICEVs should continue to be used instead. However, this mining replaces existing gas-powered vehicle manufacturing processes which have their own environmental impact. ICEVs require aluminum alloys, magnesium, iron, and steel, all metals that are mined for vehicle production and produce impacts on local ecosystems.

While EVs emit slightly more carbon in their material sourcing and manufacturing phases than ICEVs due to the need for more metal refinement in the battery packs, life-cycle analyses indicate that EVs produce far fewer emissions over their entire lifecycle, primarily due to drastic emission reductions in their operational stage (i.e., when the vehicle is in use). For more information, look to Ecology's response above in section *X.3 – Battery Manufacturing Emissions*.

Impacts from mining can also be mitigated by stricter environmental regulation as well as new technology and methods of sourcing materials. The 2022 federal Inflation Reduction Act incentivizes the supply chain transition by requiring EV battery minerals to come from North America or countries with a free trade agreement with the US to receive federal tax credits.

US environmental regulations are often more stringent than those of other countries where production and mining currently take place, such as China. Additionally, mining companies are exploring deep sea mining, as there are extensive deposits of necessary materials on the sea floor. This process will not directly impact on-land ecosystems, although we are aware research is still being conducted on potential impacts to ocean ecosystems. Other companies are exploring new formulations of batteries and ways to recycle existing batteries that may reduce the need for newly mined materials.

Again, these issues are ultimately outside the scope of this rulemaking as it is a requirement for automakers to produce ZEVs for sale in Washington and does not cover mining or manufacturing.

6. Air Quality and Pollution

Commenters: I-69 (Updegrove); I-87 (Silvey); I-205 (Reeder); I-360 (Wissel); I-495 (Som-Mueller); I-929 (Graff).

Summary: These commenters expressed doubts that current vehicles have significant adverse effects on air quality. Some commenters also expressed concerns with potential increased tire pollution from electric vehicles.

Response: While the per-vehicle emissions of criteria pollutants have decreased since the passing of the Clean Air Act and the enforcement of stricter vehicle emission standards, transportation still has a significant impact on air quality. For example, operating ICEVS causes emissions of nitrogen oxide (NO_x) and particulate matter (PM2.5). Prolonged exposure to these pollutants emissions from transportation can cause significant health complications such as asthma, heart disease, and lung cancer, among others. These health risks are particularly prominent for overburdened communities that live near transportation corridors and pose the highest risk to children and the elderly.

For more information, please see the Department of Health's Environmental Health Disparities page[54] and scroll to the "Diesel Exhaust PM2.5 Emissions" map to see the Washington communities most negatively affected by transportation pollutants.

Washington has also recently experienced some of its worst air quality days in recorded history, primarily because of extreme wildfires. This rulemaking will address this problem in two ways. First, it will reduce greenhouse gas emissions and thereby mitigate climate change impacts, which is a contributing factor to wildfire frequency and intensity. Avoiding unnecessary emissions from wildfires is critical to protecting Washington's air quality. Second, the rule will

[54] https://fortress.wa.gov/doh/wtnibl/WTNIBL/

reduce air pollution impacts directly attributable to transportation by transitioning away from ICEVs that produce significant tailpipe emissions.

With respect to tire pollution, Ecology recognizes that EVs can potentially cause more tire wear than comparable ICEVs due to their heavier average weight. However, CARB's environmental impact analysis[55] found that the ZEV rule decreases fine particulate matter emissions, even accounting for projected vehicle break wear and tire wear emissions associated with increased EV usage. Their analysis also noted that it is not a foregone conclusion that electric vehicle models will inherently be heavier, as automakers can offset heavy EV components such as battery packs with weight reductions elsewhere in the vehicle body. Tire pollution is ultimately an issue with all vehicles, and companies are exploring methods of reducing tire pollution from both EVs and ICEVs through new tire designs and pollution capture devices.

XI. Economics & Security

1. Motor Vehicle Fuel Tax

Commenters: I-75 (Anonymous); I-81 (Spencer); I-87 (Silvey); I-263 (Wright); I-306 (Conley); I-595 (Niederstadt); I-597 (Franklin); I-827 (Bader); I-1083 (Hodgson).

Summary: These commenters were concerned about infrastructure becoming underfunded as commuters switch over to electric vehicles and no longer pay the motor vehicle fuel tax, which is commonly referred to as the gas tax. Some also stated that this program would necessitate an increase in the gas tax. Finally, others said it was unfair to continue to tax fossil fuels while also attempting to phase them out.

Response: Ecology appreciates commenters' concerns about how Washington's road infrastructure will continue to be funded as drivers transition to gas and diesel-free vehicles that will not incur the motor vehicle fuel tax. Ultimately, any issue related to the motor vehicle fuel tax is outside the scope of this rulemaking, which is adopting California's motor vehicle emissions standards. This rulemaking does not raise, lower, change, remove, or replace the motor vehicle fuel tax.

The current Washington motor vehicle fuel tax is $0.494 per gallon of gasoline and diesel and there are no current plans to replace this tax, although a bill has been introduced in the state legislature[56] to implement a road-use tax based on mileage. Similar programs can be found in Oregon's OReGo pilot program, which allows voluntary users to report their miles driven annually and bases their tax contribution on that. Per Washington's Vehicle Fees law (RCW 46.17.323), EV owners must also pay an additional $150 fee when registering their vehicle or renewing their tabs. 70% of the fee goes to Washington's motor vehicle fund, partially compensating for the loss of motor vehicle fuel tax revenue.

[55] See pgs. 115-116 of https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappa.pdf
[56] https://app.leg.wa.gov/billsummary?BillNumber=2026&Year=2021

2. General Economic Concerns

Commenters: I-14 (Spier); I-16 (Crocker); I-36 (Rylander); I-75 (Anonymous); I-99 (Polehn); I-123 (White); I-126 (Webster); I-128 (Paul); I-133 (Hadley); I-193 (Robinson); I-206 (Bayley); I-263 (Wright); I-304 (Trimble); I-315 (Cole); I-320 (O'Donnell); I-337 (Hayes); I-451 (Sanders); I-455 (Anonymous); I-469 (Citizen); I-489 (Stevens); I-509 (Church); I-559 (Starkey); I-581 (Moller); I-653 (Daniels); I-772 (Thornton).

Summary: Commenters assert several concerns related to the economics of electric vehicles:

- EVs are an economically inefficient option compared to existing vehicles
- The EV industry is being artificially supported by financial and tax-based incentives
- This rule will "crush the economy"
- Worries about who will pay for the EV transition and how much it will cost
- This rule will cause prices for gasoline, diesel, and used ICEVs to increase by limiting supply
- There should be a cost-benefit analysis conducted for the EV transition/this rule

Response: We appreciate you taking the time to comment. However, the above issues are outside the scope of this rulemaking, which regulates motor vehicle emissions and which Ecology is required to adopt per the Legislature's mandate in RCW 70A.30.010. As there is heightened public interest in this topic, we provide the below information for transparency.

Ecology notes that commenters have concerns about the nature of the EV market and industry but disagrees with their conclusion. There is ample evidence to show that the market is robust and growing. While the technology for lower-priced EVs is still developing, EVs are projected to reach and exceed price parity with comparable internal combustion engine vehicles (ICEVs) before the phase-out of new gasoline- and diesel-powered light-duty vehicles takes full effect in MY 2035.[57] These projections do not include government support, which is expected to accelerate existing timelines.

The price of EVs have fallen significantly in recent years and there are now many models available in affordable price ranges. High-range EVs are projected to be at price parity with comparable ICEV by 2030, with lower-range vehicles reaching price parity by 2024. The average first-owner of an EV is expected to save up to $9,000 over the life of the vehicle, compared to an ICEV. The Affordability section above provides more detail on projections for EV costs.

In respect to the claims that without subsidies the EV market would be smaller than it is today, Ecology points to the fact that the EV market has grown substantially over the past decade, including in periods in which major EV manufacturers like Tesla and General Motors were

[57] International Council on Clean Transportation. "Assessment of light-duty electric vehicle costs and consumer benefits in the United States in the 2022–2035 time frame." Published October 18, 2022. https://theicct.org/publication/ev-cost-benefits-2035-oct22/

ineligible for federal tax credits. During the pandemic, the global car market contracted while the market for ZEVs grew to 3 million. In 2021, this rose to 6.6 million, just shy of 9% of the global car market.[58] Furthermore, existing EV cost analyses such as those conducted by CARB and the ICCT do not include the value of subsidies into their total cost of ownership due to their uncertain nature.

Finally, a cost-benefit analysis has been conducted for the early action credits and the one-time fleet reporting requirement, which are the elements of the rule not adopted by reference. Ecology's Final Regulatory Analysis for this rule found that the benefits exceeded the cost for these elements of the program. CARB conducted their own cost-benefit[59] analysis of the entire Advanced Clean Cars II rule and found that benefits exceeded the costs by a benefit-cost ratio of 1.43 (i.e., for every $1 in costs there are $1.43 in benefits).

3. Macroeconomic Conditions

Commenters: I-91 (Tadlock); I-97 (Rapp); I-161 (Geloneck); I-299 (Bowen); I-322 (Severy); I-337 (Hayes); I-470 (Bride); I-563 (Day).

Summary: Commenters are concerned about the timing of these requirements, given current high rates of inflation domestically and internationally and the discussion of a potential recession in the news.

Response: Ecology appreciates the concern of commenters about the timing of this rulemaking during times with strong inflation. Many commenters overall were concerned about affordability of zero-emission vehicles (ZEVs) and this would understandably be worsened by inflating prices of ZEVs. For more information on affordability, see the responses in section *VIII – Cost and Affordability*. However, these concerns are outside the scope of this rule, which regulates motor vehicle emissions and which Ecology is required to adopt per the Legislature's mandate in RCW 70A.30.010.

Additionally, these requirements for ZEV sales will not take place until model year (MY) 2026, which will be sold in 2025. Automakers can earn early-action credits by selling ZEVs in 2023 and 2024, but they are not required to do so. Additionally, while some commenters were concerned about the potential of recession, the United States is not currently in a recession. These factors, combined with the projected falling prices of ZEVs over time, indicate that affordability will not be as large of a concern moving forward even in an economy with inflating prices.

ZEVs will also bring several economic benefits, both locally and globally. ZEVs are quieter than ICEVs, reducing noise pollution which improves ecological and human health. Reducing dependence on fossil fuels reduces costs, as gasoline prices are higher per unit of energy and more volatile than electricity rates, no matter where you are in the US. Electricity in Washington

[58] International Energy Agency. "Trends in electric light-duty vehicles: Global EV Outlook 2022". https://www.iea.org/reports/global-ev-outlook-2022/trends-in-electric-light-duty-vehicles
[59] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappf.pdf

is particularly cheap due to our abundant hydropower. Being able to charge at home or while at work or shopping reduces the need for trips to a gas station. Maintenance costs are considerably lower than for comparable ICEV (see section *VIII – Cost and Affordability* section for more).

Reducing emissions, such as greenhouse gases and air pollutants, increases air quality and reduces the impacts of climate change. This has benefits to public health in the form of reduced deaths and illness. This also benefits taxpayers who do not have to fund expensive adaptation or disaster cleanup efforts resulting from climate impacts. It is important that laws to address climate change are implemented as early as possible. Greenhouse gases have a compounding effect on global temperatures over time, so it is critical to remove them – or not emit them at all – as early as possible. This is considered by numerous studies to be the most economically efficient way to address climate change, as compared to waiting and managing climate damages.[60]

4. Material Scarcity

Commenters: I-7 (Hayden); I-37 (Vangelder); I-125 (Sharrar); I-137 (Rohlfing); I-145 (Tyrian); I-154 (King); I-157 (Oates); I-345 (Ryan); I-363 (Miles); I-425 (Christensen); I-434 (Lee); I-501 (Kuk); I-512 (Moline); I-563 (Day); I-569 (Edinger); I-726 (Prudden); I-1033 (Anonymous).

Summary: Commenters claimed that there are not enough raw materials on the planet to meet the electric vehicle production demands of the sales mandate.

Response: Ecology appreciates the concerns of commenters around the availability of raw materials such as lithium, cobalt, manganese, and aluminum for electric vehicles (EVs). While all these issues are outside the scope of this rulemaking, which adopts California's updated motor vehicle emissions standards as mandated by the Legislature (see RCW 70A.30.010), we examine the question below to provide transparency about potential impacts and to address public concerns about the topic.

In short, there are more than enough sources of these materials to manufacture enough EVs globally to meet all demand. Some resources are more accessible than others, but new methods of mining are making previously inaccessible deposits economically viable. This includes the mining of polymetallic nodules on the seafloor, which is already technologically feasible and in operation. Seafloor nodules contain manganese, cobalt, nickel, and copper, and they can provide vast quantities of raw materials with lower levels of carbon emissions than existing mining operations.[61] New mines are also being discovered and opened, such as in California's Imperial Valley – which may have enough lithium supplies to meet 40% of global demand alone.[62] For lithium, there are currently enough reserves to meet demand for the EV conversion through mid-

[60] Kikstra, Jarmo et al. "The social cost of carbon dioxide under climate-economy feedbacks and temperature variability". Published September 6, 2021. *Environmental Research Letters.* https://iopscience.iop.org/article/10.1088/1748-9326/ac1d0b

[61] Hein, J.R., Koschinsky, A. & Kuhn, T. "Deep-ocean polymetallic nodules as a resource for critical materials." *Nat Rev Earth Environ* **1**, 158–169 (2020). https://doi.org/10.1038/s43017-020-0027-0

[62] See pg. 15 of "Response to Comments on the Draft Environmental Analysis for the Advanced Clean Cars II Program" by CARB. https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciirtc1.pdf

century. Reserves are defined as economically accessible, so as demand for these materials increases it is very likely that the number of reserves will increase as well.

Finally, recycling efforts and increased durability requirements for EV batteries are expected to result in decreasing demand for new resource extraction over time. This rule requires that all batteries meet durability requirements of 10 years or 150,000 miles. Some EV manufacturers already store, recycle, reuse, or repurpose EV batteries that are decommissioned. For more on current recycling efforts, see section *X.4 – Battery Recycling and Disposal Impacts*.

5. Foreign Nation Dependency

Commenters: I-35 (Heye); I-44 (Adsitt); I-75 (Anonymous); I-112 (Williams); I-143 (Underwood); I-156 (Campos); I-168 (Cooke); I-179 (Leutschaft); I-186 (Angliss); I-222 (Haddick); I-253 (George); I-327 (Berkell); I-335 (Wallin); I-363 (Miles); I-387 (Johansen); I-416 (Cleveland); I-425 (Christensen); I-432 (Hamm); I-434 (Lee); I-452 (McPherson); I-454 (O'Neal); I-565 (Lawson); I-567 (Kelly); I-573 (Anonymous); I-756 (Bernardy); I-868 (Ludke); I-892 (Anonymous); I-921 (Shultz); I-1064 (Rase).

Summary: Commenters did not want the US to be reliant on EVs, claiming that many of their components come from countries that have strained relations with the US and may have cause to use supply chains as leverage. China is frequently mentioned as the major country that controls the supply of EV materials, but Russia is also included.

Response: Ecology appreciates the concern of commenters. These issues are outside the scope of this rulemaking, which adopts California's updated motor vehicle emissions standards as mandated by the Legislature (see RCW 70A.30.010). For transparency and to address public interest in the topic, we discuss the current supply chain below, including changes that are being made to onshore production of raw materials for electric vehicle batteries.

The US is dependent on imports to meet at least half of current EV production, sourcing materials such as lithium, nickel, and cobalt from processers in other countries, including China. However, sources of key materials are not entirely reliant on China. In the recent past, the US imported processed lithium primarily[63] from Argentina (55%) and Chile (36%), with only 5% coming from China and 2% from Russia (pre-Ukraine invasion).

While 30.7% of our imported refined lithium (further along in the process to becoming a battery than processed lithium) comes primarily from China,[64] the US is incentivizing both domestic lithium production and imports from Free Trade Agreement partner countries via tax credits in the 2022 Inflation Reduction Act.[65] Due to labor rights issues, cost, and the fact that China

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[63] https://www.usgs.gov/publications/mineral-commodity-summaries-2022

[64] "US lithium imports up 69% YOY in Q1 as automakers build out EV battery capacity". *S&P Global Market Intelligence.* May 24, 2022. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-lithium-imports-up-69-yoy-in-q1-as-automakers-build-out-ev-battery-capacity-70486646

[65] Davis, Jeffrey and Kiely, Daniel. "Tax Credits for Electric Vehicles: What's Changed with the US IRA?". *Mayer Brown LLP*. Published September 9, 2022. https://www.mayerbrown.com/en/perspectives-events/publications/2022/09/tax-credits-for-electric-vehicles-whats-changed-with-the-us-ira

currently has 75% of the world's cobalt refining capacity, actions are also being taken to reduce cobalt dependency; for more on this see section *XII.2 – Labor Rights* below.

Mining and processing operations are also scaling up domestically in California and Idaho, and in nations and parties such as Canada, the EU, Australia, and elsewhere. Deep sea mining offers another source of key minerals for EV batteries that is less dependent on foreign nations (for more, see section *XI.4 – Material Scarcity* above). While China currently leads on processing raw metals and manufacturing battery cathodes and anodes, investments are being made globally to diversify supply chains.

6. Cyberattacks

Commenters: I-518 (Downs)

Summary: The commenter expressed concerns about the possibility of cyberattacks disrupting Washington energy infrastructure and preventing residents from charging electric vehicles.

Response: Potential cybersecurity threats are speculative and rules for addressing them are outside the scope of Ecology rules regarding vehicle emission standards. Electrical grid and cyberattack risks are monitored and addressed by the Federal Energy Regulatory Commission (FERC), the U.S. Department of Homeland Security (DHS), the Federal Bureau of Investigation (FBI), and other security agencies.

In addition, cyberattacks on critical infrastructure are not a unique risk for ZEVs compared to gasoline and diesel-powered vehicles. For example, a ransomware attack in May 2021 led to a five-day shutdown of the Colonial Pipeline, a major fuel provider to the East Coast, and caused major gas shortages in several U.S. states.[66] A widespread electric outage would also heavily disrupt operation of gasoline and diesel pumps, which are powered by electricity, in addition to home and public electric vehicle charging.

XII. People and Employment

1. Employment Impacts

Commenters: I-62 (Anonymous); I-83 (Anonymous); I-143 (Underwood); I-309 (Higley); I-311 (Guthrie); I-314 (Kinder); I-323 (Gonzalez); I-367 (Collins); I-405 (Sanner); I-466 (Soloski); I-512 (Moline); B-11 (Gettman's Rod Inc.).

Summary: Commenters are concerned about job losses, both personally and economy-wide, related to this rule. Commenters provide few specific reasons for the job losses, but they imply

[66] https://www.energy.gov/ceser/colonial-pipeline-cyber-incident

that customers will not be able to afford a vehicle to commute to work or that transitioning to ZEVs will eliminate jobs in the energy sector.

Response: Ecology appreciates the concern of commenters but respectfully disagrees about the nature of employment impacts from this ruling. Many of the rule's provisions provide flexibility for consumers and ensure a market transition that is already well under way. Additionally, as this motor vehicle emissions rule must be adopted by reference from California per the Legislature's mandate in RCW 70A.30.010, any employment impacts are outside the scope of this rulemaking and ability for Ecology to regulate.

Under this rule, existing ICEVs will remain on the road and available for purchase at used car dealers. This rule only impacts the sale of new vehicles, requiring that an increasing percentage of ZEVs be sold starting in MY 2026. If affordability is a concern, federal programs offer tax credits at the point of purchase for qualifying new and used ZEVs. More information can be found in section *VIII – Cost and Affordability*.

While jobs related to fossil fuel production will likely be impacted, this is a consequence of the larger, pre-existing market transition that is already underway. Domestic employment in the coal industry, for example, has been steadily declining for years. ZEVs have increased as a percentage of vehicles sold in the state over the past decade; this rulemaking guides transition to ZEVs to ensure the maximum feasible emissions reductions and standardizes the regulatory environment for automakers.

Importantly, the energy transition is creating many new jobs in battery research, manufacturing, maintenance, charging station construction and operation, and more. The U.S. Department of Energy[67] reported that nearly 41,000 jobs were created in the ZEV sector in 2021, underscoring the extent to which the clean vehicle transition is creating economic growth and employment opportunities.

2. Labor Rights

Commenters: I-102 (Kidd); I-133 (Hadley); I-134 (Rohlfing); I-137 (Rohlfing); I-156 (Campos); I-249 (Wilson); I-252 (Childs); I-304 (Trimble); I-401 (Waldock); I-542 (S); I-565 (Lawson); I-642 (McBride); I-665 (Medved); I-735 (Garvey); I-761 (Zinter).

Summary: Commenters opposed the use of child labor in the Democratic Republic of Congo to mine cobalt for electric vehicle (EV) batteries and therefore disagreed with Ecology mandating increased sales percentages of ZEVs through 2035.

Response: Ecology appreciates the concerns of these commenters; the use of child labor is abhorrent and the result of complex factors in the Democratic Republic of Congo (DROC). However, this issue is ultimately beyond the ability of Ecology to regulate and out of the scope of this rule. Given public interest in this topic, we will discuss the context and current efforts to reduce the usage of cobalt in EV batteries.

[67] https://www.energy.gov/sites/default/files/2022-06/USEER 2022 Fact Sheet_0.pdf

Due to the scarcity of cobalt, it is the most expensive element by weight in a battery. The DROC is home to 50% – 70% of the world's production of battery-grade cobalt and much of the commercial mining operations are owned by foreign nations, excluding local workers. Some local workers and their families, including children, operate what are referred to as artisanal mines, which are inherently unsafe. 15% – 30% of cobalt from the DROC is estimated to come from these mines. This raises human and labor rights violation concerns with sourcing cobalt. This cobalt ends up in the same stream as other cobalt from the DROC, making it difficult for auto manufacturers to exclude cobalt mined under these conditions. Furthermore, many cobalt miners are economically reliant on the mineral, making it difficult to stop artisanal mining operations without reducing their limited income.[68]

Many companies and researchers are working to remove the need for cobalt from EV batteries, and there have been multiple breakthroughs. Cobalt can be replaced by nickel[69] and other materials in different battery models using new processing methods. Due to the issues of labor rights violations and the high cost of cobalt, many companies have already begun using lithium iron phosphate batteries, which have proven to be commercially viable. Many designs for cobalt-free batteries are technologically feasible and some companies have expressed plans to become entirely cobalt-free over the next decade. Other sources of cobalt are also opening up, such as a mine in Idaho.[70]

3. Environmental Justice

Commenters: O-4 (EarthJustice Natural Resources Defense Council and Duwamish River Community Coalition); O-5 (Urban League of Metropolitan Seattle); O-7 (Joint Comment); O-9 (Climate Solutions).

Summary: Commenters expressed several ways to improve environmental justice elements of the policy, as well as raised questions as to Ecology's approach on environmental justice regarding this rule. Topics included:

- Increased outreach to and involvement of drayage truck drivers
- Strategies to help low-income households afford ZEVs
- Ensuring the cultural competence of Ecology's outreach strategies

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[68] "Making Mining Safe and Fair: Artisanal Cobalt Extraction in the Democratic Republic of the Congo". *World Economic Forum*. 15 Sep, 2020. https://www.weforum.org/whitepapers/making-mining-safe-and-fair-artisanal-cobalt-extraction-in-the-democratic-republic-of-the-congo

[69] University of California - Irvine. "Cobalt-free cathode for lithium-ion batteries: Innovation could lead to safer, longer-lasting power storage for electric vehicles and devices." *ScienceDaily*. 21 Sep, 2022. www.sciencedaily.com/releases/2022/09/220921210059.htm

[70] Siegler, Kirk and Whitney, Eric. "In Idaho, America's first, and only, cobalt mine in decades is opening". *NPR.* 22 Oct 8, 2022. https://www.npr.org/2022/10/08/1127310649/in-idaho-americas-first-and-only-cobalt-mine-in-decades-is-opening

- Implementing consistent definitions of environmental justice terms such as "community-based clean mobility program" and "financial assistance program" across Ecology's programs
- Using the definition of overburdened communities from RCW 70A.02.010 when referring to vulnerable communities.

Response: Ecology appreciates the time and thoughtfulness put into these suggestions on how to make this rule and its implementation create equitable outcomes for all residents of Washington. While many of these suggestions are outside the scope of this rulemaking, as Ecology is adopting rules from California by reference per the Legislature's mandate in RCW 70A.30.010 – and therefore has limited flexibility around adopted rule language – we will continue to consider ways to improve environmental conditions for overburdened communities and vulnerable populations.

Drayage truck drivers are an important part of our freight infrastructure, but their trucks are above the 8,500 lb. GVWR threshold and not covered by this rule. Instead, they are covered by Ecology's Advanced Clean Trucks program, which requires 60% of sales of vehicles in this weight class to be ZEVs by 2040. Furthermore, the one-time fleet reporting requirement included in this rule will help Ecology understand the nature of freight fleets and movement in the state, which will help us plan for future efforts to work with the industry, including drayage truck drivers.

Ecology is a part of the Interagency Electric Vehicle Coordinating Council (IEVCC), which will be developing a transportation electrification strategy for the state in 2023. The IEVCC will consult with an advisory panel made up of stakeholders such as tribal members, environmental justice advocates, as well as others, on cultural competency of outreach efforts and the overall transportation electrification strategy. The advisory panel will help shape the strategy, as it is crucial to make sure that the ZEV transition works for all Washingtonians. Drayage trucks drivers will also likely be considered as a part of this outreach and engagement.

Ecology agrees that increasing ZEV access to all income levels will be a large part of the clean energy transition. In the *VIII – Cost and Affordability* section above, we outline the number of ways ZEVs will become more affordable for Washington residents. These include federal tax credits that are available for new and used ZEVs. Projections also indicate that given current long-term trends and market conditions, ZEVs should reach price parity with ICEVs over the next decade. All light-duty ZEVs are expected to reach price parity before new ICEVs would be banned under this rule. This will support a robust used ZEV market with vehicles available at price points that are more affordable for those with limited incomes.

Finally, regarding the points submitted under the Joint Comment, Ecology is limited in our ability to coordinate definitions of terms such as "disadvantaged communities" and others across programs both due to how they are presented in statute and because we are adopting our definitions in this rule by reference from California. Ecology staff do work closely to ensure a well-coordinated suite of policies that meet the needs outlined within your comment – "prioritizing consumers that would benefit from but face more barriers to reliable and convenient clean mobility" – within the bounds of our role as a state agency.

We also believe that community engagement is an important part of rulemaking and have included outreach efforts in our implementation plan. Further engagement will occur through the IEVCC. Ecology is always considering additional policies and programs to help "ensure the benefits of a transition to zero-emission vehicles are realized by all Washingtonians, especially those who have been historically overburdened with transportation pollution," as was also written in the Joint Comment. Thank you again for your comments on this issue.

XIII. Zero Emission Vehicle Technology Concerns

1. Battery Charging & Range

Commenters: I-8 (Ogilvie); I-16 (Crocker); I-35 (Heye); I-47 (Levering); I-77 (Jones); I-97 (Rapp); I-116 (Johansen); I-128 (Paul); I-145 (Tyrian); I-147 (Stolle); I-157 (Oates); I-170 (Paris); I-186 (Angliss); I-192 (Gallagher); I-194 (Marion); I-196 (Roosendaal); I-201 (Newton); I-213 (Weiss); I-224 (Halliwill); I-234 (A. Kildall); I-245 (Rude); I-246 (Smith); I-252 (Childs); I-253 (George); I-254 (Post); I-268 (Hoffman); I-286 (Tadlock); I-303 (Scott); I-332 (Anonymous); I-342 (Rigtrup); I-366 (Olson); I-387 (Johansen); I-446 (Widman); I-519 (Robinson); I-535 (Neptune); I-543 (Wyllie); I-556 (Ross); I-590 (Alexander); I-603 (Sholdt); I-604 (Smith); I-610 (Fox); I-620 (Whorley); I-625 (Mongrain); I-657 (Rowland); I-665 (Medved); I-667 (Trussell); I-670 (Koffler); I-690 (Brady); I-697 (Wilbur); I-715 (Emrey); I-761 (Zinter); I-790 (Rupe); I-814 (Klein); I-827 (Bader); I-836 (Hiebert); I-846 (Driggs); I-850 (Whorley); I-875 (Anonymous); I-892 (Anonymous); I-931 (Prince); I-956 (Morgan); I-1033 (Anonymous); I-1043 (Mains); I-1076 (Adams); I-1084 (Darcy).

Summary: These commenters expressed concerns that the driving range of electric vehicles is not sufficient to meet their driving needs without stopping to recharge. Some commenters expressed specific concerns related to camping or other activities in remote areas with limited charging availability. Other commentors expressed concerns over the amount of time needed to recharge the electric vehicle battery during long distance travel.

Response: Ecology recognizes commenters' concerns over vehicle range and battery charging times. Numerous studies recently reveal that on average, Americans drive less than 50 miles per day. Obviously, there is considerable variability in consumers' driving habits, with some driving even less and others driving much farther. Many new EVs are being certified with around 250-300 miles of range, which should be sufficient for many drivers. Commercially available EVs in the US have reached ranges up to 520 miles. Those with regular driving needs exceeding this range may consider opting for a PHEV, which can be refueled with gasoline for extended travel distances.

Battery capacity and range are highly dependent on the chemistry utilized in the battery cells. To increase a vehicle's range with today's lithium-ion battery chemistry requires larger, heavier, and more expensive battery packs. However, battery chemistry is advancing every year. Several exciting developments are being developed that will dramatically boost vehicle range with smaller, cheaper batteries. Solid state batteries, which are being readied for large-scale commercial deployment later this decade, offer the promise of double the power density, and thus vehicle range, and dramatically faster charging speeds when compared to today's lithium-ion batteries with liquid or gel-based electrolytes. Another recent development by EC Power,

makes minor changes to the lithium-ion battery chemistry and cell design that has demonstrated fast charging times as low as 10 minutes. EC Power plans to begin mass-production of the new cells by 2024.

Rivian, the maker of EV "adventure vehicles" including the R1T pickup and the R1S SUV has been making progress on their efforts to add EV chargers to popular trailheads, National Parks, and other remote locations to alleviate concerns with using EVs for camping in remote areas. As Rivian markets their EVs as adventure vehicles, with multiple configuration options and accessories to enable camping, their non-proprietary charger network is designed to help facilitate that use case. Other options for those wishing to use ZEVs for remote camping include PHEVs and FCEVs, which can use gasoline and liquid hydrogen, respectively.

Continued improvements in driving range, battery technology, and the availability and speed of public charging infrastructure are making significant headway to address concerns about range. In the interim, PHEVs can enable consumers to drive even further with the use of gasoline. Finally, this rule does not preclude the use of alternative fuel sources, such as liquid hydrogen, provided they produce zero tailpipe emissions during operation.

2. Towing

Commenters: I-2 (Engebo); I-25 (Bond); I-72 (Anonymous); I-147 (Stolle); I-184 (Sanders); I-201 (Newton); I-224 (Halliwill); I-233 (Heenan); I-323 (Gonzalez); I-428 (Clay); I-602 (Holm); I-619 (Gregory); I-734 (Stiff); I-796 (Shamion); I-804 (Moreau); I-814 (Klein); I-891 (Mendenhall); I-1084 (Darcy).

Summary: These commenters expressed doubts about the towing capacity of electric trucks and the effect of towing on battery range.

Response: Ecology recognizes that towing can be challenging use case for vehicle electrification. While most electric trucks currently on the market have similar towing capacities as their gasoline and diesel-powered counterparts, towing decreases battery range to the point that it makes some medium- to long-distance towing trips difficult for electric truck users. Issues directly related to towing are outside the scope of this rulemaking, but we provide the following information for transparency.

Ecology does not expect that the ZEV rules will constrain truck owners from purchasing vehicles that meet their towing needs. Many towing-capable gasoline and diesel trucks will remain on the new vehicle market until MY 2035, and the rules place no restrictions on future sales of these trucks. Additionally, technology and engineering advancements will likely close the towing performance gap between electric and conventionally-powered trucks over the next decade. Electric trucks with 400 miles of battery range – roughly similar to the range of many ICEV

trucks on the market – are projected to hit price parity with ICEV trucks in 2033, two years before the phaseout of new gasoline and diesel-powered vehicle sales takes effect.[71]

Further, this year's ZEV rulemaking does not apply to vehicles with a gross vehicle weight rating (GVWR) above 8,500 pounds. Many larger trucks sold for personal use, such as the 2500 and 3500 versions of the Chevy Silverado and Ram, are above the 8,500-pound threshold and are not included by default in this year's rules. Manufacturers can choose to opt-in to the new ZEV requirements for vehicles in this weight range if they wish to generate ZEV compliance credits, but it is not a requirement.

New standards for trucks above 8,500 pounds were set in Ecology's rulemaking last year, which adopted the more modest ZEV timelines for these vehicles that were set in California's Advanced Clean Trucks (ACT) program. Those rules required that 55% of Class 2b and 3 truck sales (trucks 8,501-14,000 lbs.) be ZEV by 2035.[72] In other words, nearly half of new truck sales in these weight classes can be gasoline and diesel-powered even after 2035.

Because of these reasons, we expect many towing-capable trucks to continue being available on the new vehicle market, either as light-duty trucks sold within the manufacturer's permitted amount of gasoline and diesel-powered vehicle sales, as gas and diesel-powered Class 2b and 3 trucks, or as ZEV trucks sold for compliance with the ACC II or ACT rules.

Increased ZEV production and technology advancements are expected to close the gap between the towing capabilities of electric trucks and gasoline- and diesel-powered trucks. Electric trucks are in the beginning stages of entering the mainstream vehicle market and many more vehicle models, such as electric versions of the Ram and Chevy Silverado, are expected to enter the market in the next two years. Improvements in battery density can further decrease the performance gap, and the rollout of public fast charging stations across Washington will further ease the convenience of long commutes and road trips.

Finally, Ecology's rules also allow the sale of new plug-in hybrid electric vehicles (PHEVs) past 2035. PHEVs provide another option for rural residents, agricultural workers, and others who may need access to vehicles with long ranges and powerful towing capabilities. Ecology's rule also allows for the sale of hydrogen-powered vehicles, which could serve a similar purpose.

3. Cold Weather

Commenters: I-8 (Ogilvie); I-9 (Moore); I-25 (Bond); I-51 (S.); I-128 (Paul); I-147 (Stolle); I-159 (Ferro); I-196 (Roosendaal); I-201 (Newton); I-203 (Lapierre); I-501 (Kuk); I-648 (Kellum); I-653 (Daniels); I-657 (Rowland); I-766 (Anonymous); I-830 (Lamb); I-892 (Anonymous); I-1076 (Adams).

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[71] Slowik, Peter, et al. "Assessment of Light-Duty Electric Vehicle Costs and Consumer Benefits in the United States in 2022-2035 Time Frame." *International Council on Clean Transportation*. Published October 2022. https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf

[72] California Air Resources Board. "Advanced Clean Trucks Fact Sheet." https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet

Summary: These commentors expressed concerns over the reliability of electric vehicles in cold weather. One commenter expressed concern with the cold weather effects on battery charging, while another was concerned about the loss of range during cold weather. Other commentors expressed concerns that using an electric vehicle's climate controls for cabin heating during the winter months would not be practicable during times of extended roadway delays, leading to battery depletion.

Response: While Ecology disagrees with some commenters' assertions of EV unreliability during cold weather, we acknowledge and agree that cold weather does have effects on vehicle range and charging speeds. Cold temperatures, particularly those below freezing, slow down the chemical reactions in battery cells, which reduces vehicle range and increases charging times. Several studies on EV performance during cold weather have been produced in Norway, a Scandinavian country with long, very cold winters and a very high percentage of EV sales. According to the Norwegian Automobile Federation,[73] EVs can lose up to 20% of their range in sub-freezing weather. Similar results were reported by *Consumer Reports*,[74] which urged EV buyers in cold weather areas to opt for larger batteries to compensate for the range reductions.

Note that some EVs do better in cold weather than others, especially those with more advanced battery thermal management systems that provide heating of the battery pack to reduce cold weather range reductions and increase charging speeds. Many of these vehicles also provide high efficiency heat pumps to provide cabin heating with less battery drain than conventional resistance heaters, along with seat and steering wheel heaters to more efficiently warm occupants with reduced battery impacts. According to an analysis of on-road EV data by Recurrent,[75] EVs with advanced thermal management systems only lost about 5% – 10% of their range in freezing conditions, while those without those advanced systems lost 25 – 35% of their range in freezing conditions. Residents in colder areas of the state may wish to review these studies and take their recommendations into account when selecting a suitable EV to meet their needs.

4. Battery Durability

Commenters: I-35 (Heye); I-61 (Anonymous); I-77 (Jones); I-78 (Bonneville); I-84 (Luffman); I-96 (Donaldson); I-154 (King); I-157 (Oates); I-160 (DeChenne); I-231 (Faulken); I-249 (Wilson); I-253 (George); I-371 (Irvin); I-387 (Johansen); I-542 (S); I-604 (Smith); I-763 (Bradford); I-785 (Phillips); I-795 (Filipowicz); I-838 (Dittell); I-902 (Mitchell).

Summary: Commenters were concerned about the short durability of an electric vehicle battery.

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[73] "20 popular EVs tested in Norwegian winter conditions". *Norwegian Automotive Federation.* March 12, 2020. https://www.naf.no/elbil/aktuelt/elbiltest/ev-winter-range-test-2020/

[74] Pratt, David. "How Much Do Cold Temperatures Affect an Electric Vehicle's Driving Range?". *Consumer Reports*. December 19, 2021. https://www.consumerreports.org/hybrids-evs/how-much-do-cold-temperatures-affect-an-evs-driving-range-a5751769461/

[75] Witt, Jon. "Winter & Cold Weather EV Range Loss in 5,000 Cars." November 30, 2022. https://www.recurrentauto.com/research/winter-ev-range-loss

Response: Under this rule, all EV makers must provide an 8-year or 100,000 mile warranty on their high-voltage batteries. Some automakers (Kia, Hyundai, and others) optionally provide a 10-year warranty on the battery.

Ecology is also adopting battery durability requirements by reference in this rule. These state that in model years (MY) 2026 – 2029, 70% of the vehicles must still have 70% or more of original capacity for 10 years or 150,000 miles. These standards rise to 80% capacity for all vehicles sold over 10 years or 150,000 miles.

5. Safety Concerns

Commenters: I-8 (Ogilvie); I-12 (Ogilvie); I-54 (Carpenter); I-102 (Kidd); I-157 (Oates); I-162 (Moline); I-168 (Cooke); I-170 (Paris); I-185 (Shier); I-233 (Heenan); I-239 (Hunt); I-252 (Childs); I-274 (Hildebrant); I-331 (Kellum); I-374 (Duggins); I-446 (Widman); I-452 (McPherson); I-508 (Wohleb); I-560 (McNamee); I-563 (Day); I-567 (Kelly); I-603 (Sholdt); I-610 (Fox); I-665 (Medved); I-785 (Phillips); I-790 (Rupe); I-798 (Croneberger); I-836 (Hiebert); I-842 (Peoples); I-913 (Henley); I-1064 (Rase); I-1076 (Adams).

Summary: Commenters mentioned various safety concerns with electric vehicles, such as lithium-ion battery fires, emissions from toxic fumes, vehicle collision risks, and impacts of exposing batteries to saltwater.

Response: Thank you for your comments on this issue. Vehicle safety issues are regulated by the National Highway Traffic Safety Administration (NHTSA) and are beyond the scope of Ecology rules specific to emission standards. Nevertheless, we provide the following information below for transparency and to explain potential safety issues with transitioning to EVs and other ZEVs.

While we recognize commenters' concerns about switching to new and perhaps unfamiliar technologies, we see little evidence to suggest that EVs and other ZEVs are more dangerous than other vehicles. EVs must pass the same safety tests as other vehicles, which include numerous crash tests that assess their performance protecting occupants in front, side, and rollover crashes. Nine EVs achieved the NHTSA's 5-Star safety rating in model year 2022, including affordably priced models like the Chevy Bolt, Hyundai Kona Electric, and Ford F-150 Lightning. The Ford Escape PHEV also received top marks.[76]

Crash test results from the Insurance Institute for Highway Safety (IIHS), a nonprofit focused on vehicle safety, have also found EVs to be at least as safe as conventionally powered cars.[77] The IIHS also conducted a study that compared collision data and insurance claims for the electric and conventional versions of nine vehicle models; the electric versions had 40 percent lower driver and passenger injury claims on average than their identical gasoline-powered counterparts. The combination of EVs' heavier weights, quicker braking times on average, different vehicle designs, and other factors make any "apples to apples" comparison in vehicle safety difficult;

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[76] National Highway Traffic Safety Administration. "NHTSA Announces MY 2022 Vehicles for 5-Star Safety Ratings Tests." October 14, 2021. https://www.nhtsa.gov/press-releases/2022-5-star-safety-ratings-tests

[77] Insurance Institute for Highway Safety. "With more electric vehicles comes more proof of safety". April 22, 2021. https://www.iihs.org/news/detail/with-more-electric-vehicles-comes-more-proof-of-safety

however, testing and insurance claim data suggests that EVs are, at the very least, no more dangerous than other vehicles.

With respect to vehicle fires, data shows EV fires to be rare compared to fires in gasoline- and diesel-powered vehicles.[78] One caveat is that EV fires tend to burn longer and at a higher intensity, although this is being addressed through safer battery designs and new fire management techniques. Fire risks can be further mitigating by refraining from overcharging the battery,[79] which can place stress on the battery system. The NHTSA has also established the Battery Safety Initiative for Electric Vehicles to address safety risks related to EV batteries.[80]

Toxic fume inhalation is a potential risk with being near lithium-ion battery fires. Evidence on this topic is relatively limited, but it is only a danger if an individual stands close to an ongoing fire. In the rare event of a vehicle fire, individuals should move away from the fire and call their local fire department.

Finally, media reports indicate that a small number of electric vehicles in Florida caught fire after being submerged in saltwater during Hurricane Ian. While speculating on natural disasters is outside the scope of this document, we note that the fires happened to a very small proportion of EVs in the area and caused no deaths or injuries. Further, saltwater exposure also poses extreme risks to gasoline- and diesel-powered vehicles.

6. Emergency Vehicles

Commenters: I-13 (Cassell); I-66 (Dineen); I-87 (Silvey); I-216 (Christensen); I-249 (Wilson); I-445 (Goehner); I-446 (Widman); I-809 (Arrell); B-13 (Ballard Ambulance).

Summary: The commenters expressed concern that requiring police, firefighters, and other emergency services to utilize ZEVs would impair public safety and emergency response times.

Response: Motor vehicles purchased by police departments, county sheriffs, fire districts, and the Washington State Patrol are exempt from the Clean Vehicles Program and the new ZEV standards, per RCW 173.423.060. The decision to purchase zero-emissions or internal combustion-powered fleet vehicles is up to purchasing agencies' discretion and is not affected by Ecology's regulations.

However, numerous law enforcement agencies across the country have added EVs to their fleets for their fuel savings and other benefits, demonstrating the adeptness of ZEV technology in meeting diverse vehicle needs. Ecology is also utilizing Volkswagen settlement money to offer

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[78] Gilmour, Dori Luzzo. "As more electric vehicles hit the road, researchers study EV fires, battery recycling". *Argonne National Laboratory/TechExplore*. https://techxplore.com/news/2022-11-electric-vehicles-road-ev-battery.html

[79] Ahrens, Marty. "Vehicle Fires". *National Fire Protection Association (NFPA).* March 2020. https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/US-Fire-Problem/osvehiclefires.pdf

[80] https://www.nhtsa.gov/battery-safety-initiative

grants for fire districts to replace older vehicles with new electric fire trucks.

7. Vehicle Use in Emergencies

Commenters: I-1 (Anonymous); I-60 (Dutton); I-69 (Updegrove); I-132 (Chermak); I-233 (Heenan); I-332 (Anonymous); I-345 (Ryan); I-482 (Weir); I-501 (Kuk); I-618 (Shofstall); I-635 (Woodland); I-648 (Kellum); I-777 (Briggs); I-836 (Hiebert); I-956 (Morgan); I-1033 (Anonymous); I-1084 (Darcy).

Summary: These commenters expressed concerns that electric vehicles would not be available for use during storms or other emergencies when the electricity is out because they would not be able to charge their vehicles. Some commenters expressed concerns about using electric vehicles in emergency evacuations or their suitability during winter weather-related traffic backups, such as over the mountain passes.

Response: Ecology recognizes the commenters' concerns and thanks them for their comments. Emergency situations can be very scary and stressful. Electricity outages are a growing concern for many. However, electricity outages affect all kinds of vehicles, as the pumps at a gasoline station do not work without electricity, making it difficult or impossible to fill up a gasoline- or diesel-powered vehicle after a storm or power outage.

It's important to note some distinctions in how EVs are fueled differently than ICEVs and how their performance in traffic differs. EVs are typically plugged in at home at night to maintain a near full charge. Most people with ICEVs do not refuel daily nor maintain a full fuel tank at all times. During an emergency evacuation situation with an electricity outage, a fully charged EV will likely have more range than an ICEV with only a half tank of fuel. Also, an EV uses very little energy when stuck in traffic, while an ICEV consumes for as long as the engine is idling, effectively reducing the range of the ICEV.

During electricity outages where evacuations are not necessary, many EVs can power a home for days, using electric outlets in the vehicle or a bidirectional home charger. This suggests a potential benefit EVs have in the event of power outages that cannot be replicated with traditional ICEVs.

Recently, several companies have begun offering mobile charging options for EV drivers. These include trucks with large portable battery packs that can be used to fast charge an EV, even in areas without electricity service. These mobile chargers and other options will likely be deployed during emergencies and to aid in evacuations. They could also be deployed to winter-related closures and traffic jams over the mountain passes to "refuel" EVs, if needed. For a more in-depth discussion of winter and cold weather-related concerns, please see the section *XIII.3 – Cold Weather*.

XIV. Rural Areas

1. Rural and Wilderness Charging Infrastructure

Commenters: I-4 (Moore); I-29 (Menges); I-51 (S.); I-203 (Lapierre); I-601 (Fortier); I-602 (Holm); I-766 (Anonymous); I-798 (Croneberger); I-867 (Randall); B-12 (Christensen Inc.).

Summary: Commenters worry that there is little charging infrastructure in rural areas and that this situation will persist. These concerns extend to remote wilderness areas, where people may go to recreate for longer periods of time.

Response: Ecology appreciates the concerns of residents around locating convenient charging infrastructure in rural or wilderness areas. While it is not yet known exactly how the public charging network will look like in the future, there are many public and private initiatives in places to create a robust network. This includes focusing on rural and other non-urban areas.

The federal government established the National Electric Vehicle Infrastructure (NEVI) Formula Program through the 2021 Bipartisan Infrastructure Law (BIL). This program provides funding to states that wish to expand their electric vehicle charging network. Washington's plans[81] were approved by the federal government in September. $71 million in funding has been provided, and construction will begin in 2023. The plan aims to place charging infrastructure at least every 50 miles along major highways, thereby filling gaps in the existing infrastructure, focusing on low-income and rural areas, and preparing the state for a 2030 goal of all new vehicle sales being electric. 40% of the federal funds will go towards rural and disadvantaged communities per the Justice40 Initiative established by Presidential Executive Order 14008.[82] Washington residents can suggest where to site charging stations using an interactive map[83] provided by the Washington Department of Transportation.

While public charging is built out, rural residents also have the option of connecting a Level 2 charger at home. As seen in the section *VIII – Cost and Affordability* above, there are tax credits available to help reduce the cost of a home charging station. These credits cover 30% of the cost of hardware and installation, up to $1,000. This tax credit has been extended to December 31st, 2032. Beginning in 2023, this will also apply to bi-directional charges, which enable EVs to serve as batteries for the wider electrical grid. For rural homes, this means that an electric vehicle can serve as battery storage for your home in the case that there is a blackout.

Automakers are also acting to build out their own networks, or to partner with contractors and third parties to build out EV charging networks. Tesla's Superchargers are one example, but Ford and General Motors are also building out their networks and working as an industry to standardize charging networks. EV automaker Rivian is focusing on making recreating easy for EV users by building out a network of fast chargers at popular recreation areas such as National Parks, trailheads, and climbing areas.

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[81] https://wsdot.wa.gov/sites/default/files/2022-08/Electricvehicle-plan-infastructuredeployment.pdf
[82] https://www.energy.gov/em/justice40-initiative
[83] https://wsdot.maps.arcgis.com/apps/CrowdsourceReporter/index.html?appid=6d1e12ec58f842cbaf1b83e3d60e0f09

The unique technology in electric vehicles offers another way to make recreating still possible with electric vehicles in remote mountainous areas away from charging stations. Regenerative braking, where a car generates electricity through braking, can recharge a battery significantly on long downhills. In testing, driving on flat ground is only marginally more efficient than driving on hilly terrain with an equal amount of up and downhill movement. If a car's range is large enough to cover the entirety of a trip, this will not be materially impacted by any elevation changes.

Finally, in the case that there is a region that remains uncertain about whether an electric vehicle will be able to complete the journey, existing internal combustion engine vehicles (ICEVs) will remain on the road if they are usable and meet emissions regulations. ICEVs will also remain for sale through MY 2035, albeit in decreasing quantities. Plug-in hybrid vehicles will remain for sale after 2035, although they may only compose up to 20% of an automaker's sales in the state each year.

2. Off-Grid Homes

Commenter: Theresa Funkhouser (I-63)

Comment: "Re purposal for clean vehicle proposal wac -
Many Washingtonians live in cities where clean vehicles and charging stations are available- and where this could be a resource to cut pollution however there is a smaller amount of us (like me) who live in rural Washington- where u are lucky if you can find a charging station. Our homes are off the gride and we produce enough energy to just run some basic lights in our homes- some times during the year we have to use a generator for our homes - we don't have an option to plan an electrical hook up in our homes for charging - our errands in our trucks are up into the woods to forage- food, wood to stay warm , water ect. It could be weeks before we go to a town - but could easily drive over 500 miles but no place to charge –."

Response: Ecology appreciates your concern about charging an electric car using a generator. Gas-powered vehicles will remain for sale up until MY 2035. These vehicles will also remain on the road indefinitely as long as they are functional. This rule only requires the sale of zero-emission vehicles to increase over time as a percentage of all the new vehicles sold in the state. Plug-in hybrid vehicles will also remain available after 2035, although they may only compose up to 20% of an automaker's sales in the state each year.

Should you wish to purchase an electric vehicle and a home charger, there are tax credits available for home charging stations that cover 30% of the cost of hardware and installation, up to $1,000. Beginning in 2023, this will also apply to bi-directional chargers, allowing an electric vehicle to serve as battery storage for a house to use when there are blackouts. More information can be found in the section *VIII – Cost and Affordability* above. Renewables such as solar also offer a way to further electrify your home, and there are federal incentives that can cover up to 30% of installation costs for solar.

3. Rural ZEV Tech Concerns

Commenters: I-6 (Frost); I-9 (Moore); I-25 (Bond); I-147 (Stolle); I-239 (Hunt); I-275 (Roeder); I-408 (McCullough); I-425 (Christensen); I-541 (Mattison); I-543 (Wyllie); I-547 (Bricker); I-556 (Ross); I-739 (Burnett); I-804 (Moreau); I-811 (Adams); I-957 (Haugh).

Summary: Commenters expressed several concerns about ZEV technical capabilities in rural settings. Range is a concern, as large distances need to be covered in rural areas, often in inclement weather and while towing – both of which can impact range. In rural areas people carry gas cans to extend range, but this is not as feasible with an EV.

Response: Thank you for your comments. We understand and appreciate that rural driving conditions present unique challenges to a transition to electric vehicles (EVs), including long distances, cold weather, and the need for towing. We have addressed these concerns separately in other sections (see *XIII – ZEV Tech Concerns*), but will summarize them here for these commenters who were explicitly concerned about rural EV use.

Most electric trucks currently on the market have similar towing capacities as their gas and diesel counterparts. While trucks of all types have range that is impacted by the load they are towing, the major differences come from charging time and charging station availability. Washington is preparing to introduce many new public charging stations over the next decade using federal funding from the Bipartisan Infrastructure Law (BIL), with 40% of funds going towards rural and disadvantaged communities; for more on this, see the section *XIV.1 – Rural and Wilderness Charging Infrastructure* above. If a Washington resident lives in an area that does not have available public charging stations, new gas- and diesel-powered vehicles will remain for sale until 2035. Used vehicles will continue to be sold indefinitely, regardless of how they are powered. Plug-in hybrid vehicles will remain for sale after 2035. This rule does not take away your ability to drive a gas-powered vehicle. Furthermore, this rule does not cover vehicles with a gross vehicle weight rating (GVWR) above 8,500 pounds. Many personal trucks, such as the 2500 and 3500 versions of the Chevy Silverado and Ram, are above this threshold and are not included in this rule. They are regulated under Ecology's rulemaking from last year, Advanced Clean Trucks, which has a longer timeline for introducing ZEVs to the truck market. For more, see the section *XIII.2 – Towing* above.

Similarly, cold weather can reduce the range of an EV. While we note that EVs are very popular in countries such as Norway where temperatures regularly fall below freezing, this does reduce up to 20% of the range of an EV. However, not all EVs are constructed the same and many are more resilient to cold weather than this. Those with advanced management systems can reduce range losses to just 5% – 10%. More information on this can be found in the section *XIII.3 – Cold Weather* above.

Ecology encourages rural drivers to consider this information when selecting their vehicles, knowing that a wide range of options remain available and new technological advancements and construction of charging stations are closing existing gaps between EVs and gas-powered vehicles. Many EVs will work for rural conditions, including long commutes under inclement weather and while towing, but some use cases may require used gas-powered vehicles, plug-in hybrid vehicle, or heavy trucks that are not regulated by this rule. This rule allows flexibility for these purposes.

4. Farmers and Loggers

Commenters: I-119 (Mains); I-119 (Mains); I-187 (Murdock); I-201 (Newton); I-216 (Christensen); I-372 (Hansen); I-408 (McCullough); I-439 (Pekarek); I-469 (Citizen); I-474 (Greenough); I-518 (Downs); I-590 (Alexander); I-644 (Burns); I-653 (Daniels); I-902 (Mitchell); I-1051 (Clinton); I-1070 (Wright); A-2 (Washington State Potato Commission); O-19 (Yakima County Farm Bureau).

Summary: Commenters were concerned about the impact of this rule to farmers and loggers. Issues mentioned by commenters included the following:

- Some diesel equipment does not have a comparable electric counterpart
- The time spent charging will hurt profitability of a farm or logging operation
- Equipment cannot charge in the middle of a field
- Workers might be late to work due to the need for charging
- Crops can perish if the trucks cannot deliver them quickly enough

Response: Ecology appreciates the concern of commenters about impacts to farming and logging, as these are both important industries in the state's economy. However, farming equipment is not regulated by this rule, as it focuses on light-duty on-road vehicles such as passenger cars, vans, SUVs, and light-duty pickups. On-road trucks and vehicles with a gross vehicle weight rating over 8,500 pounds are regulated by Advanced Clean Trucks, which was adopted in 2021 by Ecology. Neither will impact much farming equipment, as both apply to on-road vehicles. Farmers and loggers will be able to use much of their equipment and purchase new models in perpetuity under this rule. New electric, hydrogen, biofuel, and fossil fuel-powered off-road equipment will also be available for sale, giving these users flexibility to choose what works best for their needs.

5. Rural Affordability

Commenters: I-147 (Stolle); I-241 (Pomerinke); I-246 (Smith); I-263 (Wright); I-273 (Weise); I-408 (McCullough); I-420 (Leghorn); I-827 (Bader); I-950 (Joy); I-995 (Dykstra); I-1043 (Mains); I-1084 (Darcy); B-12 (Christensen Inc.);

Summary: Commenters are concerned that many in rural areas cannot afford the upfront costs of an EV and a charging station.

Response: Ecology appreciates these concerns and notes that the section *VIII – Cost and Affordability* above explores issues and solutions for affordability problems related to zero-emission vehicles (ZEVs). Below is a brief summary of those points.

There are federal incentives available for ZEVs and charging stations. For vehicles, these can be received at the point of purchase. For charging stations, they are available as tax credits that cover 30% of related costs, up to $1,000. ZEVs, and EVs in particular, are expected to reach price parity with comparable internal combustion engine vehicle (ICEV) models starting in 2024,

with the longest-range models and pickups taking until 2030 – 2033 to reach price parity. During this time, many more ZEV models will become available on the used market as well, driving down average ZEV prices. Charging stations may also be less of an investment, as this rule requires vehicles to be sold with a Level 1 and Level 2 convenience charging cord to ease home charging requirements. With the cord, all that is required is a 240v outlet.

Finally, new gas- and diesel-powered vehicles will remain for sale until 2035. Used vehicles will continue to be sold indefinitely, regardless of how they are powered. Plug-in hybrid vehicles will remain for sale after 2035. This rule does not take away your ability to drive a gas-powered vehicle.

6. Agricultural and Forestry Resources

Commenters: Washington State Potato Commission (A-2)

Comment: "While we understand that Washington is set to adopt California standards, it's worrisome that in California, the California Air Resources Board (CARB) staff acknowledged in a report to Board members that the ban will have potentially significant adverse impacts to agricultural and forest resources."

Response: The Potato Commission is likely referring to the finding that the Advanced Clean Cars II program will have "potentially significant and unavoidable" impacts to agricultural and forestry resources as identified in the environmental analysis that the California Air Resources Board (CARB) conducted for their rulemaking process. Ultimately, this concern is outside the scope of this rulemaking as this rule pertains only to motor vehicle emissions and is adopted by reference from California by mandate from the Legislature.

The Potato Commission does not state their specific concerns for agricultural and forestry resources. We note that CARB's findings were made solely for California and not for Washington.

These findings can be split into two categories of impacts: short-term and long-term. Short-term impacts include construction-related impacts due to the building of new facilities for mining raw materials for, manufacturing, or recycling lithium-ion batteries. Long-term impacts include siting the facilities within existing agricultural or forestry zones. While most siting of these types of facilities can and will occur in industrial zones, they may expand into existing agricultural or forestry lands.

While these impacts may occur, they are not certain. They do remain a possibility and therefore CARB highlighted them in their analysis. However, CARB was considering the impacts of lithium mining in California, the siting of battery factories, and other impacts specific to California. Washington is not expected to see the same level of industry here, partially due to the relative lack of mineral resources. While some additional battery infrastructure may be constructed, and battery production factories are being built in Washington towns like Moses Lake, those projects are expected to be on a different scale than those expected in California.

XV. General Out of Scope

Commenters: I-16 (Crocker); I-22 (Countryman); I-29 (Menges); I-34 (Anonymous); I-56 (Howard); I-87 (Silvey); I-141 (Larsen); I-156 (Campos); I-163 (Vanderbie); I-166 (Brooks); I-168 (Cooke); I-172 (Gatchell); I-212 (Price Jr.); I-220 (Gengler); I-245 (Rude); I-252 (Childs); I-255 (Coyne); I-263 (Wright); I-271 (McAdams); I-318 (Sanner); I-352 (Bennington); I-357 (Deibert); I-365 (Black); I-375 (Smith); I-386 (Nelson); I-391 (Smith); I-392 (McMillan); I-400 (Sturrock); I-434 (Lee); I-511 (Meyer); I-585 (Babitsky); I-612 (Lerud); I-625 (Mongrain); I-647 (Vio); I-661 (Fitzpatrick); I-680 (Ulrich); I-687 (Crooks); I-692 (Deprati); I-732 (Moberg); I-776 (Gourley); I-800 (West); I-821 (Pemberton); I-835 (Sheppard); I-859 (Brackett); I-911 (Bacon); I-914 (Gerlach); I-948 (Cooper); I-950 (Joy); I-1017 (Nist); I-1039 (Babitsky); I-1070 (Wright); I-1083 (Hodgson); I-1085 (Hicks); O-10 (Alliance for Automotive Innovation).

Summary: Ecology received a number of public comments unrelated to zero-emission vehicles, motor vehicle emission standards, public charging infrastructure, and other issues relevant to this rule. These comments touched on issues such as:

- The expansion of nuclear power in the United States
- Greenhouse gas emissions by China, India, and other countries
- Greenhouse gas emissions unrelated to human activity
- Oil and gas drilling in the United States
- Washington state's long-term energy strategy
- Environmental review periods for new power plants
- Corruption in government
- Expansion of airports and bus lanes
- Alternative generator technologies
- Policies to mitigate the spread of COVID-19
- The aesthetics of solar panels
- The low carbon fuel standard (LCFS)

Ecology also received several comments that did not specify a particular issue or concern for staff to respond to.

Response: We appreciate that you took the time to comment on this rule. However, these comments are outside the scope of this rulemaking, which concerns the implementation of motor vehicle emission standards as set forth in RCW 70A.30.010.

While the LCFS is outside the scope of this rulemaking, we note that the rule, WAC 173-424, was adopted on November 28, 2022.

XVI. Form Letters

Ecology received many comment letters with identical or nearly identical content. Due to the large number of these submissions, we are providing the comment content and Ecology response here in this section.

Some individuals incorporated form letters in their responses but added additional comments. To the extent that these comments raised unique issues that necessitated an Ecology response, they are included in the above sections.

Form Letter #1

Commenters: Ecology received the following form letter from the 53 commenters listed below. While there were variations between the individual comments, all of them included some or all of the content listed below. Any substantial comments made in addition to the form letter are addressed in the respective topic sections.

Brian	Green , Shara	Owens , Dwayne
Ms C	Grossenbacher , Philip	Pipkin , Yvonne
Asa , Randy	Hall , Allen	Robley , Shane
Balint , Joe	Hills , Rob	Russell , Lyle
Behrens , Ron	Hooyer , David	Schwede , Heiner
BLALOCK , Paul Jr.	Hutsell , David	Skindlov , Mary
Bosman , Angela	Johnson , Ken	Smith , Charles
Buda , Dietmar Joe	Kephart , Karen	Smith , Brian
Cannon , Robert	Kinzel , Jay	Tamaccio , Tony
Carpenter , Clyde	Knudtsen , Jere	TenPas , Jeff
Casey , John	Kushykov , Taisiya	Towne , Chad
COLBY , RONALD	KUSHYKOV , IGOR	Tutor , Robert
Cox , Troy	Latimer , Geoff	Vance , Frank
Cox , Penny	LiBrandi , Frances	Vio , mae
Dalrymple , Sarah	linville , Terry	Webster , Cori
Fedore , Michelle	M , J	Franke , Steven
Flabetich , Dennis	Maloney , Nicole	Campbell , Shannon
Frey , Donald	McElrath , Charles	

Comment: EV mandate and gas engine ban are unrealistic and unfair, will cost billions to implement and will unfairly penalize rural communities and working families.

EVs are still too costly and don't work for most families.

- The average EV costs $66,000. This mandate will cost consumers and businesses BILLIONS.

- Creating the charging infrastructure to support this mandate will be expensive and could take years.
- The cost of electric grid upgrades needed for new EV charging loads, are unknown and could be in the BILLIONS.

Washington residents should be able to choose the vehicle that works best for them.

Response: We appreciate you taking the time to comment on this rule. While Ecology's rulemaking will gradually transition new light-duty and passenger vehicles sold in Washington to ZEVs over time, we disagree with the assertion that it imposes an EV mandate and a ban on gas engines. Individuals and families will be able to purchase new gasoline and diesel-powered vehicles until MY 2035 and will be able to purchase used gasoline and diesel-powered vehicles thereafter.

After 2035, consumers will not be mandated to purchase an EV when purchasing new vehicle; in addition to EVs, they will have the choice of purchasing hydrogen vehicles, plug-in hybrids, and other potential technologies that emit no tailpipe pollution during vehicle operation. However, we expect EVs to meet the needs of most light-duty vehicle users at this point given forecasted improvements in battery range and durability, affordability, and charging infrastructure, among other factors.

Regarding the price of EVs, we recognize that EVs have historically been perceived as luxury vehicles outside the price range of most individuals and families. However, major automakers have released or will soon release lower-cost EV cars, trucks, and SUVs, many of which are electrified versions of already-popular vehicle models like the Ford F-150. More lower-priced EV models are expected to enter the market over the next several years as automakers increase production volumes to meet consumer demand.

In addition, assessing affordability based on initial purchase price only tells half the story, as EVs have significantly lower operating costs than ICEVs. A Consumer Reports study found that Washington EV drivers can save an average of $1,104 – $1,810 per year in fuel costs compared to ICEV drivers.[84] EVs have also lower maintenance costs on average than ICEVs, further improving their cost-competitiveness. This assessment does not incorporate the significant environmental benefits ZEVs provide to society in the form of avoided air and noise pollution and lower carbon emissions, which have tangible economic benefits to society such as fewer hospital visits and lower rates of respiratory illnesses.

Further, the upfront costs of EVs are expected to decrease in the upcoming years. Modeling by the International Council on Clean Transportation found that electric cars, SUVs, and crossover vehicles with 400 miles of battery range (roughly the same range as many ICEVs) are expected to reach price parity with ICEVs in 2030, five years before the phase-out of new ICEVs is

[84] Harto, Chris. "Electric Vehicle Ownership Costs." *Consumer Reports*. Published October 2020. https://advocacy.consumerreports.org/wp-content/uploads/2020/10/EV-Ownership-Cost-Final-Report-1.pdf

complete.[85] Electric trucks with the same range are expected to reach price parity in 2033. Combined with their lower operational costs, the projected purchase price decreases will make EVs the most economical and convenient option for many households and businesses.

With respect to the claim that building EV charging infrastructure "will be expensive and take years," Ecology notes that most major public infrastructure projects require significant funding and take multiple years to complete. However, Ecology staff does not believe that public charging infrastructure targets are impractical or will impose prohibitively high costs for state taxpayers. Along with other state stakeholders, Ecology is working on plans to create a more robust public charging network by 2030, supporting objectives laid out in the Move Ahead Washington bill passed in 2022.

There are already over 1,600 public charging stations and 3,900 charging ports in Washington,[86] and that number is expected to substantially increase in upcoming years with funding already allocated by the federal government, the Washington State Department of Commerce, and other sources. These efforts are augmented by private sector investments placing additional charging stations at workplaces, businesses, gas stations, and other locations.

The claim that electric grid upgrades needed for EV charging could cost billions of dollars is speculative and is outside the scope of this rulemaking. Long-term grid planning is handled by state electric utilities under the Electric Utility Resource Plans law (19.280 RCW), which requires utilities to publish biannual Integrated Resource Plans (IRPs) detailing how the utility expects to meet expected future energy needs. While the most recent round of IRPs predate Ecology's rulemaking, utilities have already had to plan for current and anticipated EV charging loads given the high EV adoption rate in the state.

Finally, the transition to zero-emission vehicles is planned to minimize disruptive impacts to families and businesses. This timeline was developed through extensive modeling, analysis, and stakeholder engagement by CARB, and Ecology is required by law to adopt CARB's rules. By the time ZEVs make up most new light-duty auto sales in the early 2030s, we expect them to be the most convenient, affordable, and desirable option for most customers.

Market trends and federal and state efforts to promote ZEVs are expected to increase EV access for rural and working-class communities. A robust new and used EV market, together with state and federal tax credits, is expected to result in lower costs for vehicle users. Vehicle users in rural areas can anticipate a wider array of EV options, including vehicles with longer ranges and powerful towing capabilities; they also have the option of purchasing plug-in hybrids or used ICEVs if those vehicles better meet their needs. Finally, Washington state's charging infrastructure plans prioritize rural and low-income residents and allocate 40 percent of federal funds to increasing charger access in those communities. Please see the Washington State Plan for Electric Vehicle Infrastructure Deployment for more information.

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[85] Slowik, Peter, et al. "Assessment of Light-Duty Electric Vehicle Costs and Consumer Benefits in the United States in 2022-2035 Time Frame." *International Council on Clean Transportation*. Published October 2022. https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf

[86] https://www.eia.gov/state/?sid=WA#tabs-1

Form Letter #2

Commenters: The following form letter was received via email from the 299 commenters listed below. While there were slight variations between the individual comments, all of them included some or all of the content listed below. Any substantial comments made in addition to the form letter are addressed in the respective topic sections.

Adams, Jessica	Goodman, James	Michaels, Brenda
Alderton, Janet	Goodwin, Greg	Moorman , Tom
Alexander , Jon	Gordon , Richard	Morgan , David
Allen , Kathleen	Gosar, Jennifer	Morris, Eleanor
Anderson, Sharon	Grajczyk , Joyce	Mulcare , James
Anderson , Becky	Guros , John	Mullins , Jim
Arntson , David	Gutierrez , Ceasar	Murawski , Heather
Aspell , Amy	H , Carole	Nash , TaShawna
Astyk , Robert	Hance , Judith	Neal , Stephen
Atkins , Gail	Hand , David	Neary , Sally
Avery , Judy	Hanson , Lois	Nguyen , Nhan
Avni , Andrea	harris , jeri	Nicholson , Clark
B , Shary	Harris , Claudia	Nicholson , Patricia
Baker , Norman	Harvey , Jo	Ostrander , Lucy
Baltin , Brian	Hatfield , Phyllis	Otto , Tyler
Barbee , Stephanie	heavyrunner , mia	Padelford , Grace
Bard , Brenda	Heller , Margie	Palmer , Judy
Bartow , Sally	Henling , Daniel	Pape , Robyn
Bauman , Sarah	Herbert , Debby	Parker , Barry
BELL , STEPHANIE	Heron , Carrie	Pauley , Jean
Benedict , Derek	Heyer , Nicholas	Peltier , Jamie
Berkshires , Nova	Hickey , Patrick	Penningnton , Sharyn
Bernard , Barbara	Hill , Michael	Phillips , Annie
Betz , Michael	hipp , james	Puffer , Deidre
Biale , Cheryl	Hogan , Rita	Quinn , Alison
Bishop , Scott	Hommer , Anna	Rabenstein , Lynn
Bishop-Boros , Joseph	Hoover , Karen	Raspa , Doris
Blackwood , Barbara	Houghton , Abigail	Ratcheson , Geff
Boaterre , Dr.	Howe , Jared	Reeber , Tess
Bordelon , Tika	Huber , Michael	Riordan , Janet
Bowdish , Caroline	Huddlestone , Laura	Roberts , Jim
Brant , Daniel	Iluna , Mana	Roberts , Melissa
Brent , Patti	Jackie , Easley	robinson , d
Bright , Jane	Jacky , S.	Rogers , Dan
Brooks , Anne	Jacobs , Kathryn	Rothenberg , Florie
Brown , Robert	Jamison , Vanessa	Rudisill , Amanda
Brown , S.F.	Jeffrey , Mary	Ruggles , Derya

Brown , Tina	Johnson , Lorraine	Rumiantseva , Elena
Brown , Doug	JOHNSON , Lucy	Rumiantseva , Elena
Browning , Geoff	Johnson , Patricia	Russell , Karen
Butler , Peggy	Johnson , Richard	S , John
Caicco , Jody	Johnson , Elizabeth	Saarinen , Tanara
Campbell , Sarah	Johnston , Lloyd	Samaras , John
Canright , Mark	Jones , Thomas	Saxton , Tom
Ceazan , Lisa	Jones-Wood , Alyssa	Scavezze , Barbara
CHANG , ROBERT	Justis , Bill	Schaffer , Crystal
Chesick , Katherine	K , J	Scheunemann , Anita
Cohen , Judith	Kaelin , Elaine	Schmitz , Michael
Cole , Jackie	Kaeufer , Edward	Schuessler , Bob
Collins , Randall	kalahan , deb	SEIDMAN , PETER
CONDON , MARY	Kaufman , Ronald	Sellers , Rebecca
Conn , Patrick	Kaye , Deborah	Shapiro , Steve
Cowan , Keith	KELLY , JOANNE	Shaw , Alyssa
Cox , Colton	Kemp , Kindy	Shilling , Bruce
Craighead , Tom	Kepl , Elizabeth	Shomer , Forest
Cronin , James	Khayat , Alana	Sielinski , Jeannine
Cruz , Celia	Kiba , Amy	Simanton , John
Cruz , John	King , Ruth	Sneiderwine , William
Dahlgren , Shelley	Kladnik , Julia	Snyder , Dan
Davis , Virginia	Kozma , Jeffrey	Spear , Debbie
Deal , Brandie	Krantz , Marquam	Speed , Andrea
Denny , Mary	Krieger , James	Speer , Cheryl
Devlin , Felicity	Lamb-McMurray , Aminah	Spencer , Arlene
DeWald , Monica	LAMBERT , JOHN	Stefano , Lori
Di Santo , Denise	Lampe , Jacob	Sullivan , Diane
Dickinson , Amanda	Ledden , Dennis	Summers , George
DiLabio , Gena	Leifker , Karen	Swainson , LuAnne
Dodge , Tiffany	Lepore , Sue	SWANSON , CRAIG
Drury , Kim	Leveen , Laurence	Teed , Cornelia
DuBois , Barbara	Levine , Emily	Teraberry , Kimberly
Dull , Ken	Link-New , Virgene	Ternes , Randal
Dysart , Sherri	Liu , Hannah	Thiel , Susan
Edwards , Dixie	Loehlein , Kenneth	Thompson , John
Egger , John	Lofton , Saab	Trasoff , Stephanie
Ellenberger , Charles	Loney , William	Ungar , Arthur
England , Jennifer	Lopez , Joseph	Urias , Victoria
Englund , Klaudia	Lufkin , Thom	Uyenishi , Steve
Erbs , Lori	Lunceford , Kate	Van Alyne , Emily
Erickson , Linda	Madole , Catherine	Vandenberg , Nancy

Evans , Chad	mager , melissa	VINING , JENNIFER
Fahrenwald , Gill	Magliola , Lawrence	Voget , Richard
Fairchild , Jennifer	Magner , Millie	Vossler , Susan
Faithfull , Lucia	Mahder , Debbie	Wagner , Stephen
Faste , Andrea	Marino , Robert	we , Barbara
Fay , Alex	Marshall , Peter	Weedman , Ruth
Feit , James	martin , melodie	White , Nancy
Ferrari , Paul	martinez , priscilla	Williams , James
Ferraris , Alfred	Martof , Charlie	Wineman , Marian
Fiano , Stephanie	Mastenbroek , Peter	Woestwin , Carl
Fontenot , MaryJo	Maxa , Monica	Wolf , Deborah
Fortier , Karen	Mccampbell , Harvest	wood , r
Foster , Barbara	McClintock , Gloria	Wood , Gordon
Frith , Richard	McGill , John	Worley , Don
Gard , Dominique	McGunagle , William	Yoshida , Adam
Gayden , Jim	McKay , Amy	Zirinsky , Kenneth
gillman , jesse	McMahon , Nancy	
Glass , Rebecca	McMurray , Paul	
Glick , David	Menin , Andrea	

Comment: Thank you for the opportunity to comment in support of the Department of Ecology (Ecology) adopting Advanced Clean Cars II (ACCII), the Heavy-Duty Omnibus Low NOx rule, and the fleet reporting requirement this year in Washington.

These rules are critical to reduce air pollution, improve public health, protect frontline communities, and increase access to the benefits of electricity as a transportation fuel. Over four million people in Washington live or work near transportation corridors that are exposed to harmful, high levels of diesel emissions, especially communities of color and low-income communities. Exposure to toxic tailpipe pollution such as NOx, Particulate Matter (PM), and Ozone is linked to higher rates of premature death, cancer, heart disease, and breathing problems like asthma in kids and adults.

On top of the climate benefits, adopting ACCII allows zero emission vehicles (ZEVs) to be more accessible and affordable for consumers and saves them money in fuel and maintenance with the typical cost of electricity for charging an EV equivalent to $1 per gallon of gasoline.

In addition to ACCII, the Heavy-Duty Omnibus Low NOx rule and the fleet reporting requirement together, will help Washington experience statewide health benefits and identify trucking operations that would provide the greatest relief in air pollution exposure to overburdened communities.

I am counting on Ecology to lead the transition into an all-electric future and by doing so, ensure an equitable and just transportation future for Washington!

I strongly support the proposed Clean Vehicles Program rule and thank Ecology for its hard work.

Response: Thank you for your support of this rulemaking. Updating the Clean Vehicles Program rules is critical for Washington meeting its climate and environmental goals and reducing harmful health impacts from vehicle pollution, especially in overburdened communities.

Form Letter #3

Commenters: The following form letter was received from 30 commenters. While there were slight variations between the individual comments, all of them included some or all of the content listed below. Any substantial comments made in addition to the form letter are addressed in the respective topic sections.

Anonymous	Johnson, Nancy	Rhodes, Dusty
Anonymous	Johnson , Sandra	Rumiantseva , Elena
Benedict , Derek	Kronenberger , Eliza	Schwinberg , Jean
Brown , S.F.	Link-New , Virgene	Speer , Cheryl
Crawford O'Brien , Suzanne	loeb , paul	Stefano , Lori
Emanuels , Brian	McNiel , Betty	Stone , Judith
Harris , Erika	McRae , Susan	Sundquist , Stephen
Hoffman , S. M.	Murawski , Heather	Thiel , Jeff
Holmes-Eber , Paula	Peltier , Jamie	Waterston , Patricia
Huang , Grace	Rasmussen , Jorgen	Zouras , Ellen

Comment: Thank you for the opportunity to comment on the proposed Clean Vehicles Program rule. I strongly support the adoption of Advanced Clean Cars II, the Heavy-Duty Omnibus Low NOx Rule, and the Fleet Reporting Requirement.

Washington needs to adopt Advanced Clean Cars II to meet its climate goals according to the State Energy Strategy, which says that basically all new passenger vehicle sales must be zero emissions in 2035 and beyond to affordably decarbonize our economy. We already see the impacts of the climate crisis today with record-breaking heatwaves and more frequent smoke events.

We need to switch to clean vehicles to stop polluting our air. I don't want vehicles that spew fumes driving through my neighborhood and polluting my lungs, and I want everyone who drives to have access to clean vehicles. This is why Advanced Clean Cars II and its equity provisions are important. So is the Heavy-Duty Omnibus Low NOx Rule, which improves emission standards for large vehicles.

It is also important to gather more information on our transportation system so we can better address the harms it is causing–not only to the environment, but sometimes to workers through

poor labor practices. This is why the Fleet Reporting Requirement is an important piece of this regulation.

Every new vehicle sold that is powered by fossil fuels is a missed opportunity. Relying on polluting vehicles hurts the climate and our health. It also makes us beholden to oil companies that bring in record profits while raising prices. We need clean options in Washington.

I strongly support this rule and thank the Department of Ecology for its hard work.

Response: Thank you for your comments. Transitioning to cleaner vehicles is critical for Washington to meet its future climate and environmental goals. We also understand the importance of making EVs and other ZEVs accessible to everyone, which is why the rule contains credit provisions designed to increase ZEV access to low-income and overburdened communities.

While we understand the importance of upholding fair labor standards in the trucking and logistics sector, this issue is outside the scope of Ecology's rulemaking. The fleet reporting requirement is intended to help Ecology develop preliminary strategies for reducing emissions from medium- and heavy-duty fleets by identifying potential incentive offerings for fleet owners, best use cases for electrification, and other data. Labor oversight in Washington state is primarily the responsibility of the Department of Labor & Industries (L&I).

Form Letter #4

Commenters: The following form letter was received from 25 commenters. While there were slight variations between the individual comments, all of them included some or all of the content listed below. Any substantial comments made in addition to the form letter are addressed in the respective topic sections.

Allen , Brian	Lampi , Michael	Roberts , Adelaide
Dahlgren, PhD , Mr. Shelley	Lang , Tom	Stone , Julie
de Campos , Miguel	Martinson , Julie	Swiggett , Clif
Evans , Phil	May , Colin	weinstein , elyette
Fischer , Sarah	Michel , Charles	West , Rusty
Gallagher , Kevin	Michel , Carol	White , Lael
Gilman , Christina	Paine , Susan	Young , Glen
Hopkins , Mark	Rathbone , Bruce	
Kemp , Billy	Reading , Toniann	

Comment: Approve the Advanced Clean Cars II (ACC II) Regulation

ACC II will help accelerate a quick, smooth and efficient transition to clean electric cars. By committing the state to a gasoline-free future, ACC II will help make affordable and economical EVs more available to all. It will save drivers billions of dollars on fuel and maintenance. It will

diminish the air, water, and climate pollution that disproportionately impacts communities of color and low-income communities. We want 100% Clean Cars by 2030!

Response: Thank you for your comment. While the Move Ahead Washington bill set an aspirational target of transitioning to 100% ZEV light-duty vehicle sales by 2030, that goal is not legally enforceable and is not directly related to Ecology's rulemaking. Ecology's rule will accelerate the ZEV transition and put the state on track to meeting its clean vehicles goal by 2035, if not earlier.