WASHINGTON STATE ROAD USAGE CHARGE

Steering Committee Meeting

Washington State Transportation Commission

June 27, 2019
SeaTac Airport Conference Center
SeaTac, Washington

WELCOME AND INTRODUCTIONS

Joe Tortorelli
WA RUC Steering Committee Chair,
Washington State Transportation Commission

- Steering Committee member self-introductions

PUBLIC COMMENT PERIOD

- Please try to keep all comments limited to 5 minutes or less

RECAP OF DIRECTION PROVIDED BY STEERING COMMITTEE

Jeff Doyle
Project Manager
D'Artagnan Consulting

- Developmental steps and decisions to be taken
- Decision-making for September Steering Committee meeting

DEVELOPMENTAL STEPS & DECISIONS TAKEN

WA RUC

Issues are addressed when sufficient data exists

Before the pilot:

- ✓ How to operationalize the RUC mileage reporting approaches
- ✓ Whether and how to charge out-of-state drivers
- ✓ Exemption from RUC charges
- ✓ Refunds of RUC charges

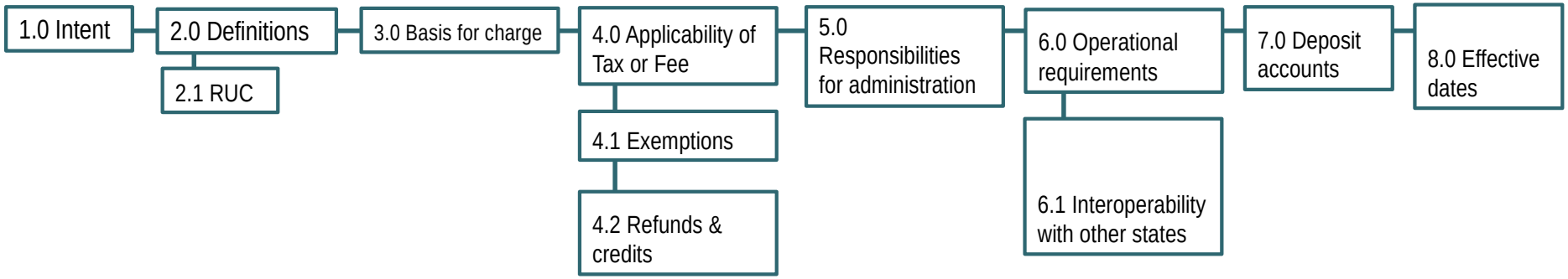
Anytime:

- ✓ RUC compatibility with tolls
- ✓ Commerce Clause impacts on RUC
- ✓ 18th Amendment impacts on RUC
- ✓ Per-mile rate setting
- ✓ Motor fuel tax bond requirements
- ✓ Permanent exemptions from RUC
- ✓ Use or dedication of RUC revenue
- ✓ Rate-setting basis for time-based permit
- ✓ Interoperability of RUC with other states

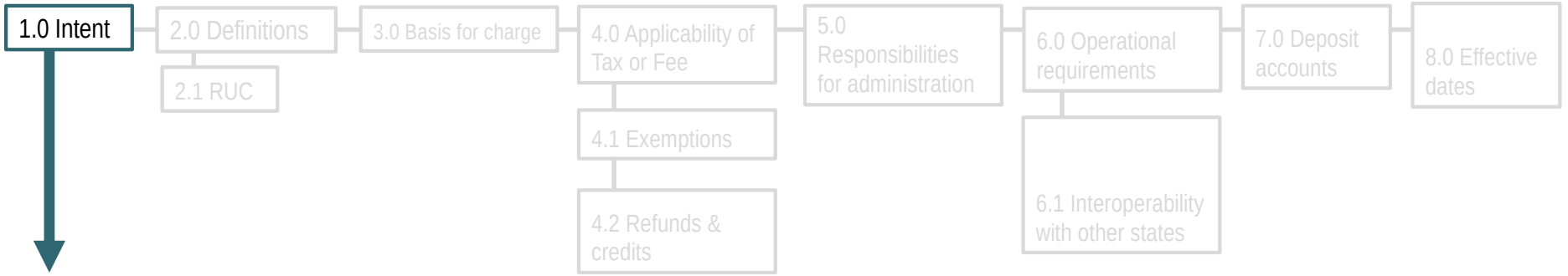
After the pilot:

- ❑ Whether and how best to use private sector service providers
- ❑ Drivers' reaction to the proposed RUC system
- ❑ Public understanding and acceptance of a RUC system
- ✓ State IT needs to support RUC
- ❑ Institutional roles in implementing a RUC system
- ❑ Transition strategy: which vehicles would pay RUC, and when

Context for Steering Committee's findings & decisions



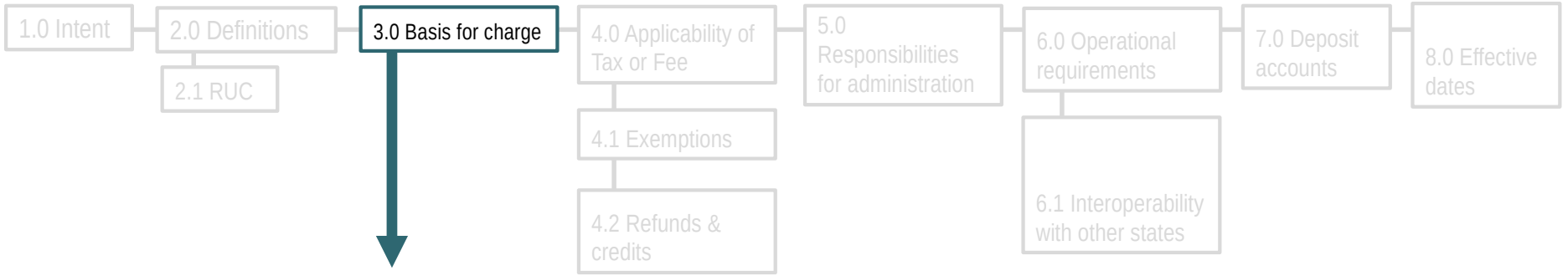
Remaining findings & decision-points



What is the vision for RUC as an eventual replacement for the gas tax over a period of time?

- ❑ *Transition strategy: September 2019*

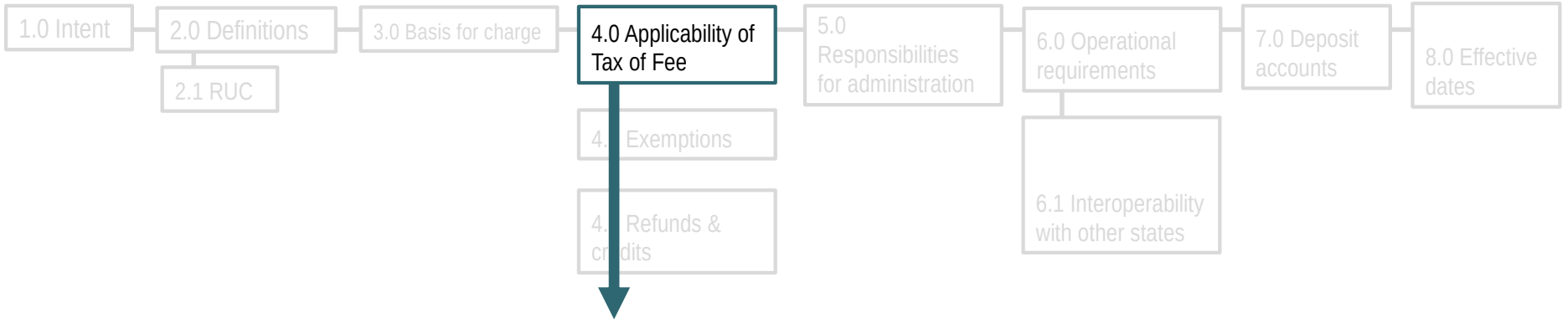
Remaining findings & decision-points



How will the fee be assessed -- for each exact mile (or fraction) driven, or based on mileage "brackets" (similar to how vehicle weight fees are applied), or based on a period of time?

- ❑ *Driver reaction to the proposed RUC system – June 2019*
- ❑ *Transition strategy: September 2019*

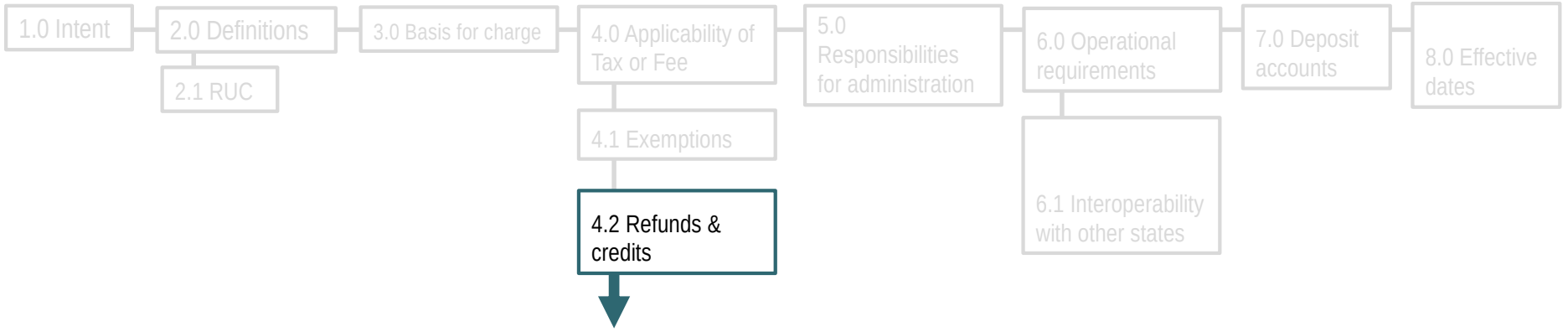
Remaining findings & decision-points



Who will be required to pay RUC?

- ❑ *Transition strategy – September 2019*
- ❑ *Vehicles subject to RUC – September 2019*

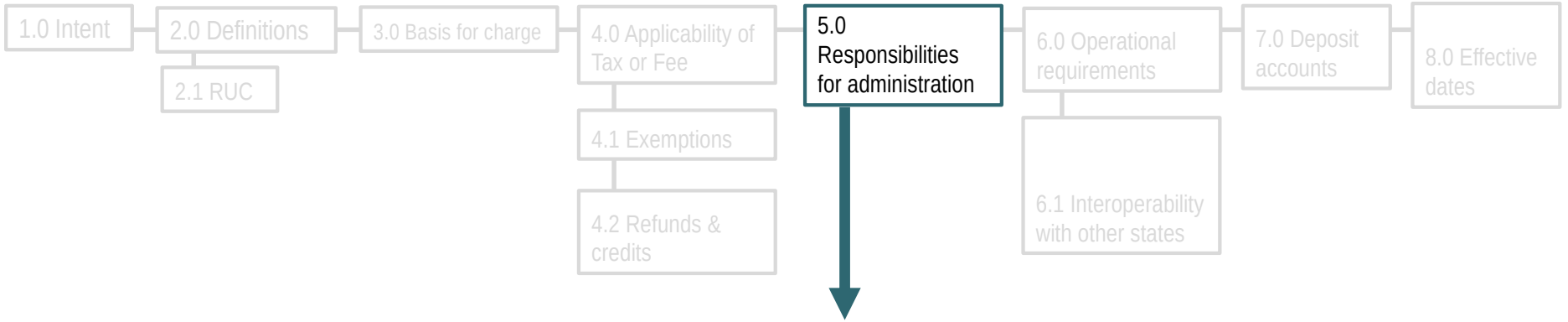
Remaining findings & decision-points



Who will be entitled to refunds and credits?

- *Transition strategy – September 2019*

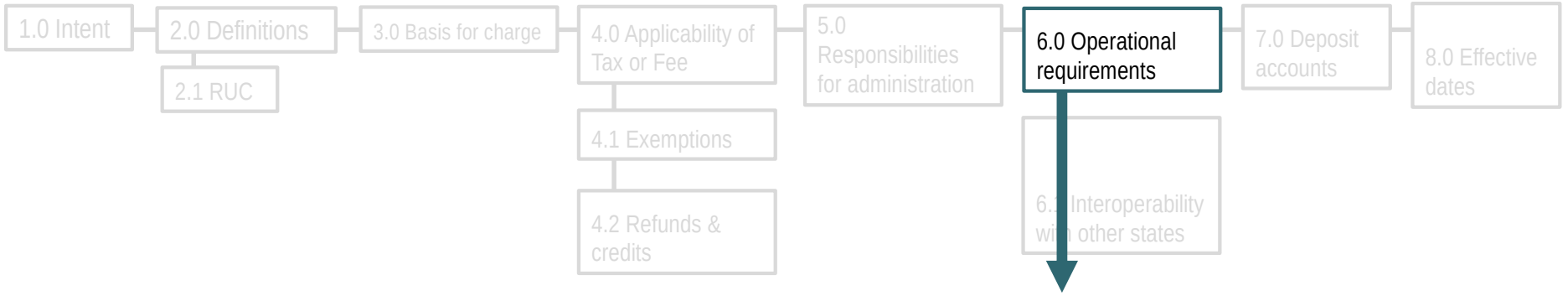
Remaining findings & decision-points



How would a RUC system be administered?

- ❑ *Use of private sector account managers – June 2019*
- ❑ *Driving reaction to the proposed RUC system – June 2019*
- ❑ *Institutional roles in implementing any future RUC system – June 2019*

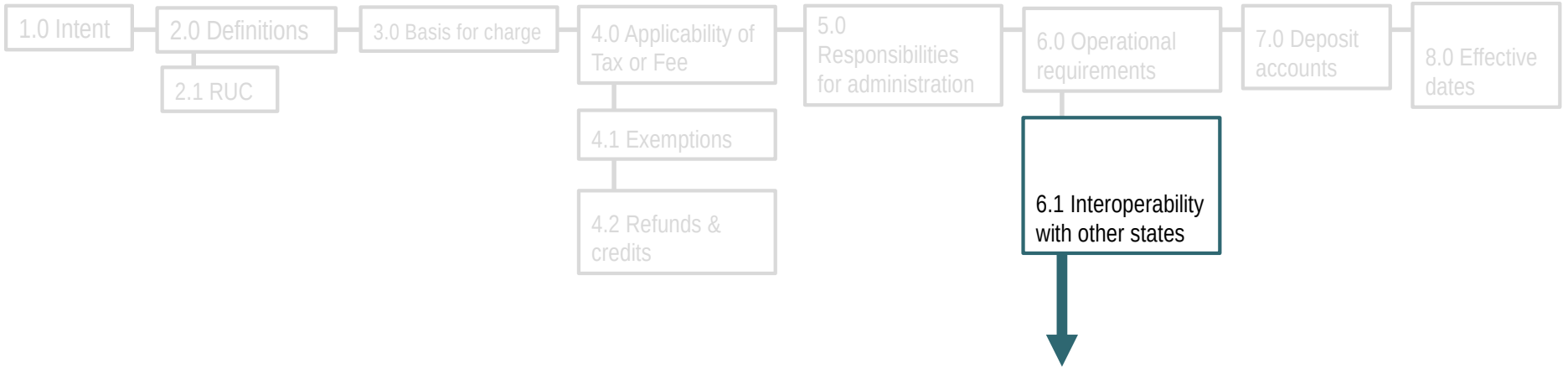
Remaining findings & decision-points



What are the basic RUC system requirements?

- ❑ *Driver reaction to the proposed RUC system – June 2019*

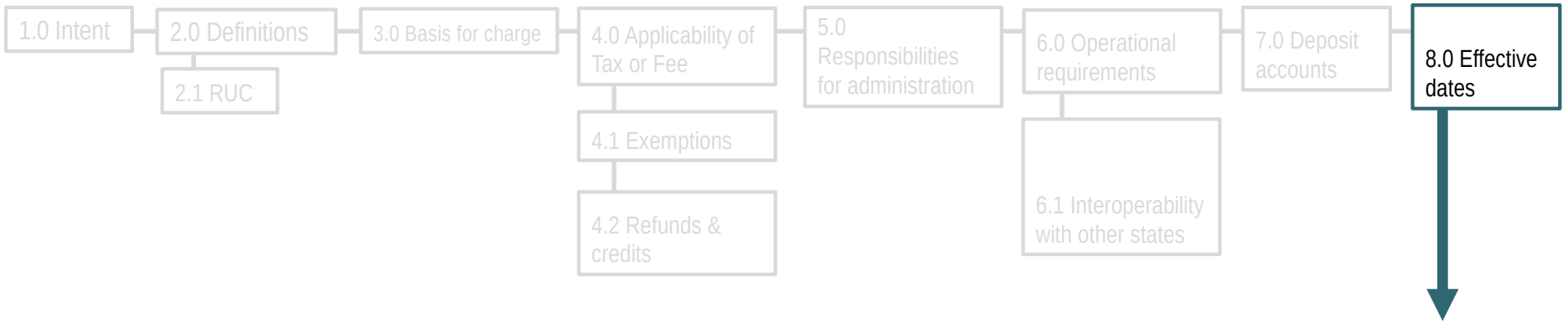
Remaining findings & decision-points



How will RUC be applied to cross-state travel?

- *Transition strategy – September 2019*

Remaining findings & decision-points



When should RUC take effect?

- ❑ *Public understanding and acceptance of the proposed system – June 2019*
- ❑ *Transition strategy – vehicles subject to paying RUC – September 2019*

DECISION-MAKING FOR REMAINING STEERING COMMITTEE MEETINGS

2019 Steering Committee policy work plan

September 10, 2019 meeting:

- Transition strategy - vehicles subject to paying RUC
- Review and discussion of findings
- Discussion of technical or operational recommendations
- Review of draft report

RESULTS OF FINAL PILOT PARTICIPANT SURVEY

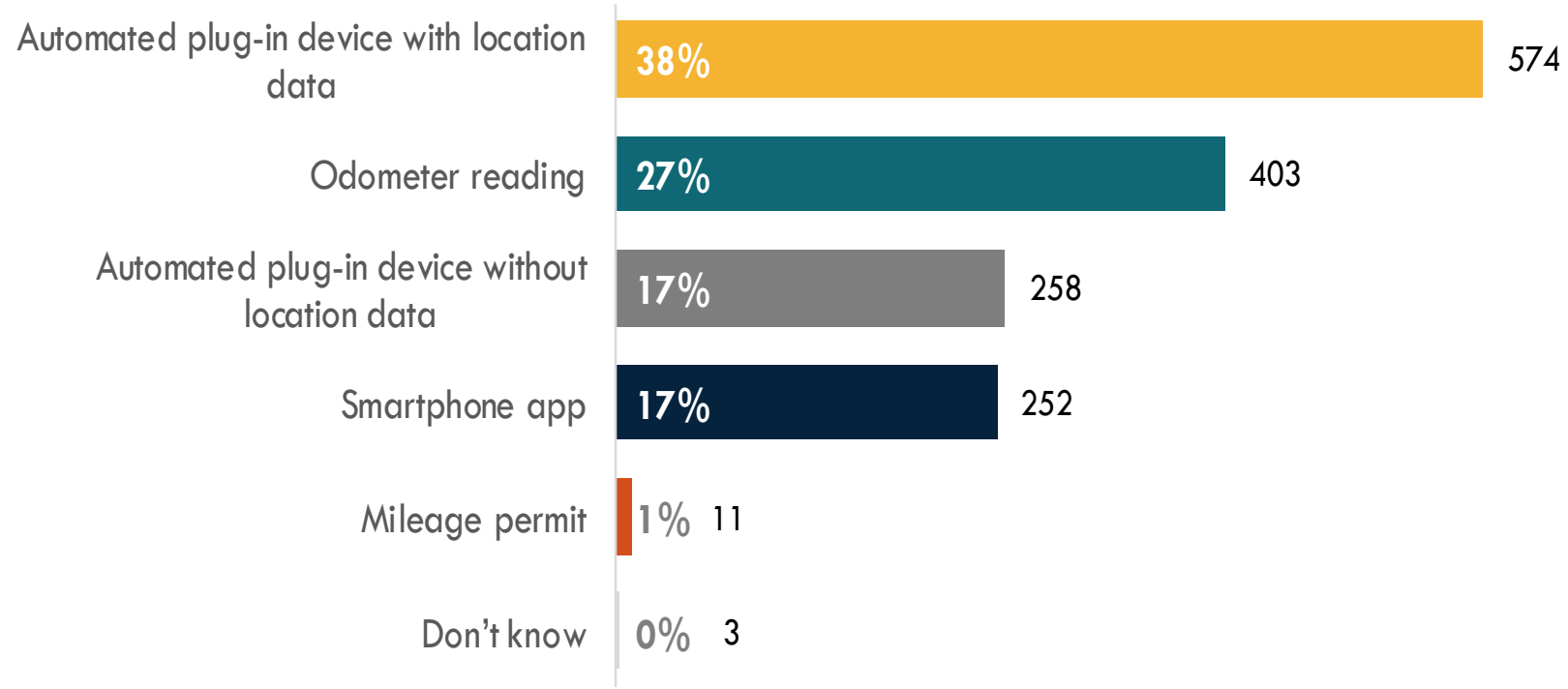
Allegra Calder and Sherrie Hsu,
BERK Consulting

Participant Surveys – Response Rates

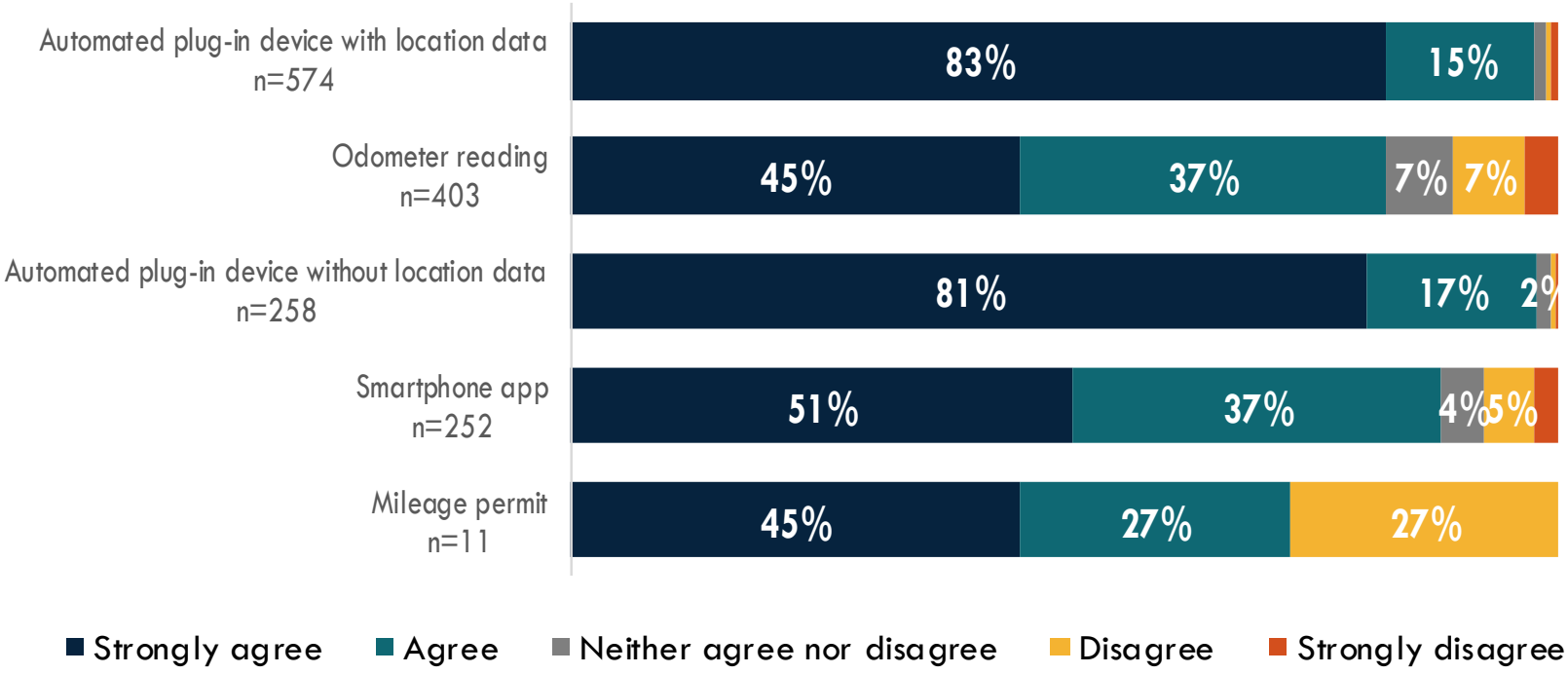
	Survey 1			Survey 2			Survey 3		
	Invited	Completes	Rate	Invited	Completes	Rate	Invited	Completes	Rate
Total	2,048	1,669	81.5%	2,106	1,569	74.5%	2,009	1,491	74.2%

Respondents that completed the survey, received the incentive. Responses were included for those that answered most but not all questions. The total number of surveys analyzed for Survey 3 was 1,503. Because not all participants responded to every questions, the number shown may be below 1,503.

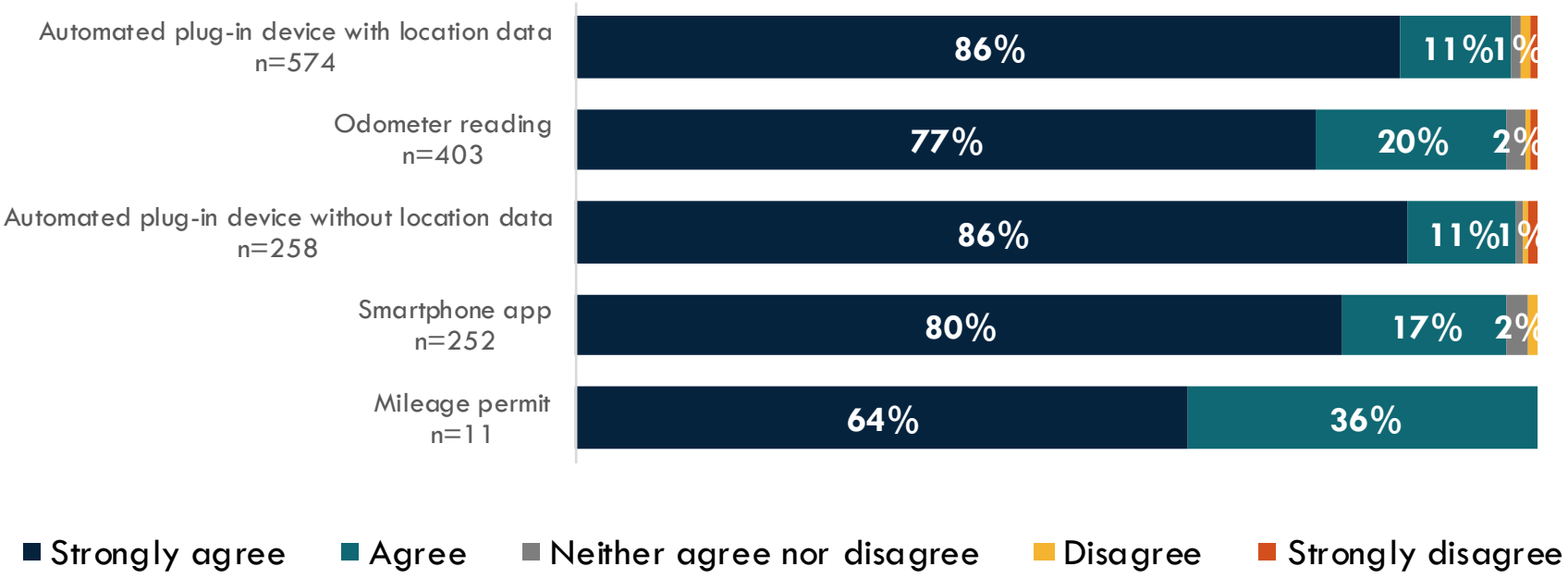
Which mileage reporting method did you test in the pilot? If you switched methods, please select the reporting method you most recently used. *(n=1,501)*



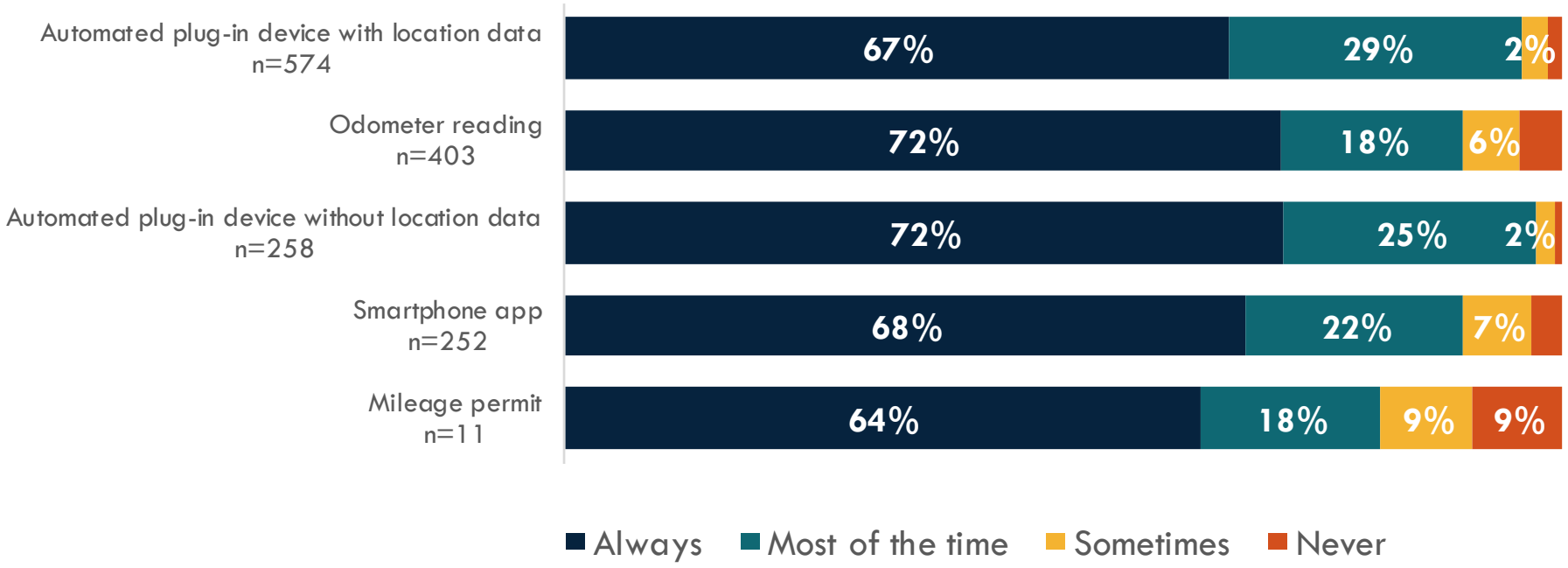
The reporting method was a convenient way to participate in the pilot.



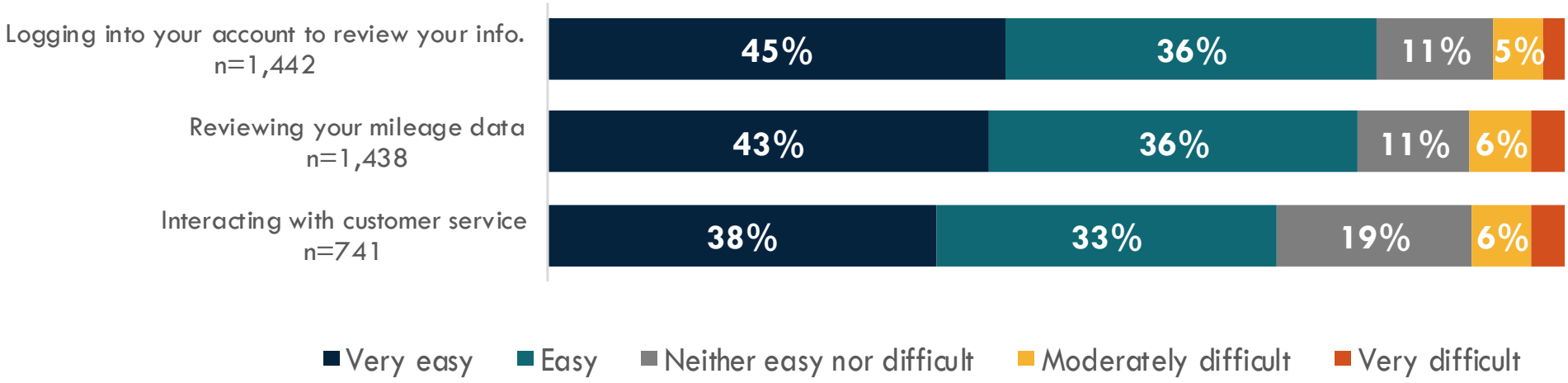
The reporting method did not interfere with my ability to drive.



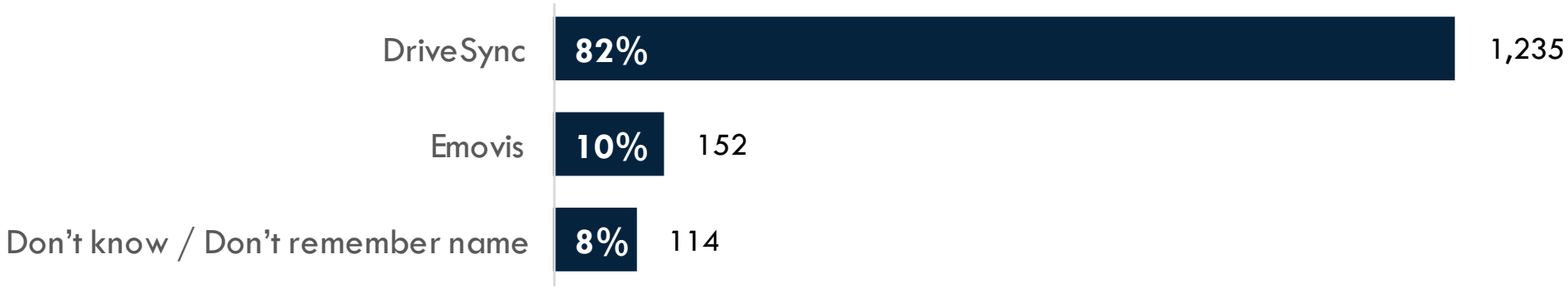
Did the reporting method accurately report your trips?



Please rate the following pilot activities in terms of ease of completion.

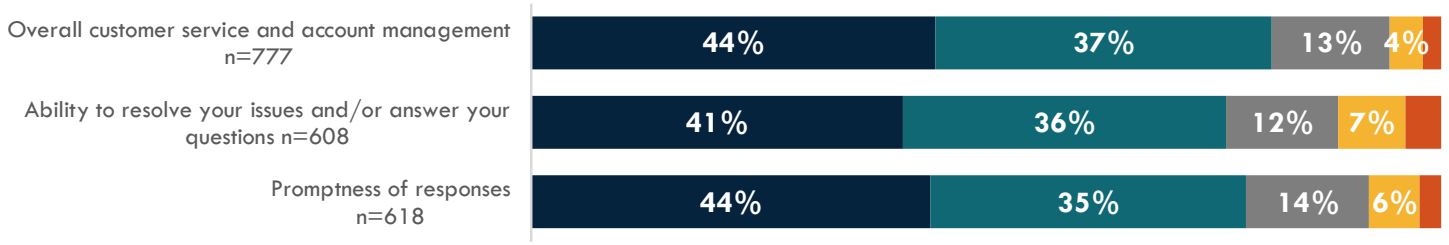


Who is your RUC Service Provider? (*n=1,501*)

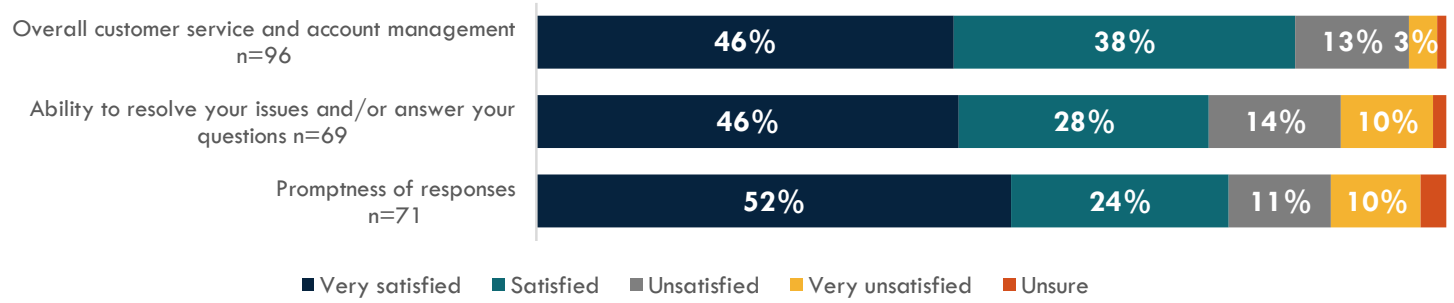


Please indicate your level of satisfaction with your RUC Service Provider for each of the following:

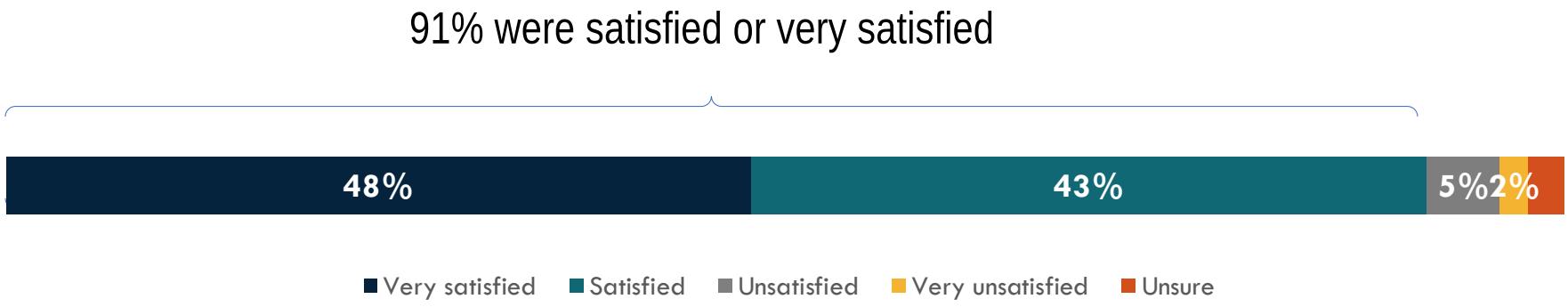
Drive Sync



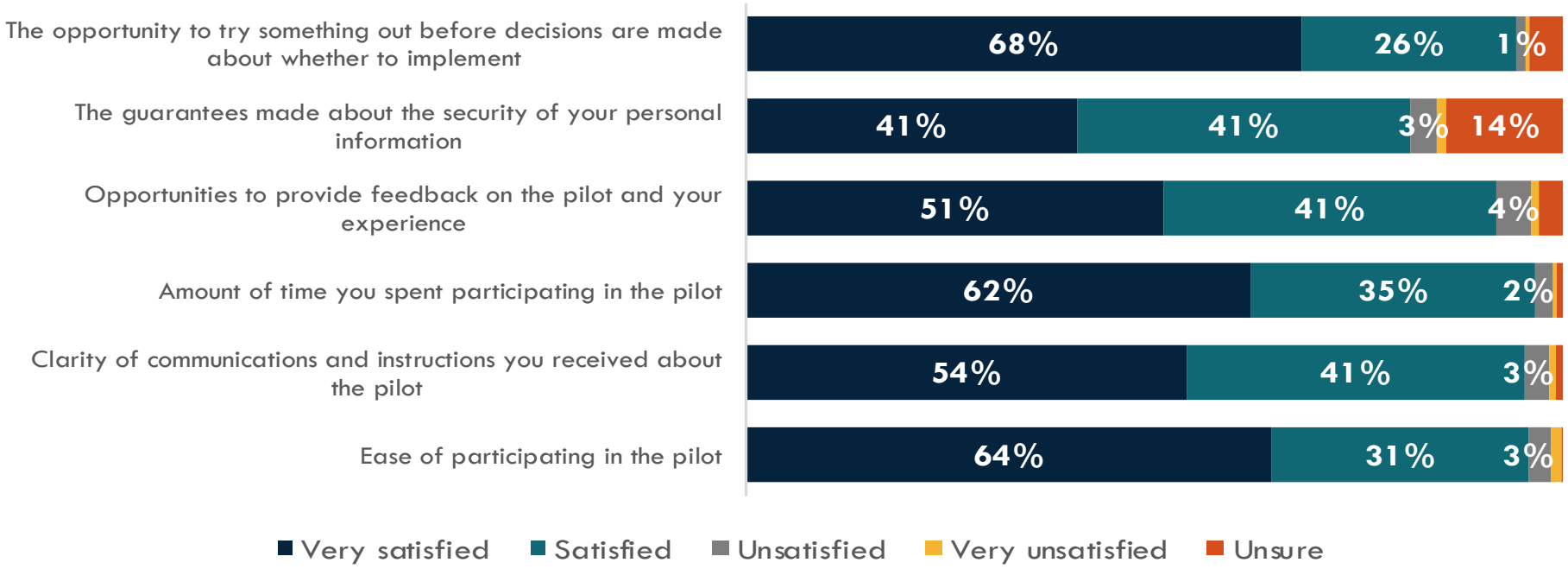
Emovis



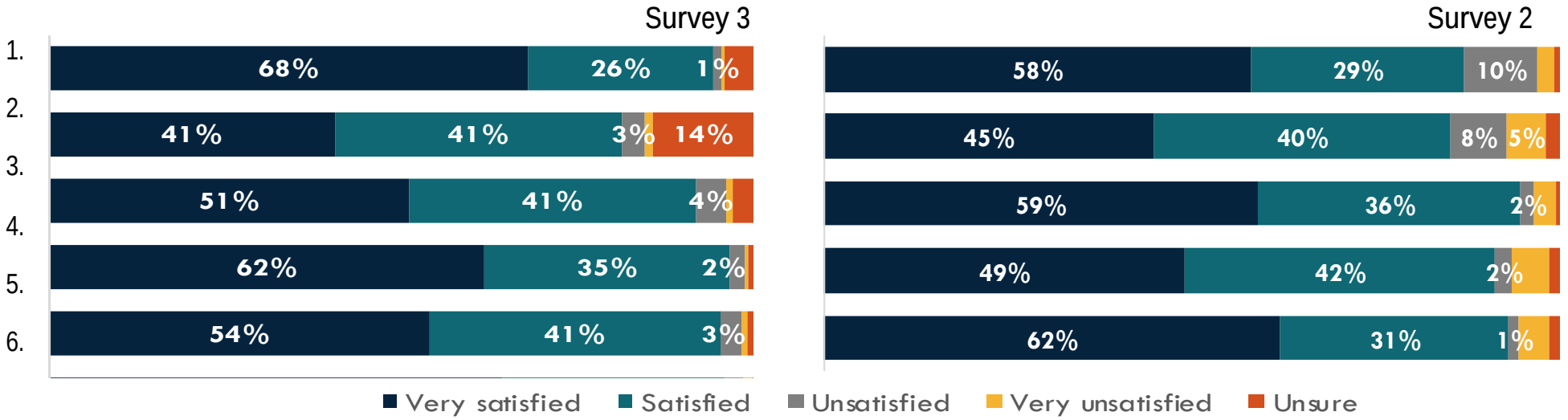
Thinking about your full experience with the RUC Pilot, how satisfied were you overall? *(n=1,491)*



Thinking about your specific experiences with the RUC Pilot, how satisfied are you with each of the following: *(n=1,491)*



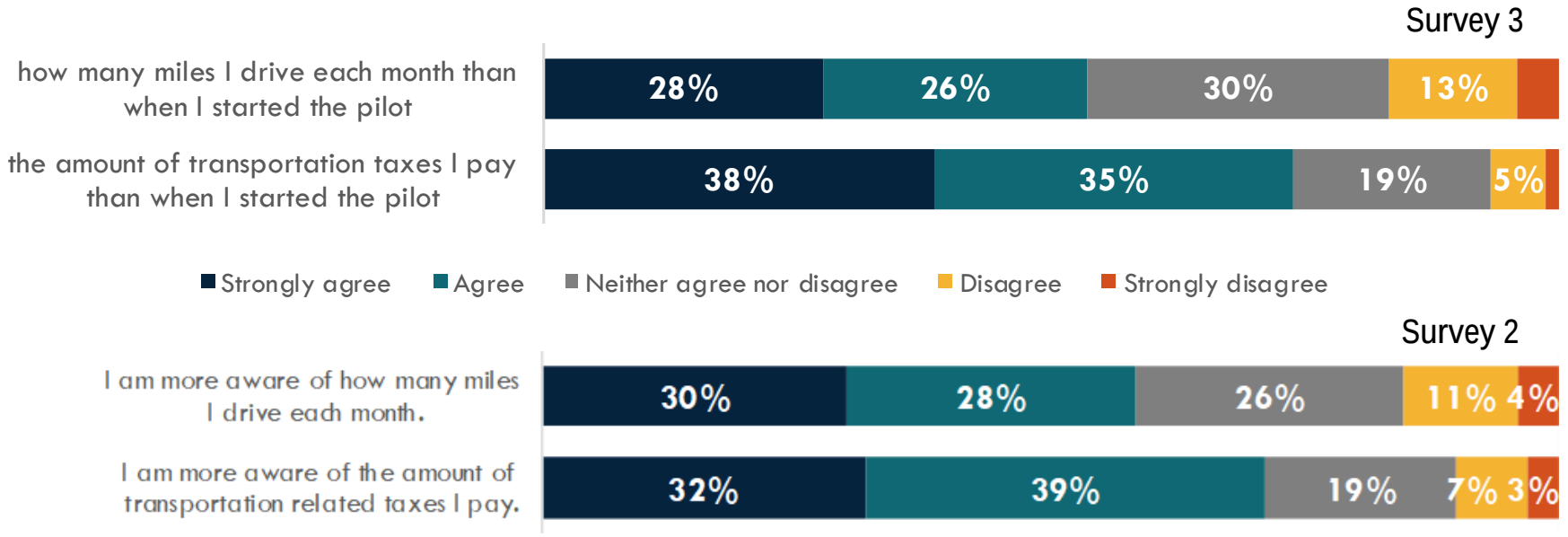
Thinking about your specific experiences with the RUC Pilot, how satisfied are you with each of the following: *(n=1,491)*



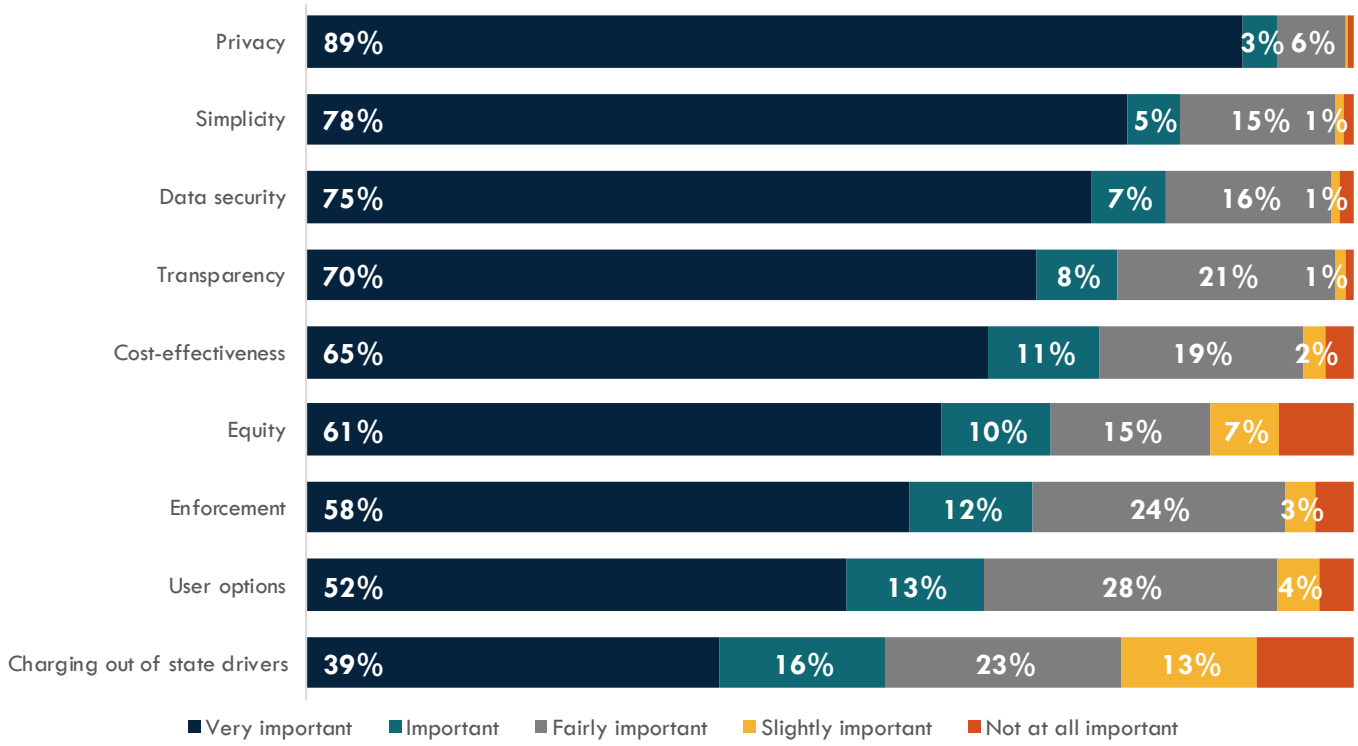
1. Opportunity to try something out
2. Guarantees about security of personal information
3. Provide feedback on the pilot
4. Time spent
5. Clarity of communications about pilot
6. Ease of participation

Based on your participation in the RUC Pilot, please indicate your level of agreement with each of the following: *(n=1,491)*

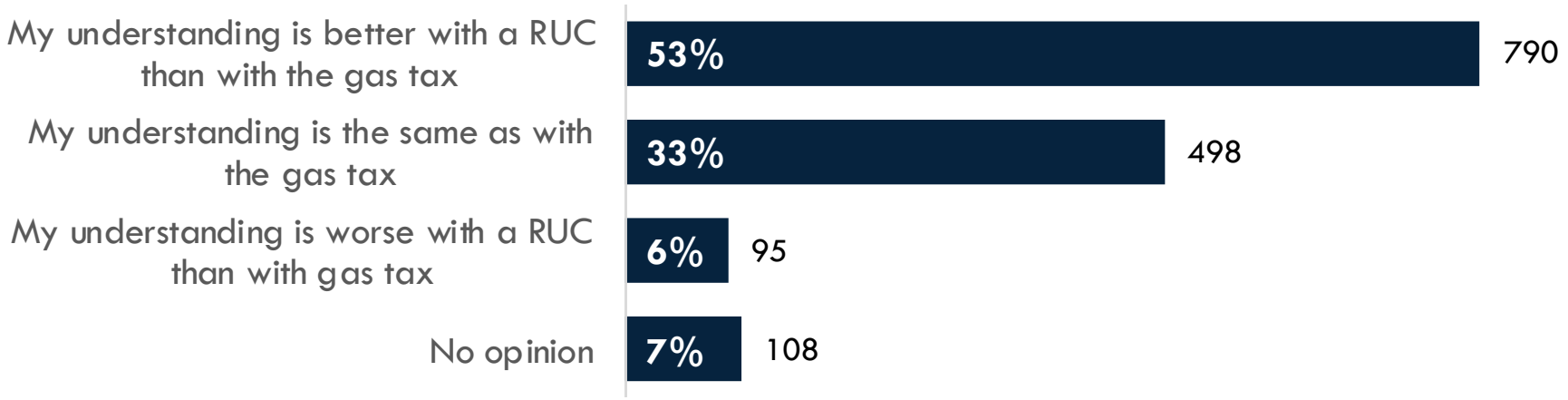
I am more aware of:



How important to you are the following principles for a potential RUC system: *(n=1,491)*



Based on the RUC invoices sent to you during the pilot, do you feel your understanding is now better or worse concerning what your fair share of the transportation tax is? *(n=1,491)*



Based on your experience in the pilot, how has your attitude towards a RUC system changed? *(n=1,491)*

If your attitude has changed, please provide any information on the reasons for this change. (*n= 577*)

Much more supportive of a RUC (164)

- The pilot was informative (55)
- RUC is more fair because everyone pays (24)
- EVs and Hybrids should pay as well (19)
- Know more about driving habits (17)
- Pay less under a RUC (16)
- Pay a similar amount to gas tax (13)

If your attitude has changed, please provide any information on the reasons for this change. (*n= 577*)

A lot less supportive of a RUC (113)

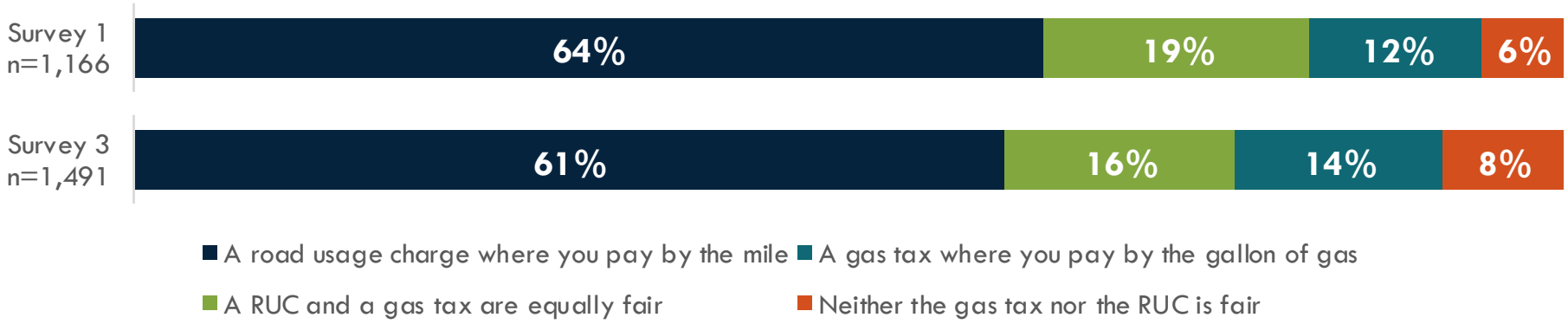
- EVs and Hybrids would be penalized (27)
- Pay more under a RUC (19)
- Concerns related to government/too many taxes (18)
- Technology, device, reporting problems (13)
- Privacy/data security concerns (12)
- Pilot was confusing/a hassle/ a poor experience (12)

If your attitude has changed, please provide any information on the reasons for this change. (*n= 577*)

Opinion is the same as before the RUC experience (41)

- Most had further unanswered questions, or still did not understand RUC.
- Some were supportive before and still are
- Others were opposed before and still are
- Some had mixed feelings

Which transportation funding approach do you think is more fair?



How do you define fair? (*n=1,109*)

472 people said fair means **being equitable**. Participants viewed equity from different lenses:

- Vehicle type (143)
- Vehicle weight (102)
- Income (78)
- Geography (33)
- Environmental impact (30)
- Long commutes (27)
- Bell curve distribution (1)

367 said fairness means **equal treatment:** treating people equally or treating people the same.

How do you define fair? (*n=1,109*)

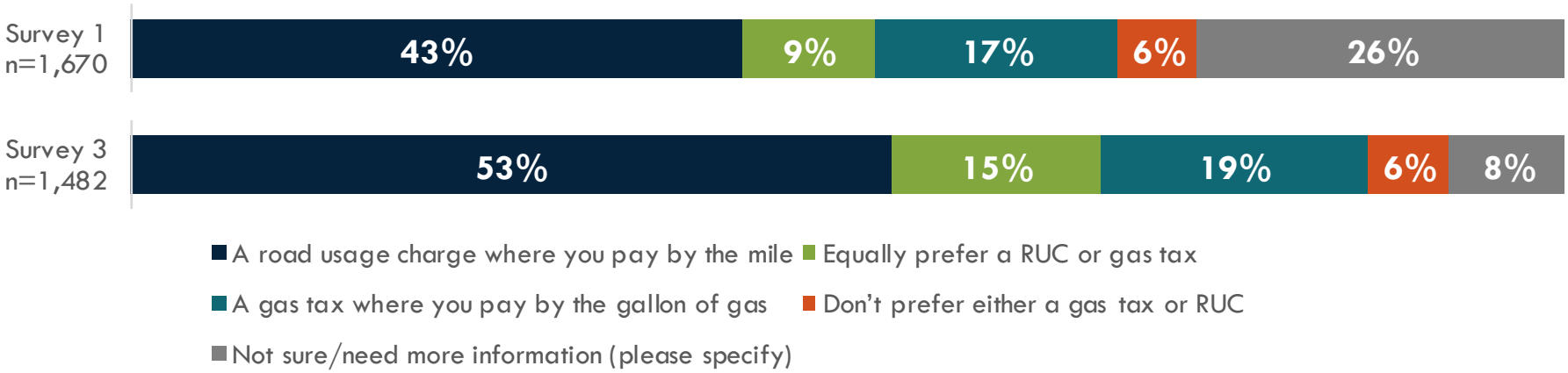
Most participants discussed fairness in terms of payment.

- Pay for use(435)
- Pay for road impact, damage, and upkeep (214)
- Pay by the mile (130)
- Pay your share(105)
- Pay if you benefit from roads (10)

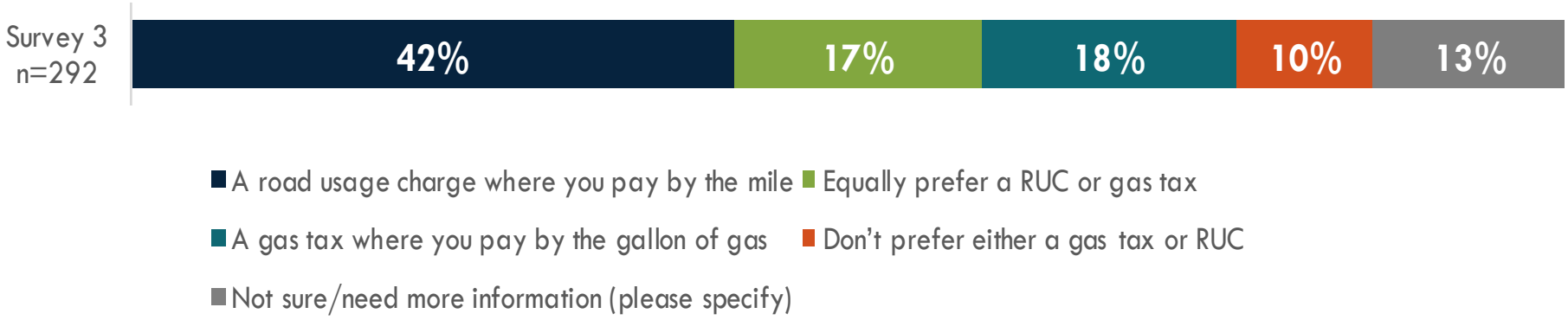
149 people brought up EVs and hybrids.

- EVs/hybrids should pay too (104)
- Don’t discourage EVs/hybrids (20)
- Don’t double tax EVs/hybrids (10)

Fairness aside, knowing what you know today, which method to fund transportation would you prefer?



Funding preferences in Survey 3 for those that answered "not sure/need more information" in Survey 1 *(n=292)*



What additional comments do you have about adequate funding or finding an alternative source? *(n=687)*

87 offered other **taxing or fee options**.

- The most common was a state income tax, with an alternative being a tax on the wealthiest (highest income brackets) for infrastructure.
- Some interest in a tax mix that includes a gas tax, RUC, and vehicle weight.
- Other ideas:
  - carbon fees
  - sales tax with the purchase of a new vehicle
  - tire tax or surcharge
  - fees for studded tires
  - tolls on interstates
  - vehicle registration fees by weight
  - tax on luxury vehicles
  - formula that increases both miles driven and vehicle weight
  - congestion pricing
  - business/corporate taxes

What additional comments do you have about adequate funding or finding an alternative source? *(n=687)*

Participants have mixed opinions about **how EVs/hybrid vehicles should pay.**

- Some feel strongly that EVs/hybrids should **pay the same rate** for their use of roads.
- Some feel strongly that **they should be incentivized or rewarded for being fuel-efficient.**

Participants are concerned about factors that **may disproportionately affect costs or misalignment between payers and users.**

- Participants mentioned the relationship between income, geography, and driving distance.

What additional comments do you have about adequate funding or finding an alternative source? (*n=687)*

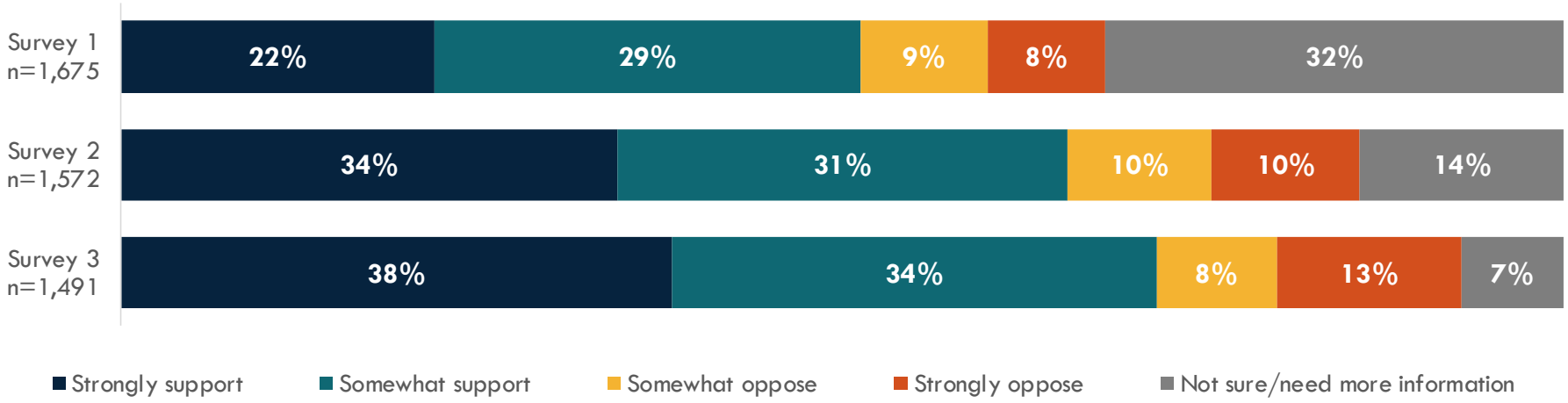
113 people have general government, politics, or tax concerns.

- 49 said they do not trust the government's use of tax money or that the government needs to use money more efficiently.
- 26 were concerned about the return on investment.
- 24 felt that the state has too many taxes or that taxes are too high already.

What additional comments do you have about adequate funding or finding an alternative source? (*n=687)*

- 22 said that RUC revenue needs to be **dedicated or protected** to ensure it is used for transportation, rather than other purposes.
- 13 said **bicycles should contribute too.**
- 11 said that **everyone benefits** from roads even if they are not driving.
- 11 said the State should invest in **public transit.**
- 10 suggested **increasing existing taxes or fees** first (such as raising gas tax).

At this point, how do you feel about implementing a road usage charge as a replacement to the gas tax in Washington to fund transportation infrastructure?



What additional comments do you have about implementing a RUC system as a replacement to the gas tax in Washington? (n=*673*)

- 78 brought up **tracking out-of-state** miles. People do not want to be charged for their own out-of-state miles. They do want visitors to Washington to pay for their use of Washington roads.
- Participants are concerned RUC may **disproportionately affect lower-income** households, who also live further away from work because of housing prices.
- 62 were concerned about **being double taxed.** They do not want to pay both RUC and gas tax.
- 51 people wanted rates to consider **vehicle weight**. 42 people wanted rates to consider **vehicle type or size.**

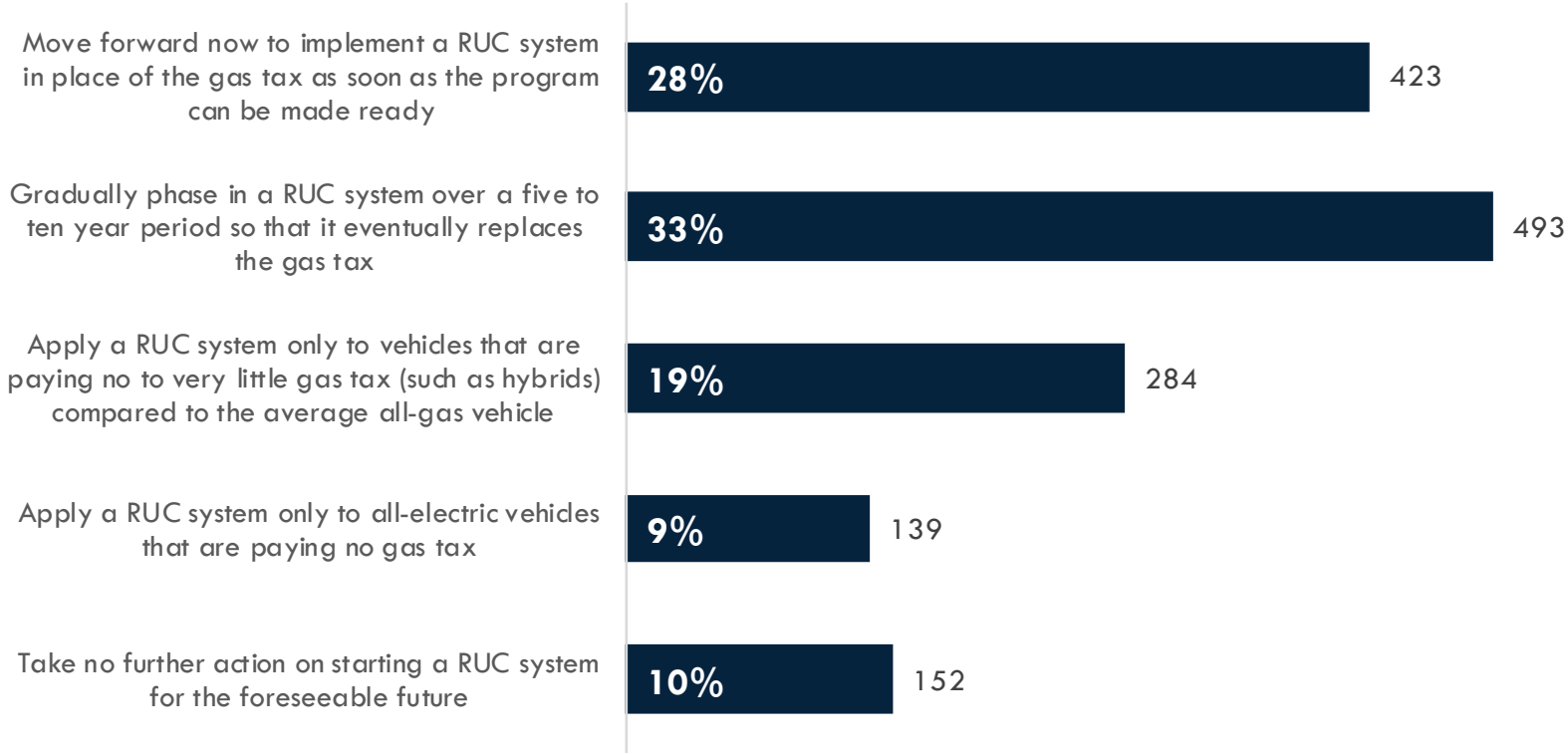
What additional comments do you have about implementing a RUC system as a replacement to the gas tax in Washington? (n=*673*)

- 36 people had general **government, politics, or tax** concerns, including 24 people who do not trust government use of tax money or believe the government needs to use money more efficiently.
- 35 mentioned the importance of **transparency, communications, or public opinion.**
- 34 were concerned about **administration/overhead costs**.
- 31 brought up **compliance/enforcement.**

What additional comments do you have about implementing a RUC system as a replacement to the gas tax in Washington? (n=673)

- Participants had some remaining questions, including:
  - How will RUC affect car dealerships that currently fuel up cars?
  - How will the state handle lost revenues from gas use that is not on the roads, such as recreational vehicles, boats, lawn mowers, or other?
  - What happens when you sell a car?
  - How would this impact truckers and interstate commerce?
  - What would happen to Washington drivers' payment of the federal gas tax? What if the federal gas tax switches to a RUC?

Which of the following best represents your advice to elected officials as they consider the next steps in implementing a RUC system statewide: *(n=1,491)*



Do you have any final comments on your RUC pilot experience? (*n*=572)

- Overall, participants were **happy with the experience** and enjoyed participating in the pilot. They felt it was **informative** and **convenient.** Common challenges related to the use of reporting devices and reporting.
- 69 provided ideas on **how to implement** RUC.
  - 22 provided ideas on how to improve technology, devices, and reporting.
  - 12 suggested phasing in RUC over time.
  - 9 suggested implementing RUC for EVs, then potentially moving onto other vehicles.
  - 3 suggested implementing both the gas tax and RUC.

Do you have any final comments on your RUC pilot experience? (*n=572*)

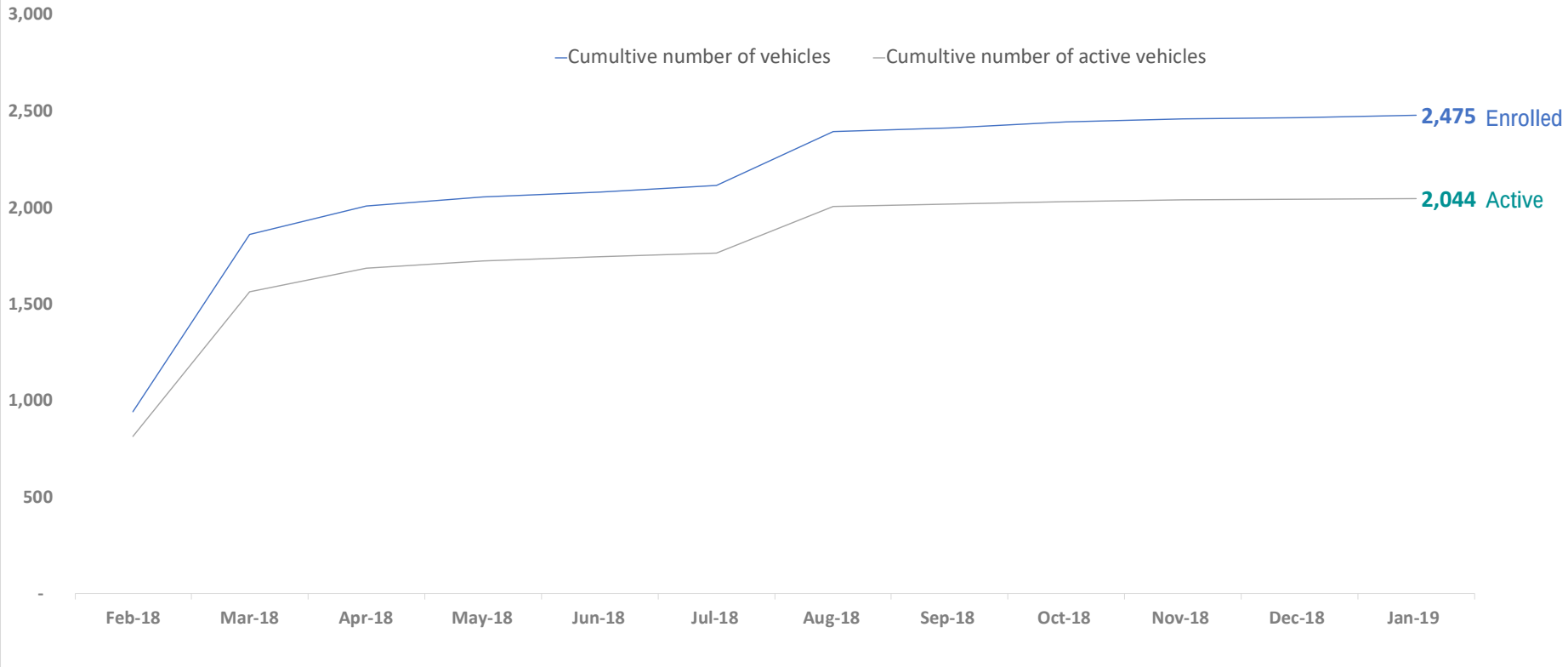
- 42 people raised **equity**, including different types of equity.
  - 10 want RUC to consider vehicle type, and 13 vehicle weight.
  - 8 brought up geography, concerned that rural drivers face different challenges than urban drivers.
  - 7 described income equity, concerned that RUC could disproportionately impact low-income drivers.
  - 3 mentioned that some people drive further to work.
- 29 stated general concerns with government, politics, or tax money.
- 25 discussed **out-of-state drivers**, but from different angles.
- 16 noted the importance of **transparency and communications.** Some suggested a media campaign.

UPDATE: WA RUC PILOT DATA

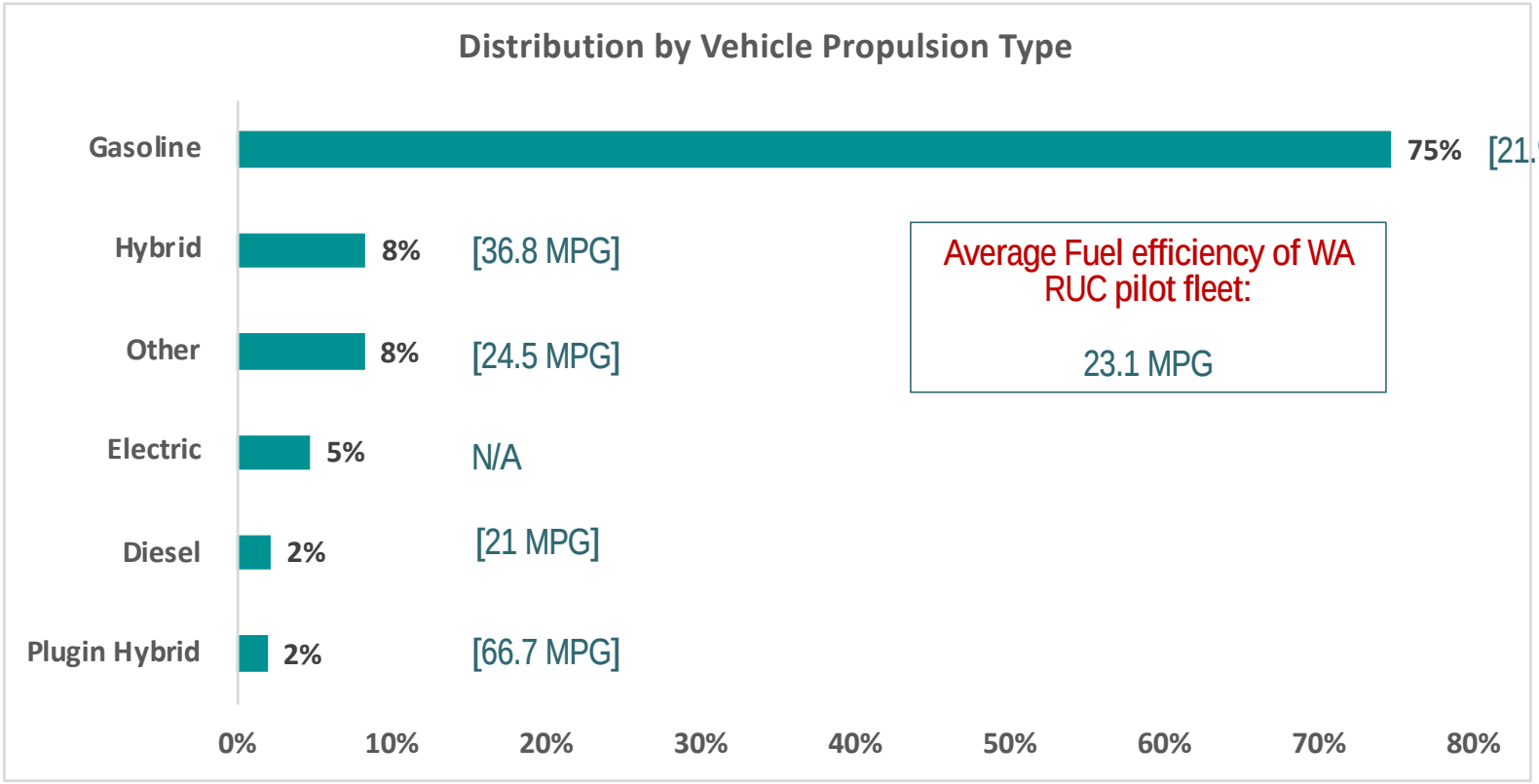
Roshini Durand
D'Artagnan Consulting

- Participant vehicle enrollment
- Vehicle propulsion type
- Mileage and revenue
- Demographics data

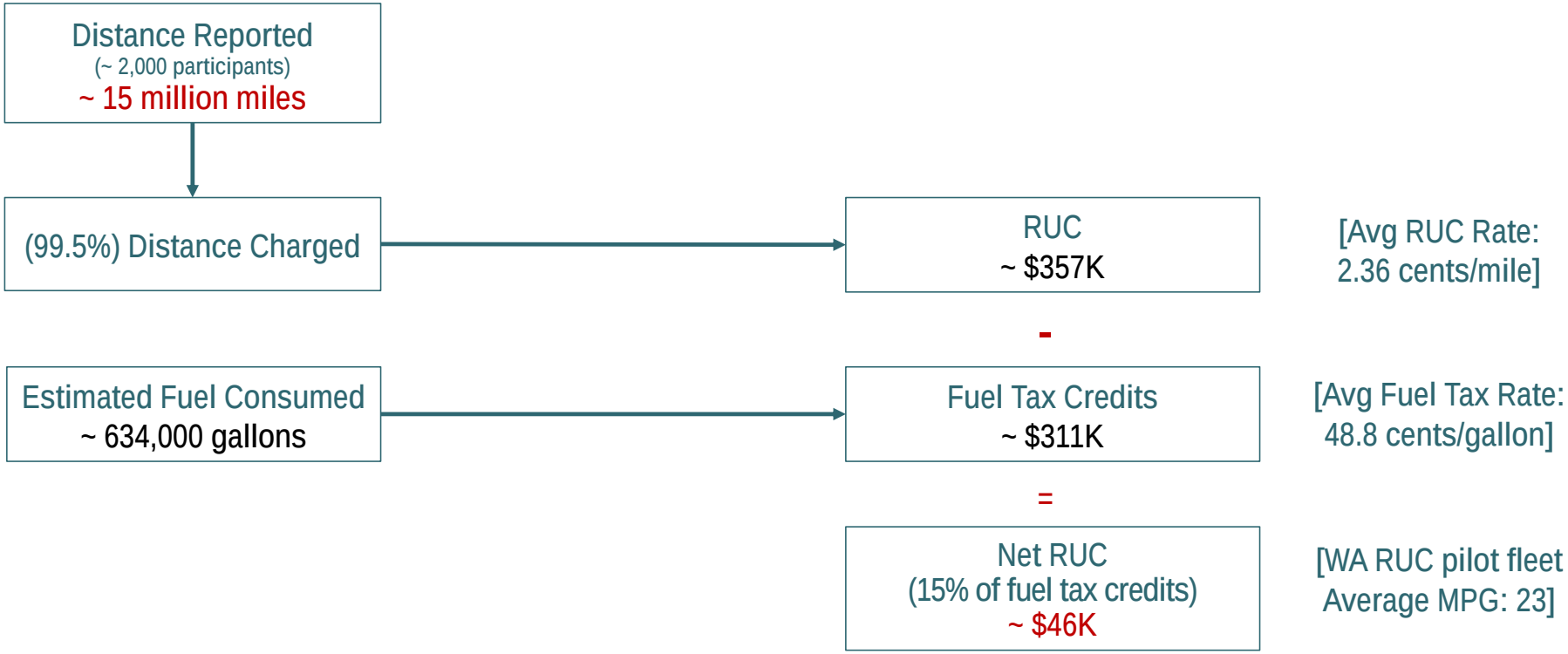
Participant vehicle enrollment overview



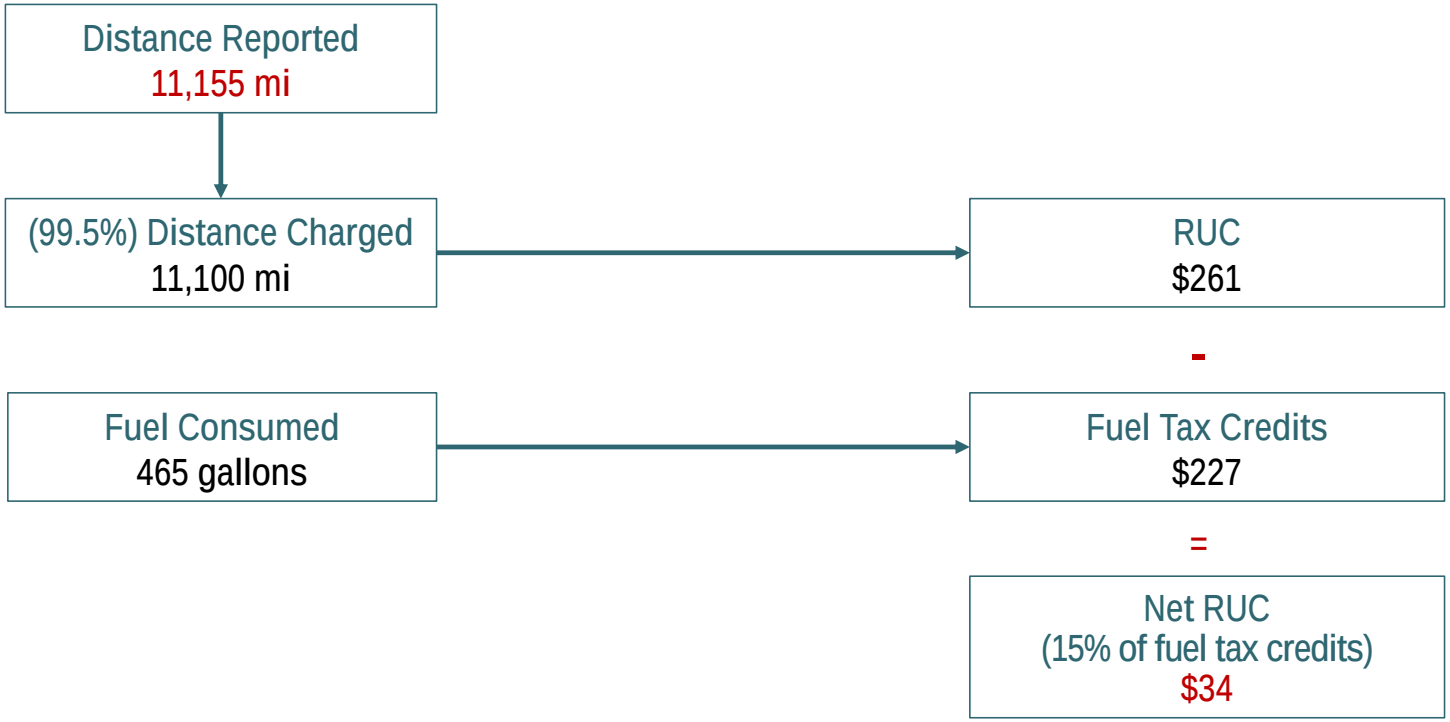
Overview of vehicle propulsion type



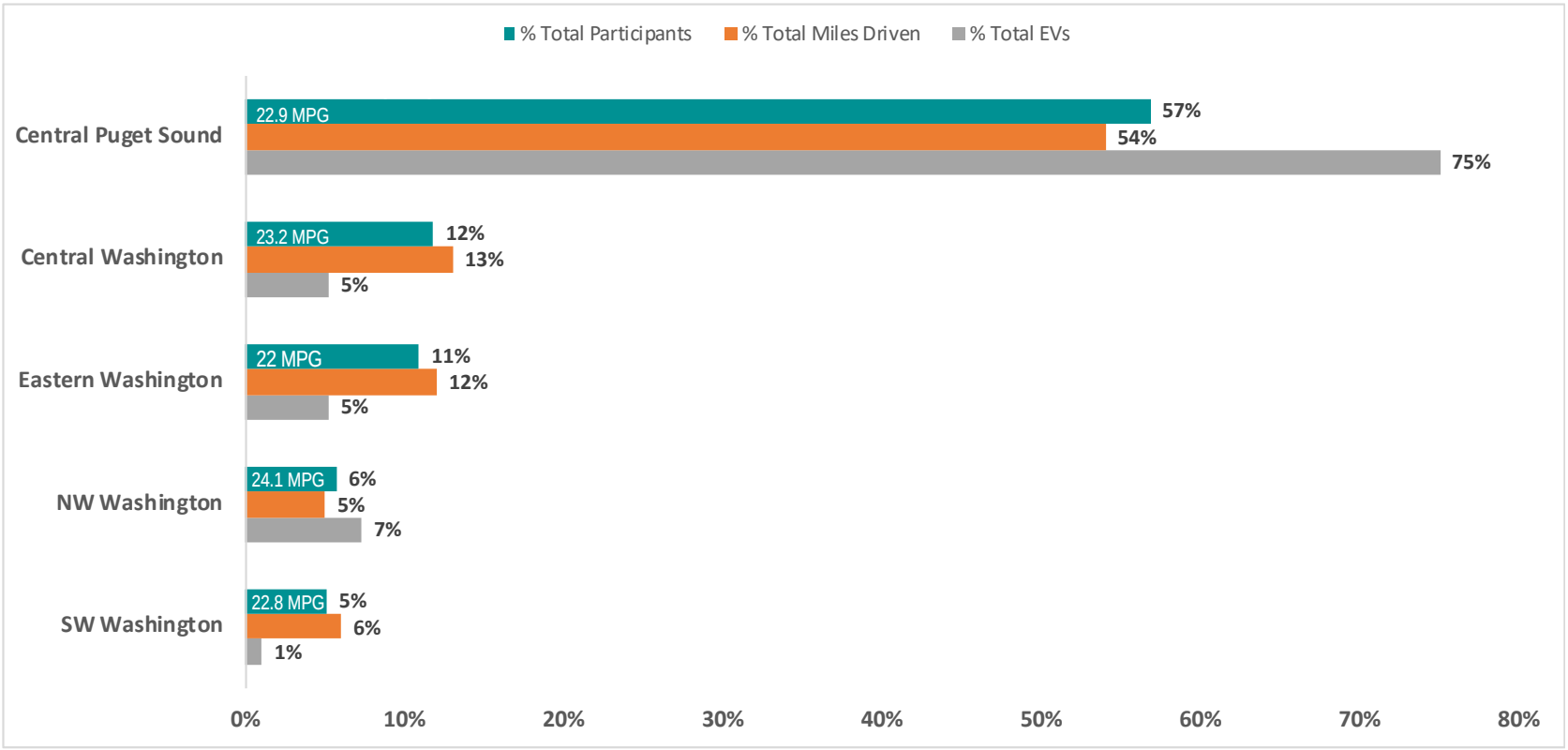
Mileage and revenue overview



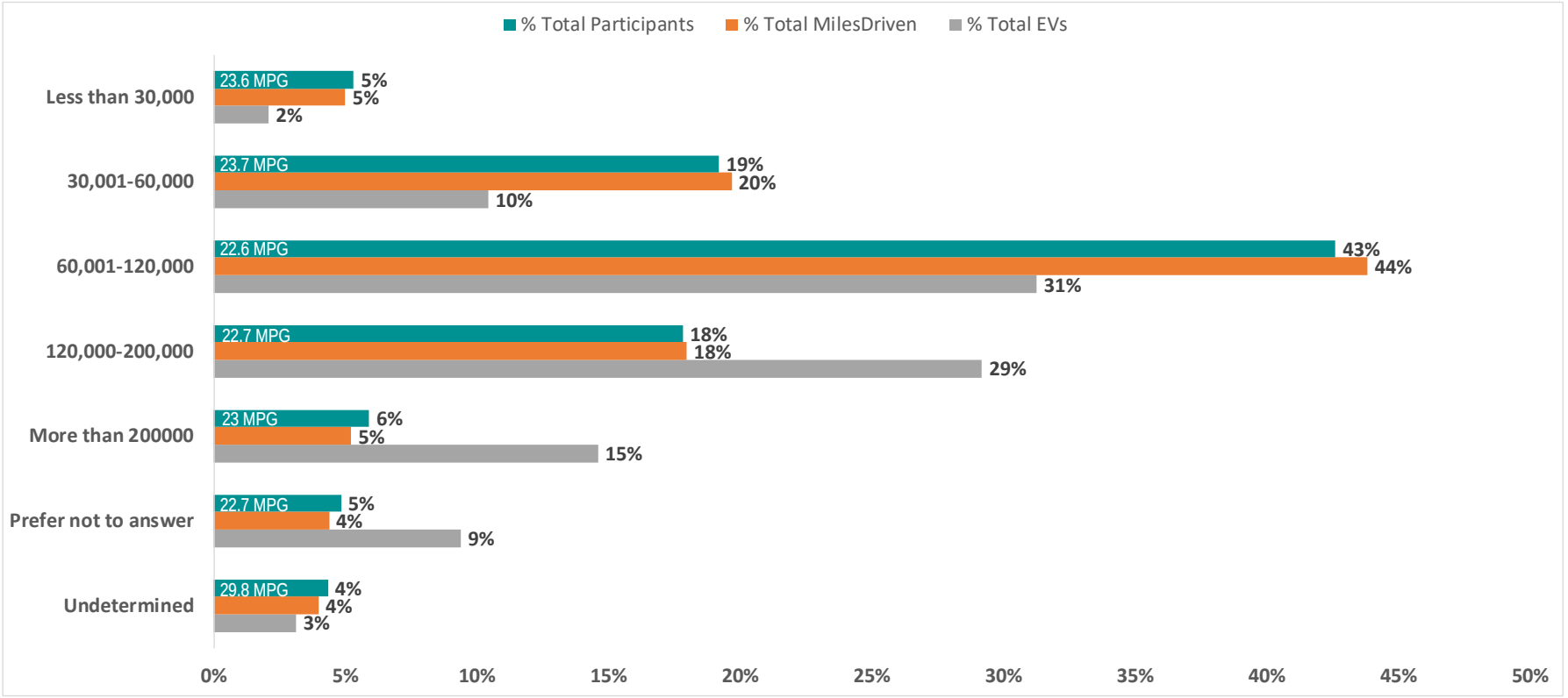
Mileage and revenue overview per vehicle



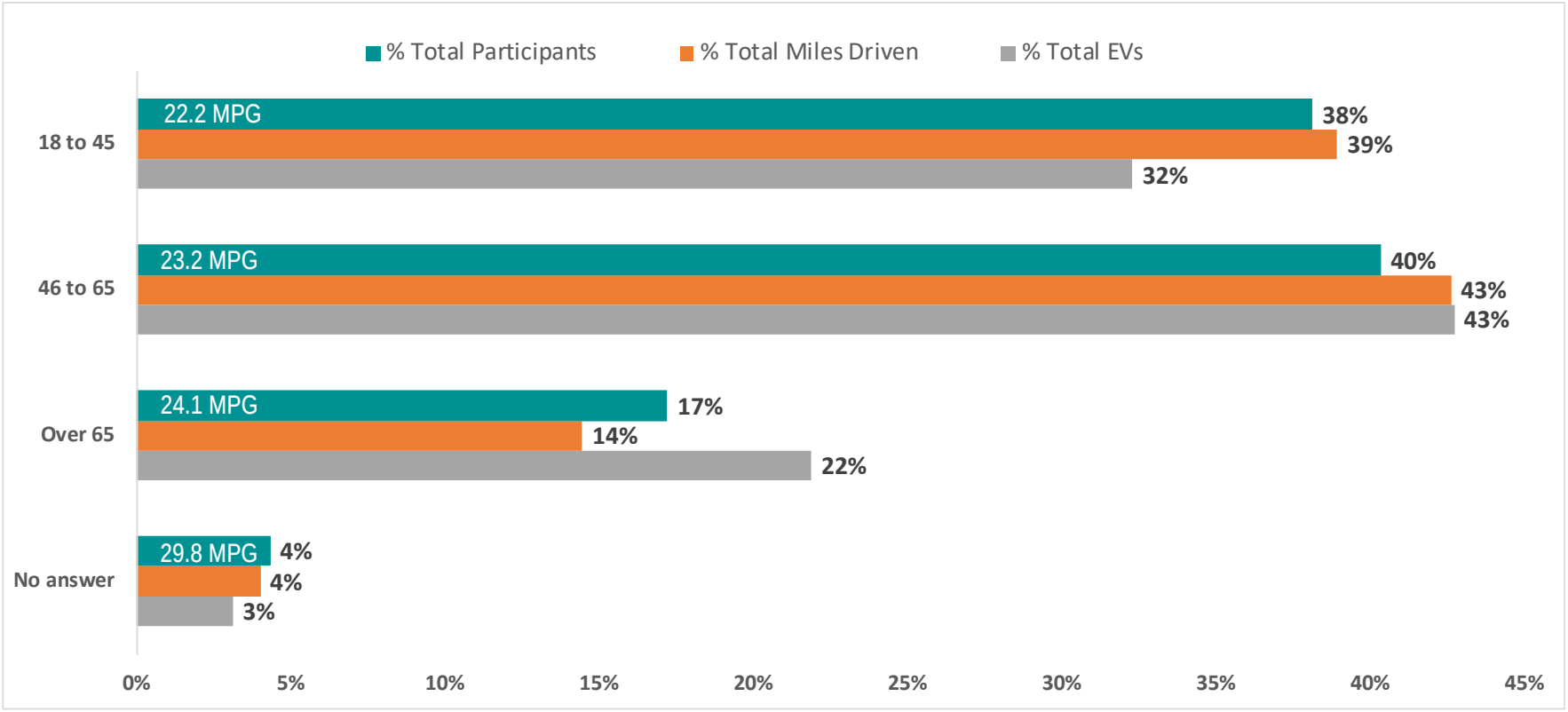
Distribution by region



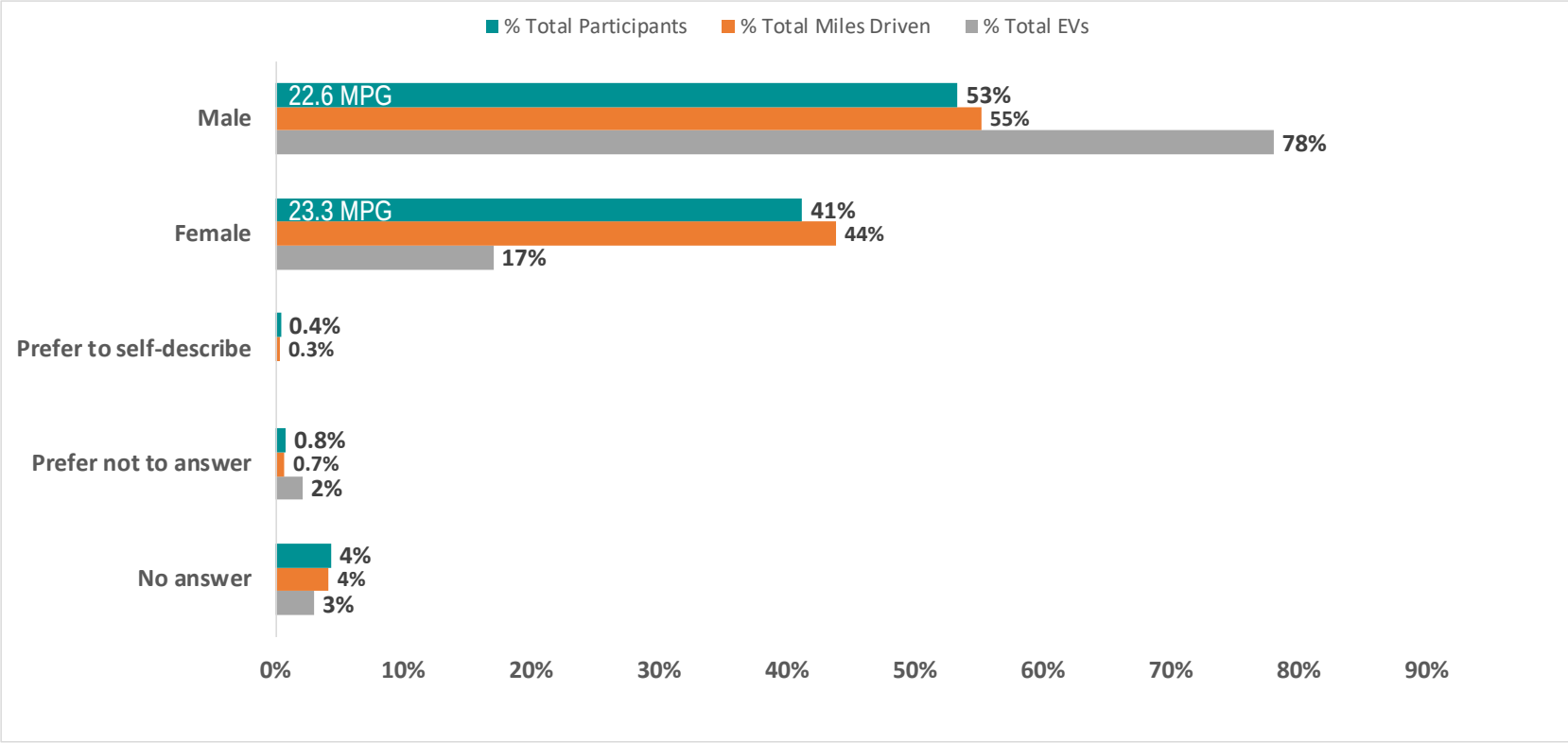
Distribution by income



Distribution by age



Distribution by gender



Distribution by race/ethnicity

IMPACT OF RUC ON ELECTRIC VEHICLE OWNERSHIP

Jeff Doyle
D'Artagnan Consulting

- PEV trends and statistics
- PEV consumer profiles
- Challenges to consumer adoption of PEVs
- Public policies influencing PEV adoption
- Calculating financial impacts of RUC on PEV drivers in Washington
- What did PEV drivers think about WA RUC?

Steering Committee's interest in this issue

Our starting point:

- National, regional, state and local targets for PEV adoption

What's required:

- New car buyers must choose to purchase plug-in electric vehicles (PEV) instead of gas-powered vehicles.

Issues presented:

- *Does RUC represent a significant barrier to consumer adoption of PEVs in Washington?*
- *If so, what might be done to mitigate or overcome the potential impacts of RUC?*
- *Do the mitigation measures constitute acceptable public policy tradeoffs?*

PEV Adoption: Targets, and Progress

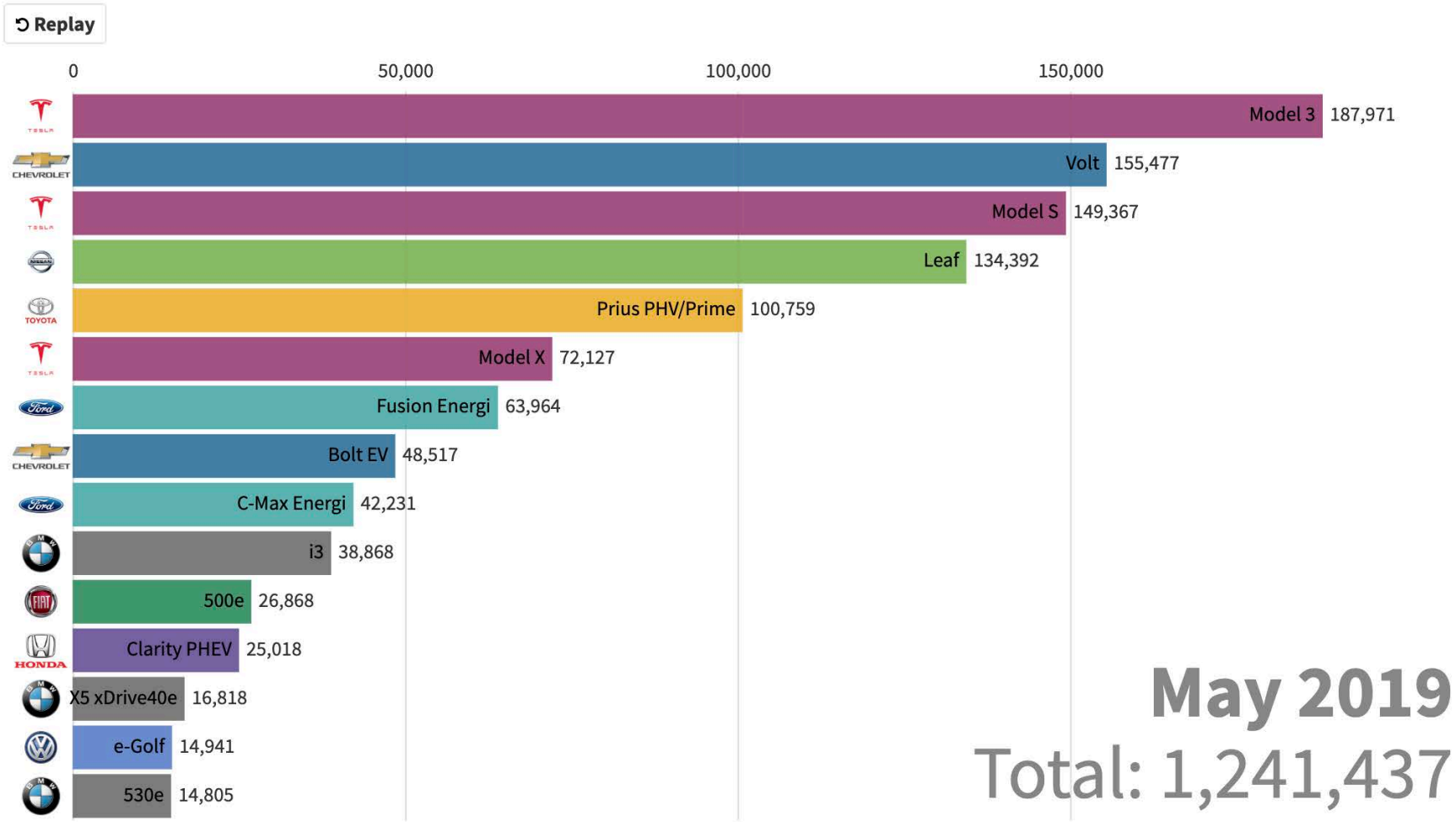
U.S.	1,241,437
Washington	42,542
City of Seattle	4,000

	2015	2020	2025	2030	2035	2040	2050
U.S.	1 mil						75% eVMT
Washington		**50,000**					
Norway			100%M				
California			1.5 mil	5 mil			
Oregon			50,000				
ZEV states			15%M				
New York			851,855				
Rhode Island			43,596				
British Columbia				30%M			
City of Seattle				**30%R**			
Los Angeles			25%R		80%R		100%R
Israel				0%ICE		100%R	
U.K.						100%M	

M = percentage of new vehicles sold (market share)
R = percentage of total vehicles registered in the jurisdiction
ICE = percentage of new vehicle sales of internal combustion engine vehicles (gas-powered)

PEV trends and statistics

U.S. Plug In Vehicle Sales* Dec 2010 to Present



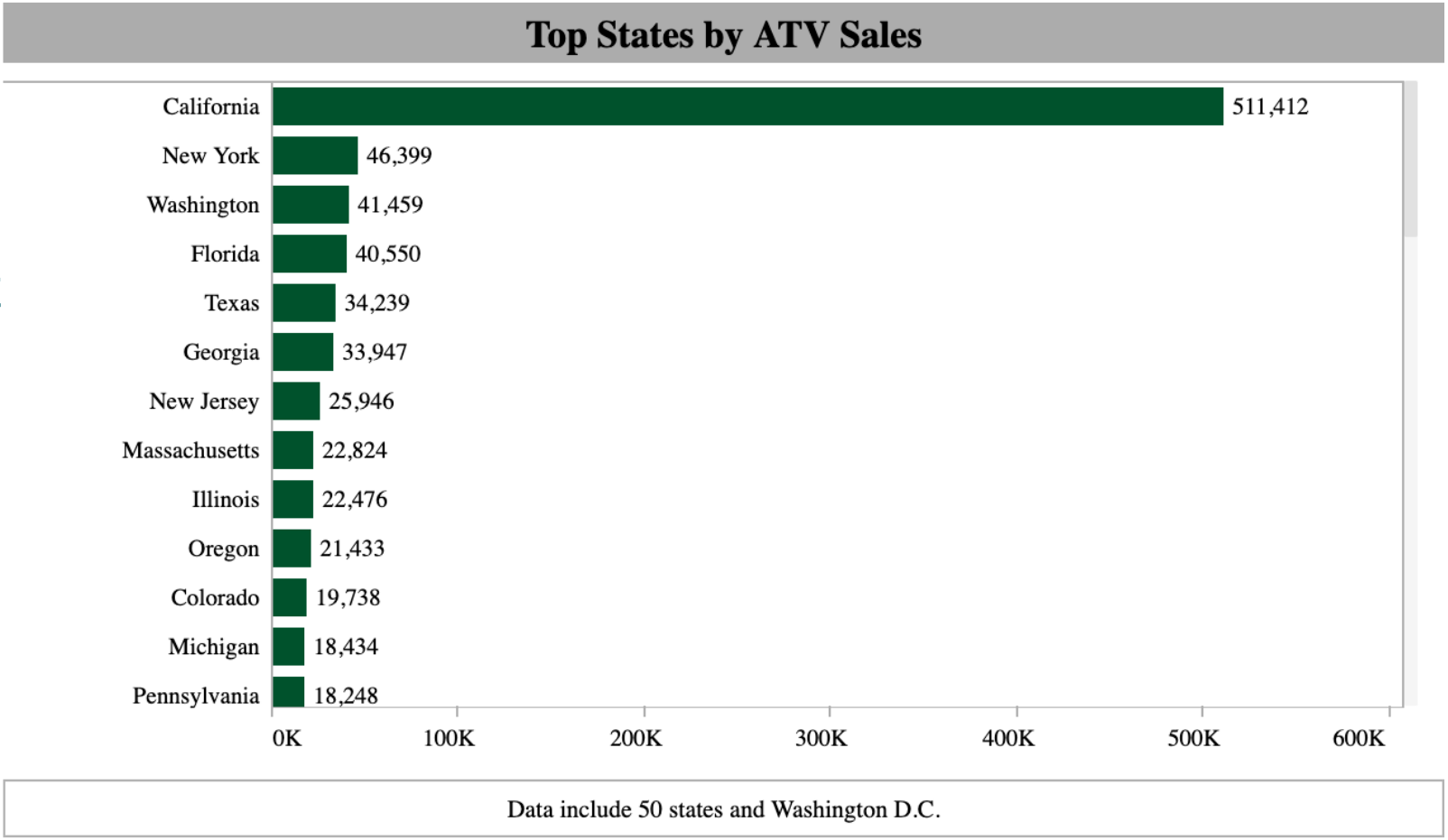
Source: InsideEVs

• *Some values are estimates. Please visit InsideEvs for details. Dec 2010 - Dec 2011 include estimates interpolated from Wikipedia. Prior to Dec 2010 includes 1,379 Tesla Roadsters as a baseline starting point.

US PEV Sales, 2012 - Present

https://public.flourish.studio/visualisation/374245/

PEV Total Unit Sales: Washington is #3 in nation

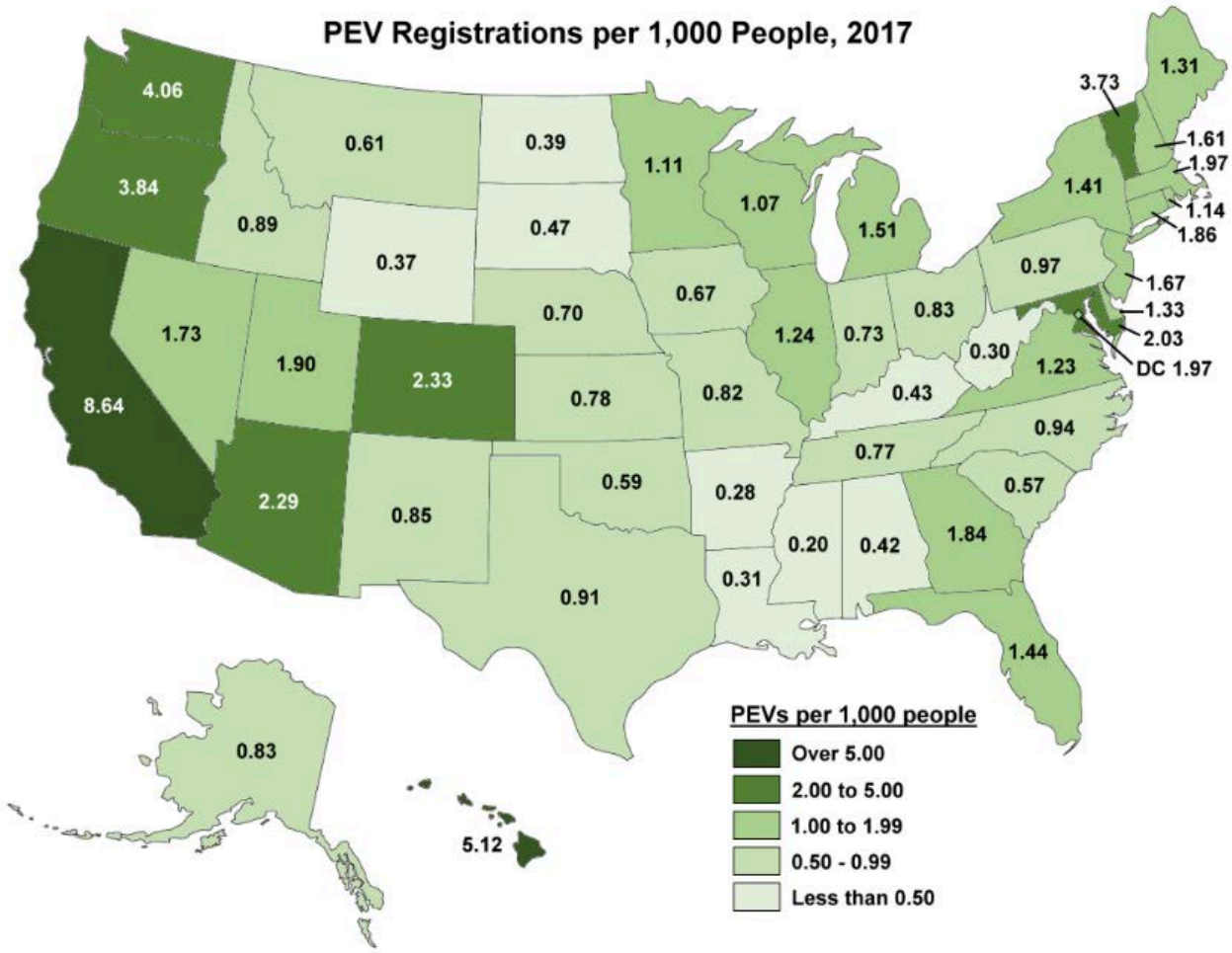


PEV Market Share: Washington is #2 in PEV adoption rate

State	EV Sales 2017	EV Sales 2018	2018-2017 YOY Sales Increase	2017 EV Market Share W/in State	2018 EV Market Share W/in State	2018 vs 2017 YOY Share % Increase
California	94,873	153,442	61.73%	5.02%	7.84%	56.18%
Washington	7,068	12,650	78.98%	2.51%	4.28%	70.52%
Oregon	3,988	5,976	49.85%	2.36%	3.41%	44.49%
District of Columbia	398	761	91.21%	1.87%	3.34%	78.61%
Colorado	4,156	7,051	69.66%	1.57%	2.61%	66.24%
Hawaii	1,934	2,296	18.72%	2.33%	2.59%	11.16%
Massachusetts	4,632	8,990	94.08%	1.35%	2.53%	87.41%
Connecticut	2,304	3,415	48.22%	1.39%	2.02%	45.32%
Total	187,985	328,118	74.54%	1.20%	1.96%	63.33%

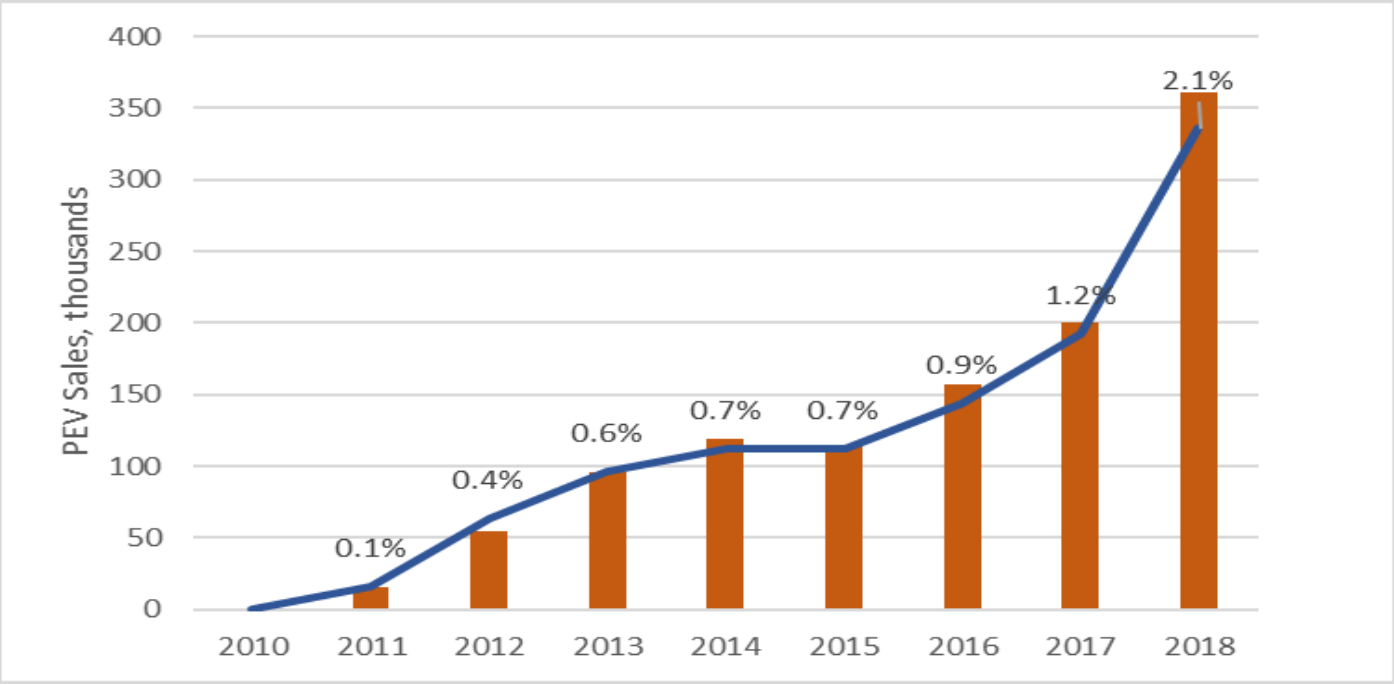
Source: EV Market Share by State, EVAdoption.com accessed June 24 2019

Washington #3 in PEV registrations per 1,000 people (2017)



Source: US Dept of Energy, Office of EERE, FOTW #1059, December 10, 2018

Growth in PEV sales in U.S., 2010 - 2018



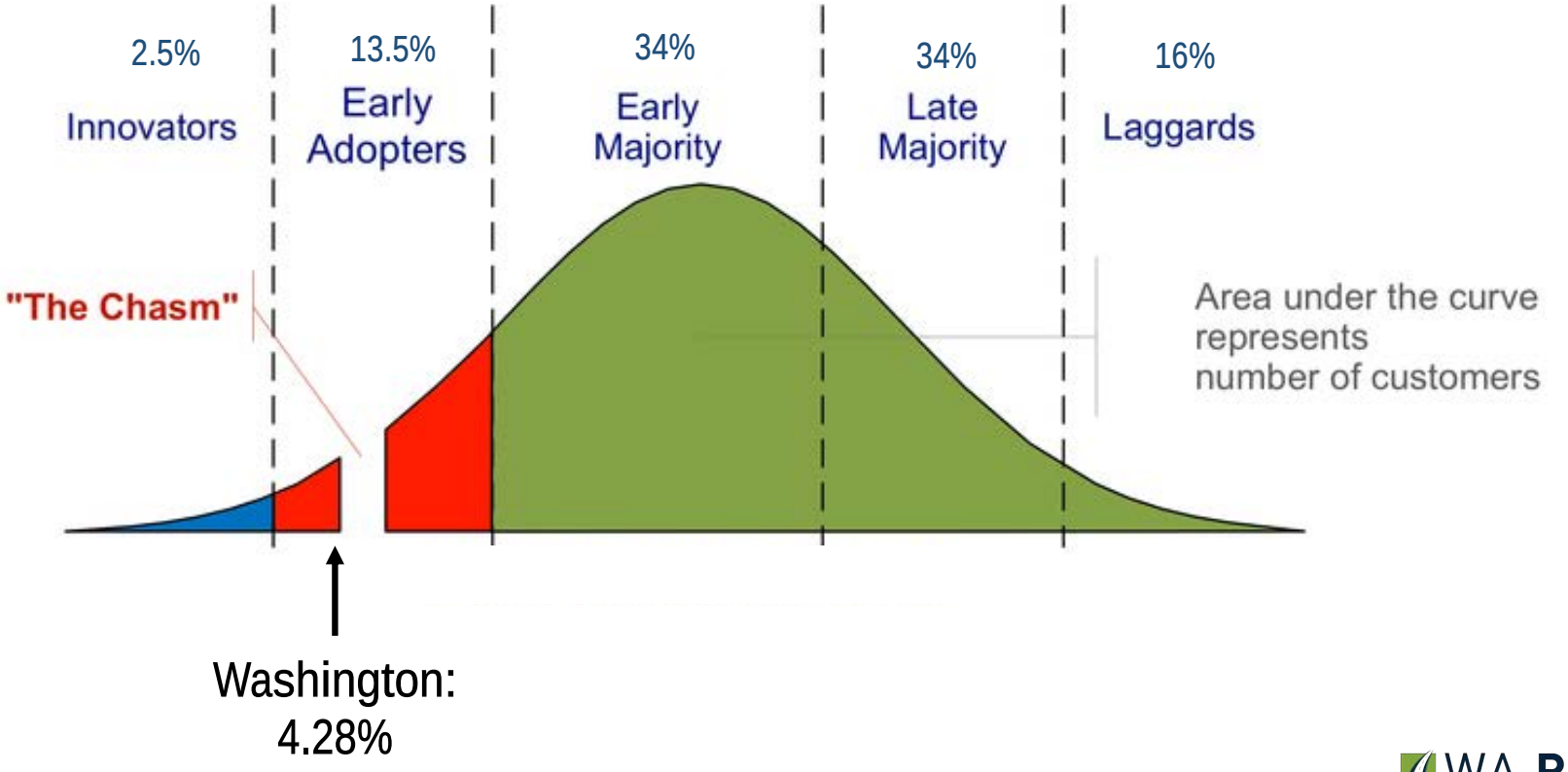
[Source: https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/]

Observations

- ✓ Washington will achieve its 50,000 PEV short-term goal in late 2019 or early 2020
- The ZEV states are not on pace to meet their 15% market share target by 2025
- Nationally, the transition to PEVs is happening at a slower pace than *might* be needed to achieve 75% electric vehicle miles traveled (eVMT) by 2050.
- However: it is still far too early to tell if this can be achieved – a lot can happen in 30 years (or even 10 years).

PEV purchaser profiles

Innovation adoption curve



Consumer traits: Innovators (or enthusiasts)

- Are technology enthusiasts or lovers,
- Are willing to buy early release versions even if product quality or reliability are not yet proven or established.
- Want to work with developers and infrastructure providers to improve new products, as source of pride in their own techno-intelligence.
- Are important segments for endorsement about viability of the new innovation category.
- Are not a large enough market segment to be a long-lived or significant source of revenue.

Source: *Overcoming Barriers to Deployment of Plug-in Electric Vehicles, Chapter 3, Understanding the Customer Purchase and Market Development Process for Plug-in Electric Vehicles*. National Academies of Science Press (2015)

Early Adopters (or Visionaries)

- Are less concerned about price and more motivated by psychological benefits, such as visibility of their purchase in their peer group.
- Are more affluent, cosmopolitan, and, typically younger than other categories.
- Are willing and motivated to address early market development problems, including service and infrastructure challenges, which when solved, become a source of pride.
- Are generally considering or comparing purchases not within the product category (for example, with a different vehicle make or model) but with some other major purchase.

Source: *Overcoming Barriers to Deployment of Plug-in Electric Vehicles, Chapter 3, Understanding the Customer Purchase and Market Development Process for Plug-in Electric Vehicles*. National Academies of Science Press (2015)

Early Majority (or Pragmatists)

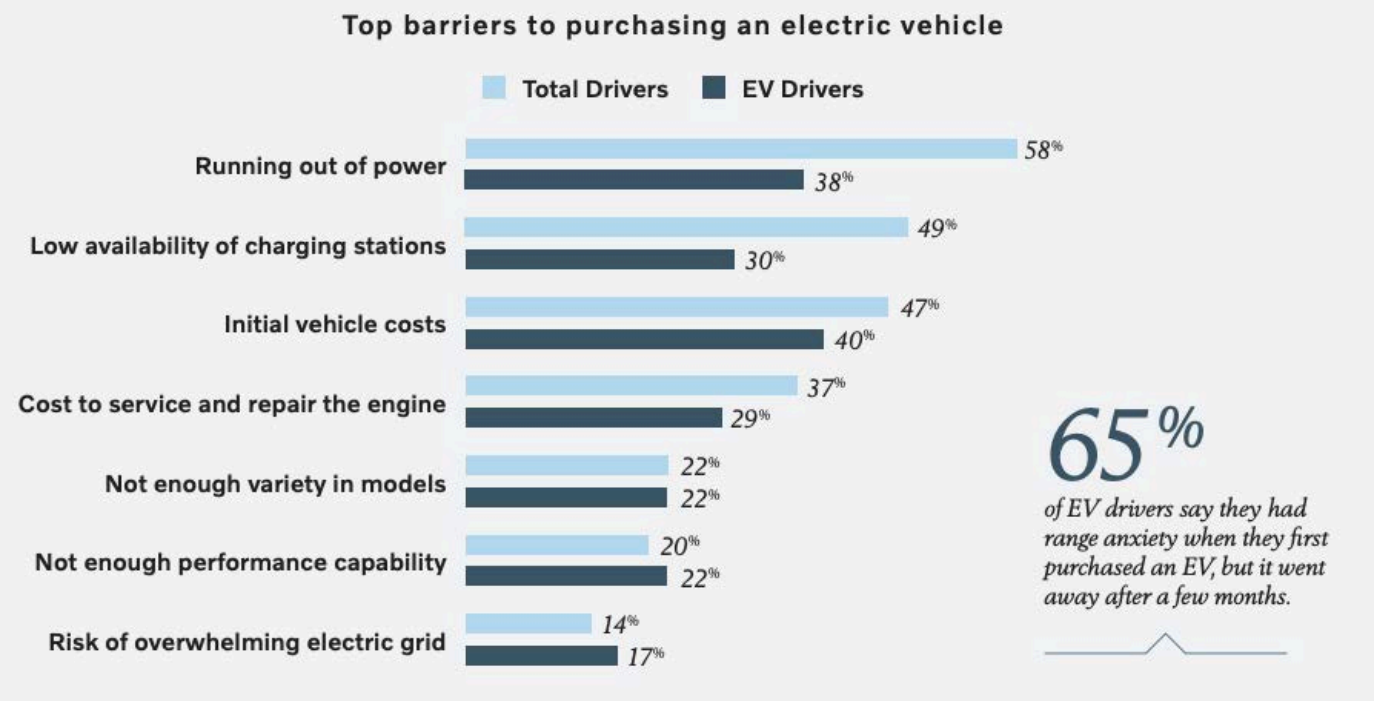
- Are very concerned about value (benefits received relative to price paid).
- Want to evaluate several different models or options within the product category.
- Are willing to purchase only when all elements of the requisite infrastructure are in place.
- Want hassle-free solution that performs as promised.
- Are not willing to tolerate anxiety or doubt.
- Are first sizable segment of the market by volume.

Source: *Overcoming Barriers to Deployment of Plug-in Electric Vehicles, Chapter 3, Understanding the Customer Purchase and Market Development Process for Plug-in Electric Vehicles*. National Academies of Science Press (2015)

Challenges to consumer adoption

Barriers to purchase: EV Drivers vs. non-EV Drivers

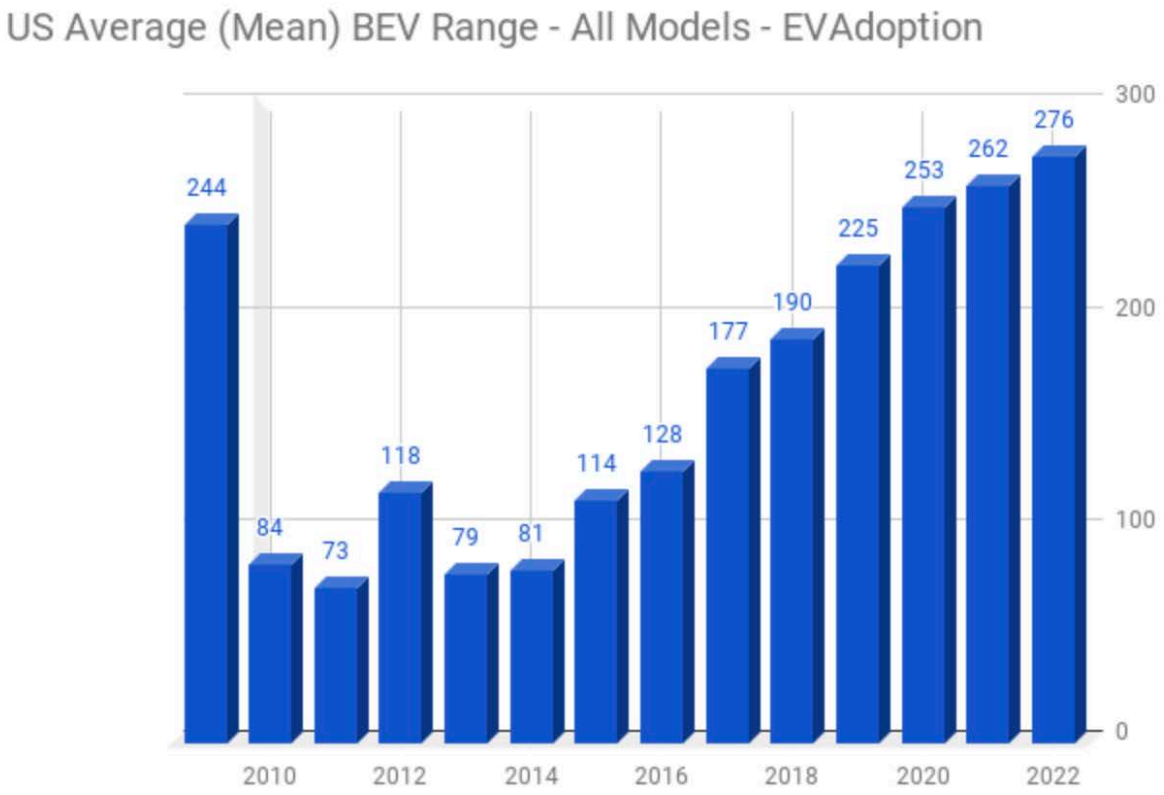
The top barrier to PEV purchase: range anxiety



Source: Harris Poll commissioned by Volvo USA, October 11-17, 2018 of 1,510 US drivers ages 18 and older.

"Running out of power": battery capacity and PEV range is increasing

- Average PEV range increased from 81 miles in 2014 to 190 miles in 2018 (2019 LEAF: 225 miles)
- Battery range increases average 17% per year
- Each PEV model update provides an averages 38 miles of additional range



Source: EVAdoption.com October 1, 2018

“Low availability of charging stations”: a case of Range Anxiety

- Public charge spots are growing substantially
- Many tools aimed at “reassurance”:
  - tow trucks that can charge PEVs
  - Small, portable chargers that can provide a little extra juice to get the PEV to the nearest charge point
  - Smartphone and dashboard apps that show nearby, available charge points and whether the car will get there

TEPCO Study: strategically-located fast charge stations alleviate Range Anxiety

Source: Tokyo Electric Power Company (TEPCO)

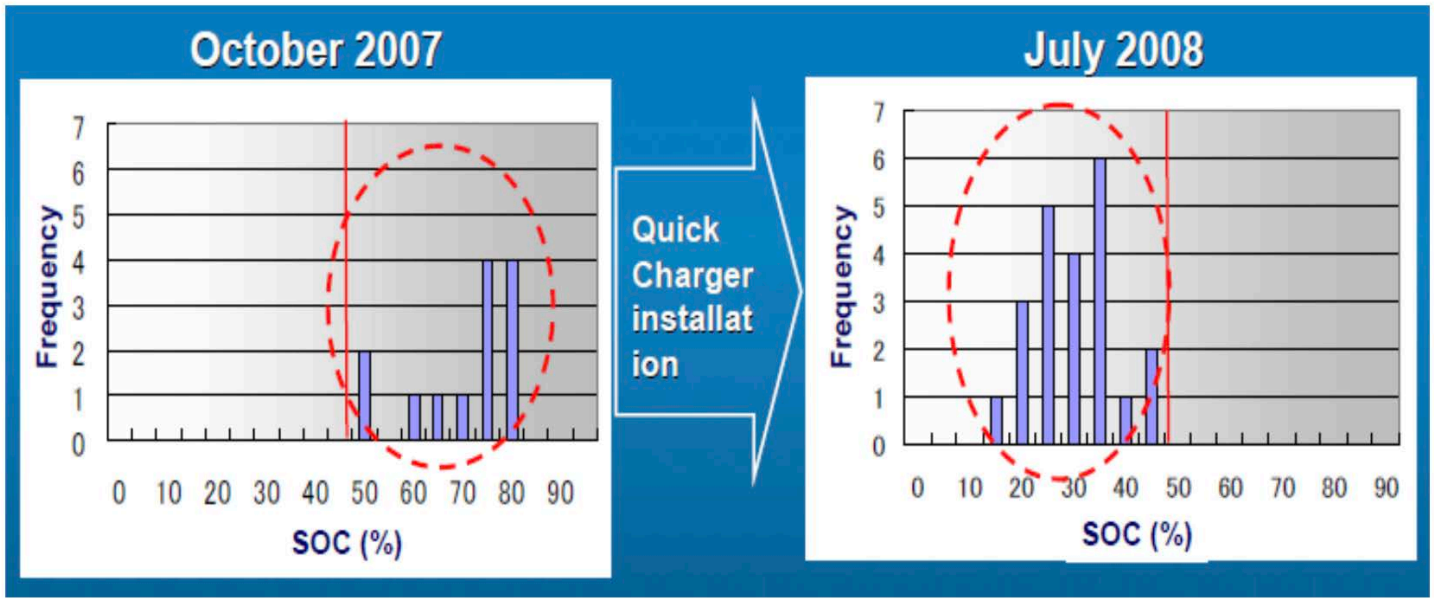
PEV usage before installation of Fast Chargers

Source: Tokyo Electric Power Company (TEPCO)

PEV usage after installation of Fast Chargers

Source: Tokyo Electric Power Company (TEPCO)

PEV drivers were more confident driving PEVs once *fear* of running out of power was alleviated



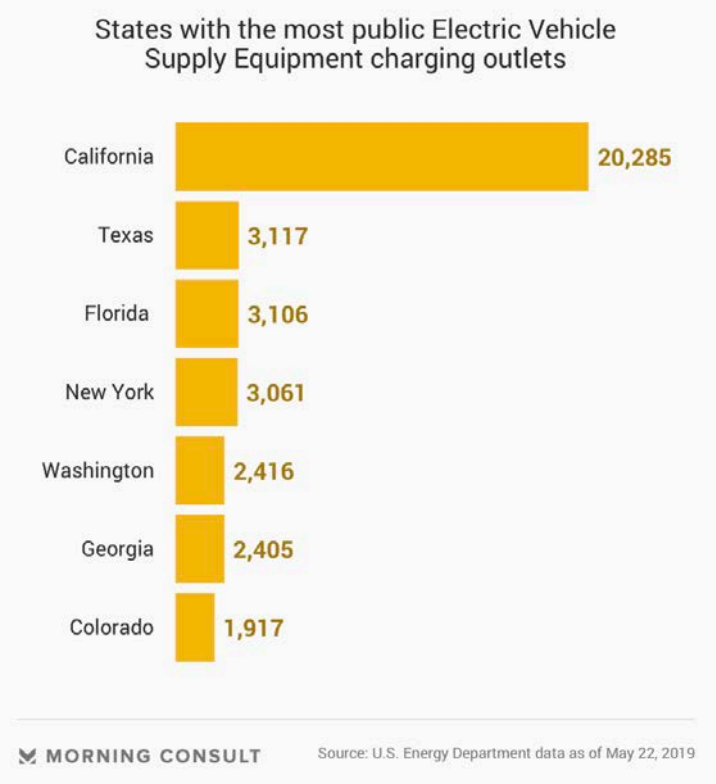
Drivers returned EV's with > 50% SOC

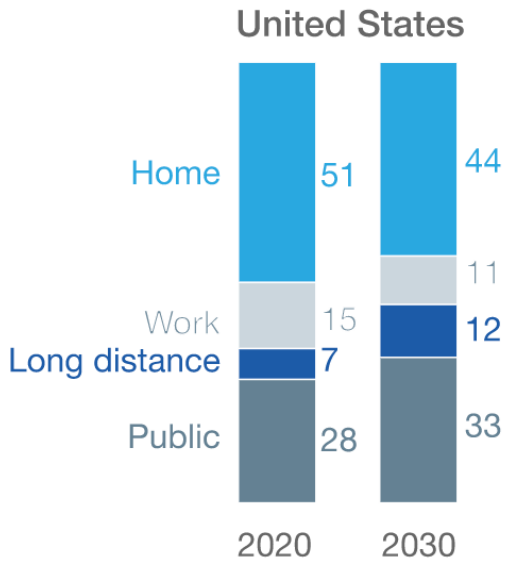
Drivers returned EV's with < 50% SOC

Source: Tokyo Electric Power Company (TEPCO)

Source: Tokyo Electric Power Company (TEPCO)

More public chargers are still needed – but the number is growing fast



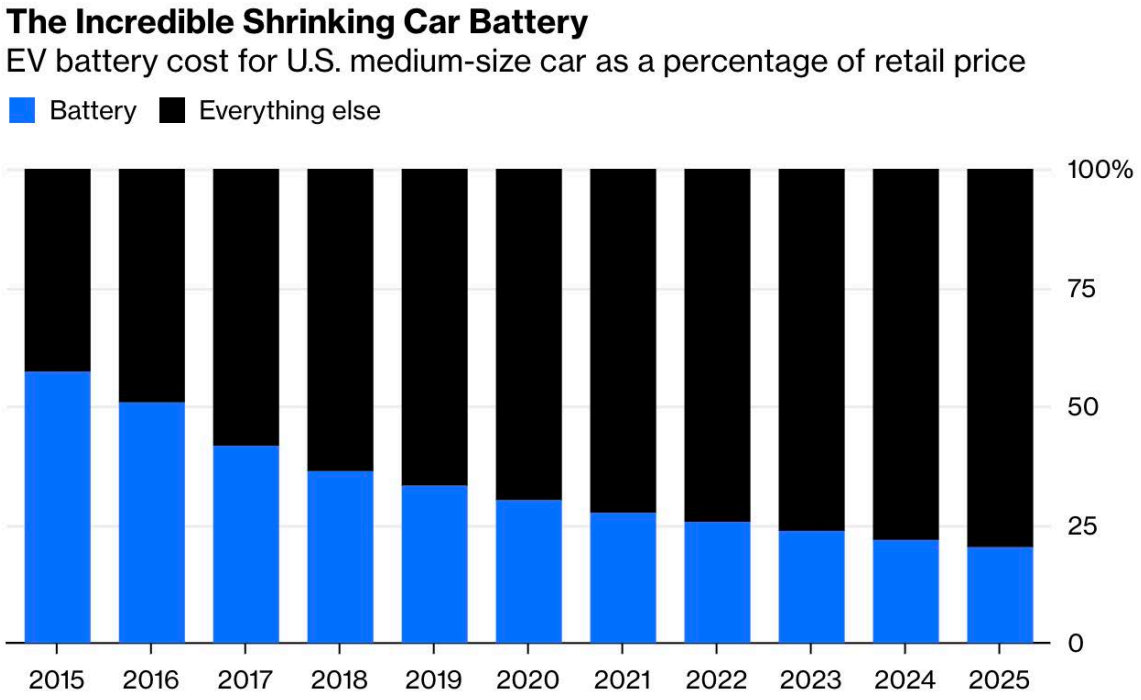


Public-centered scenario,
% of kilowatt-hours
Source: McKinsey Center for Future Mobility (McKinsey & Co. analysis)

"Initial vehicle cost": Purchase price difference between PEVs and gas vehicles

2018 Ford Focus:
$17,950 MSRP

2018 Ford Focus Electric:
$29,120 MSRP



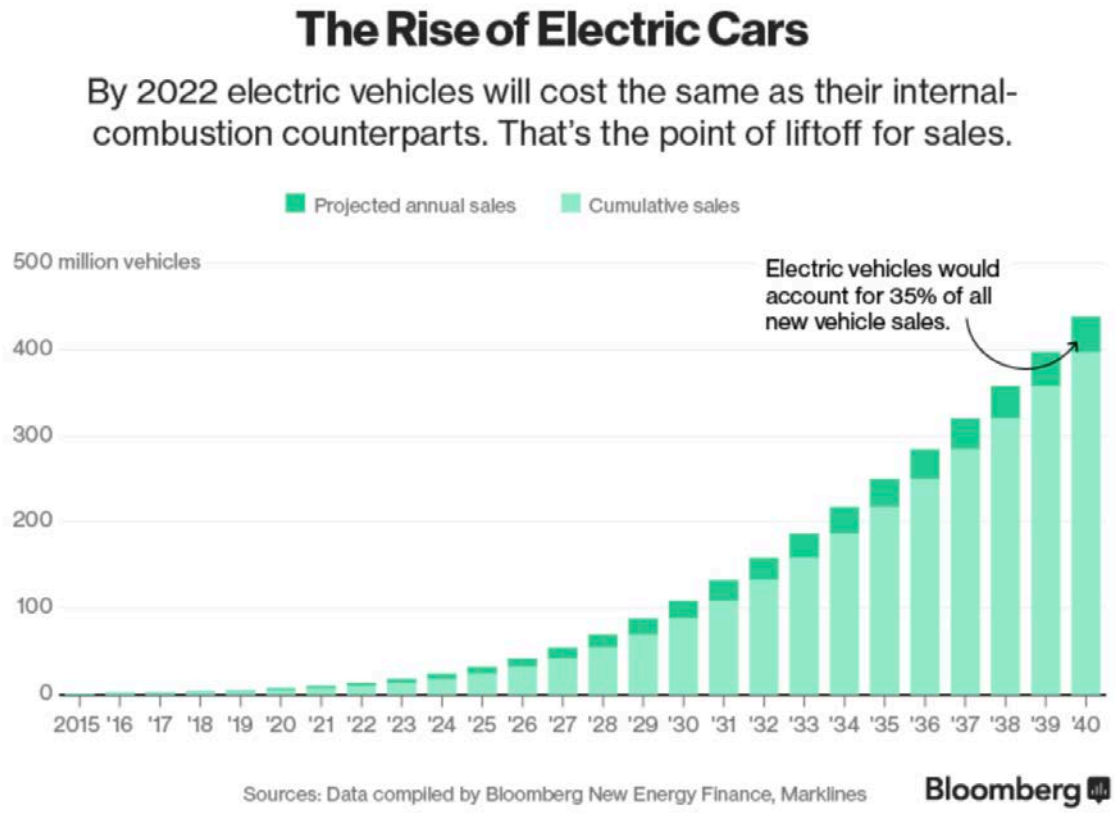
Source: BloombergNEF
Note: Includes profit margins and costs other than direct manufacturing costs.

Crossover point: when PEVs become cheaper than ICE (gas) vehicles

2017 Bloomberg Forecast: crossover point will be 2026

2018 Bloomberg Forecast: crossover point will be 2024

2019 Bloomberg Forecast: crossover point will be **2022**



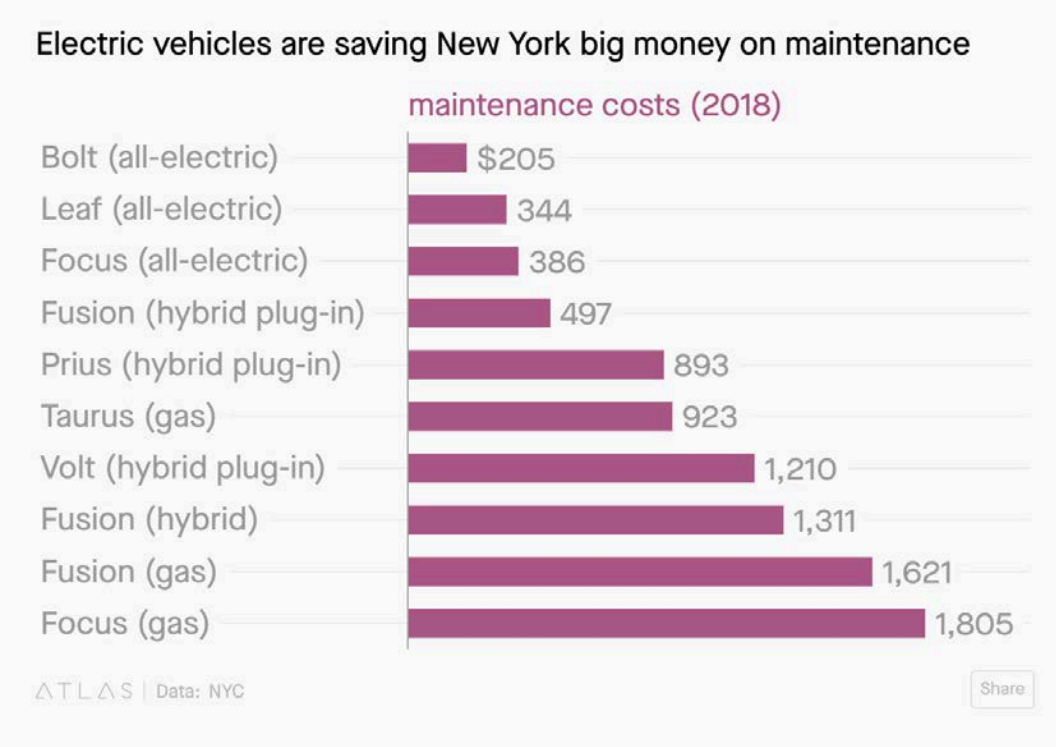
"Cost to service and repair the engine": Concerns -- and misconceptions -- about PEV technology

- Unfamiliarity and/or misconceptions about how PEVs work ("engine repairs?")
- How long will my battery last, and how much will it cost to replace?
- Where can I get my PEV serviced?

"Cost to service and repair the engine": concerns -- and misconceptions -- about PEV technology

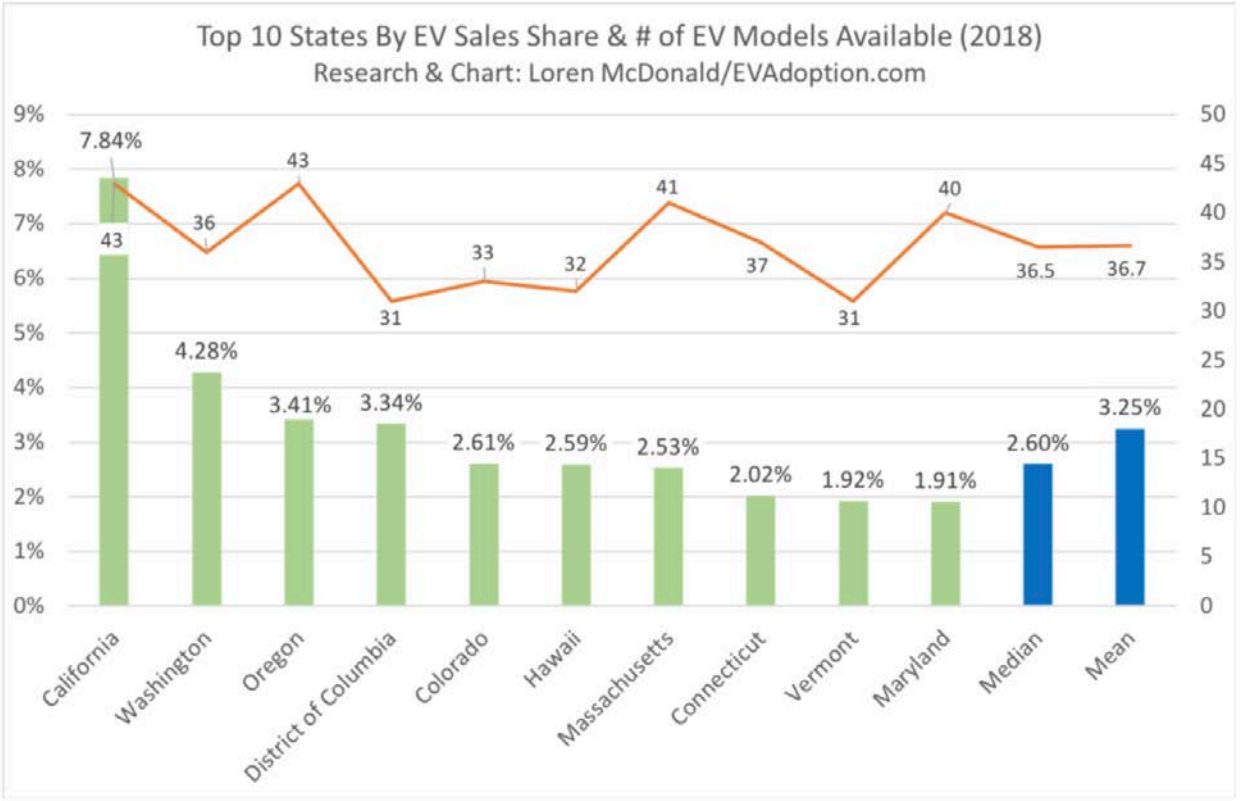
PEVs don't require:

- Oil changes
- Fan belt replacements
- Air filter replacements
- Timing belt replacements
- Head gasket repairs
- Cylinder head repairs
- Spark plug replacements



Data from City of New York; graphics published in *Quartz*, March 18, 2019

“Not enough variety in available models”: current PEV models in U.S.



Source: EVAdoption.com

“Not enough variety in available models”: the future PEV models in U.S.

17% of new vehicle sales are pickups

Pickup trucks were the most popular new vehicles sold in 31 states

Rivian R1T pickup. ETA: late 2020

Tesla pickup. ETA: ?

Source: USA Today and Kelley Blue Book

Public policies influencing PEV adoption

What would make PEVs more attractive to consumers?

Non-PEV drivers were asked: What would increase your likelihood to purchase a PEV?

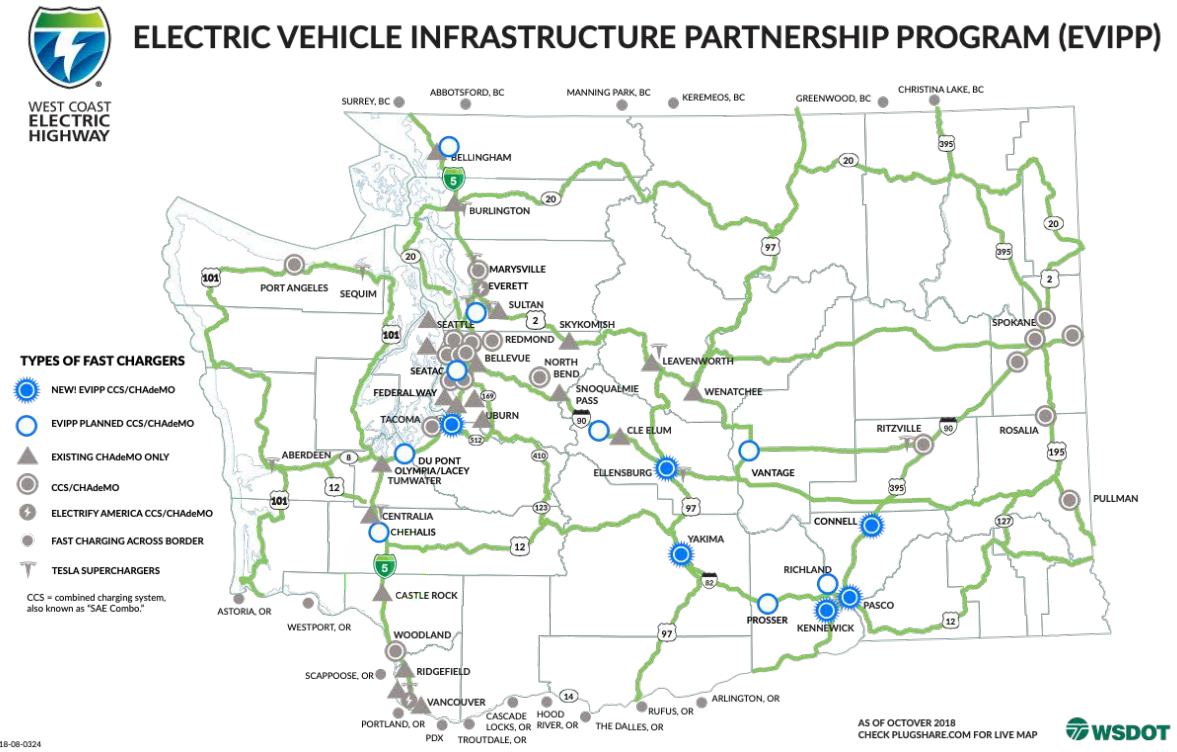
1. More charging stations (61%)
2. Same price as a traditional vehicle (57%)
3. Government financial incentives (41%)
4. Trying it for 30 days before buying it (40%)
5. Manufacturer providing a gasoline or hybrid car to switch out (32%)
6. Charging the vehicle wirelessly
7. Styling similar to traditional vehicles (26%)

Source: Harris Poll commissioned by Volvo USA, October 11-17, 2018 of 1,510 US drivers ages 18 and older.

1 More charging stations: Washington is a leader in public sector support for charging

West Coast Electric Highway: DC Fast charging network throughout Washington and the west coast ("BC to Baja")

- $1 million annual grant program for EV fast-charging and hydrogen fueling stations
- Co-investment from local governments, non-profits and private sector
- Funding provided from a portion of the annual fee on PEVs



1 More Charging Stations: additional public policies to expand number of PEV charging stations

State incentives for PEV charging stations:

- Electric Vehicle Infrastructure Partnership Program: $1 M annually to match partnership funds to install DC Fast chargers
- Sales tax exemption on the installation of electric vehicle supply equipment (and on the equipment itself)
- Leasehold tax exemptions on land used for PEV charging stations
- Public utilities permitted to invest in PEV charging stations (and allows additional 2% rate of return)
- Tax credits for businesses to purchase and install alternative fueling equipment (including PEV charging)

Select local government incentives for PEV charging stations:

- Seattle City Light: installation of 20 public fast-charging stations, plus Level 2 (240 volt) charge points at locations throughout Seattle
- Tacoma City Light: 5-year pilot program to allow installation of PEV charging points along residential streets
- City of Bellevue owns and operates15 public-use charging stations.

2 Same price as traditional vehicle: making gas-powered vehicles more expensive

Norway:
Cost of an ICE (gas-powered) vehicle vs. electric vehicle

Almost 60% of new cars sold in Norway in March 2019 were PEVs

New ICE vehicle sales are banned beginning in 2025

	Volkswagon Golf Cost in Euros	Volkswagon e-Golf Cost in Euros
Import price:	22,046	33,037
CO2 tax (113g/kg):	4348	0
NOx tax:	206	0
Weight tax:	1,715	0
Scrapping fee:	249	249
25% VAT	5,512	0
Retail price:	**34,076€**	**33,286€**

[Source: https://elbil.no/english/norwegian-ev-policy/]

3 Government financial incentives: make PEVs vehicles less expensive

Sample of government financial incentives in other countries:

- China: tax incentives range between $5,000 to $8,500 USD; in addition, local authorities can offer up to 50% of the national incentives, bringing cost parity between a PEV and ICE vehicle.
- Japan: gradually higher subsidies are offered based on increases in battery range. Subsidy tops out at $7,700 USD.

3 Government financial incentives: make PEVs vehicles less expensive

Federal PEV tax credits for consumers:

- $2,500 to $7,500, based on PEV's size and battery capacity. Credit phases out once a manufacturer reaches total sales of 200,000 PEVs.

State of Washington PEV tax incentives for consumers:

- 6.5% sales tax exemption for PEVs with a range of at least 30 miles. Only applies to vehicles MSRP of $45,000 or below. Maximum exemptions available:

Effective Dates	Sales Tax Exemption	Maximum Amount
Through July 31, 2021	6.5%	Applied to first $25,000 of purchase price
August 1, 2021 – July 31, 2023	6.5%	Applied to first $20,000 of purchase price
August 1, 2023 – July 21, 2025	6.5%	Applied to first $15,000 of purchase price

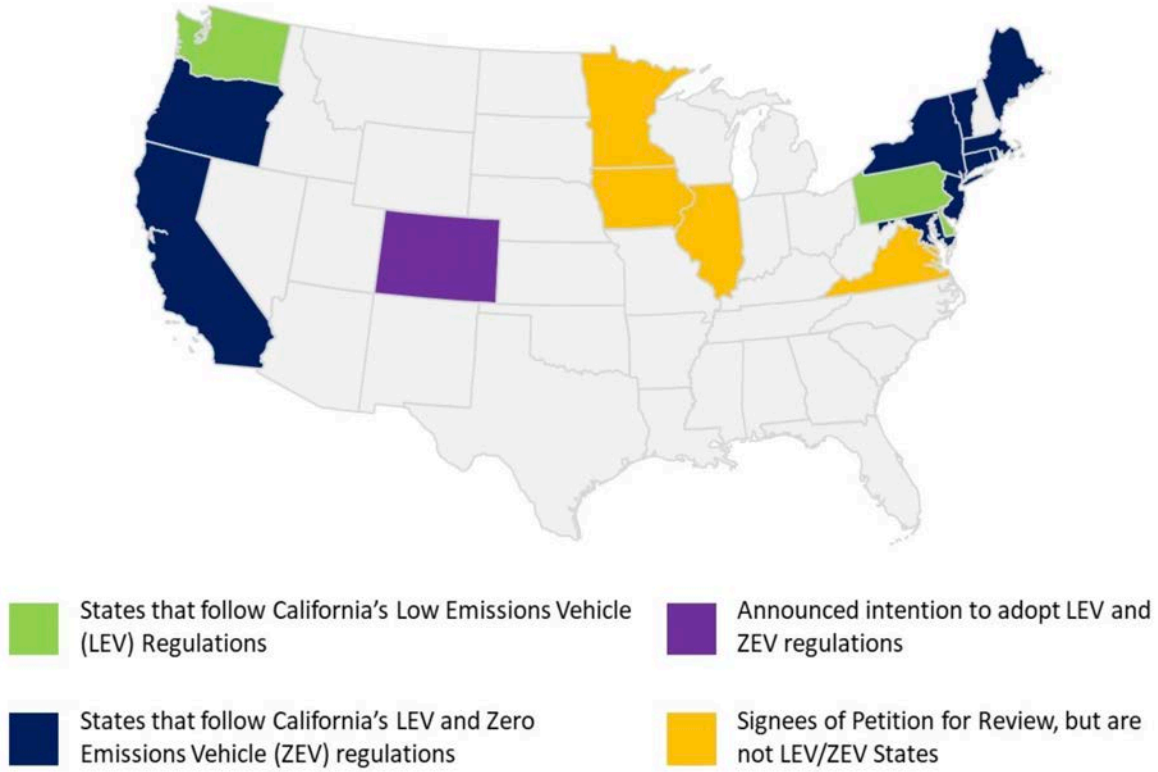
Other policies not mentioned: Federal CAFE and California vehicle emission standards

10 ZEV program states:

California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont (+ Colorado)

LEV program states:

Delaware, Pennsylvania, Washington



Source: Auto Alliance

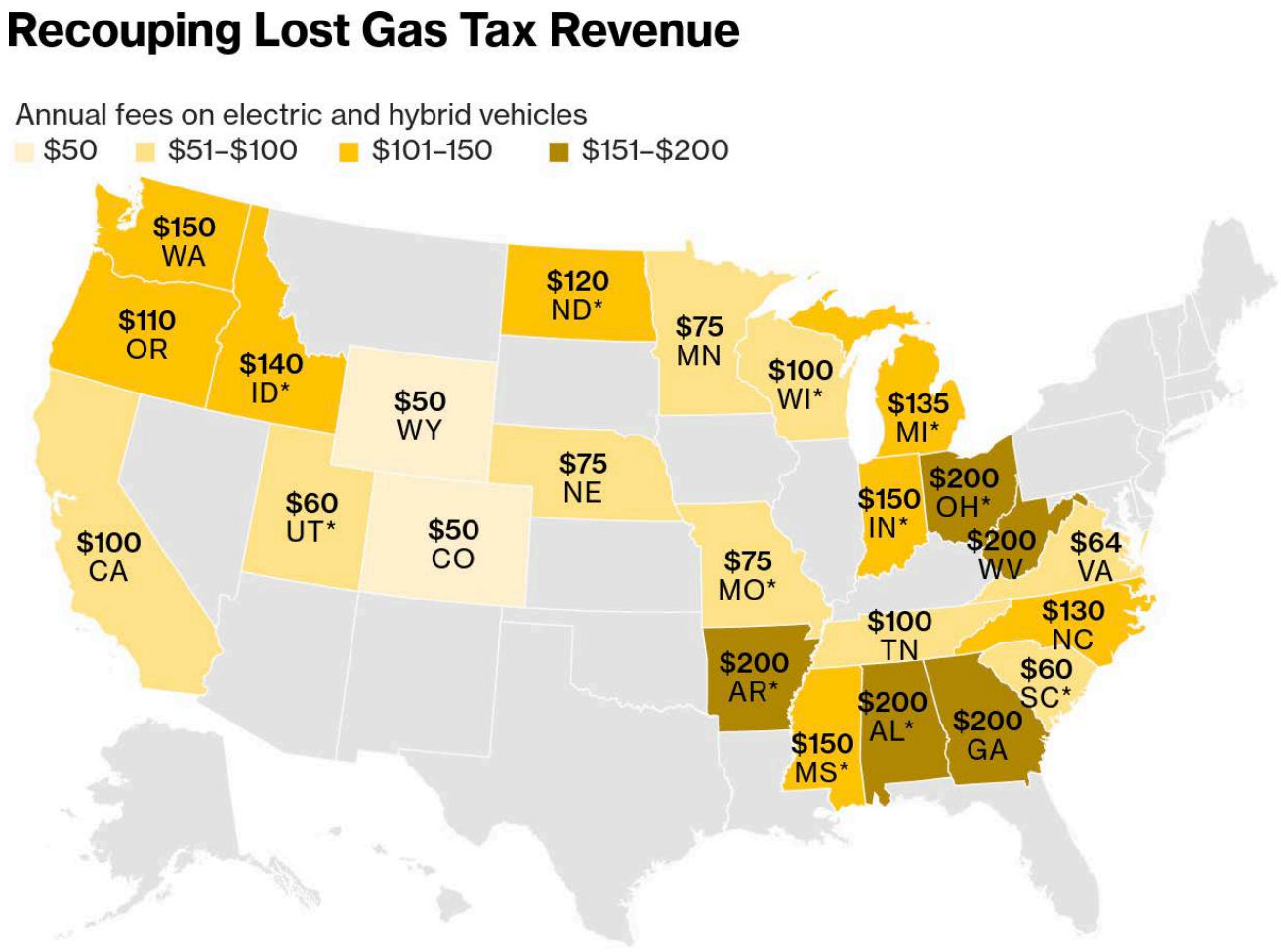
Other policies : providing other public amenities so drivers will consider buying a PEV

- *HOV lane access: available in some form in 12 states. Found to be a top reason for PEV purchase by CA drivers. Regulated or pared back in CA, VA and NJ over concerns about HOV lane efficiency.
- **Free on-street parking: offered by many cities and towns
- **Preferred parking spots: offered at many government buildings, shopping centers, stadiums, etc.
- **Free public charging: many public-access charging stations are offered at no cost
- *Free toll bridges and roads: free toll roads/ferries more common in other countries (Norway is now curtailing this). Free HOT lane access offered in CA (limited) and GA. NJ and NY offer 10% HOT lane discount.

*State government amenities shown in green. **Local government amenities in blue.

Calculating financial impacts of RUC on PEV drivers

To date, 24 states have imposed special fees on PEVs



As of May 2019. Graphic: Bloomberg (Source: National Conference of State Legislatures - NCSL)

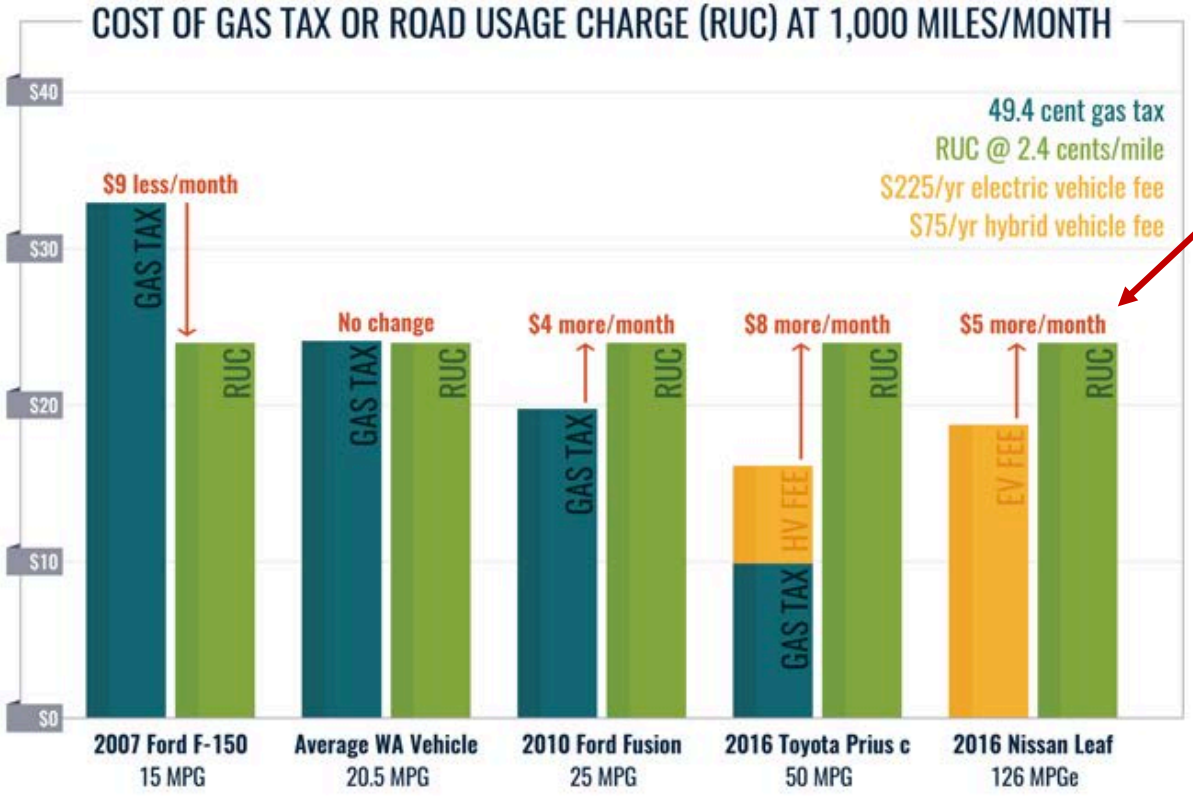
Amount, distribution and use of Washington's PEV annual registration fee

Fee Amount	Effective date	Where deposited	Eligible uses
$100	July 1, 2012	Motor Vehicle Fund (MVF)	Highway purposes. Specifically including RUC study
+ $50	July 1, 2015	$1 million to Multimodal Fund Remainder to MVF	$1 million for public-private partnerships to install charging stations in Washington. Remainder: Highway purposes.
+ $75	August 1, 2019 – June 30, 2025:	Electric Vehicle Account	Electric Vehicle Infrastructure Partnerships ($1M max per year); remainder for PEV and alternative fuel vehicle sales tax exemptions and projects
	After July 1, 2025:	Motor Vehicle Fund	Highway purposes

= $225 total*

*The law imposing PEV fees, RCW 46.17.323, expressly provides that if a mileage-based fee is enacted, the PEV fee would lapse.

Roadway taxes paid per 1,000 miles by gas, hybrid and electric vehicles



Assuming 12,000 miles traveled, in this example, PEVs would pay $60 more per year under a RUC than they do today in Washington (PEV fee).

However, according to 2017 NHTS data, the average PEV in the U.S. travels 7,000 miles per year.

Annual cost impacts of RUC on PEV drivers in Washington

Using the WA RUC pilot test rate of 2.4 cents per mile:

- PEVs will pay more under RUC than the annual PEV registration fee if driving more than 9,400 miles per year.

Based on average miles driven by PEVs in the US (7,000 miles):

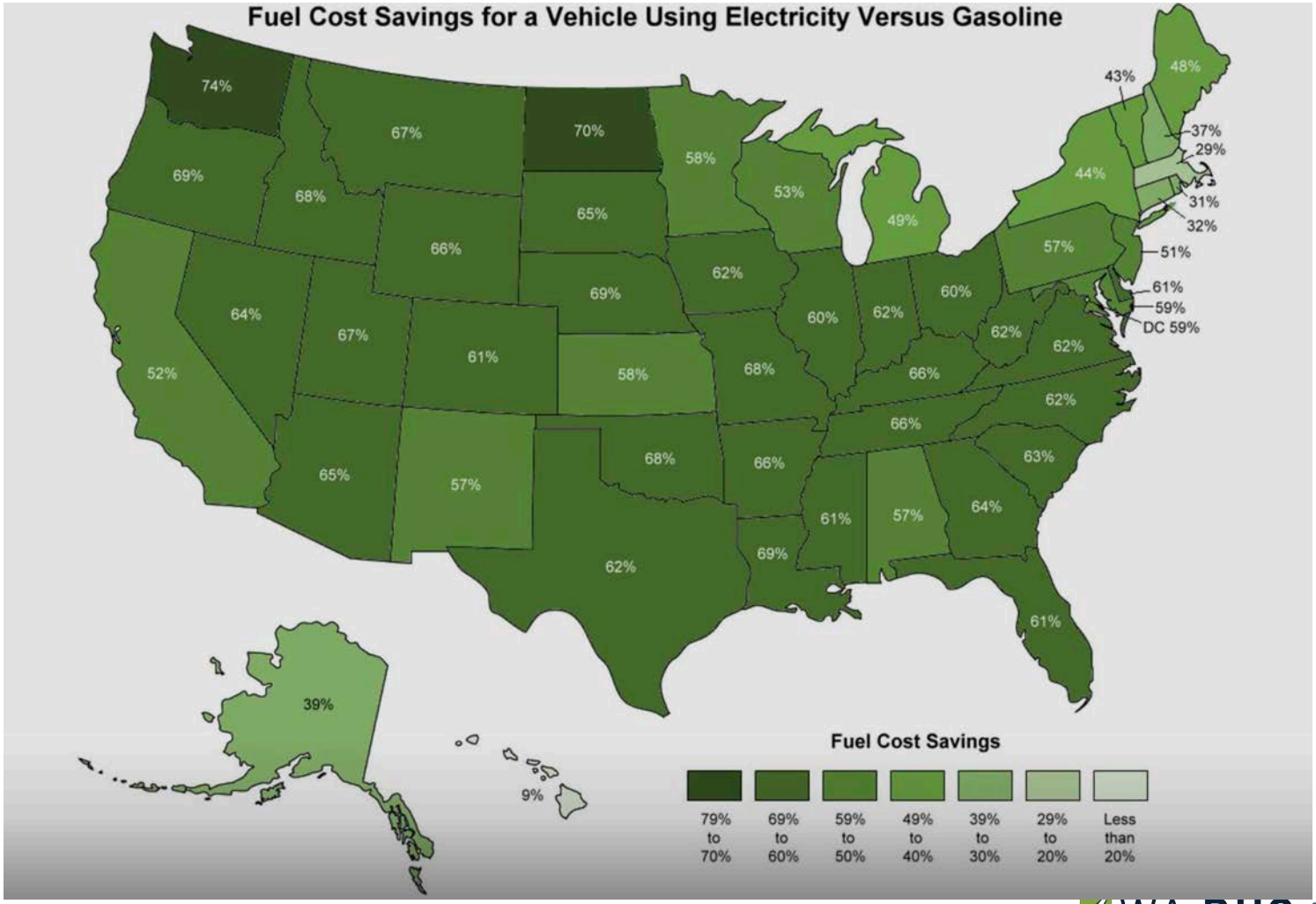
- Washington PEV drivers would pay $168 in RUC -- $57 *less* than the state PEV fee.

Based on WA RUC pilot data, BEVs reported an average of 8,450 miles. PHEVs reported 9,980:

- BEVs would have paid $203 per year under RUC -- $22 *less* than the PEV registration fee.
- The average* PHEV would have paid $239 per year under RUC, $14 *more* than the PEV registration fee.

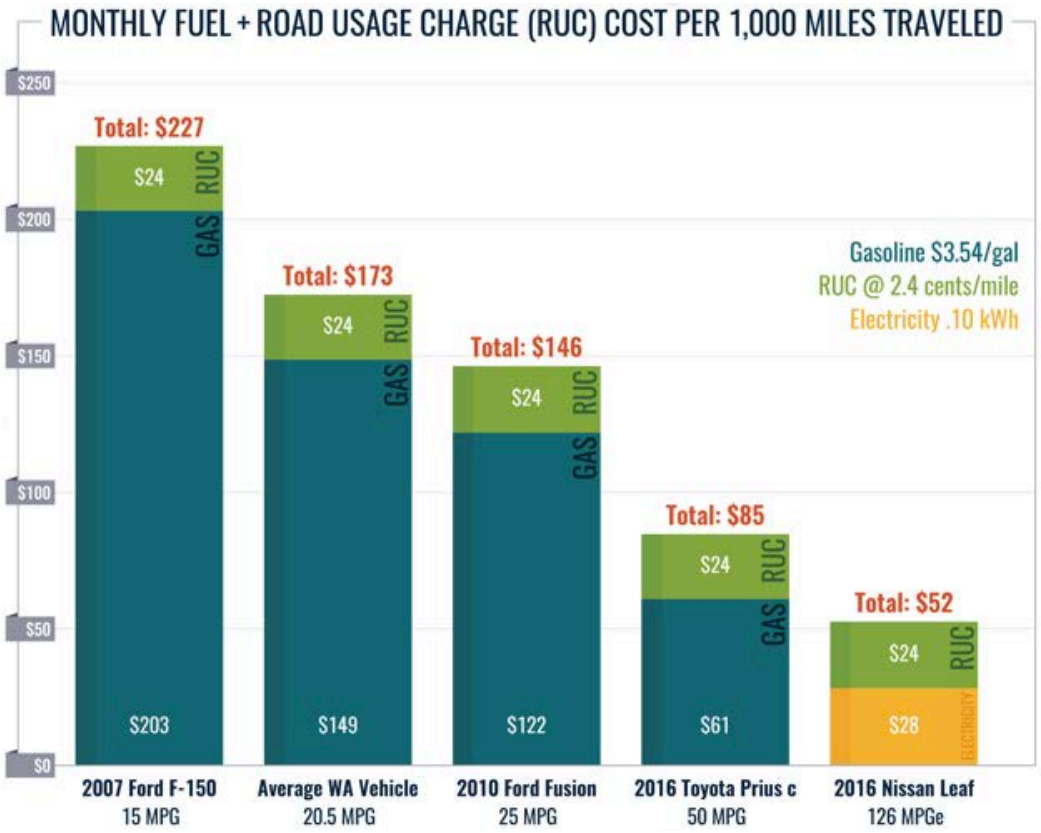
*NOTE: exact impacts on PHEVs varies by model, because some PHEVs have limited ranges in electric mode (e.g., 12 to18 miles), and would use gasoline (and pay the gas tax) for daily travel in excess of this range.

Washington has the greatest fuel cost savings advantage in the U.S. – 74%



Source: U.S. DOE, reported in greencarcongress.com

Even when paying RUC, PEVs still maintain a large operating cost advantage over gas vehicles



Cost comparison: Chevy Cruise vs. Chevy Bolt (PEV)

2019 Chevy Cruise Hatchback
(similarly equipped)

MSRP: $24,020
+ $2,186 sales tax of 9.1%

= total acquisition price: **$26,206**

2019 Chevy Bolt EV

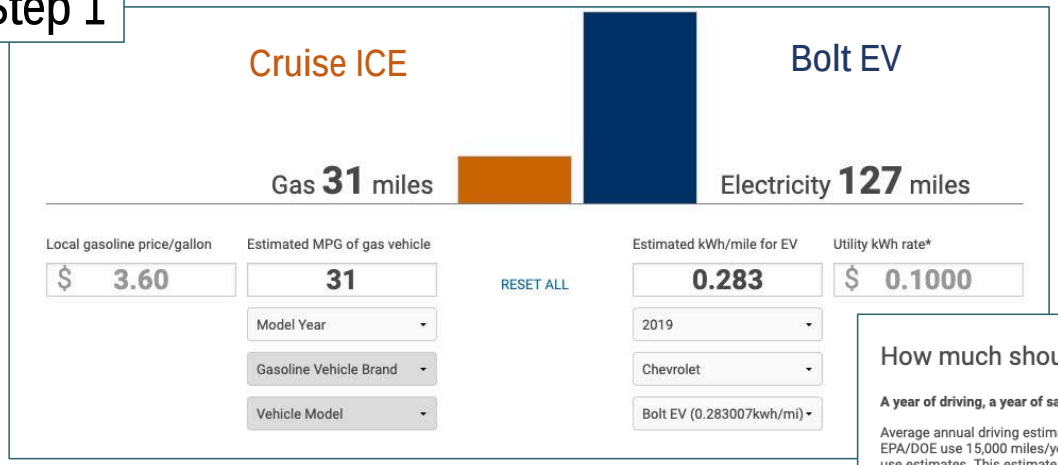
MSRP: $36,620
- $7,500 federal tax credit (rebate)
= $29,120

+ $375 sales tax (first $25,000 exempt from 9.1%)

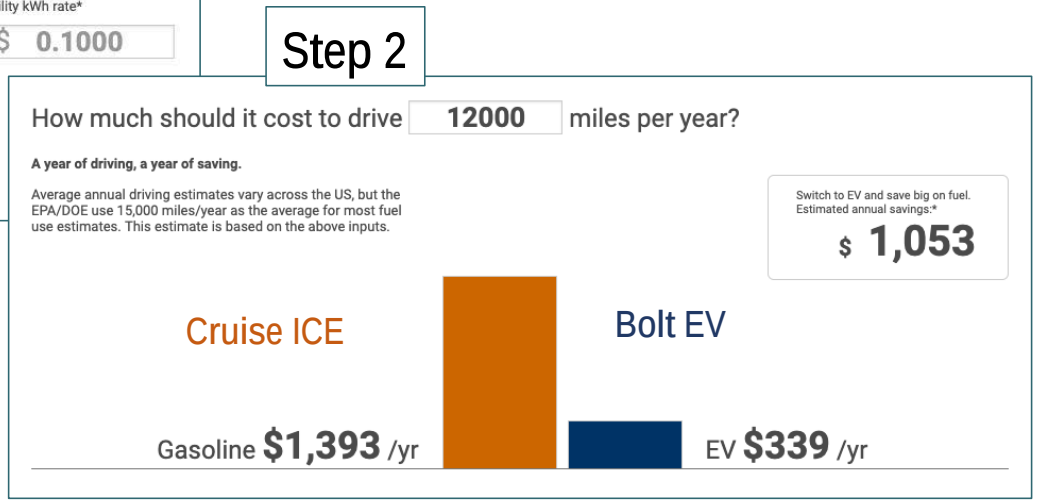
= total acquisition price: **$29,495**

PSE's Cost of Owning an Electric Car calculator

Step 1



Step 2



Puget Sound Energy Cost of Owning a PEV Calculator

5 Year cost of driving totals

Step 3

How much did it cost to drive for the last 5 years? **12,000** mi/yr

Understanding your savings potential.

Savings add up! The following cost and savings estimates are based on the information you've provided above. Think of all of the things you could do with potential savings like this.

Switch to EV and your 5 year savings could look like this:*

$ 5,269

Puget Sound Energy Cost of Owning a PEV Calculator

Cost comparison: Chevy Cruise vs. Chevy Bolt (PEV)

2019 Chevy Cruise Hatchback Premier
(similarly equipped)

Annual average miles: 12,000
MPG: 31 city/highway

Annual fuel costs: $1,393 (includes gas tax)

5-year fuel costs: $6,967 (includes gas tax but not RUC*)

Step 4

2019 Chevy Bolt EV

Annual average miles: 12,000
Annual fuel costs: $339 (+ $288 RUC) = $627

Acquisition price disadvantage = $ 3,289
5-year fuel costs: $1,697 (+ $1,440 RUC) = $ 3,135
$ 6,424

Result: *Chevy Bolt is less expensive to purchase and operate over 5 years (by $543)**

Cost parity: total cost of ownership – *without* subsidies

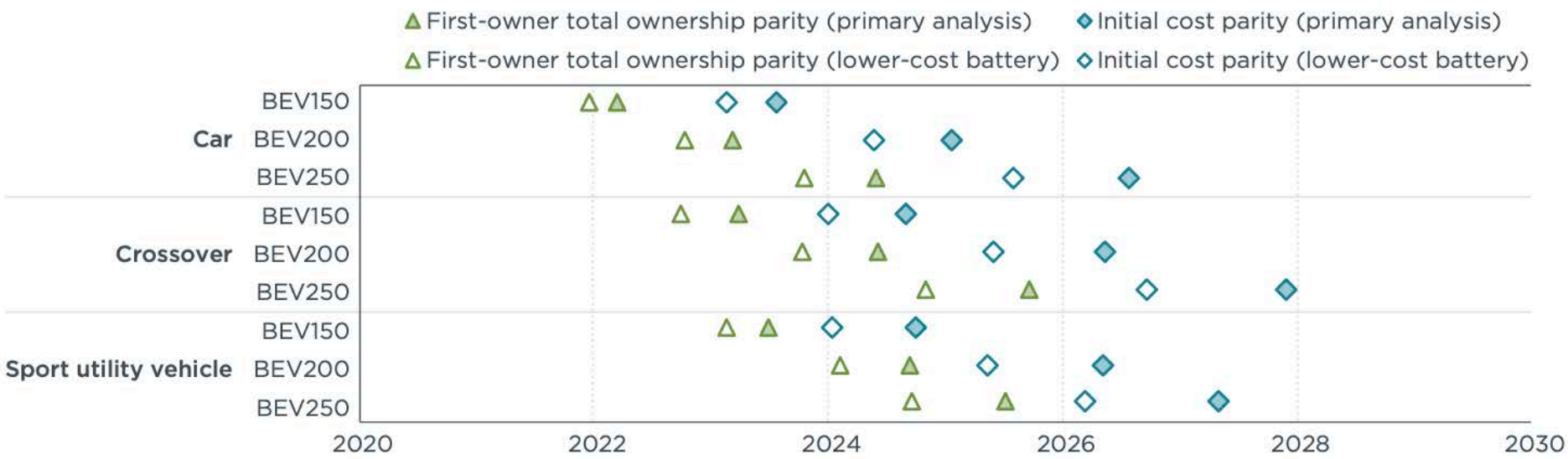


Figure 7. Year of cost parity based on first-owner total cost of ownership and initial vehicle cost, shown for the primary analysis and a lower-cost battery scenario.

Source: Update on electric vehicle costs in the United States through 2030, International Council on Clean Transportation, June 2019

PEVs are on their way, period. The only question is the pace of transition.

- Most automotive manufacturers have publicly staked out their plans to electrify their lineups by 2030 (some sooner).
- China is driving growth in new vehicle sales (in 2018, US sales fell for the first time in history). European countries are adopting aggressive regulations on gas-powered vehicles (including banning new sales within the next decade). Automakers are adapting accordingly.
- Federal CAFE standards (currently frozen at current levels) and the California Zero-Emission Vehicle regulations (representing ~30% of the US new vehicle market) are spurring automakers to continue development of PEVs for sale in the US.
- Faster-than-expected improvements in PEV batteries are resulting in greater capacity (driving range) and falling prices for the most expensive component of a PEV.
- Price parity between gas vehicles and PEVs – without subsidies –is expected to happen within next 4 -7 years.

What did PEV drivers think about WA RUC pilot system?

Opinions of PEV, hybrid, and gas vehicle drivers in the WA RUC pilot

Of the options listed below, which transportation funding approach do you think is more fair?

	PEV		Hybrid		ICE	
A RUC and a gas tax are equally fair	14	14%	13	11%	185	17%
A road usage charge where you pay by the mile	58	57%	80	66%	686	62%
Neither the gas tax nor the RUC is fair	12	12%	9	7%	87	8%
A gas tax where you pay by the gallon of gas	17	17%	20	16%	151	14%
Subtotal	**101**		**122**		**1109**	

Opinions of PEV, hybrid, and gas vehicle drivers in the WA RUC pilot

Fairness aside, knowing what you know today, which method to fund transportation would you prefer?

	PEV		Hybrid		ICE	
Equally prefer a RUC or gas tax	12	12%	12	10%	175	16%
A road usage charge where you pay by the mile	55	55%	62	52%	589	53%
Don't prefer either a gas tax or RUC	2	2%	6	5%	68	6%
A gas tax where you pay by the gallon of gas	17	17%	27	23%	198	18%
Not sure/need more information (please specify)	15	15%	13	11%	73	7%
Subtotal	**101**		**120**		**1103**	

Opinions of PEV, hybrid, and gas vehicle drivers in the WA RUC pilot

At this point, how do you feel about implementing a road usage charge as a replacement to the gas tax in Washington to fund transportation infrastructure?

	PEV		Hybrid		ICE	
Strongly support	38	38%	44	36%	429	39%
Somewhat support	28	28%	47	39%	375	34%
Somewhat oppose	11	11%	14	11%	90	8%
Strongly oppose	17	17%	12	10%	136	12%
Not sure/need more information	7	7%	5	4%	79	7%
Subtotal	**101**		**122**		**1109**	

Opinions of PEV, hybrid, and gas vehicle drivers in the WA RUC pilot

Which of the following best represents your advice to elected officials as they consider the next steps in implementing a road usage charge system statewide?

	PEV		Hybrid		ICE	
Move forward now to implement a RUC system in place of the gas tax as soon as the program can be made ready	27	27%	33	27%	320	29%
Gradually phase in a RUC system over a five to ten year period so that it eventually replaces the gas tax	41	41%	49	40%	354	32%
Apply a RUC system only to vehicles that are paying no to very little gas tax (such as hybrids) compared to the average all-gas vehicle	14	14%	14	11%	226	20%
Apply a RUC system only to all-electric vehicles that are paying no gas tax	6	6%	9	7%	103	9%
Take no further action on starting a RUC system for the foreseeable future	13	13%	17	14%	106	10%
Subtotal	**101**		**122**		**1109**	

Questions to consider

Does RUC represent a significant barrier to consumer adoption of PEVs in Washington?

If so, what might be done to mitigate or overcome any potential impacts of RUC?

Do the mitigation measures (if any) constitute acceptable fiscal/public policy tradeoffs?

COMMUNICATIONS UPDATE

Ara Swanson
EnviroIssues

- Goals

RECRUITMENT AND LIVE TEST DRIVE HELP DESK COMMUNICATIONS SUMMARY

Ara Swanson
EnviroIssues

WA RUC

HELP DESK COMMUNICATIONS SUMMARY GOALS

GOAL: Analyze and summarize communications shared with the help desk for additional insights to inform final report

- ➔ Review comments received through emails and calls to the help desk
- ➔ Prepare summary of comments to complement results of surveys and focus groups
- ➔ Provide findings and lessons learned from the help desk to inform final report and recommendations

WA RUC

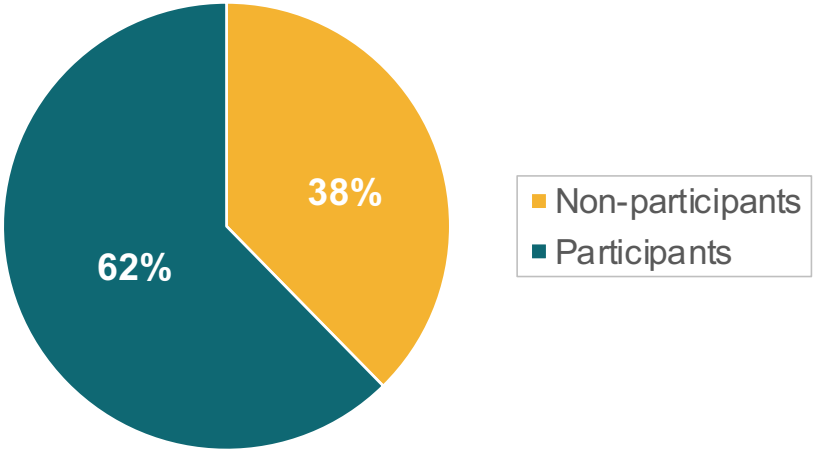
INCOMING COMMUNICATIONS (FREQUENCY)

Total incoming communications: 1,945

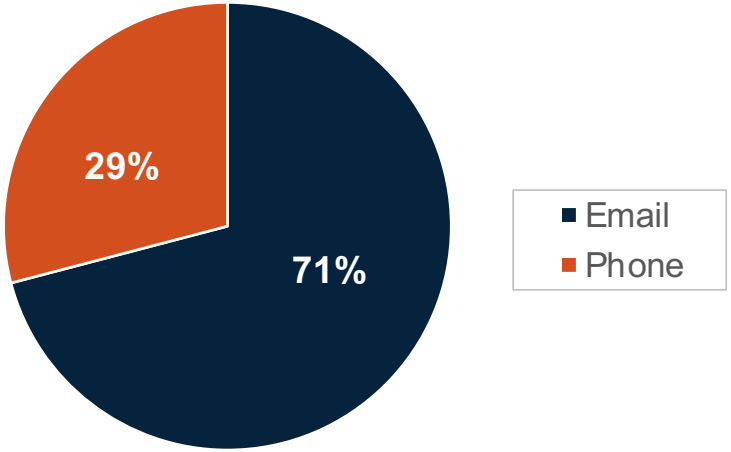
WA RUC

WHO DID WE HEAR FROM?

Pilot test drive: Incoming communications by user type



Communications received from all users by communication type



WA RUC

WHO DID WE HEAR FROM?

BY REGION

Region	Population distribution	Participant distribution	Percentage of communications received
Central	13%	13%	11.2%
East	9%	13%	17.2%
Northwest	6%	6%	5.2%
Puget Sound	62%	60%	49.4%
Southwest	9%	6%	5.5%
Unknown	N/A	N/A	12.0%

WA RUC

WHO DID WE HEAR FROM?

BY MILEAGE REPORTING METHOD

MRM	Participant distribution	MRM source of communications received (in percent)
Mileage permit	1.0%	2.3%
Plug-in device	21.0%	14.3%
Plug-in device with GPS	34.0%	33.7%
Odometer reading	29.0%	39.4%
Smartphone app	15.0%	9.5%
N/A	N/A	0.7%

POPULAR TOPICS (OVERALL BY PHASE)

Recruitment and Enrollment

- Enrollment inquiries
- Policy, implementation
- General RUC inquiry
- Vehicle weight

Live Pilot Test Drive

- Mileage reporting method
- DriveSync transfer
- General RUC inquiry
- Enrollment inquiries
- Survey/Incentives

WA RUC

TRENDING TOPICS – BY REGION

BY REGION

- Both “policy/implementation” and “general RUC inquiries” were trending topics in the East region
- “Vehicle eligibility questions” was a trending topic in the East, Northwest, and Southwest regions
- The Puget Sound region did not have any specific trending topics

WA RUC

TRENDING TOPICS – BY MRM

BY MILEAGE REPORTING METHOD

- Participants using the odometer reading MRM had the highest number of trending topics
- Participants using the high-tech MRMs had the least number of trending topics

WA RUC

FINDINGS

- There is a growing interest in many of the topics associated with road usage charging
- The number of trending topics brought forth to the help desk varied greatly by region
- Vehicle eligibility and technical information on MRMs will need to be clearly communicated for specific methods

WA RUC

COMMUNICATIONS UPDATES

Ara Swanson
EnviroIssues

WA RUC

CURRENT COMMUNICATIONS – GOALS

Communicate pilot process, driver experience, Steering Committee progress, results and next steps

Leverage media to share results and next steps

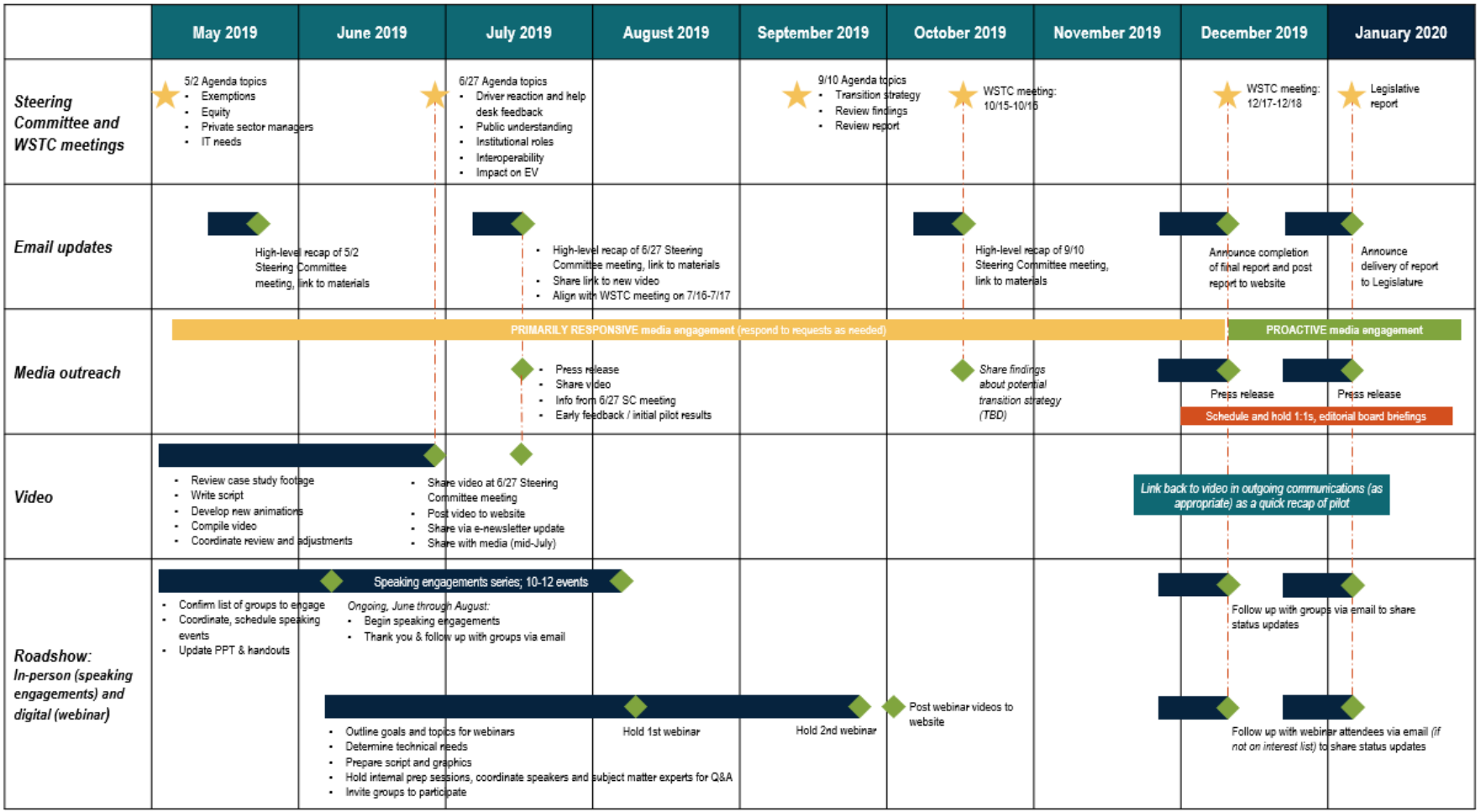
Analyze and summarize communications to inform final report

WA RUC

WA RUC PHASE 3 COMMUNICATIONS TIMELINE

Draft: April 29, 2019

WA RUC



CURRENT COMMUNICATIONS – ACTIVITIES

- Responsive and proactive media engagement
- Regular e-newsletters
- Steering Committee meetings
- Video highlighting the participant experience
- Briefings and webinars

WA RUC

PARTICIPANT EXPERIENCE VIDEO

GOALS

- Offer a glimpse into WA RUC participant experience, sharing the participants' experience in the pilot in their own words
- Provide a brief overview of the pilot, informing audiences of the need to explore a replacement to the gas tax
- Share different opinions to produce a balanced story to build credibility and trust in the pilot

WA RUC

PARTICIPANT EXPERIENCE VIDEO

FILMING

- Filmed in fall 2018, approximately half-way through the pilot
- Focus group volunteers opted-in to being interviewed and sharing their responses on-camera about a variety of topics:
  - Interest in participating in the pilot and thoughts about road usage charging
  - Experience with mileage reporting options and takeaways from the test-driving phase

WA RUC

PARTICIPANT EXPERIENCE VIDEO

DISTRIBUTION – *planned for mid-July*

- Post on **waroadusagecharge.org**
- Share with **e-newsletter interest list** (nearly 5,800 subscribers)
- Share with media distribution list via **press release**

WA RUC

PARTICIPANT EXPERIENCE VIDEO

WA RUC

CONTINUED COMMUNICATIONS ACTIVITIES

- Begin series of **in-person briefings** to targeted organizations and stakeholders, July through August

- Share video and other pilot news via **e-newsletter** and **press release** in mid-July

- Host **webinar** in August with MPOs and RTPOs

WA RUC

CONTINUED COMMUNICATIONS ACTIVITIES

- Continue to **share accurate pilot information** as updates and findings are developed, September through December

- Communicate submittal of final report to legislature in January via **e-newsletter**, **press release**, and other **media engagement**

WA RUC

Phase 3 communications – activities

Responsive and proactive media engagement

Regular e-newsletters

Steering Committee meetings

Video highlighting the participant experience

Briefings and webinars

BREAK: WORKING LUNCH

OVERVIEW OF *FORWARD DRIVE* GRANT PROPOSAL

Reema Griffith
Executive Director, WSTC

INSTITUTIONAL ROLES IN IMPLEMENTING A FUTURE RUC SYSTEM

Paula Hammond
WSP

Travis Dunn
D'Artagnan Consulting

- Purpose & Approach
- Principles
- Functions
- Scenarios

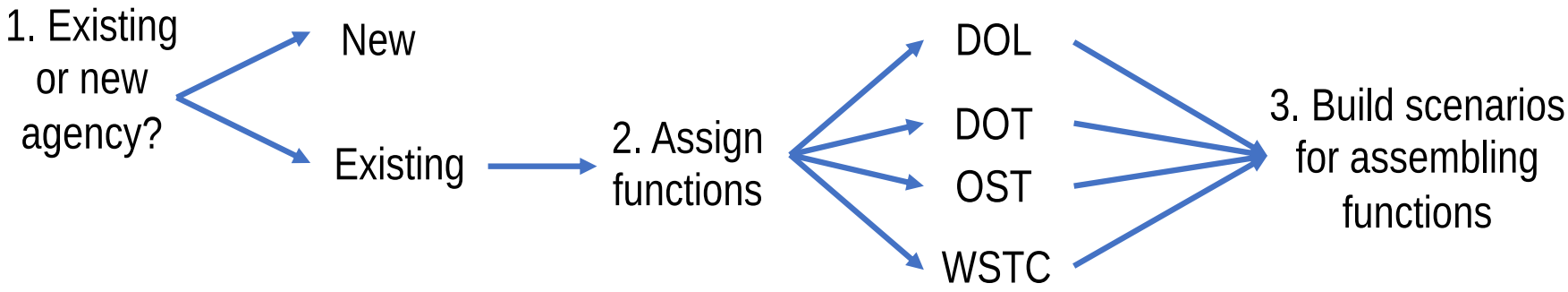
Purpose of organizational analysis for a RUC system

- Research and identify functional needs
- Explore alternative approaches to structuring a RUC program aligned with Steering Committee principles
- Inform legislative decisions regarding operations, management, and accountability

Approach: research and analysis

- Outline and describe functions of a RUC program
- Assess capabilities for each function within existing agencies through document reviews and interviews with:
  - Department of Licensing (DOL)
  - Department of Transportation (WSDOT)
  - Office of State Treasurer (OST)
  - Utilities & Transportation Commission (UTC)
  - Washington State Transportation Commission (WSTC)
- Construct alternative scenarios for assembling RUC functions

Approach: scenario creation



Spoiler alert: features of all scenarios

- Do not create a new agency to deliver a RUC program; utilize existing agencies
- Group operational (customer- and vendor-facing) functions within the same agency and authorize that agency, most likely DOL, to implement and operate RUC
- Other agencies (OST, WSDOT, WSTC) will collaborate and support operations
- Continue independent evaluation of RUC through WSTC, to support policy and performance advice to the Legislature
- Accountability by or on behalf of the Legislature

Organizational design principles (1 of 3)

The administration of a RUC system should be cost-effective and cost-efficient

- Reflect the identified functional areas, specific functions, and tasks needed to carry out the program (i.e., “form follows function”)
- Identify incremental resources required to successfully execute a RUC program
- Leverage existing agencies, systems and expertise as much as possible, to contain marginal costs and avoid enlarging bureaucracy
- Build from existing state agency relationships and processes in policy, revenue forecasting, revenue collection, and customer interaction to minimize impacts on existing agency workforce
- Build on lean principles when adding functions and processes to minimize addition of new resources and impacts on existing agency workforce

Organizational design principles (2 of 3)

A RUC system should have a clear assignment of responsibility and oversight, and provide accurate reporting of usage and distribution of revenue collected

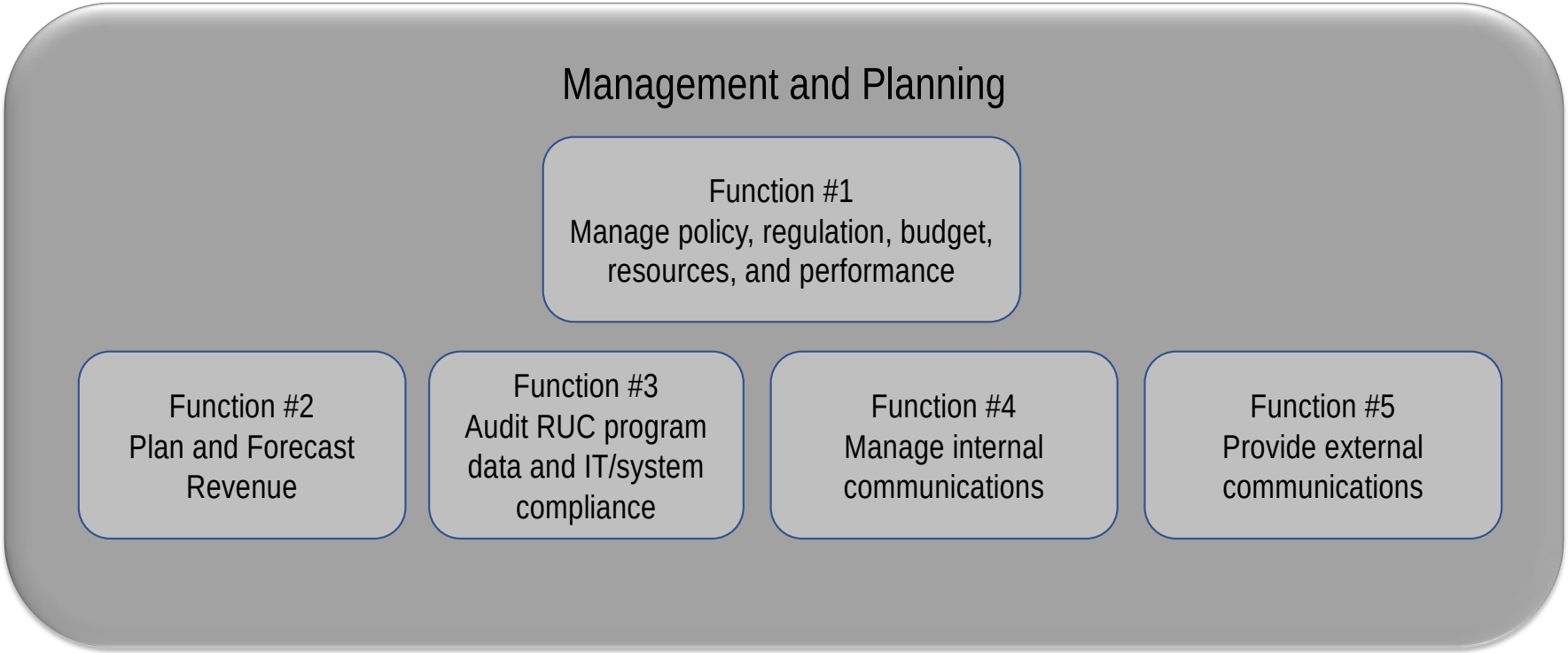
- Consider all organizational and functional aspects needed for a RUC program, including those not covered in the WA RUC pilot
- Group customer-facing functions logically to minimize interdependencies between agencies and to deliver a cohesive end-user experience
- Indicate the essential information sharing, coordination, and interactions among or between agencies and vendors for maximum operational effectiveness and minimal disruption to the end user experience
- Provide mechanisms for transparency and accountability, including ongoing opportunities for information sharing with the public and for public input and feedback

Organizational design principles (3 of 3)

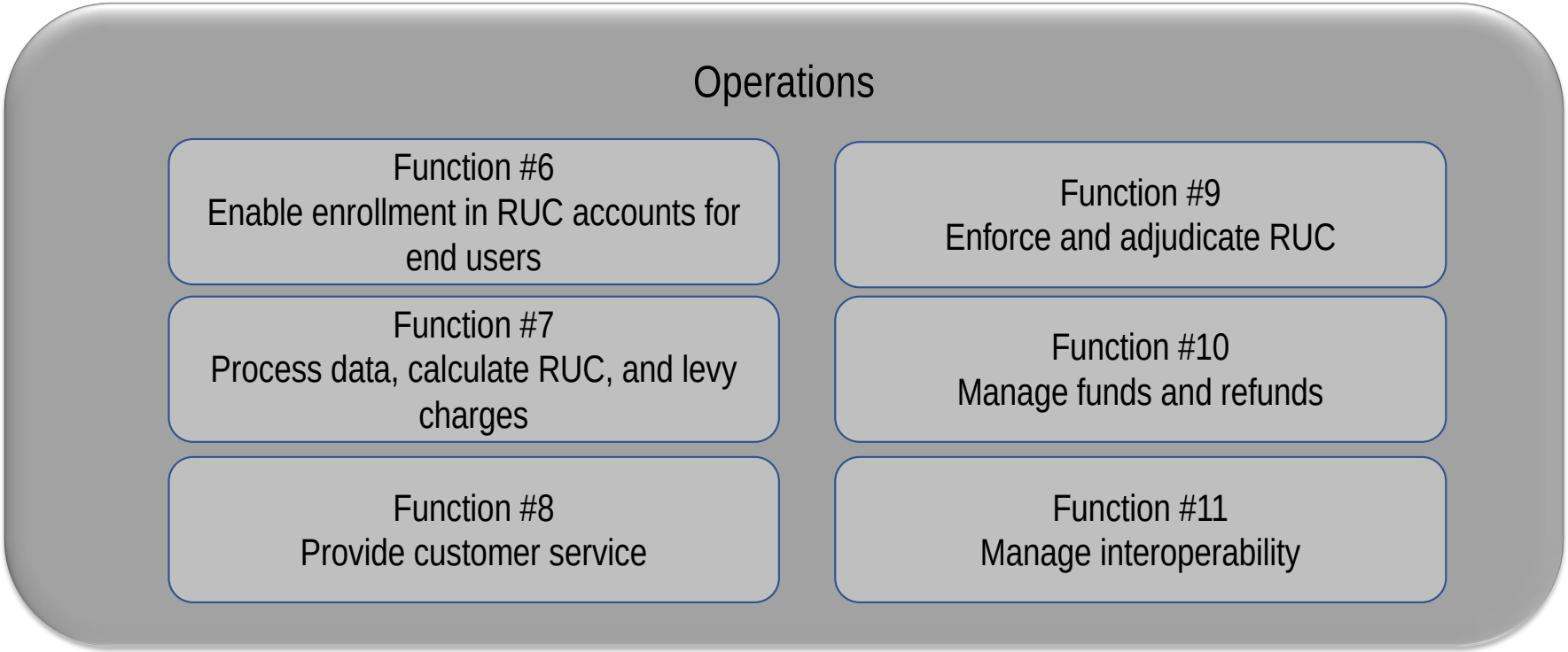
A RUC system should respect and individual's right to privacy; a RUC system should meet applicable standards for data security, and access to data should be restricted to authorized people

- Consider the privacy and data security implications of handling drivers' road usage charge data

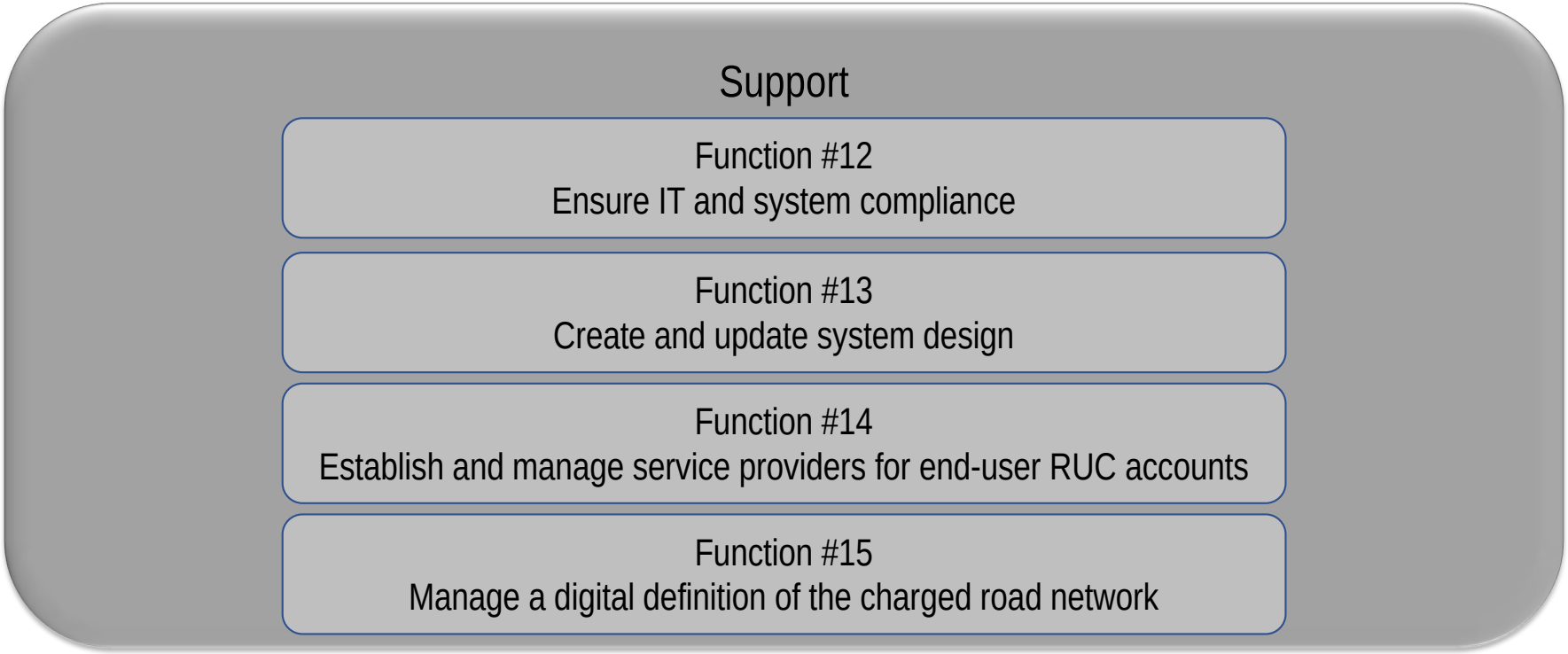
RUC functions: management and planning (1 of 3)



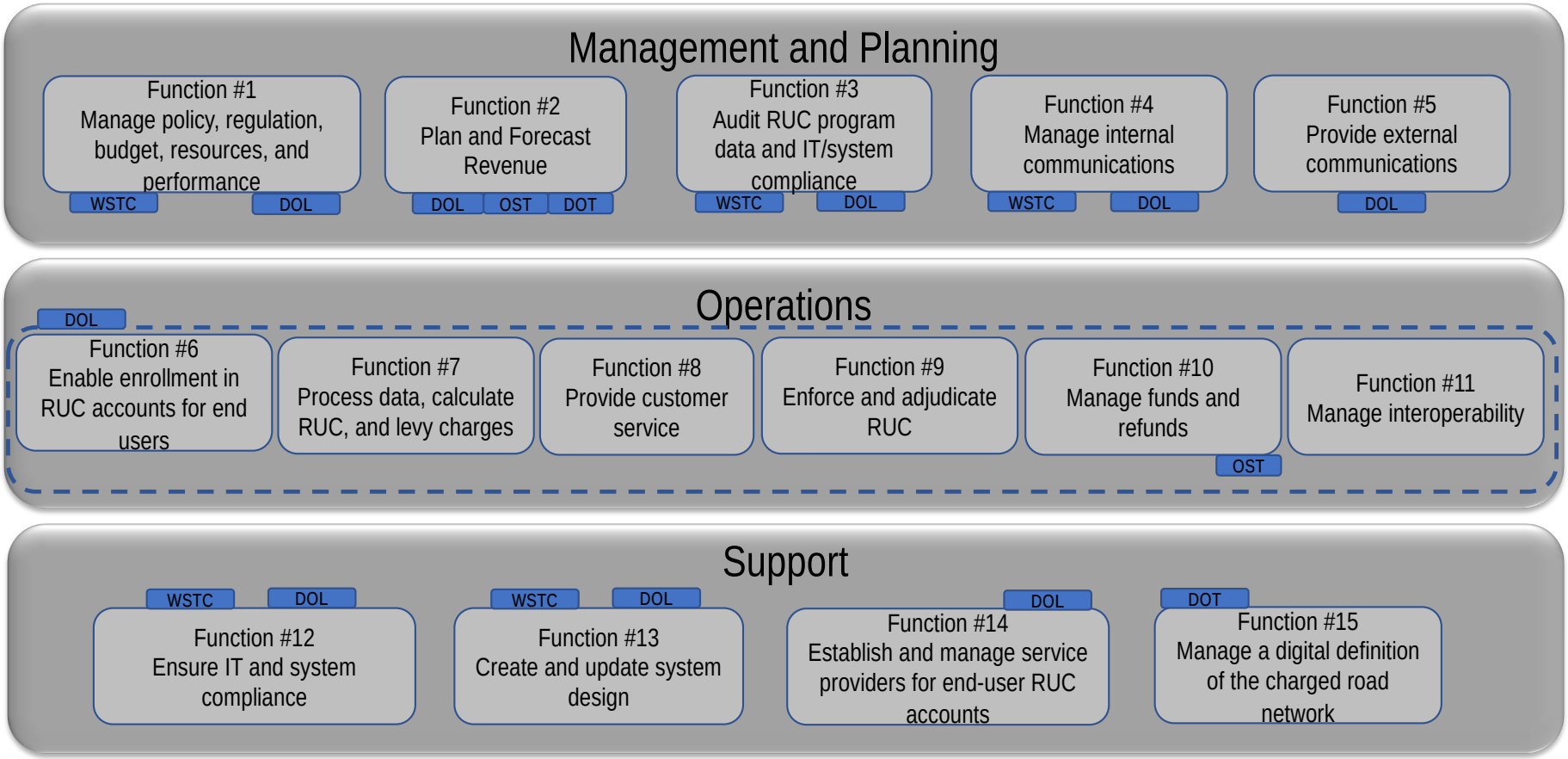
RUC functions: operations (2 of 3)



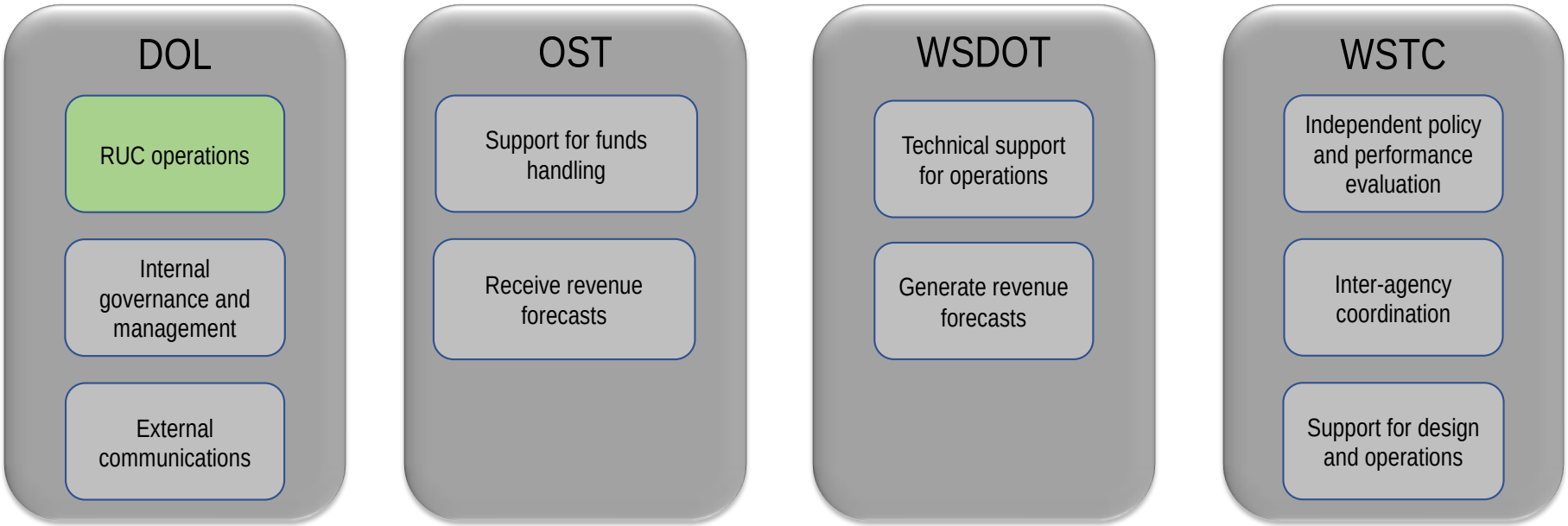
RUC functions: support (3 of 3)



RUC functions: summary



Functions: RUC functions by agency

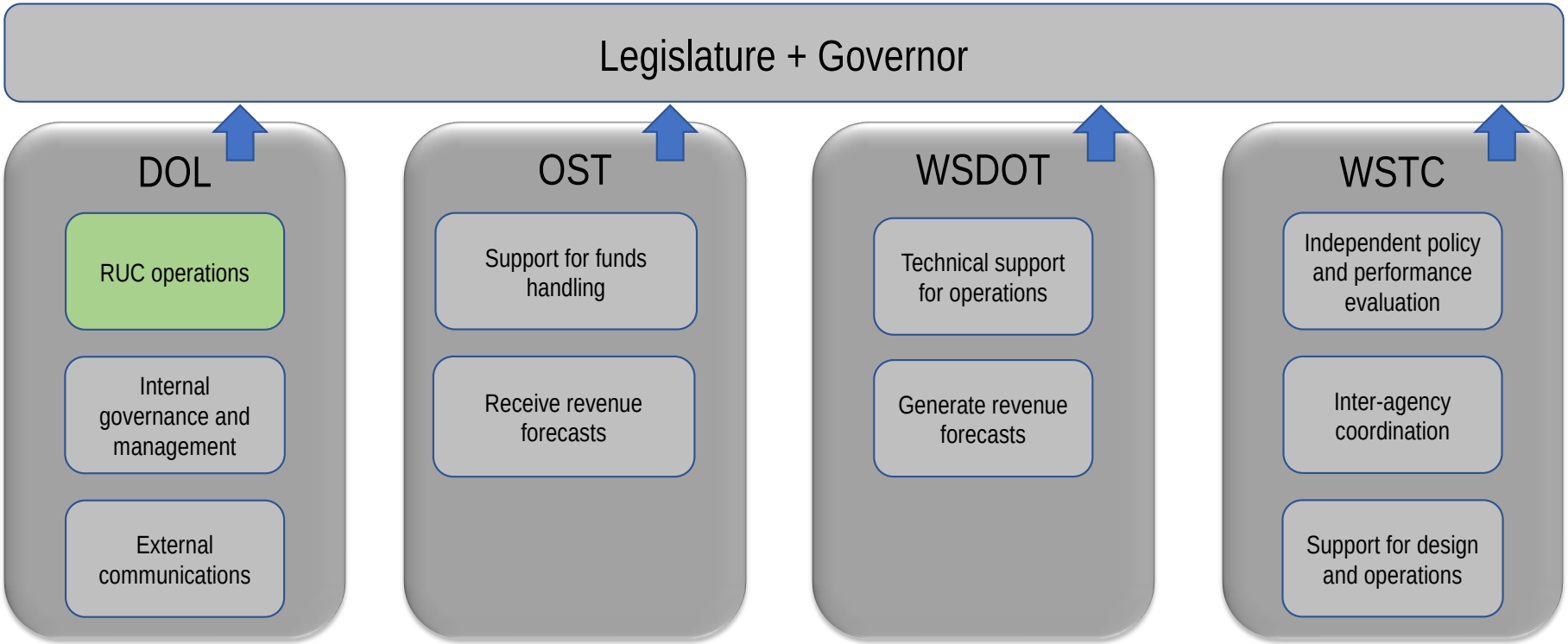


Scenarios for assembling the functions

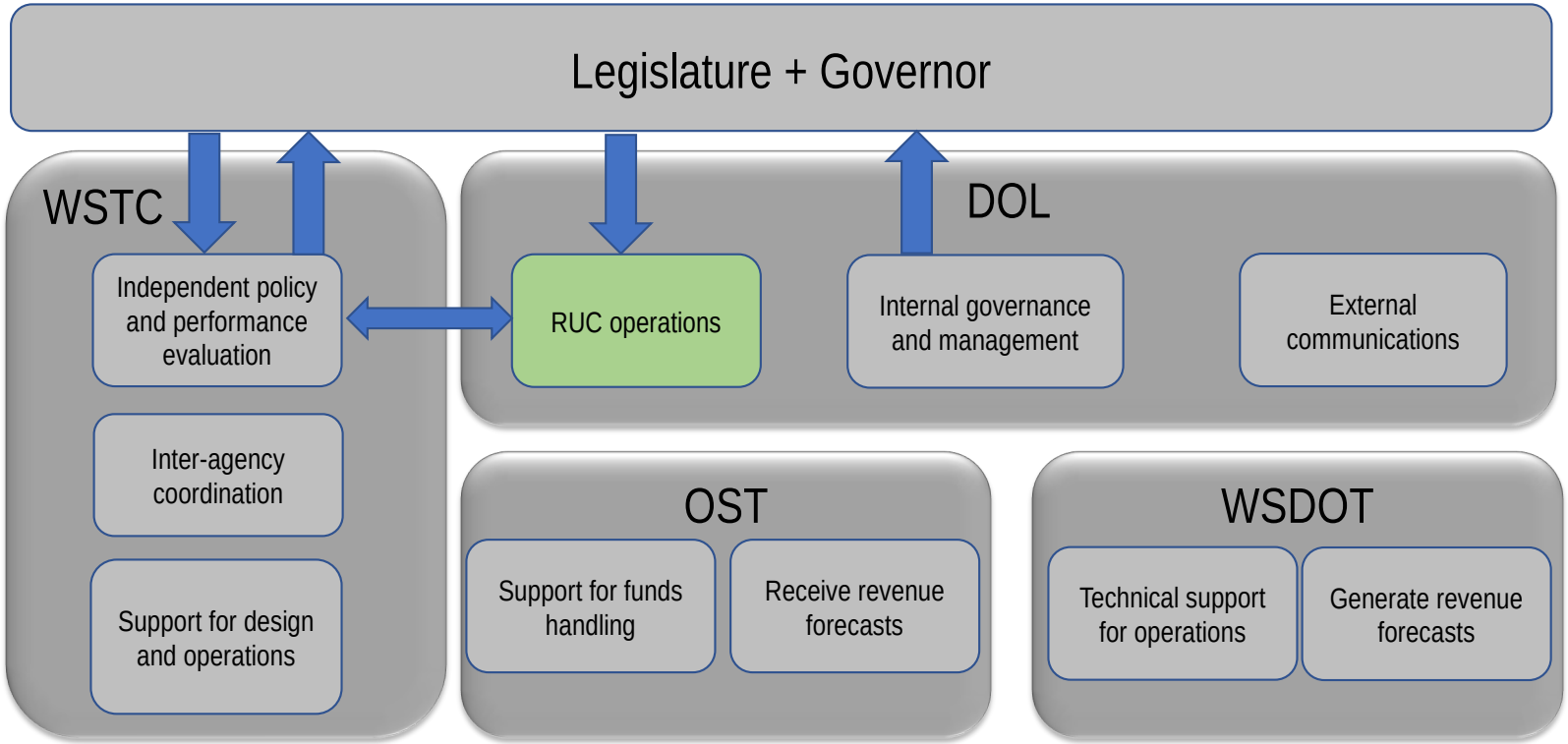
Determine accountability for a RUC program

- ~~Alternative 0: create a new agency with responsibility and accountability for RUC~~
- Alternative 1: individual agencies report to Legislature
- Alternative 2: operations (DOL) and independent evaluation (WSTC) report to Legislature
- Alternative 3: independent RUC authority reports to Legislature

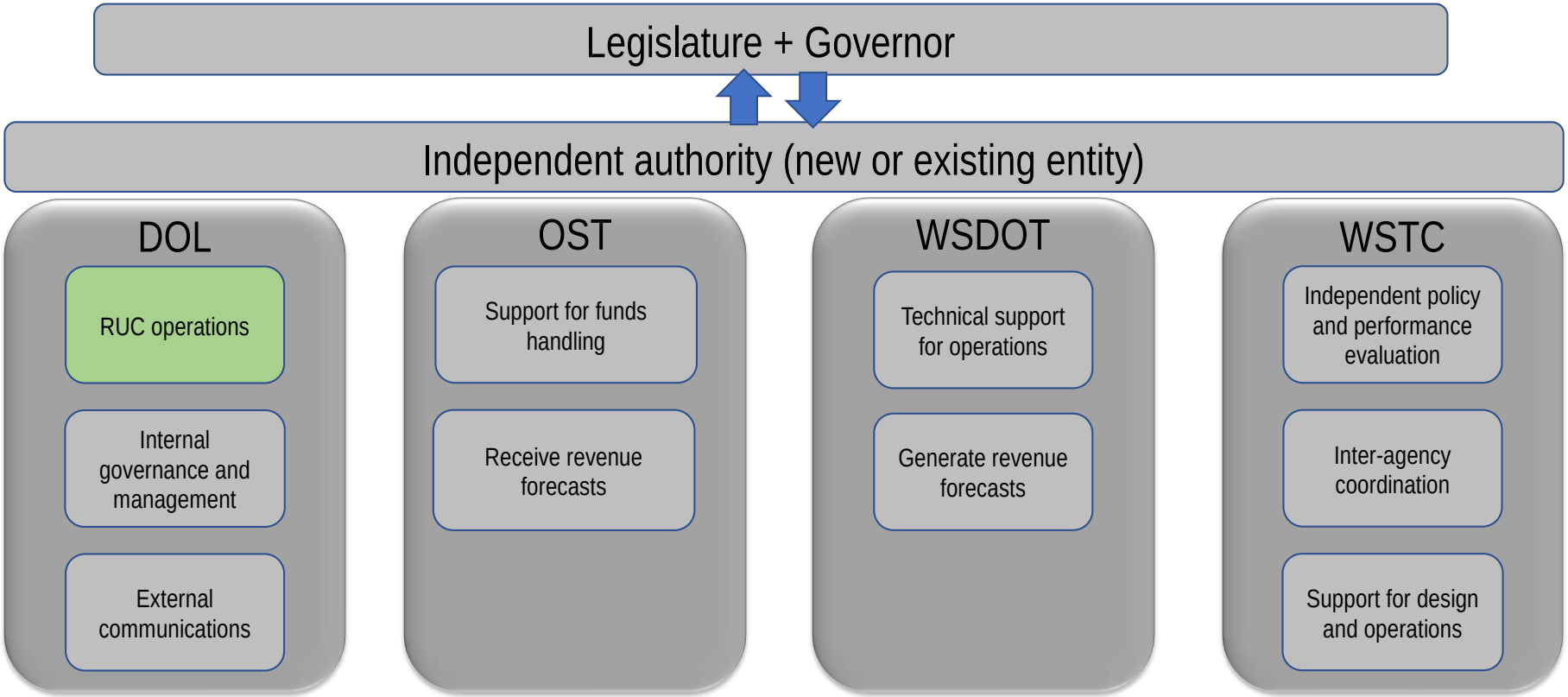
Scenario 1: Delegate functions



Scenario 2: Coordination of operations and independent evaluation



Scenario 3: Delegate authority for organizational design



Summary of findings

- Do not create a new agency to deliver a RUC program; utilize existing agencies
- Group operational (customer- and vendor-facing) functions within the same agency and authorize that agency, most likely DOL, to implement and operate RUC
- Other agencies (OST, WSDOT, WSTC) will collaborate and support operations
- Continue independent evaluation of RUC through WSTC, to support policy and performance advice to the Legislature
- Several choices for accountability by or on behalf of the Legislature

USE OF PRIVATE SECTOR ACCOUNT MANAGERS IN A FUTURE RUC SYSTEM

James Whitty
D'Artagnan Consulting

- Assessment of five RUC delivery configurations
- Determine transition pathways for preferred RUC delivery configurations
- Elements for RUC legislation

Purposes

- Assess five RUC delivery configurations
- Determine most advantageous RUC delivery configuration for final end state under various preferences
- Determine transition pathways for delivering most advantageous RUC delivery configurations
- Legal elements for third parties to collect RUC in Washington

High-level Operational Functions for a RUC System

1. Customer service and account management
2. Charge identification and processing
3. Compliance, enforcement, audit
4. Maintenance and operation of vehicle registry
5. Oversight of system activities, including monitoring and reporting

Delivery Configurations for a RUC system in its final end state

Configurations	RUC System Delivery Description
Configuration 1	Government agency
Configuration 2	Single private-sector services provider
Configuration 3	Open market for multiple private-sector service providers
Configuration 4	Combination of government agency and open market for multiple private-sector providers
Configuration 5	Combination of government agency and single private-sector provider

WA RUC

Importance of RUC Delivery Configuration

- Timetable for implementation
- Complexity
- Costs
- Risks

What is an open market of private sector service providers?

- Government procures multiple qualified service providers to participate
- To qualify, service providers must prove capability to meet established government performance standards in a certification process
- Service providers sign a market contract with the government
- Service providers engage in continual competition
- Service providers enter and exit open market at will

WA RUC

WA RUC 13 Guiding Principles

Transparency
Complimentary policy objectives
Cost-effectiveness
Equity
Privacy
Data security
Simplicity
Accountability
Enforcement
System Flexibility
User Options
Interoperability and Cooperation
Phasing

Additional Assessment Criteria

- Ease of administration
- Risk of delivery
- Responsiveness to payer needs and requests
- Resolution of payer issues
- Capability of communications and customer support
- Ability to audit the provider
- Ability to detect tampering and fraud
- Reliability of technologies
- Open system
- Ability to coordinate with tolling system

WA RUC

Assessment Criteria Categories

- Administrative effectiveness
- Participant experience
- Operational performance
- Practical availability
- Flexibility
- Policy Alignment

WA RUC

Application of Assessment Criteria to RUC Delivery Configurations

James Whitty
D'Artagnan Consulting

Assessment of Configurations

- Administrative effectiveness
  - Ease of administration
  - Oversight
  - Cost effectiveness
- Participant experience
  - Convenience
  - Customer service
- Operational performance
  - Manual reporting methods
  - Automatic reporting methods
  - Frequency of reporting
  - User choice
- Practical availability
  - Risk of delivery
  - Continuity
  - Providing technologies and business systems
  - Enabling system affordability
- Flexibility
  - Competing vendors
  - Innovation
  - Scalability
- Policy Alignment
  - All configurations equal

WA RUC

Findings for RUC Delivery Configurations

- Government-only delivery (config 1) has least risk and assures greater continuity
- Single private-sector provider (config 2) appears easier, faster, less risky and less expensive but will not bear the benefits of competition during operations for technological evolution and cost savings and closed systems are risky
- Open market for multiple private-sector providers (config 3) is cost competitive and technologically evolutionary
- Combination of government agency and open market for multiple providers (config 4) can provide both manual and automatic reporting and has the advantages of both
- Combination of government agency and single provider (config 5) has the disadvantages of both government-only delivery and single provider delivery

Preferred Delivery Configurations

- Preferences will affect selection
- If system uses only manual reporting methods, government-only delivery preferred (config 1)
- If system uses only automated reporting, open commercial market for multiple private-sector providers preferred (config 3)
- If system uses both manual and automated reporting, the combination of government and open market for private-sector providers preferred (config 4)

Transition Pathways to Final End State
RUC Program

James Whitty
D'Artagnan Consulting

Transition Strategy

- Identify the final end state delivery configuration to which RUC program aspires
  - Government-only
  - Open commercial market
  - Combination of government and open commercial market

WA RUC

Potential Transition Pathways

1. Government start
2. Single, private-sector service provider start with open system
3. Single entrant in open commercial market
4. Combination of government agency and single private-sector provider start

WA RUC

Additional criteria for transition pathways

1. Foundational to ultimate system
2. Adaptable for phasing
3. Timeliness
4. Ease of implementation

WA RUC

Preferred transition pathways

Final End State Configuration Preference	Optimal Transition Pathway
Government-only delivery (Config 1)	Single private sector provider operating under open system adopted by government (Transition pathway 2)
Open commercial market for multiple private-sector providers (Config 3)	Single entrant into open commercial market with open system adopted at beginning (Transition pathway 3)
Combination of government and open market for multiple private-sector providers (Config 4)	Combination of government agency and single entrant into open commercial market for multiple private-sector providers (Transition pathway 4)

Overall Conclusion

1. Government-only delivery: best for manual reporting
   - Transition via single private-sector provider under open system of government
2. Single private-sector provider: not advisable for ultimate RUC system
   - No transition pathway
3. Open market for multiple private-sector providers: best for multiple automatic reporting methods
   - Transition via single entrant into an open commercial market for multiple providers
4. Combination of government agency and open market for multiple providers: best for manual and automatic reporting
   - Transition via government agency and single entrant into an open commercial market for multiple providers
5. Combination of government agency and single provider: not advisable for ultimate RUC system
   - No transition pathway

WA RUC

Legal Elements for Third Parties to Collect RUC

James Whitty
D'Artagnan Consulting

Authority Elements for Legislation

- Confer powers to an agency to implement RUC
- Set a RUC rate in law
- Define “open system”
- Agency should adopt standards for open system
- Grant special procurement authority to create open market

WA RUC

SCENARIOS TO BE MODELED FOR RUC TRANSITION OPTIONS

Travis Dunn
D'Artagnan Consulting

Refreshing the financial model and business case analysis

Identify a range of options for the type, number, and timing of vehicles that would transition to RUC.

1. **For today**: Steering Committee reviews options for the initial start-up phase of RUC – (the number and type of vehicles). This range of options will then be modeled in a Business Case Analysis (estimating gross revenue, costs, and net revenue over time)
2. **July 1- August 30**: Project team conducts financial modeling of these various options over the next 10 weeks.
3. **September 10**: Steering Committee examines the results; suggests any changes to the start-up scenarios; and considers the analysis in making any RUC transition findings

Starting assumptions

- Maintain a system where the gas tax remains in place. Vehicle owners would owe either RUC or the gas tax (but not both)
- Focus on a phased transition to RUC, as opposed to rapid fleet-wide deployment for all light-duty vehicles
- Assume a RUC rate of 2.4 cents per mile, and fuel tax rate of 49.4 cents per gallon
- Run the financial model out to 2040
- Provide all cost assumptions (reporting options, payment frequencies, administrative responsibilities, etc.) along with results in September
- Assume a private sector service provider supports technology-based reporting options

A total of 7 scenarios are proposed for analysis

Scenario 1: RUC based on propulsion technology

- 1A: Mandatory RUC applied to all PEVs and hybrids – the same vehicles that currently pay an additional fee in lieu of the gas tax
- 1B: Mandatory RUC applied to PEVs and hybrids, with the annual RUC total capped at the additional annual registration fee in lieu of gas tax
- 1C: RUC applied to PEVs and hybrids, unless driver chooses to purchase a Time Permit (unlimited annual miles)

Scenario 2: RUC based on vehicle MPG (or MPGe)

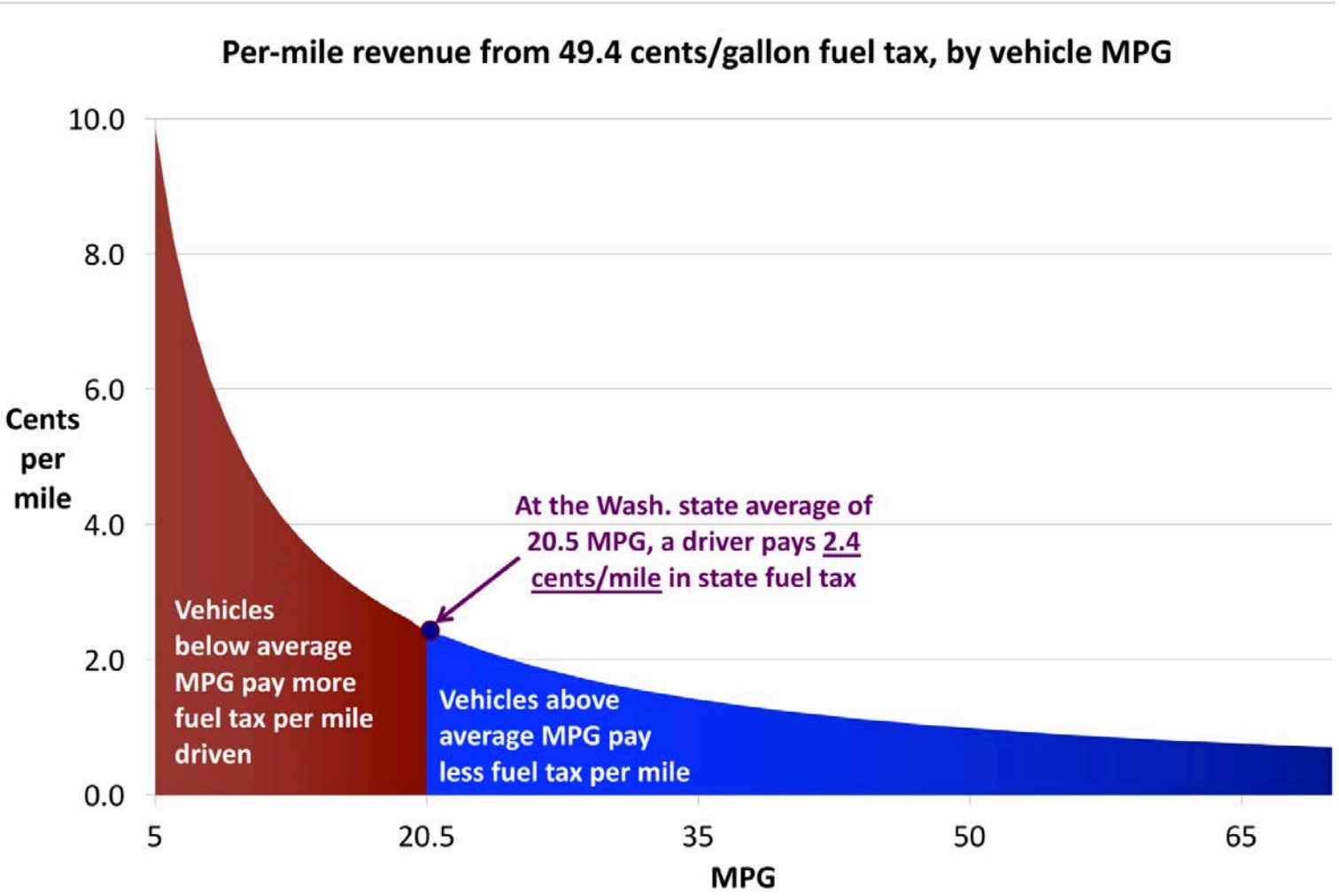
- 1A: RUC applied to all vehicles with 40 MPG or MPGe and above
- 1B: RUC applied in phases to vehicles above 30 MPG based on a graduated MPG or MPGe basis. For example, PEV and hybrid pay RUC in CY 2022; 50+ MPG pay RUC in 2023; 40+ MPG pay RUC in 2024; etc.

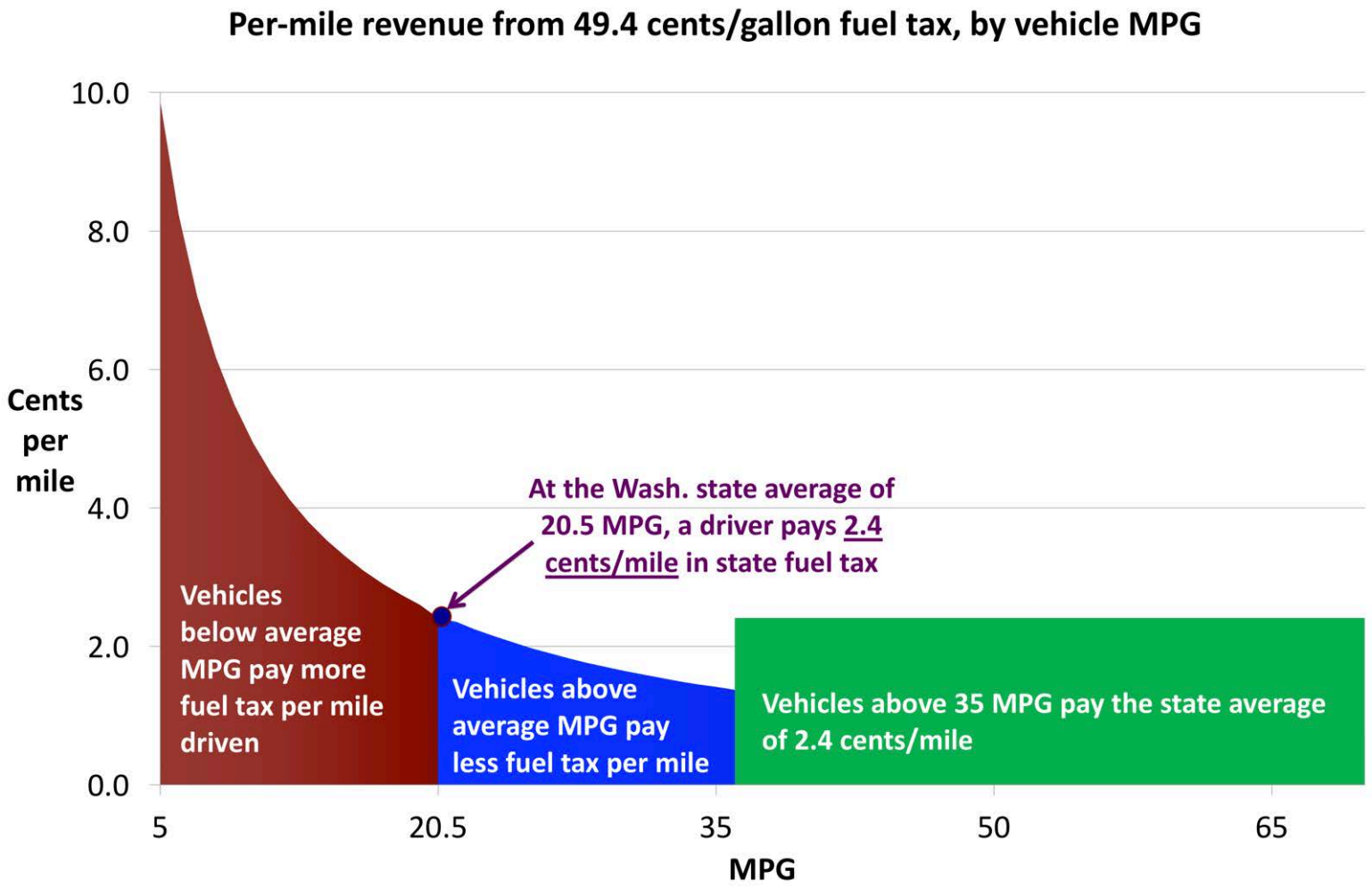
Scenario 3: RUC based on Model Year

- 3A-C: Only new PEVs and hybrids (Scenarios 1A-1C) beginning in CY 2022; all others pay PEV/hybrid fee in current law
- 3D-E: Only new vehicles above MPG threshold (Scenarios 2A-B) beginning in CY 2022

Rates to be modeled

- Will model a flat rate of 2.4 cents
- Will model rate glidepath based on MPG (e.g., vehicles subject to RUC pay same equivalent rate as highest most efficient gas car pays in gas tax per mile).


Per-mile revenue from 49.4 cents/gallon fuel tax, by vehicle MPG
10.0
8.0
6.0
4.0
2.0
0.0
Cents per mile
At the Wash. state average of 20.5 MPG, a driver pays 2.4 cents/mile in state fuel tax
Vehicles below average MPG pay more fuel tax per mile driven
Vehicles above average MPG pay less fuel tax per mile
5
20.5
35
50
65
MPG


Per-mile revenue from 49.4 cents/gallon fuel tax, by vehicle MPG
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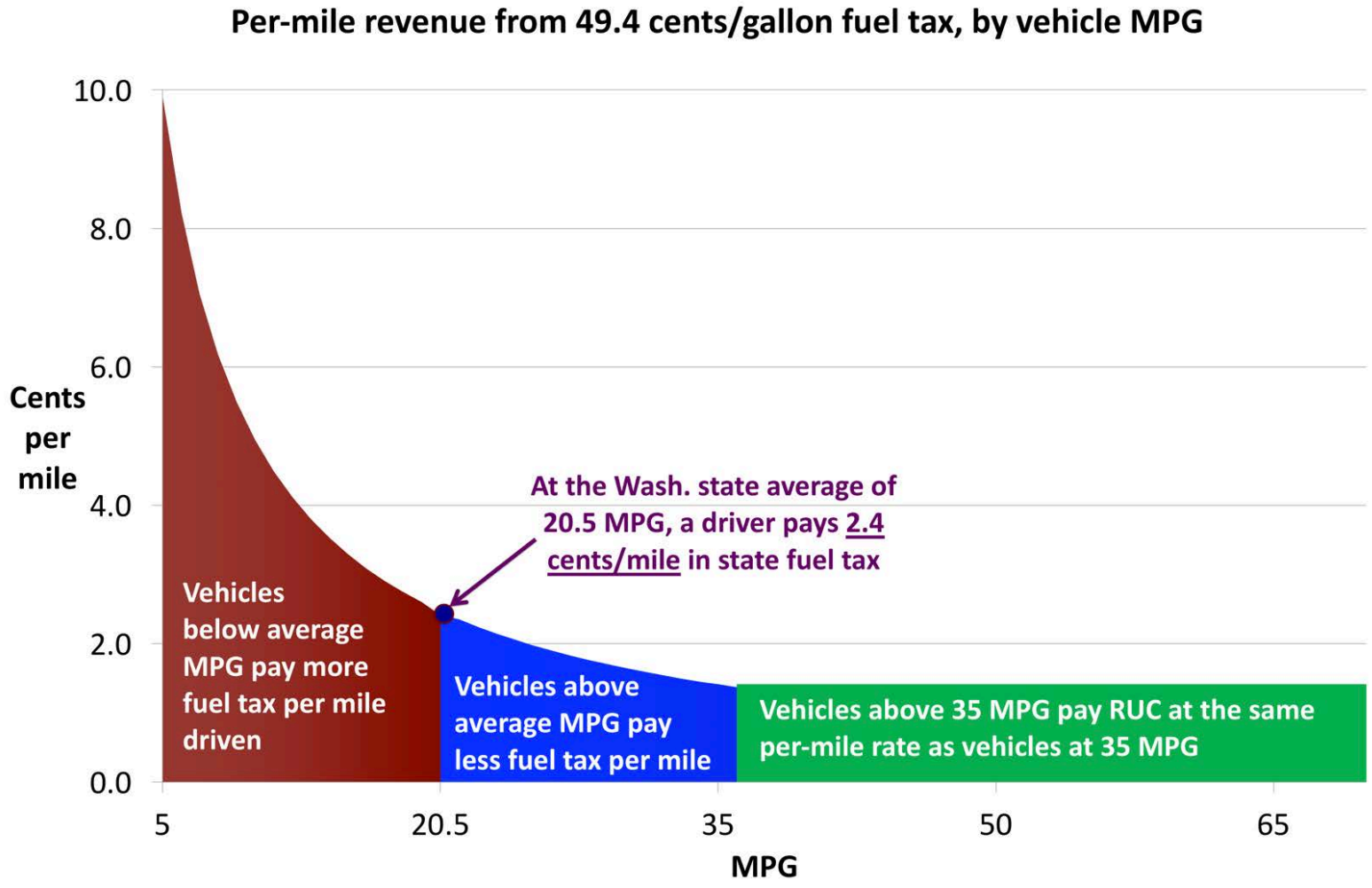
8.0
6.0
4.0
2.0
0.0
Cents per mile
At the Wash. state average of 20.5 MPG, a driver pays 2.4 cents/mile in state fuel tax
Vehicles below average MPG pay more fuel tax per mile driven
Vehicles above average MPG pay less fuel tax per mile
Vehicles above 35 MPG pay the state average of 2.4 cents/mile
5
20.5
35
50
65
MPG


Per-mile revenue from 49.4 cents/gallon fuel tax, by vehicle MPG
10.0
8.0
6.0
4.0
2.0
0.0
Cents per mile
At the Wash. state average of 20.5 MPG, a driver pays 2.4 cents/mile in state fuel tax
Vehicles below average MPG pay more fuel tax per mile driven
Vehicles above average MPG pay less fuel tax per mile
Vehicles above 35 MPG pay RUC at the same per-mile rate as vehicles at 35 MPG
5
20.5
35
50
65
MPG

OUTLINE OF STEERING COMMITTEE'S FINAL REPORT

Jeff Doyle
Project Manager
D'Artagnan Consulting

- Handout: Top-level outline
- Committee member discussion

(HANDOUT: OUTLINE OF FINAL REPORT)

COMMITTEE DISCUSSION

THANK YOU!

Questions? Contact: Reema Griffith, Executive Director
Washington State Transportation Commission
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360-705-7070

Consultant support provided by:

D'ARTAGNAN CONSULTING

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