



COLTURA



**RECHARGE
REQUIRED**

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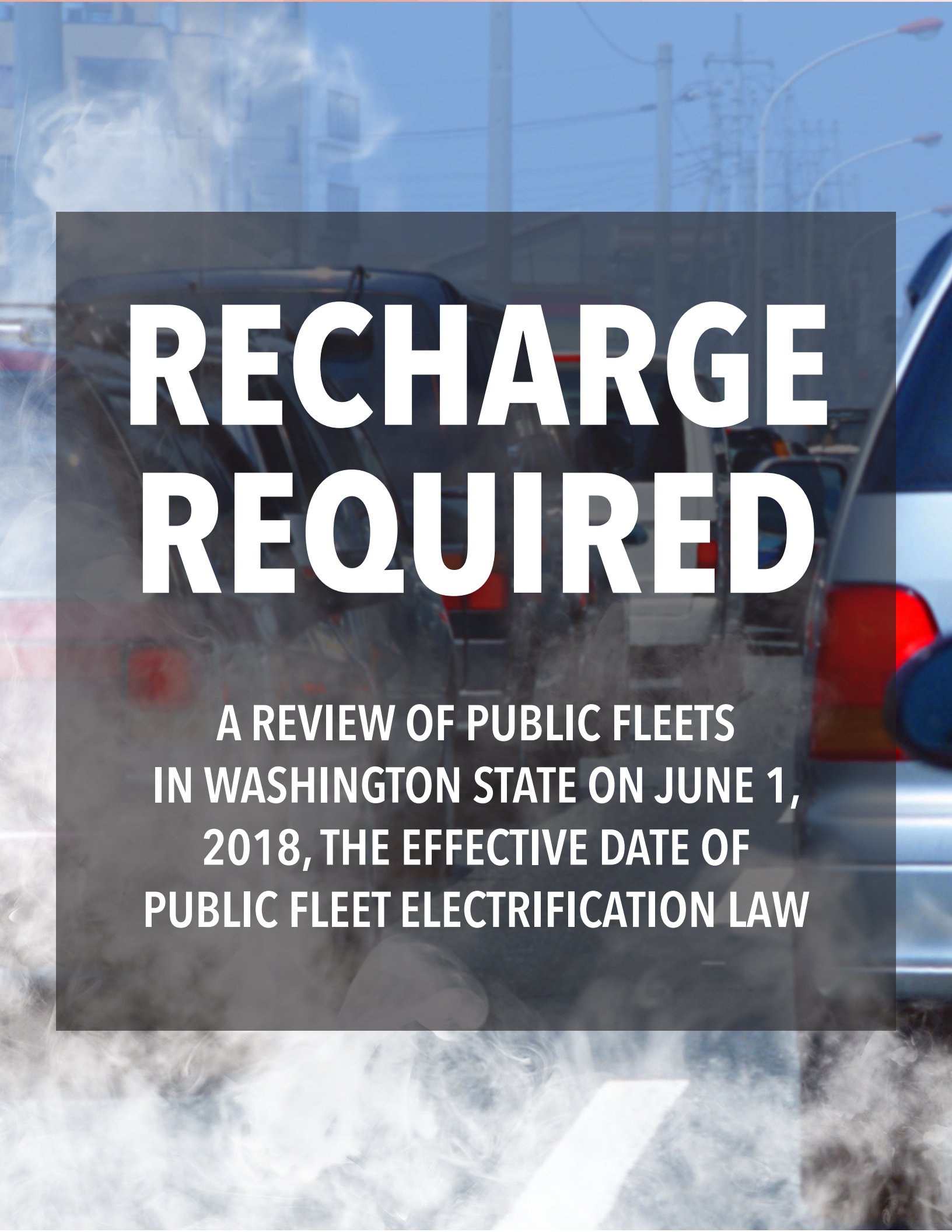
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**FOR HEALTH.
FOR CLIMATE.
FOR PROGRESS.**



COLTURA

The background of the entire page is a photograph of a city street. In the foreground, there is a dark, semi-transparent rectangular box that serves as a backdrop for the text. Behind this box, the street scene is visible, showing several cars, including a white car on the right and a dark car on the left. A large plume of white smoke or steam rises from the bottom left corner, partially obscuring the lower part of the image. In the background, there are buildings, power lines, and a clear blue sky.

RECHARGE REQUIRED

**A REVIEW OF PUBLIC FLEETS
IN WASHINGTON STATE ON JUNE 1,
2018, THE EFFECTIVE DATE OF
PUBLIC FLEET ELECTRIFICATION LAW**

I. EXECUTIVE SUMMARY

Washington Law requires that all vehicles owned by cities, counties, school districts, and other local public entities in the state run solely on electricity or biofuel by June 1, 2018, "to the extent practicable." Washington State government's deadline to achieve the same goal was June 1, 2015. The law mandating use of electricity or biofuel in public vehicles, [RCW 43.19.648](#), was first signed into law by Governor Gregoire in 2007.

This white paper provides an overview of Washington State's on-road, non-transit public fleets as of June 1, 2018, the date that RCW 43.19.648 goes into full effect; reviews progress and obstacles concerning implementation of the law; and sets forth recommendations for citizens and governments seeking to improve the law's effectiveness.

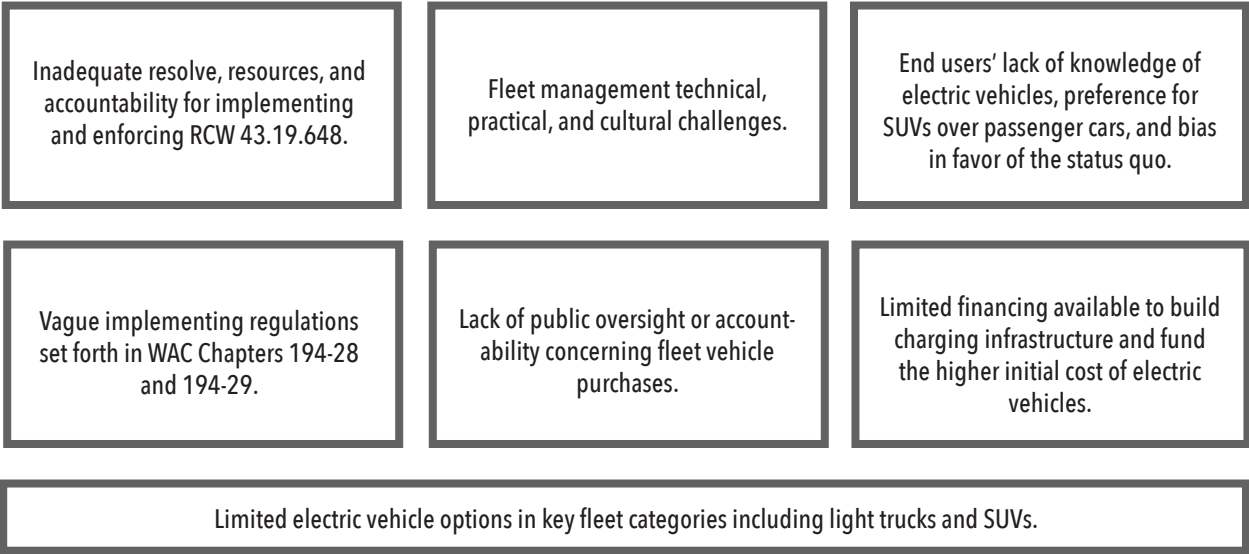
This report makes the following findings:

- 1** Washington State government, cities, and counties are not following RCW 43.19.648 because they have not purchased electric vehicles (EVs) to the extent practicable.
- 2** The regulations promulgated by the Department of Commerce ("Commerce") pursuant to WAC [194-28](#) and [194-29](#) do not effectively implement RCW 43.19.648 and do not provide meaningful guidance to public entities seeking to comply with the law.
- 3** Only four of the 31 local governmental entities surveyed have an actionable plan for electrifying their fleet.
- 4** Annual, legally-mandated reporting by state agencies and local governments to Commerce on progress implementing the fleet electrification law has not occurred.
- 5** Electrification of Washington's public fleets provides the following benefits:

Improved air quality	Climate benefits	Cost savings
State retention of economic benefits	Withdrawal of support for oil extraction	Stimulates emissions reductions by others
Reduced noise pollution	Improved resilience to fuel disruption	Reduced cost of electricity

I. EXECUTIVE SUMMARY

6 Key barriers to electrification of government fleets include:



7 Positive Trends Towards Implementation



Policy Recommendations:

- Redraft implementing regulations WAC 194-28 and 194-29 to tighten electric vehicle buying requirements and specify consequences for non-compliance.
- Provide Commerce and/or the Department of Enterprise Services sufficient authority and resources to implement, oversee and enforce RCW 43.19.648.
- Expand statewide training and technical assistance programs for public fleet managers regarding electric vehicles and charging.
- Expand grant and loan funding for public entities to construct charging facilities and pay the greater initial costs associated with electric vehicles.
- Remove gasoline-powered vehicles from the state master contract where alternative electric vehicles are available.
- Adopt a clear EV first policy requiring purchases of EVs unless there is a demonstrated and exigent need to purchase gasoline or diesel-powered vehicles.

II. METHODOLOGY AND SCOPE

Coltura initiated public records requests to six state agencies (including the Department of Enterprise Services, which manages the fleet for many state agencies), the state's 10 largest counties, the state's 14 largest cities, the state's six public universities, six large school districts, and the Port of Seattle between December 2017 and April 2018. We requested documents reflecting each entity's vehicle inventory, plans for vehicle disposition and acquisition, fuel expenditures, records reflecting the entity's interpretation of the word "practicable," and other documents relating to their EV implementation effort. All data used in this report can be accessed through this [link](#).

All entities responded to the public records requests, and data regarding their fleets was tabulated as set forth in Tables 1 and 2.

Note on Biofuels

Biofuels are an alternative mechanism specified under RCW 43.19.648. to reach 100% petroleum-free fleet fueling

The carbon savings from biofuel use are [variable](#), but a scientific consensus has formed that corn-based ethanol, by far the largest volume source of biofuels, has [limited carbon-reduction benefits](#) and is problematic for its displacement of food crops and use of water and other inputs. Recycled cooking oil and other feedstock sources of biodiesel and renewable diesel are [carbon-efficient](#).

Biofuels are generally blended with conventional fuels at a ratio of one unit of biofuels to five or more units of gasoline or diesel. Use of higher proportions of biofuels generally voids manufacturers' engine warranties. Renewable diesel, which uses a different refining process than biodiesel, can be used at 100% ratios. It is estimated to cut lifecycle greenhouse gas emissions by 15 to 80%, depending on the feedstock. Renewable diesel availability in Washington is severely limited.

In sum, biofuels, in particular biodiesel from recycled and renewable products, play an important role in reducing the carbon emissions of the existing vehicle fleet, particularly for medium and heavy-duty vehicles. They are unlikely to function as a viable, large-scale pollution and carbon emissions reduction strategy competitive with electric vehicles over the long term due to lack of supply, and their inherent inefficiency relative to electric vehicles. For the above reasons, this report focuses on electrification of fleet vehicles and does not address in detail the use of biofuels.

In addition, the authors of this report personally contacted city and state fleet managers and government officials regarding barriers and opportunities with respect to implementation of the law.

III. VEHICLE INVENTORY DATA ON 42 PUBLIC FLEETS

Table 1 sets forth the number of on-road trucks, passenger cars, police cars, and electric cars owned by cities, counties, state agencies, school districts, public universities, and other governmental entities. Transit buses are not considered. Hybrids such as the Toyota Prius are considered gasoline vehicles¹. Plug-in hybrids such as the Chevy Bolt and Ford Fusion Energi are counted as EVs².

TABLE 1

	Passenger	Police Interceptor	Light Duty	EVs	Heavy Duty	Medium Duty	Motorcycles	Total
CITIES								
AUBURN	60	43	7	0	0	0	0	110
BELLEVUE	184	27	193	4	2	101	17	528
BELLINGHAM	32	15	163	1	3	66	7	287
EVERETT	180	55	201	7	113	109	4	669
FEDERAL WAY	56	27	91	0	6	16	8	204
KIRKLAND	31	36	46	2	10	16	4	145
KENNEWICK	60	0	124	0	13	29	5	231
KENT	89	0	241	0	26	26	0	382
RENTON	61	10	249	1	36	65	3	425
SEATTLE	740	259	1,224	178	432	482	95	3,410
SPOKANE	205	29	477	1	217	140	17	1,086
TACOMA	311	109	333	7	242	78	13	1,093
VANCOUVER	214	46	216	3	37	66	0	582
YAKIMA	53	0	300	0	136	79	2	570
SUBTOTAL	2,276	656	3,865	204	1,273	1,273	175	9,722
COUNTIES								
BENTON	58	50	87	0	24	4	1	224
CLARK	124	72	240	0	19	56	0	511
KING	671	354	703	9	161	99	2	1,999
KITSAP	37	100	196	2	65	23	0	423
PIERCE	237	0	340	3	0	1	9	590
SNOHOMISH	145	222	331	5	140	134	8	985
SPOKANE	248	72	480	0	109	31	9	949
THURSTON	76	33	237	2	35	29	0	412
WHATCOM	107	55	237	0	57	36	5	497
YAKIMA	70	1	331	3	136	79	2	622
SUBTOTAL	1,773	959	3,182	24	746	492	36	7,212

III. VEHICLE INVENTORY DATA ON 42 PUBLIC FLEETS

	Passenger	Police Interceptor	Light Duty	EVs	Heavy Duty	Medium Duty	Motorcycles	Total
STATE AGENCIES								
ECOLOGY	160	0	181	8	0	1	0	350
ENT. SERVS.	2,725	211	1,653	130	2	28	0	4,749
LABOR & IND.	363	0	77	10	0	3	0	453
NAT.RESRCS.	53	0	739	0	84	146	0	1,022
PARKS	70	0	478	4	37	28	0	617
SUBTOTAL	3,371	211	3,128	152	123	206	0	7,191
UNIVERSITIES								
CENTRAL	42	0	169	3	0	1	0	215
EASTERN	7	0	151	0	7	2	0	167
EVERGREEN	3	0	49	0	2	7	0	63
UW	132	10	465	20	17	46	0	690
WSU	136	0	207	0	3	9	0	355
WESTERN	16	0	157	6	4	12	0	195
SUBTOTAL	337	10	1,198	29	33	77	0	1,685
PORTS								
PORT OF SEATTLE	148	57	383	3	57	48	0	696
SUBTOTAL	148	57	425	3	67	49	0	696
SCHOOL DISTRICTS								
EDMONDS	10	0	83	0	124	47	0	264
FEDERAL WAY	56	13	105	0	6	13	10	203
KENT	6	0	83	0	152	7	0	248
LAKE WASHINGTON	5	0	60	0	149	10	0	224
SEATTLE	69	0	213	0	1	12	0	295
VANCOUVER	6	0	92	0	116	72	0	286
SUBTOTAL	152	13	636	0	548	161	10	1,520
GRAND TOTAL³								
	8,057	1,907	12,392	412	2,780	2,260	221	28,029

1. The Toyota Prius and other hybrids require gasoline to operate. While they are approximately 30% more efficient than conventional vehicles overall, they still emit large amounts of CO2, and are not a pathway to 100% clean vehicles.

2. Plug-In hybrids travel the majority of their miles on electricity alone. They require charging infrastructure to charge. They are on the pathway to 100% clean vehicles. Nonetheless, it is preferable for fleets to use 100% EVs, and in many cases it is more cost, fuel, and operationally efficient to do so.

3. The Federal Highway Administration estimates that there are 179,244 publicly owned vehicles in Washington. [Source](#).

IV. FINDINGS

Finding 1: Washington State government, cities, and counties are not following RCW 43.19.648 because they have not purchased electric vehicles to the extent practicable.

RCW 43.19.648 requires that all vehicles owned by cities, counties, school districts, and other local public entities in the state run solely on electricity or biofuel by June 1, 2018, “to the extent practicable.” Washington State government’s deadline to achieve the same goal was June 1, 2015.

A. Practicability

1. Relevant Standards

RCW 43.19.648 and its companion statute RCW 43.325.080 direct the Department of Commerce (“Commerce”) to define “practicability” via regulation.

Commerce defined “practicable” in WAC 194-28-020(14) as “the extent to which electricity and biofuel can be used as a fuel source for state vehicles, vessels, and construction equipment as determined by such factors as cost differentials between fuels, availability, refueling infrastructure, functional differences, technical feasibility, implementation costs, and other factors.” A similar definition exists for local government vehicles pursuant to WA 194-29-020(7).

For state agency vehicles, Commerce evaluates practicability pursuant to WAC 194-28-070 as follows:

- It is considered practicable to procure a PHEV [Plug-in Hybrid Electric Vehicle] and PEV [Plug-In Vehicle] light-duty vehicle, light-duty truck, or medium-duty passenger vehicle when the following criteria are met:
 - The vehicle is due for replacement,
 - The anticipated driving range or use would not require battery charging in the field on a routine basis; and
 - The lifecycle cost is within five percent of an equivalent HEV based on anticipated length of service.

For local government vehicles, Commerce evaluates practicability pursuant to WAC 194-29-070 as follows:

- It is considered practicable to procure an electric or hybrid electric vehicle when the following criteria are met: A vehicle is available that meets operational needs, charging requirements can be met during routine use or through fleet management strategies, and the lifecycle cost is equal to or less than the lifecycle cost of the vehicle the local government would otherwise procure.

2. Electric Cars Are Practicable per Commerce’s Evaluation Criteria

- Electric Cars Have a Lower Lifecycle Cost of Ownership

Washington’s two largest fleet operators, the State of Washington and the City of Seattle, have found that electric passenger vehicles are less costly to operate on a lifecycle basis than gasoline-powered vehicles.

IV. FINDINGS

REDUCED OPERATING COSTS

TCO = Acquisition + Life Fuel + Life Maint. – Salvage

Type	Description	Life	Acq.	Fuel	Maint.	Salvage	TCO
Gas	Ford Focus	10 years	\$21,284	\$8,000	\$11,790	\$2,128	\$38,946
Hybrid	Ford CMAX	10 years	\$25,028	\$5,830	\$6,481	\$2,503	\$34,836
BEV	Nissan Leaf	10 years	\$22,638	\$1,980	\$5,553	\$2,264	\$27,907

Fleet operating cost for 300 passenger sedans:

HYBRIDS	\$ 10,450,860
BEVs	\$ 8,372,160
SAVINGS	\$ 2,078,700

Source: City of Seattle

Per the City of Seattle's calculations, over ten years, the city would save more than \$2 million (about \$7,000) per vehicle by purchasing 300 electric vehicles rather than comparable gasoline hybrid vehicles.

The Washington State Department of Enterprise Services, the operator of roughly 4,800 vehicles, calculated that Chevrolet Bolts cost \$3,000 less each on a lifecycle basis than a Prius and \$1,000 less than a gasoline Ford Focus, before taking into account the social cost of carbon.

Anticipated Total Cost of Ownership Comparison Long-Range Electric vs. Gas and Hybrid Vehicle

	GASOLINE	ALL ELECTRIC	HYBRID
	Ford Focus SE	Chevy Bolt	Toyota Prius Two
Purchase Price	\$16,210	\$31,000	\$24,100
Sales Tax*	\$1,297	-	\$1,928
Gasoline Cost	\$12,348	-	\$7,409
Electricity Cost	-	\$2,932	
Maintenance Cost	\$6,900	\$4,600	\$5,750
Financing Costs	\$1,470	\$2,603	\$ 2,186
Resale Value	\$3,242	\$7,750	\$4,820
Total Cost of Ownership	\$34,983	\$33,385	\$36,553
Total Cost vs. Bolt	\$1,598		\$3,168
Environmental Costs Associated w/Carbon**	\$1,025		\$827
Total Difference	\$2,623		\$3,995

IV. FINDINGS

Assumptions	GASOLINE	ALL ELECTRIC	HYBRID
Miles/Gallon	30		50
Cost/Gallon	\$3.22		\$3.22
Miles/KWh	0.00	3.43	
Cost/KWh		\$0.087	

Source: Washington State Department of Enterprise Services 2017 Calculation (provided pursuant to Public Records Request.)

Typical Fleet Vehicle – General Use Category. Eight to 10 years useful life, 10,000 annual miles. Typical gasoline car replacement at 100,000 miles. Typical hybrid and EV replacement at 115,000 miles.

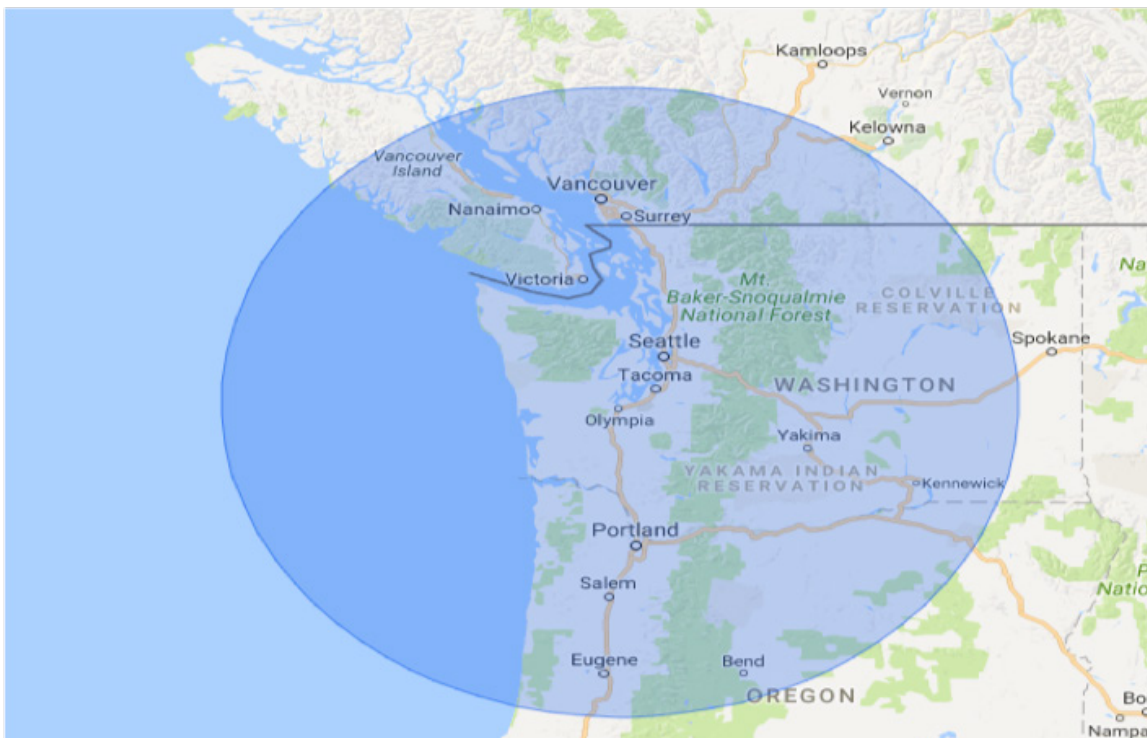
*Sales tax per contracted dealer; Electric Vehicle tax exemption through 2019

** [Environmental Protection Agency Social Cost of Carbon](#): This cost is defined by the EPA, and takes into account benefits from the reduced risk to human health and welfare that result from lower emissions of greenhouse gases and less global warming and climate change.

Thus, on a life-cycle cost basis, electric cars cost less than equivalent gasoline-powered cars and are therefore practicable.

- **Electric Cars Meet Operational Needs**

The main operational concern with electric cars is battery range. The Chevy Bolt has a range of 238 miles, sufficient for virtually all conceivable trips, as is illustrated in the map below. High speed charging, available on I-5, I-90, and State Highway 2, enables the range of the Bolt to be extended about 90 miles in 30 minutes of charging. The Bolt seats five passengers and has cargo capacity comparable to other compact crossovers.



Map shows 238-mile radius from Olympia. Source: Department of Enterprise Services

IV. FINDINGS

3. Governments at all levels are not following the law

Cities

As set forth in [Table 1](#), the passenger fleets of all cities contain fewer than 5% of electric vehicles, except for Seattle. Excluding Seattle, fewer than 2% of passenger vehicles are electric. About 26% of passenger vehicles in the Seattle fleet are electric.

Auburn, Federal Way, Kennewick, and Kent have no electric vehicles in their fleet. Large cities such as Bellevue, Tacoma, and Spokane, have fewer than 10 EVs in fleets of more than 500 total vehicles.

As set forth in [Table 2](#) below, the pace of EV purchasing for most cities has not appreciably increased in the 2015-2017 time frame, despite increased availability of EVs, including long-range models such as the Chevy Bolt. Plug-in hybrids such as the Chevy Volt and Ford Cmax Energi have been available since 2011 and 2013, respectively.

TABLE 2

	2015-2017 GASOLINE PASSENGER VEHICLE PURCHASES	2015-2017 EV PURCHASES
Auburn	19	0
Bellevue	19	1
Bellingham	13	1
Everett	32	4
Federal Way	8	0
Kirkland	19	0
Kennewick	11	0
Kent	16	0
Renton	8	0
Seattle	166	120
Spokane	21	0
Tacoma	2	0
Vancouver	72	0
Yakima	6	0
TOTAL	412	126

IV. FINDINGS

Fuel Use

The minimal entry of EVs into city fleets accords with quantities of fuel purchased by cities, which appear to have remained steady according to limited data available. The only jurisdictions to provide full fuel purchasing data for 2015-2017 are Bellevue, Kirkland, and Renton.

	2015		2016		2017	
Cities	Expenditures	Gallons	Expenditures	Gallons	Expenditures	Gallons
Auburn	\$411,055.00	167,777	\$340,520.00	156,201	\$377,278.00	150,309
Bellevue	\$991,527.03	351,741	\$857,414.53	353,201	\$1,013,612.60	369,455
Kirkland	\$411,513.71	167,520	\$371,411.13	170,185	\$416,962.83	165,681
Kennewick			\$722,575.00	331,456		
Renton	\$586,874.43	264,199	\$548,820.69	282,648	\$846,019	369,200
Seattle	\$5,670,307.37	2,314,411	\$4,883,970.58	2,240,353	\$5,822,439.18	2,319,696
Spokane			\$1,838,242.30	902,430		
Tacoma			\$989,814.66	454,043		
Vancouver			\$957,880.09	439,394		

Note: red shaded cells are estimates of gallons used based on fuel expenditures. Estimates are based on average fuel prices paid by Kirkland of \$2.45 per gallon in 2015, \$2.18 per gallon in 2016, and \$2.51 per gallon in 2017. Actual numbers will vary based on fuel mix, biofuel percentage, and other factors. Many jurisdictions provided no or limited data.

Counties

Five of the 10 counties surveyed, including Spokane County, have no EVs. King County has nine EVs out of 700 total passenger cars, and purchased three EVs out of 109 passenger vehicles purchased from 2015-2017.

Other counties, including Kitsap, Clark, Clallam, Mason, and Grant Counties have purchased or are purchasing battery-only or plug-in hybrid transit buses.

Fuel Use

	2015		2016		2017	
Counties	Expenditures	Gallons	Expenditures	Gallons	Expenditures	Gallons
Clark			\$871,350	370,794	\$1,155,245	406,684
Kitsap	\$865,601	353,306	\$837,265	384,066	\$911,808	363,270
Pierce			\$1,773,730	813,638		
Spokane	\$1,713,924	699,561	\$1,588,801	728,807	\$1,994,557	794,644
Whatcom	\$815,070	332,681	\$692,549	317,683	\$814,783	324,614
Yakima	\$1,068,980	436,318	\$945,348	433,645	\$1,173,991	467,725

Note: Red shaded cells are estimates of gallons used based on fuel expenditures. Gray shaded cells are estimates of expenditures based on fuel use reported. Estimates are based on average fuel prices paid by the City of Kirkland of \$2.45 per gallon in 2015, \$2.18 per gallon in 2016, and \$2.51 per gallon in 2017. Actual numbers will vary based on fuel mix, biofuel percentage, and other factors. Many jurisdictions provided no or limited data.

IV. FINDINGS

School Districts

None of the school districts surveyed have EVs of any kind in their fleet.

Outside Contracting: The Seattle School District contracts its student transportation services to an outside contractor, and has no school buses in its fleet. The fleet electrification statute, RCW 43.19.648, as presently written, does not cover outside contractors. In making future amendments to RCW 43.19.648, the legislature should consider making the law apply to outside contractors.

The case for electrifying school buses is mixed. Numerous studies have shown that many school buses emit substantial particle pollution within the cabin which are documented to cause learning and other deficits in children. However, new electric school buses presently cost about \$300,000 vs. \$100,000 for a diesel bus. Because school buses travel relatively few miles in a day, fuel savings do not offset the much higher purchase price.

Fuel use

	2015		2016		2017	
School Districts	Expenditures	Gallons	Expenditures	Gallons	Expenditures	Gallons
Seattle School District	\$279,775	117,069	\$244,973	114,867	\$280,886.42	111,515
Vancouver Public Schools			\$309,796	142,108		

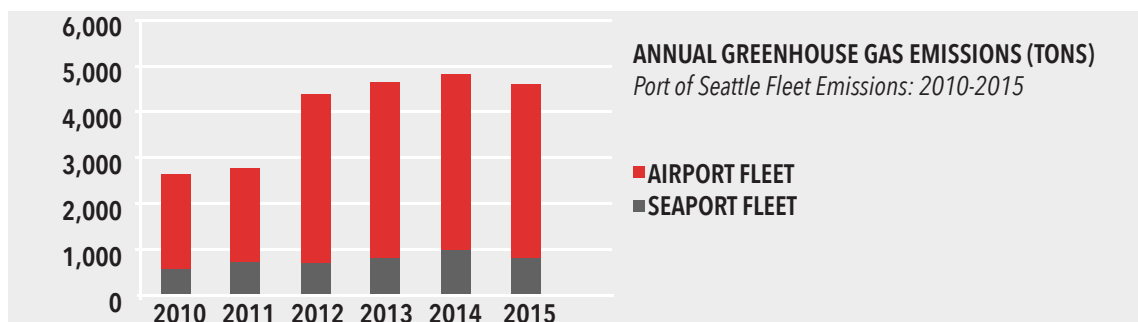
Note: Red shaded cells are estimates of gallons used based on fuel expenditures. Estimates are based on average fuel prices paid by the City of Kirkland of \$2.45 per gallon in 2015, \$2.18 per gallon in 2016, and \$2.51 per gallon in 2017. Actual numbers will vary based on fuel mix, biofuel percentage, and other factors. Many school districts provided no or limited data.

Port of Seattle

The only port looked at in this analysis was the Port of Seattle. The Port of Seattle has three electric on-road vehicles out of 148 passenger vehicles and 858 total vehicles. Port of Seattle fuel use was flat from 2015-2016.

Fuel use

	2015		2016	
	Expenditures	Gallons	Expenditures	Gallons
Port of Seattle	\$234,956	90,455	\$210,368	90,011



IV. FINDINGS

State

The state fleets surveyed are comprised of more than 97% gas or diesel-fueled vehicles. The trend since 2017 shows a sharp increase in purchases of electric vehicles.

State agencies were required to use only electricity or biofuels “to the extent practicable” after June 1, 2015. The trend shows that the state purchased gas vehicles almost exclusively in 2015-2016, then made a substantial push into electrics in 2017.

On December 7, 2015, Washington Governor Jay Inslee announced the “Washington State Electric Fleets Initiative” which required that 20% of all new passenger vehicle purchases be electric by 2017. Based on the state fleet data sampled, Washington State government exceeded the 20% benchmark in 2017.

The Department of Enterprise Services (which operates more than half of the state’s fleet), however, planned 52 gas car purchases and only three electric car purchases in 2018, falling well short of the Governor’s targets.

The Department of Natural Resources plans to purchase five cars in 2018, all electric.

	2015 GAS	2016 GAS	2017 GAS	2015- 2017 TOTAL GAS	2018 PLANNED GAS	2015 EVS	2016 EVS	2017 EVS	2015- 2017 EV TOTAL	2018 PLANNED EVS
State Agency		Gas Cars					EVs			
Ecology	18	46	10	74		0	0	8	8	DNA
Enterprise Services	451	359	355	1165	52	23	1	101	125	3
Labor & Industries	5	15	1	21	DNA	3	1	1	5	DNA
Natural Resources	11	0	5	16	0	0	0	0	0	5
Parks	1	7	7	15	DNA	0	0	4	4	DNA
TOTALS	486	427	378	1291		26	2	114	142	

Note: DNA = Did Not Answer

Fuel Use

Fuel use by state agencies is roughly flat.

	2015		2016		2017	
State Agencies	Expenditures	Gallons	Expenditures	Gallons	Expenditures	Gallons
State Dept. of Ent. Servs.	\$4,921,366	2,008,720	\$5,105,444	2,341,946	\$6,148,800	2,449,721
State Dept. of Nat. Resrcs.	\$2,596,476	1,059,786	\$2,162,203	991,836		

Note: Red shaded cells are estimates of gallons used based on fuel expenditures. Estimates are based on average fuel prices paid by the City of Kirkland of \$2.45 per gallon in 2015, \$2.18 per gallon in 2016, and \$2.51 per gallon in 2017. Actual numbers will vary based on fuel mix, biofuel percentage, and other factors. Many state agencies provided no or limited data.

IV. FINDINGS

Finding 2: The regulations promulgated by Commerce pursuant to WAC 194-28 and 194-29 do not effectively implement RCW 43.19.648, exceed statutory authority in certain respects, and do not provide meaningful guidance to public entities seeking to comply with the law.

A. Statutory Authority

RCW 43.19.648 requires that all vehicles owned by cities, counties, school districts, and other local public entities in the state be powered solely by electricity or biofuel “to the extent practicable.” RCW 43.325.080, required Commerce to adopt rules by 2010 to define practicability and clarify how state agencies will be evaluated in determining whether they have met the goals set forth in RCW 43.19.648.

B. State Agency Regulations Implementing RCW 43.19.648

In 2013, Commerce filed WAC 194-28, a regulation governing state agency compliance with RCW 43.19.648. The regulations in WAC 194-28 do not provide a clear standard by which state agencies can be held accountable for compliance with 43.19.648. They do not state with specificity how costs are to be calculated when purchasing electric vehicles. They do not state criteria by which one vehicle is judged to be “equivalent” to another. They do not specify any procedures or penalties for non-compliance. In sum, they allow the law to be disregarded without consequences.

C. Regulation of Local Governments

In 2016, Commerce promulgated WAC 194-29, the regulation governing compliance with RCW 43.19.648 for local governments. WAC 194-29 largely tracks 194-28, except that it includes an allowance for substitution of natural gas and propane for electricity or biodiesel not authorized within the statute.

D. Analysis of WAC 194-29

WAC 194-29 is so vague that it provides no effective guidance to agencies, and no clear basis for holding them accountable for their decisions. If, for example, an agency has not invested in charging facilities, a vehicle that requires charging would arguably “not meet operational needs.” There is no guidance for calculating the lifecycle cost of the vehicle, nor how operational needs are to be determined.

Commerce provided more authority to local agencies than exists in 43.19.648 to use propane and natural gas. Pursuant to 43.19.648(1), only Commerce can determine if electricity and biofuels are not reasonably available for the purpose of substituting those fuels with propane or natural gas. 194-29-070(1)(b) empowers local governments to use propane or natural gas, even if electricity or biofuels are available, because of cost or other considerations set forth in 194-29-070(1)(a).

Pursuant to RCW 43.325.080(2)(c), the Department of Commerce was required to file rules setting forth a schedule for phased-in progress of electrification and biofuels. As of June 1, 2018, Commerce has not set forth that schedule.

IV. FINDINGS

In sum, because the regulations are vague, poorly drafted, exceed statutory authority, and lack the required implementation schedule, it is difficult to hold local governments accountable for their failure to comply with the law. For all of these reasons, the regulations implementing RCW 43.19.648 should be redrafted.

Finding 3: Only four of the 31 local governmental entities surveyed have an actionable plan for electrifying their fleet.

The City of Seattle, Port of Seattle, Pierce County and King County are the only local government jurisdictions to have an actionable plan for electrifying their vehicles. Without a fleet electrification plan, jurisdictions will not be able to efficiently electrify their fleets.

Finding 4: Annual, legally-mandated reporting by state agencies and local governments to the Washington State Department of Commerce on progress implementing the fleet electrification law has not occurred.

Commerce reports that they have no annual reports on progress implementing the fleet electrification law from any state and local agencies, reporting which is required by WAC 194-28-080 and 194-29-080. These reports would force jurisdictions to focus on their compliance with the law and provide Commerce with a baseline for measuring progress for compliance with the law.

Finding 5: Electrification of Washington's public fleets provides the following benefits:

A. Improved Air Quality

Vehicle emissions are the largest source of air pollution. They increase risks of asthma, heart and lung disease, dementia and cancer – especially in children and people living near busy roads.

More Americans die each year from vehicle emissions (58,000) than from vehicle crashes (38,000) or secondhand smoke (41,000). On average, every gallon of gas burned costs \$1.15 in health and climate costs.

Exposure to harmful toxic air pollutants from other vehicles is higher inside vehicles than outside.

B. Climate Benefits

The transportation sector accounts for 47% of CO2 pollution in Washington State.

Every gallon of gas burned emits 20 pounds of carbon dioxide, the greenhouse gas that is the main driver of climate change.

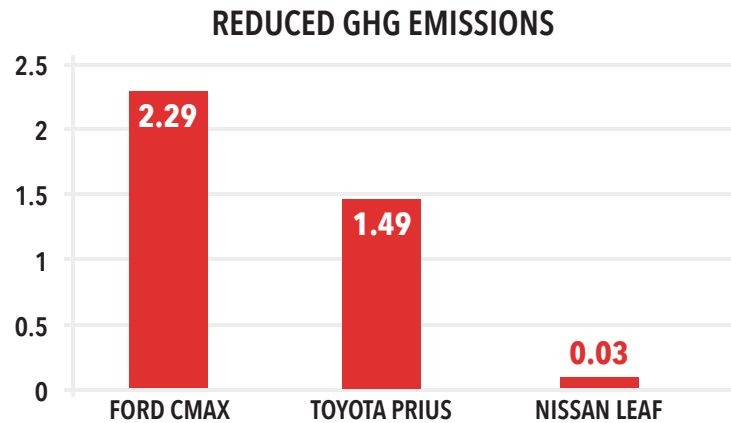
Per a study by the Union of Concerned Scientists, the average electric car running on a typical Northwest power mix is as efficient as a car getting 96 miles per gallon. In areas 100% served by clean power, such as Seattle, the benefits are more striking, as detailed in the graph below.

IV. FINDINGS

Replacing hybrids with BEVs = 98-99% GHG reduction/vehicle

City of Seattle analysis of comparative CO2 emissions caused by gas, hybrid, and electric cars.

Source: City of Seattle



According to the Union of Concerned Scientists, a [Chevy Bolt in Bellevue](#) produces approximately 1/4th of the CO2 emissions of a gas car, despite the presence of about 25% coal-generated power in the Puget Sound Energy mix. As the energy grid gets cleaner with the addition of more renewable power generation, and decreased reliance on fossil fuels, the differential will continue to increase.

C. Cost Savings and Budgeting

Because EVs have lower fuel and maintenance costs, they have considerably lower annual operating costs and total costs of ownership (See Finding 1A, above).

Electricity prices are much more stable than gasoline and diesel prices, making budgeting for electric vehicle much more accurate, and less subject to oil price shocks.

D. Economic Benefits

The State of Washington is not a petroleum producer, and therefore most money spent on petroleum is not retained within the state.

Electric power in Washington is generated primarily from Washington's own large hydroelectric dams, and wind and solar production are rapidly increasing. By switching to electrically powered vehicles, Washington public entities will cause millions of dollars in fuel costs to be retained in state rather than sent to overseas and out-of-state petroleum producers.

Electric vehicles are more likely to benefit Washington's technology industry – EVs have \$4,000 more in electronics and rely more on software than equivalent gas cars.

Determined public fleet electrification would place Washington's businesses, utilities, and governments on the leading edge of the EV revolution and help it remain competitive as the [global trend](#) towards vehicle electrification continues.

Reputable sources place the cost of health and climate impacts attributable to gasoline at between [\\$1.15](#) and [\\$3.80](#) per gallon. Because local and state governments will ultimately bear many of these costs, there will be savings from making the switch, particularly if converting their fleets to EVs stimulates others to follow suit.

IV. FINDINGS

E. Withdrawal of Support for Oil Infrastructure Development

Washington's gasoline and diesel purchases support oil exploration, drilling, and transport, all of which involve significant environmental risk. Phasing out the use of gasoline in Washington's public fleet will eliminate more than \$100 million in revenue support for these activities. By directing resources away from oil, the state will contribute to the gradual winding down of oil infrastructure and support the creation of new clean power generation capacity.

F. Stimulating Further Emissions Reductions

Rapid advancement of fleet electrification stimulates others to take steps to reduce carbon emissions.

1. Increasing EV Volumes Stimulate EV Investment

The public sector purchases significant volumes of EVs. The state made a single order of 125 Bolts in 2017, the largest Bolt order on record. Public fleet purchasing can support electric vehicle manufacturers and further investment in EV development. The impact of public fleet purchasing is magnified further when multiple jurisdictions combine to place large EV orders, as is the case with Proterra buses. The more EVs that are sold, the more price reductions and technology improvements will occur for later buyers as EVs move through the experience curve and economies of scale are realized.

2. Increased Fleet Utilization of EVs Stimulates Greater Public Acceptance of EVs

Public fleet purchases of EVs are an important route to greater public acceptance of EVs. One of the greatest barriers to EV acceptance is lack of familiarity with them. According to a February 2017 survey, only 19% of the American public nationally has sat in an EV, and only 8% of the public has driven them.

Washington State has about 183,000 employees at all levels of government (not including those in education, which is roughly an equal amount). Having thousands of EVs in public fleets will expose tens of thousands of government employees to them.

Consumer acceptance of EVs is very high among those who own them. The three top vehicles in the U.S. in terms of customer satisfaction are all electric vehicles. It is therefore likely that state government workers who use EVs at work will be likely to purchase them for home use as well.

3. Making Used EVs available for lower-income people

Because new EVs are expensive, they are less accessible to lower-income people. EVs in government service will eventually cycle out of the fleet into the general public, making EVs generally more affordable.

G. Reduced Noise Pollution

Noise pollution is a significant cause of citizen complaints. By shifting to much-quieter electric vehicles, governments can decrease ambient noise and raise the quality of life for citizens.

H. Improved Resilience to Fuel Disruption

Electrical power is generated locally and less subject to oil shocks and other supply disruptions. Electric vehicles' batteries are mobile power sources that can be used to power essential services during a power outage.

I. Reduced Electricity Costs

Many utilities in Washington are facing declining demand for power as LED lighting and other energy efficiency measures are implemented. EV charging can increase utility revenues while increasing effective utilization of existing generation, transmission, and distribution systems, thereby suppressing price increases.

V. KEY BARRIERS TO ELECTRIFICATION OF GOVERNMENT FLEETS

A. INADEQUATE RESOLVE, RESOURCES, AND ACCOUNTABILITY FOR IMPLEMENTING AND ENFORCING RCW 43.19.648

Washington's vehicle electrification law is an ambitious measure designed to overturn the century-long dominance of fossil fuels in transportation in Washington State. Implementing such a pathbreaking law requires high levels of commitment by government officials at all levels.

Due to a lack of resolve, resources, and accountability in enforcing the law, the law has achieved only a small fraction of its potential for electrifying Washington's public fleets.

1. Resolve

Elected officials are generally unaware of the fleet electrification law, RCW 43.19.648. The author of this report could find no reported formal pronouncements from elected officials at any level of government in the state pledging their determination to see the law enforced.

As stated above, only 4 of the 31 local governmental entities surveyed have an actionable plan for electrifying their fleets.

When public officials have made pronouncements referencing public fleet electrification, such as Governor Inslee's 2015 "[Electric Fleets Initiative](#)," they did not reference the law and set goals below the law's mandates.

Often, there is a startling disconnect between public pronouncements and government action. Governor Inslee's executive order 18-01 issued in early 2018, mandating prioritization of electric vehicles, became effective just as the Department of Enterprise Services was cutting its planned 2018 EV passenger vehicle purchases by more than 90% relative to 2017.

The public is also largely unaware of the fleet electrification law. The leaders of some of the state's leading environmental and electric vehicle organizations were unaware of the law until this report's author brought it to their attention.

2. Resources

a. Staffing

The Department of Commerce has primary responsibility for enforcement of RCW 43.19.648, both within state government and for cities, counties, and other public entities. One junior employee within Commerce oversees compliance, training, and technical assistance relating to the more than 1100 cities, counties, port, water districts, school districts, etc. charged with complying with the law. This level of staffing is insufficient to oversee a determined drive to implement the fleet electrification law, which requires close coordination with cities, counties, and state agencies charged with complying with the law.

b. Charging Infrastructure Funding

Significant one-time investment is often needed for installation of Level 2 (medium speed) and Level 3 (high speed) charging equipment. (Slower speed Level 1 charging is possible from 110-volt wall outlets using a charger included with the vehicle.) One fleet manager estimated that installations of fewer than five Level 2 charging units cost an average of \$5,000 each, although it is possible to install level 2 charging units (whose cost starts at \$500) for much less if an existing 240v circuit is already available. For larger installations, which may involve upgrading of electric service panels and transformers, costs can top \$10,000 per charging unit.

V. KEY BARRIERS TO ELECTRIFICATION OF GOVERNMENT FLEETS

There are a number of potential funding sources for charging station installation, including local utilities, Volkswagen settlement funds, the Commerce-administered Clean Energy Fund, but they are inadequate for financing fleet charging infrastructure on the large scale required.

c. Vehicles

Electric vehicles still generally have higher up-front costs than conventional vehicles, although lifetime cost of ownership of electric vehicles is usually lower. There is significant administrative challenge when budgeting for EVs since increased capital costs are paid at time of purchase, and savings are realized over years in the form of lower operating budgets.

Used EVs with many years of useful life are available for under \$10,000. Fleet managers could consider used EVs whenever budgetary constraints prevent them from buying a new one.

d. Accountability

Neither the original implementing statute, RCW 43.19.648, nor WAC 194-28 and 194-29, contain language specifying policies or mechanisms for dealing with noncompliance with the law (assuming that the vague regulations would allow for such a finding).

State and local agencies are required to report annually their progress implementing fleet electrification to Commerce pursuant to WAC 194-28-080 and 194-29-080, respectively. In response to our Public Disclosure Request, Commerce stated that they had no progress reports, indicating that they are not effectively holding local and state governments accountable for their progress.

Accountability is also hampered by a low level of public knowledge concerning fleets. Data involving fleets or upcoming purchases is not readily accessible to the public. Fleet purchasing decisions are made deep within agency bureaucracies, and not reviewed by elected officials nor the public.

RCW 43.19.648 does not specifically empower Commerce (nor any other agency) to enforce the law, and Commerce staff believes that they do not have the requisite enforcement authority to take action against violators.

One positive accountability element already in place is the Department of Enterprise Service's requirement on their vehicle purchase order form that requires reasons for not purchasing an EV be provided, and the checkoff of a supervisor on such purchases.

B. FLEET MANAGEMENT TECHNICAL, PRACTICAL, AND CULTURAL CHALLENGES

Electric vehicles introduce numerous novel management considerations for fleet managers, including budgeting, charging equipment installation and vehicle selection, workforce concerns, along with cultural conflicts with public employees and mechanics unfamiliar with EVs. Given that EVs have not yet been widely introduced into fleets in Washington or elsewhere, most fleet managers need help addressing these issues.

There are several fleet managers at both the city and state levels in Washington who are nationally recognized for their advancement of electric fleets, and who could be tapped to demonstrate best practices to other fleet managers within the state.

V. KEY BARRIERS TO ELECTRIFICATION OF GOVERNMENT FLEETS

C. END USERS' LACK OF KNOWLEDGE ABOUT EVS, PREFERENCE FOR SUVs, AND STATUS QUO BIAS

Under present purchasing paradigms in many jurisdictions, vehicle selection decisions are made by end users and then passed on to fleet managers to execute. The end users are often not educated about EV options and do not expect their decisions will be critically reviewed by fleet managers or other officials for compliance with the fleet electrification law.

D. LIMITED EV OPTIONS IN KEY PRODUCT CATEGORIES

A major obstacle to electrification of fleets has been limited product offerings in key categories. As stated above, EVs are well represented among passenger cars, but until recently there have been no models available in key fleet categories such as SUVs and pickup trucks.

In 2018, several new SUV and pickup models will be available, and by 2020, there should be a diverse selection of models in all categories. The new models are discussed in more detail in the "positive trends" section below.

E. OVERSIZING OF FLEET

Many drivers of government vehicles prefer to drive SUVs and other large vehicles, when smaller vehicles would suffice for the vast majority of uses. Given the present dearth of electric SUV options, the tendency to oversize results in a fleet with relatively few electric cars and many single-passenger SUVs getting poor gas mileage.

Many fleets are also oversized in terms of the number of vehicles, although some have made considerable progress. The Washington State Department of Transportation reduced their passenger vehicle inventory from 666 to 480 units from 2009 to 2014, a 28% reduction that results in cost savings of more than \$1 million a year.

F. POSITIVE TRENDS

1. Numerous entities are making significant progress in electrifying their fleets

a. State of Washington

A number of state agencies are making considerable progress in electrifying their fleets.

The five state agencies referenced in this report added 114 new EVs between 2015 and 2017. Department of Enterprise Services has made significant strides in educating end users about EVs.

Changes made in the state building code in 2017 require charging capacity in nearly all facilities owned or leased by the state.

b. Universities

The University of Washington made a strong move towards electrification in 2015 with 14 new EV and no gas car purchases but reversed that trend in 2016 with 24 gas car purchases and 4 EV purchases. Central Washington University bought 2 EVs in 2015, and Western Washington University bought 4.

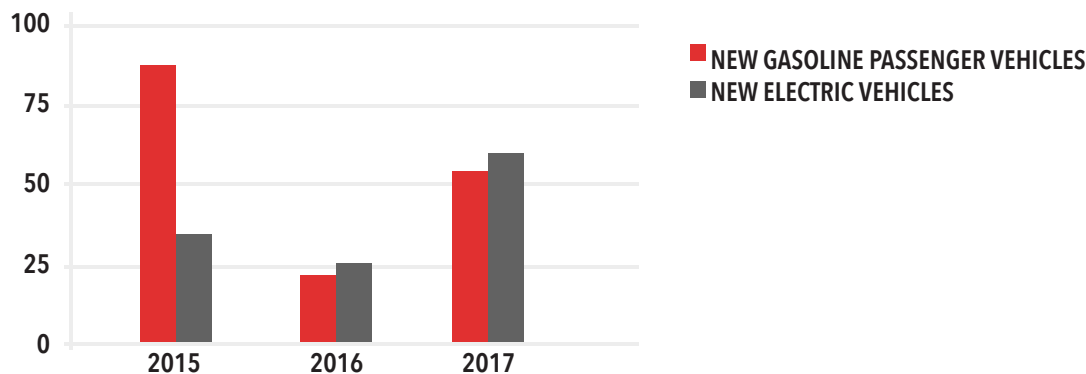
c. Counties

Some counties are moving to electrify their transit systems. King County purchased 73 electric buses in 2017, and plans to have a fully electric bus fleet by 2030. Kitsap, Clark, Clallam, Mason, and Grant Counties have purchased or are purchasing battery-only or plug-in hybrid transit buses.

d. Cities

City of Seattle Passenger Vehicle Purchases 2015-2017

V. KEY BARRIERS TO ELECTRIFICATION OF GOVERNMENT FLEETS



The City of Seattle has the most advanced vehicle electrification program of any city in Washington. Seattle presently has 92 pure EVs and 86 plug-in hybrid electric vehicles. It recently completed an installation of 156 charging units, and now has 289 serving its fleet, with 400 planned by 2023.

e. Growing EV Options on Statewide Master Vehicle Purchasing Contract

The State of Washington Department of Enterprise Services runs a statewide master vehicle purchasing contract which state agencies, local and tribal governments, public school districts and colleges, and nonprofit organizations in Washington may access to purchase vehicles. The state master vehicle contract leverages the state's collective buying power to purchase vehicles at lower prices. The state vehicle contract presently has 25 electric vehicles on offer, including cars such as the Chevrolet Bolt and Volt, the Nissan Leaf, the Mitsubishi Outlander SUV, the XL Hybrid pickup, and the Chrysler Pacifica minivan.

Department of Enterprise Services also has a master contract for charging equipment and installation, including some turnkey packages.

f. Growing Availability of EV Models in All Vehicle Categories

There is a growing selection of vehicles in key vehicle categories.

SUVs

Compact gasoline-powered SUVs such as the Ford Escape are mainstays of government fleets.

The main affordably priced electric SUV on the market now is the Mitsubishi Outlander PHEV, a compact PHEV comparable in size and function to the Ford Escape. The Outlander PHEV went on sale in the U.S. in late 2017 and is on the state's purchasing contract. It has an all-electric range of 22 miles and is only available in a 2-wheel drive version.

The Kia Soul EV is a 2-wheel drive crossover with 110 miles of range.

The Hyundai Kona EV and Kia Niro EV are compact SUVs with 250+ mile range which will be available in late 2018 or early 2019. The Kona and Nero are clear candidates to replace the Ford Escape, presently the most common passenger vehicle in government fleets.

Volkswagen, Chevrolet, and others are expected to have new fully electric SUVs in the market in or before 2020.

V. KEY BARRIERS TO ELECTRIFICATION OF GOVERNMENT FLEETS

Pickups

There are two new electrified pickups available in 2018.

The XL Hybrid modifies Ford F-150 and F-250 models with an added electric motor which allows it to function as a hybrid. Per the state vehicle purchasing contract, the modification raises the price of a Ford F-150 to \$46,339 compared to \$20,430 for a conventional F-150.

The Workhorse W-15 is expected to arrive in late 2018. It will have 80-mile all-electric range before switching over to hybrid operation. It is expected to cost \$52,000.

New all-electric pickup models from Havelaar, Via Motors, and Tesla are expected in the next 2-3 years.



Workhorse Truck with 80-mile electric range

Medium and Heavy-Duty Vehicles

Heavy duty vehicles are one of the most important growth areas for EVs. Transit buses are leading the way among heavy duty vehicles, and King County has committed to an all-electric bus fleet by 2030. The transition will result in much lower carbon emissions at negligible additional cost.

Garbage trucks, box trucks, and other truck applications are also electrifying, and a large variety of electric models for many different applications will be on the market by 2020.

Until more affordable medium and heavy duty electric trucks are available, expanding use of renewable diesel for existing vehicles would be the lowest-carbon, most-affordable option.



VI. POLICY RECOMMENDATIONS

A. Redraft implementing regulations to tighten electric vehicle buying requirements and specify consequences for non-compliance.

WAC 194-28 and 194-29 do not provide effective guidance for state and local agencies concerning their obligations to buy electric vehicles.

1. Lifecycle Cost Calculation

The lifecycle cost calculation set forth in the implementing regulations must be clarified. Clear criteria for the calculation are essential to hold elected officials and fleet managers accountable for vehicle purchasing.

The health and climate costs of air and carbon pollution caused by gasoline vehicles should be factored into the total cost of ownership calculation. The [American Lung Association calculates those costs at \\$1.15](#) per gallon. Given that Washington governments will eventually bear much of the costs of air and carbon pollution in their role as health care providers, health insurers, sea wall constructors, etc., taking these costs into account is justified.

2. Vehicle Use Criteria

End users often specify criteria such as ground clearance or need for 4-wheel drive when seeking authority to purchase a gas-powered vehicle over an electric one. Often, end users specify criteria such as “ground clearance” when seeking authority to purchase a gas-powered vehicle, even though such a criterion is not essential to the vehicle’s actual use. The regulations need to strictly define under what circumstances a gas vehicle can be purchased over an electric one. The ability to satisfy unusual or occasional uses with other fleet vehicles (such as annual trip of 300 miles or occasional rough road use) should be considered when considering non-EV purchases.

3. Auditing and Non-Compliance Penalties

Presently, there is no auditing procedure or penalty specified by regulation for state agencies or local governments that violate the fleet electrification laws. An auditing system and meaningful penalties for governments that are in violation of the law would encourage compliance. Such penalties could include being barred from purchasing fuel and vehicles under state master purchasing contracts.

4. Public Notice of Fleet Purchases

Thousands of public fleet vehicles in Washington are purchased every year without effective public oversight. As a result, fleet managers have had a high degree of autonomy to purchase vehicles, often with little regard to state or local environmental and climate goals.

To facilitate public oversight of fleet purchasing, planned vehicle purchases should be published in a prominent location on the jurisdiction’s website 60 days prior to the actual purchase, absent exigent circumstance. The notice of intended purchase should provide information as to the vehicle to be replaced, the proposed replacement purchase, and, if the proposed vehicle is not electric, stated reasons why not.

VI. POLICY RECOMMENDATIONS

B. Provide Commerce sufficient authority and resources to enforce RCW 43.19.648, and effectively oversee Commerce's implementation of the law.

Commerce needs a strong EV team to assure that the full potential in the law is achieved, to update relevant regulations, to administer financing programs to facilitate EV and charging equipment purchases, and to update purchasing criteria as new vehicles enter the market. Presently, only one Commerce employee is charged with managing the fleet electrification law.

Careful and vigilant oversight of Commerce's role in enforcing the law is also required. Both the Governor and the legislature should ensure that a vigorous approach will be taken to implement the fleet electrification law.

C. Expand statewide training and technical assistance programs for public fleet managers regarding electric vehicles and charging.

Hundreds of Washington cities, counties, special purpose districts, and other entities are required to comply with the vehicle electrification law. The state needs a robust training and technical assistance team capable of meeting with fleet managers statewide to help them design and implement a plan to electrify their fleet vehicles. At present, no state or other agency is funded to provide this essential service, although some agencies such as Western Washington Clean Cities provide training services on a limited basis.

D. Expand grant and loan funding for public entities to construct charging facilities and pay the greater initial costs associated with electric vehicles.

Many governments struggle with budgeting for the initial \$5,000-\$10,000 cost per Level 2 charging unit and the higher purchase price of EVs. A state grant or loan program deployed at scale to defray part or all of these costs should significantly accelerate installation of charging capacity and fleet electrification.

Existing funding sources, such as funds from the Volkswagen settlement, should be leveraged to assist jurisdictions most in need of assistance.

The higher upfront cost of EVs could be partially offset by mechanisms to better utilize the \$7,500 federal tax credit, which local governments and agencies are unable to use.

Rightsizing fleets can also be a source of financing. Most fleets have underutilized vehicles and rarely-used special purpose vehicles that could be shared between fleets. Fleet managers should audit their asset utilization and determine what vehicles they need and which they can liquidate. Proceeds from the sale of underutilized fleet assets can be used to purchase charging infrastructure and defray initial higher EV purchase prices.

VI. POLICY RECOMMENDATIONS

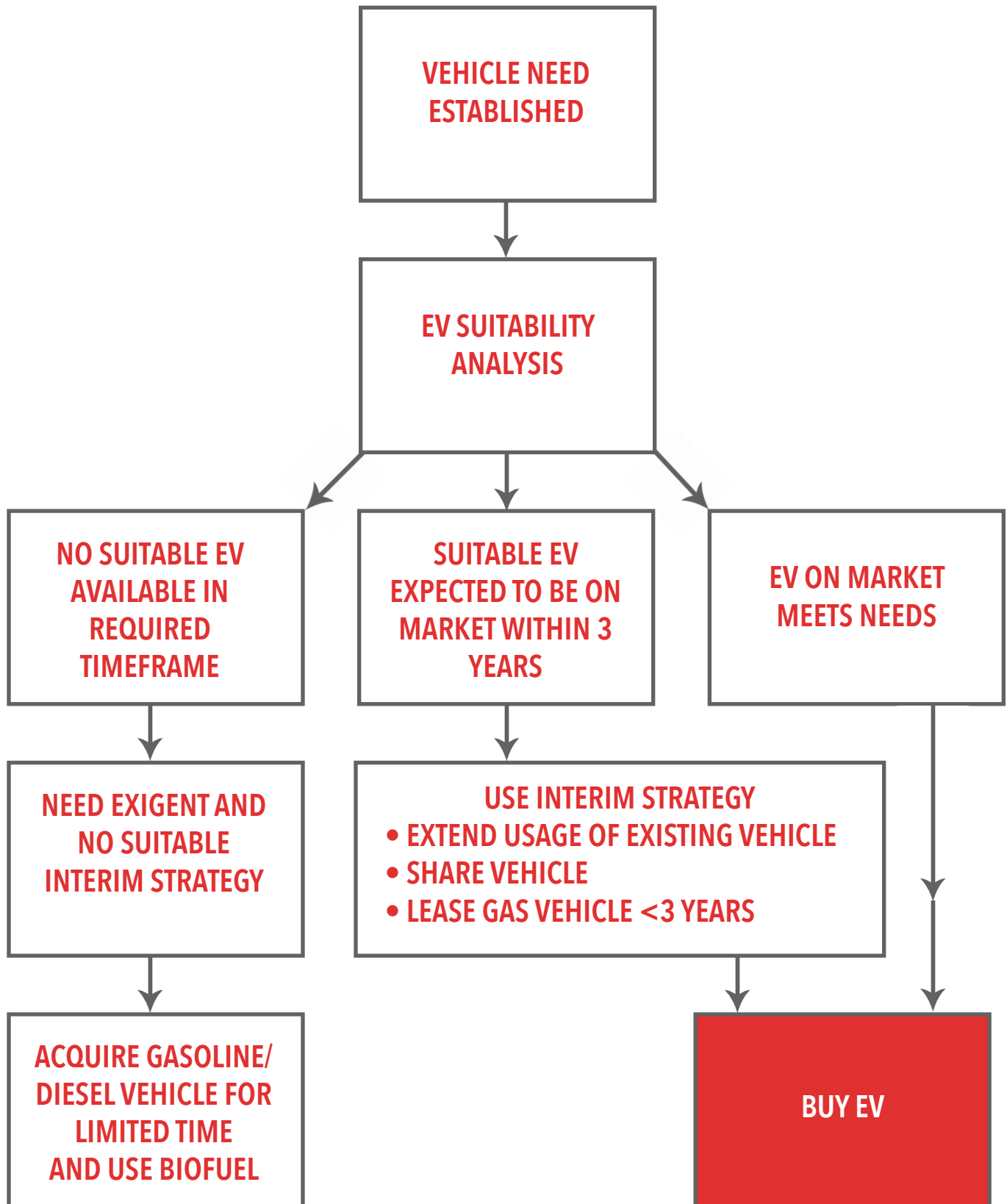
E. Remove gas-powered vehicles from the state master purchasing contract where viable electric alternatives exist.

Many gas-powered passenger vehicles are available for purchase under the state master purchase contract. The Department of Enterprise Services, which manages the contract, should phase out offerings of vehicles such as the Toyota Camry and other vehicles for which adequate electric versions exist. This change would encourage the purchase of electric vehicles and provide a disincentive for the purchase of gas vehicles. This change would be consistent with the spirit of RCW 43.19.637, which directs the state purchasing contract to focus on vehicles with an increasingly high percentage of clean fuels.

F. Adopt a clear "EV First" policy requiring purchases of EVs unless there is a demonstrated and exigent need to purchase gasoline or diesel-powered vehicles.

The state, counties, and cities, and other agencies should implement a clear EV-first policy which would require that all new purchases be EVs unless there is a demonstrated and urgent need to purchase a gas vehicle. If no EV is presently available in the needed category, but such a vehicle is expected in the next three years, the government would need to use an interim strategy until such a vehicle is available.

SCHEMATIC OF "EV FIRST" PURCHASING POLICY



VI. POLICY RECOMMENDATIONS

Public fleet vehicles are typically replaced on roughly an 8 to 12-year cycle. As vehicles age, they require more maintenance, and the cost of maintaining them begins to exceed the cost of selling them and buying new ones. At the margins, the cost of keeping a 10-year-old vehicle and maintaining it vs. selling it and buying a new one is often minimal. Given that a wide variety of new electric cars, SUVs, and pickups are entering the market in the next 2-3 years, fleets should be strongly encouraged to avoid purchasing new gasoline-powered vehicles at this time (and locking in another 10 years of gasoline usage), and instead defer new purchases for 2-3 years until the electric version of the desired vehicle is available. In this manner, purchasing a gasoline vehicle and effectively locking in a 10-year commitment to purchase gasoline for it can be avoided.

While the fleet managers are waiting for their new vehicles to become available, they can focus on developing the charging infrastructure those vehicles will require.

If new gasoline vehicle purchasing is so deferred, the electrification of fleets will be rapidly accelerated.

VII. CONCLUSION

Every new gasoline-powered car purchased is a ten-year investment in oil extraction, transportation and refining, and air and carbon pollution, and runs contrary to the stated environmental goals of the State of Washington, and most jurisdictions referenced in this report.

Compliance with Washington's existing public fleet electrification law will result in major reductions in carbon and air pollution and save state taxpayers tens of millions of dollars in fuel costs. A bold, forward thinking law was already passed – what is lacking is the development and execution of plans to realize its potential.

Practical and affordable vehicle model options are now or will soon be available in key fleet categories, including passenger vehicles, SUVs, pickup trucks, and in many classes of heavy duty vehicles such as transit buses.

Broad constituencies and interests stand to benefit from vehicle electrification. Public health and environmental advocates favor the significant drop in air and carbon pollution resulting from electrification. Unionized workers, in particular the electrical workers union, would benefit from the substantial work required to set up charging installations. Washington business would benefit from the state retaining tens of millions of dollars within the state that would normally flow out-of-state for petroleum purchases. Fishers and Indian Tribes would benefit from reduction in a major source of pollutants into Puget Sound and other waterways. Minority groups and other populations residing close to freeways, gas stations, and other busy roadways would benefit from reduced air pollution. Taxpayers would benefit, not only from lower fuel expenditures, but also from decreased public health expenditures.

Stubborn practical and cultural barriers must be overcome. A durable solution is needed to financing charging infrastructure and the higher up-front cost of EVs. Cultural and social barriers such as comfort with the old ways, fear of the new, and lack of commitment to taking decisive action to address the climate crisis will also need to be overcome. The change to electric fleets, like all important changes to the status quo, will require an engaged citizenry, civil servants dedicated to implementing the law, and vigilant oversight by elected officials.

Washington elected officials and voters are ready to do their part to combat climate change. By curtailing use of fossil fuels within government fleets, Washington can proudly lead the march away from fossil fuels while improving the health and economic conditions of all of our residents.

AUTHOR: MATTHEW METZ, founder and co-executive director of Coltura

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VIII. APPENDIX 1: MODEL FLEET ORDINANCE

Whereas, the _____ (community) has established a strategic goal of reducing carbon emissions and enhancing and promoting its air quality, the health of its residents and the sustainability of its operations;

Whereas, zero-emission vehicles meeting fleet requirements are available now or are anticipated to be available in the near future;

Whereas electric vehicles have been demonstrated to have a lower total cost of ownership than comparable petroleum-powered vehicles;

Whereas, the _____ (community governing body) has carefully considered the implications of converting the community fleet to electricity from gasoline and diesel; now therefore be it Resolved, that the _____ (community governing body) hereby directs _____ (agency or department):

1. To acquire only electric or other zero emissions vehicles from this date forth, unless 1) there is an urgent need for the acquisition; 2) the need cannot be reasonably be satisfied through an available electric or zero emissions vehicle; and 3) the need cannot be reasonably satisfied by leasing a gasoline or diesel vehicle until a suitable zero-emissions vehicle becomes available; and

2 To prepare and implement a plan for the fleet fueling infrastructure to accommodate a 100% zero emissions fleet within 10 years;

In witness whereof,
I have set my hand and the seal of the authority this _____ (date).

Authorized Signatory

IX. APPENDIX 2: SUMMARY OF CLEAN FLEET POLICIES BY STATE

Information provided by Shannon Laun

Alabama: Green Fleets Policy requires average fleet fuel economy to be increased by (a) 4% for light-duty, (b) 3% for medium-duty, and (c) 2% for heavy-duty vehicles each fiscal year, beginning Nov. 21, 2009.

Alaska: No relevant provisions found.

Arizona: At least 70% of new alternative fuel and clean burning fuel vehicles 8,500 lbs. or less that primarily operate in counties with 1,200,000+ people must, starting with model year 2003, comply with the United States environmental protection agency standards for low emission vehicles. At least 90% of the fleet operating in counties with 1,200,000+ people should operate on alternative fuels or clean burning fuels by Dec. 31, 2004. For model year 2001 and all subsequent years, all new fleet vehicles of 8,500 lbs. or less that operate primarily in counties of 250,000+ people must be capable of operating on alternative fuels or clean burning fuels. AZ also applies clean fleet requirements to federal fleets operating primarily in AZ. At least 75% of local government fleets must operate on alternative fuels or clean burning fuels by Dec. 31, 2000 and each year thereafter.

Arkansas: No relevant provisions found.

California: Light Duty: Beginning no later than the 2024-25 fiscal year, the Department of General Services shall ensure that at least 50 percent of the light-duty vehicles purchased for the state vehicle fleet each fiscal year are zero-emission vehicles. Heavy Duty: Beginning December 31, 2025, at least 15 percent of newly purchased vehicles with a gross vehicle weight rating of 19,000 pounds or more purchased by the Department of General Services and other state entities for the state fleet shall be zero emission. Beginning December 31, 2030, at least 30 percent of newly purchased vehicles with a gross vehicle weight rating of 19,000 pounds or more purchased by the Department of General Services and other state entities for the state fleet shall be zero emission.

Colorado: Beginning on January 1, 2010, the executive director shall purchase motor vehicles that operate on compressed natural gas, plug-in hybrid electric vehicles, or vehicles that operate on other alternative fuels, subject to their availability and the availability of adequate fuel and fueling infrastructure, if either the increased base cost of such vehicle or the increased life-cycle cost of such vehicle is not more than ten percent over the cost of a comparable dedicated petroleum fuel vehicle. The executive director shall adopt a policy to allow some vehicles to be exempted from this requirement.

Connecticut: [O]n and after January 1, 2012, one hundred per cent of such cars and light duty trucks shall be alternative-fueled, hybrid electric or plug-in electric vehicles. If the Commissioner of Administrative Services determines that the vehicles required by the provisions of this subsection are not available for purchase or lease, the Commissioner of Administrative Services shall include an explanation of such determination in the annual report.

Delaware: No relevant provisions found.

District of Columbia: DC has an emission credit trading program for covered fleets, which was established in the 1990s (it is unclear if it is still in effect).

IX. APPENDIX 2: SUMMARY OF CLEAN FLEET POLICIES BY STATE

Florida: State/local fleet vehicles must be selected for the greatest fuel efficiency available for a given use class when fuel economy data are available.

Georgia: No relevant provisions found.

Hawaii: Once federal and state vehicle purchase mandates have been satisfied, [agencies shall] purchase the most fuel-efficient vehicles that meet the needs of their programs; provided that life cycle cost-benefit analysis of vehicle purchases shall include projected fuel costs. EVs and plug-in hybrid EVs are top priority.

Idaho: No relevant provisions found.

Illinois: “[I]t is the public policy of the State to promote and encourage the use of alternate fuel in vehicles” ... but the state doesn’t appear to have implemented this policy.

Indiana: No relevant provisions found.

Iowa: Requires the purchase of motor vehicles and light trucks . . . so that the average fuel efficiency for the fleet of new passenger vehicles and light trucks purchased in that year equals or exceeds the average fuel economy standard for the vehicles’ model year. A minimum of ten percent . . . shall be equipped with engines which utilize alternative methods of propulsion.

Kansas: Has an alternative fuels loan program for the purpose of making loans to government agencies that own and operate motor vehicles.

Kentucky: Requires a strategy to replace at least fifty percent (50%) of the state-owned passenger vehicles and light-duty trucks managed by the Division of Fleet Management as of January 1, 2014 with alternative fuel vehicles.

Louisiana: A political subdivision may purchase or lease any motor vehicle for use by any agency of the political subdivision, if that vehicle is capable of and equipped for using an alternative fuel that results in lower [air pollution].” However, the following language suggests that EVs that run solely on electricity are excluded. “The commissioner of administration shall not purchase or lease any motor vehicle for use by any state agency unless that vehicle is capable of and equipped for using bi-fuels, natural gas, or liquefied petroleum gas, herein after referred to collectively as ‘alternative fuels’. The state has an Alternative Fuel Vehicle Revolving Loan Fund that includes electricity as an alternative fuel.

Maine: “The Legislature, therefore, declares it to be in the public interest that the fleet of new motor vehicles purchased for the travel of state employees meet the federal fleet mileage standards.” No provisions found that actually require this, however.

Maryland: No relevant provisions found.

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Massachusetts: By regulation, establishes CO2 emission limits for state fleet passenger vehicles. The requirement kicks in starting 2018. A separate regulation applies to the Massachusetts Department of Transportation.

Michigan: No relevant provisions found.

Minnesota: Each state department must, whenever legally, technically, and economically feasible . . . ensure that all new on-road vehicles purchased, excluding emergency and law enforcement vehicles: . . . use “cleaner fuels” . . . have fuel efficiency ratings that exceed 30 miles per gallon for city usage or 35 miles per gallon for highway usage, including but not limited to hybrid electric cars and hydrogen-powered vehicles; or are powered solely by electricity.

Mississippi: No relevant provisions found.

Missouri: Any state agency which operates a fleet of more than fifteen motor vehicles shall acquire vehicles capable of using alternative fuels as follows: . . . At least fifty percent of the agency's fleet vehicles acquired between July 1, 1998, and July 1, 2000, and each biennial period thereafter.

Montana: “Before January 1, 2008, each agency shall develop and implement a program to reduce the fuel consumption of any agency vehicle.” “The state of Montana encourages the use of alternative fuels and fuel blends to the extent that doing so produces environmental and economic benefits to the citizens of Montana.”

Nebraska: In determining the lowest responsible bidder, in addition to price, the following elements shall be given consideration: The results of [U.S. EPA] tests on fleet performance of motor vehicles.

Nevada: In establishing standards and requirements for alternative fuel, the Commission:
(a) Must consider fuels that are recognized by the Environmental Protection Agency and the Department of Energy to improve air quality or reduce harmful air emissions.
(b) Shall not discriminate against any product that is petroleum based.

New Hampshire: No relevant provisions found.

New Jersey: Has some provisions dealing with cleaning up the New Jersey Transit Corporation's bus fleet, but nothing on the state's light-duty fleets.

New Mexico: No relevant provisions found.

New York: There shall be created within the office of general services a clean-fueled vehicle program . . . which must establish a specific plan for acquiring clean vehicles for the state fleet and fueling infrastructure.

North Carolina: Requires establishment of “an energy credit banking and selling program to allow State departments, institutions, and agencies to use moneys generated by the sale of EPA credits to purchase alternative fuel, develop alternative fuel refueling infrastructure, and purchase AFVs for use by State departments, institutions, and agencies.”

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Also has an Alternative Fuel Revolving Fund, which “shall be managed to maximize benefits to the State for the purchase of alternative fuel, related refueling infrastructure, and AFV purchases.”

North Dakota: No relevant provisions found.

Ohio: The department of administrative services shall ensure that all new motor vehicles acquired by the state for use by state agencies are capable of using alternative fuels unless certain conditions apply. A driver of a state vehicle capable of using alternative fuels shall purchase alternative fuels for that vehicle unless certain conditions apply.

Oklahoma: All school vehicles and all government vehicles may be converted to operate on an alternative fuel. The “Oklahoma Alternative Fuels Conversion Fund” was created to fund conversion of government/school vehicles to alternative fuels.

Oregon: Directs DEQ to incorporate “State and federal alternative fuel vehicles fleet programs that result in emission reductions” into the air quality maintenance plan for the Portland area.

Pennsylvania: Has an Alternative Fuels Incentive Fund that provides grants to a wide range of recipients, including local governments, for AFVs, fueling infrastructure, etc.

Rhode Island: No relevant provisions found.

South Carolina: “By March 1, 1993, the Program of Fleet Management must submit a plan to the General Assembly for the use of alternative transportation fuels for the state vehicle fleet.”

South Dakota: No relevant provisions found.

Tennessee: “All state agencies, universities, and community colleges that have state owned motor vehicle fleets consisting of more than ten (10) motor vehicles shall develop and implement plans to increase the state's use of alternative fuels, synthetic lubricants, and energy-efficient motor vehicle or low-emission vehicles. Each entity's plan shall have a goal of reducing or displacing at least twenty percent (20%) of the current petroleum products consumed by each entity's motor vehicle fleet by January 1, 2015.”

“The commissioner shall encourage the acquisition of energy-efficient and alternative fuel motor vehicles in the fleet of state vehicles. Each year, every effort should be made to achieve a target goal that one hundred percent (100%) of newly purchased passenger motor vehicles be energy-efficient or alternative fuel motor vehicles. The department shall ensure that at least twenty-five percent (25%) of newly purchased passenger motor vehicles procured for use in areas designated by the United States environmental protection agency (EPA) as nonattainment areas shall be all electric or hybrid-electric vehicles or vehicles powered by natural gas or propane; provided, that such vehicles and fueling infrastructure are available at the time of procurement and such vehicles are purchased at competitive prices.”

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Texas: "An authority may not purchase or lease a motor vehicle that is not capable of using compressed natural gas or another alternative fuel the use of which results in comparably lower emissions of oxides of nitrogen, volatile organic compounds, carbon monoxide, or particulates or combinations of those materials. At least 50 percent of the fleet vehicles operated by an authority must be capable of using compressed natural gas or another alternative fuel."

"The commission shall establish and administer the Texas clean fleet program to encourage a person that has a fleet of diesel-powered vehicles to replace them with alternative fuel or hybrid vehicles."

"A state agency operating a fleet of more than 15 vehicles, excluding law enforcement and emergency vehicles, may not purchase or lease a motor vehicle unless that vehicle uses [alternative fuels, including] electricity, including electricity to power a plug-in hybrid motor vehicle. Not later than September 30, 2010, a state agency that operates a fleet of more than 15 motor vehicles, excluding law enforcement and emergency vehicles, shall have a fleet consisting of vehicles of which at least 50 percent use [alternative fuels, including] electricity, including electricity to power a plug-in hybrid motor vehicle."

Utah: No later than August 30, 2018, the division shall ensure that 50% or more of new or replacement division-owned state vehicles that are motor vehicles used for the transportation of passengers are motor vehicles with emissions that are equal to or cleaner than the standards established in bin 2 in Table S04-1, of [40 C.F.R. 86.1811-04\(c\)\(6\)](#), or any vehicle propelled to a significant extent using one of the following alternative fuels [including electricity].

Vermont: At least 50 percent of the [state fleet] vehicles purchased annually by the Commissioner shall be low emission passenger vehicles.

Virginia: "The Board may adopt by regulation motor vehicle clean alternative fuel fleet standards consistent with the provisions of Part C of Title II of the federal Clean Air Act for model years beginning with the model year 1998 or the first succeeding model year for which adoption of such standards is practicable." [It appears such regulations have not been adopted.] "There is hereby created in the state treasury a special nonreverting fund to be known as the Alternative Fuel Vehicle Conversion Fund. [. . .] Moneys in the Fund shall be used solely for the purposes of assisting agencies of the Commonwealth with the incremental cost of state-owned alternative fuel vehicles and local government and agencies thereof and local school divisions with the incremental cost of such local government-owned alternative fuel vehicles."

Washington: "Effective June 1, 2015, all state agencies, to the extent determined practicable by the rules adopted by the department of commerce pursuant to [RCW 43.325.080](#), are required to satisfy one hundred percent of their fuel usage for operating publicly owned vessels, vehicles, and construction equipment from electricity or biofuel. Compressed natural gas, liquefied natural gas, or propane may be substituted for electricity or biofuel if the department of commerce determines that electricity and biofuel are not reasonably available."

"Effective June 1, 2018, all local government subdivisions of the state, to the extent determined practicable by the rules adopted by the department of commerce pursuant to [RCW 43.325.080](#), are required to satisfy one hundred percent of their fuel usage for operating publicly owned vessels, vehicles, and construction equipment from electricity or biofuel."

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Regulations define practicability for state agencies and local governments.

West Virginia: "After [Sept. 1, 1993], the secretary may purchase or lease alternative fuel vehicles for use by any state agency. . . . Of the total number of vehicles acquired or caused to be acquired by the secretary for use by any state agency vehicle fleet: . . . Fifty percent in fiscal year [1997], shall be alternative fuel vehicles. . . . The secretary shall review this alternative fuel use program on or before [Dec. 31, 1997], and if the secretary determines that the program is effective in reducing costs to the state, taking into consideration the cost of operating alternative fuel vehicles over the expected useful life of the vehicles, the secretary shall, of the total number of vehicles acquired in each fiscal year, acquire at least seventy-five percent alternative fuel vehicles for state agency fleets beginning [Sept. 1, 1998], and thereafter." Same provisions apply to local government.

Wisconsin: Encourages use of AFVs, but the manufacturer must certify that final assembly occurred in the U.S. By regulation, requires "70% of all LDVs and LDTs and 50% of all light and medium HDVs purchased or newly acquired in model year 2001 and every model year thereafter" to meet clean fuel fleet vehicle exhaust emission standards.

Wyoming: No relevant provisions found.



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