WASHINGTON STATE ROAD USAGE CHARGE
Steering Committee Meeting

June 27, 2019
SeaTac Airport Conference Center
SeaTac, Washington
WELCOME AND INTRODUCTIONS

• Steering Committee member self-introductions

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

• Please try to keep all comments limited to 5 minutes or less
RECAP OF DIRECTION PROVIDED BY STEERING COMMITTEE

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

Jeff Doyle
Project Manager
D’Artagnan Consulting
DEVELOPMENTAL STEPS & DECISIONS TAKEN
**Issues are addressed when sufficient data exists**

<table>
<thead>
<tr>
<th>Before the pilot:</th>
<th>Anytime:</th>
<th>After the pilot:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ How to operationalize the RUC mileage reporting approaches</td>
<td>✓ RUC compatibility with tolls</td>
<td>✓ Whether and how best to use private sector service providers</td>
</tr>
<tr>
<td>✓ Whether and how to charge out-of-state drivers</td>
<td>✓ Commerce Clause impacts on RUC</td>
<td>✓ Drivers’ reaction to the proposed RUC system</td>
</tr>
<tr>
<td>✓ Exemption from RUC charges</td>
<td>✓ 18th Amendment impacts on RUC</td>
<td>✓ Public understanding and acceptance of a RUC system</td>
</tr>
<tr>
<td>✓ Refunds of RUC charges</td>
<td>✓ Per-mile rate setting</td>
<td>✓ State IT needs to support RUC</td>
</tr>
<tr>
<td></td>
<td>✓ Motor fuel tax bond requirements</td>
<td>✓ Institutional roles in implementing a RUC system</td>
</tr>
<tr>
<td></td>
<td>✓ Permanent exemptions from RUC</td>
<td>✓ Transition strategy: which vehicles would pay RUC, and when</td>
</tr>
<tr>
<td></td>
<td>✓ Use or dedication of RUC revenue</td>
<td></td>
</tr>
</tbody>
</table>
Context for Steering Committee’s findings & decisions

1.0 Intent
2.0 Definitions
   2.1 RUC
3.0 Basis for charge
4.0 Applicability of Tax or Fee
   4.1 Exemptions
   4.2 Refunds & credits
5.0 Responsibilities for administration
6.0 Operational requirements
   6.1 Interoperability with other states
7.0 Deposit accounts
8.0 Effective dates
What is the vision for RUC as an eventual replacement for the gas tax over a period of time?

- Transition strategy: September 2019
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
Who will be required to pay RUC?

- Transition strategy – September 2019
- Vehicles subject to RUC – September 2019
Who will be entitled to refunds and credits?

- Transition strategy – September 2019
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
What are the basic RUC system requirements?

- Driver reaction to the proposed RUC system – June 2019
How will RUC be applied to cross-state travel?

- Transition strategy – September 2019
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

<table>
<thead>
<tr>
<th></th>
<th>Survey 1</th>
<th></th>
<th></th>
<th>Survey 2</th>
<th></th>
<th></th>
<th>Survey 3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Invited</td>
<td>Completes</td>
<td>Rate</td>
<td>Invited</td>
<td>Completes</td>
<td>Rate</td>
<td>Invited</td>
<td>Completes</td>
<td>Rate</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,048</td>
<td>1,669</td>
<td><strong>81.5%</strong></td>
<td>2,106</td>
<td>1,569</td>
<td><strong>74.5%</strong></td>
<td>2,009</td>
<td>1,491</td>
<td><strong>74.2%</strong></td>
</tr>
</tbody>
</table>

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 question, 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)

- Automated plug-in device with location data: 38% (574)
- Odometer reading: 27% (403)
- Automated plug-in device without location data: 17% (258)
- Smartphone app: 17% (252)
- Mileage permit: 1% (11)
- Don’t know: 0% (3)
The reporting method was a convenient way to participate in the pilot.

- Automated plug-in device with location data (n=574):
  - Strongly agree: 83%
  - Agree: 15%

- Odometer reading (n=403):
  - Strongly agree: 45%
  - Agree: 37%
  - Neither agree nor disagree: 7%

- Automated plug-in device without location data (n=258):
  - Strongly agree: 81%
  - Agree: 17%
  - Neither agree nor disagree: 2%

- Smartphone app (n=252):
  - Strongly agree: 51%
  - Agree: 37%
  - Neither agree nor disagree: 4%

- Mileage permit (n=11):
  - Strongly agree: 45%
  - Agree: 27%
  - Neither agree nor disagree: 27%
The reporting method did not interfere with my ability to drive.

- **Automated plug-in device with location data**
  - n=574
  - 86% Strongly agree
  - 11% Agree
  - 1% Neither agree nor disagree
  - 0% Disagree
  - 0% Strongly disagree

- **Odometer reading**
  - n=403
  - 77% Strongly agree
  - 20% Agree
  - 2% Neither agree nor disagree
  - 0% Disagree
  - 0% Strongly disagree

- **Automated plug-in device without location data**
  - n=258
  - 86% Strongly agree
  - 11% Agree
  - 1% Neither agree nor disagree
  - 0% Disagree
  - 0% Strongly disagree

- **Smartphone app**
  - n=252
  - 80% Strongly agree
  - 17% Agree
  - 2% Neither agree nor disagree
  - 0% Disagree
  - 0% Strongly disagree

- **Mileage permit**
  - n=11
  - 64% Strongly agree
  - 36% Agree
  - 0% Neither agree nor disagree
  - 0% Disagree
  - 0% Strongly disagree
## Did the reporting method accurately report your trips?

<table>
<thead>
<tr>
<th>Method</th>
<th>Always</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated plug-in device with location data</td>
<td>67%</td>
<td>29%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Odometer reading</td>
<td>72%</td>
<td>18%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Automated plug-in device without location data</td>
<td>72%</td>
<td>25%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Smartphone app</td>
<td>68%</td>
<td>22%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Mileage permit</td>
<td>64%</td>
<td>18%</td>
<td>9%</td>
<td>9%</td>
</tr>
</tbody>
</table>

- **Automated plug-in device with location data**: `n=574`
- **Odometer reading**: `n=403`
- **Automated plug-in device without location data**: `n=258`
- **Smartphone app**: `n=252`
- **Mileage permit**: `n=11`
Please rate the following pilot activities in terms of ease of completion.

- Logging into your account to review your info.
  - n=1,442
  - 45% Very easy
  - 36% Easy
  - 11% Neither easy nor difficult
  - 5% Moderately difficult
  - 5% Very difficult

- Reviewing your mileage data
  - n=1,438
  - 43% Very easy
  - 36% Easy
  - 11% Neither easy nor difficult
  - 6% Moderately difficult
  - 6% Very difficult

- Interacting with customer service
  - n=741
  - 38% Very easy
  - 33% Easy
  - 19% Neither easy nor difficult
  - 6% Moderately difficult
  - 6% Very difficult
Who is your RUC Service Provider? (n=1,501)

<table>
<thead>
<tr>
<th>Service Provider</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>DriveSync</td>
<td>82%</td>
<td>1,235</td>
</tr>
<tr>
<td>Emovis</td>
<td>10%</td>
<td>152</td>
</tr>
<tr>
<td>Don’t know / Don’t remember name</td>
<td>8%</td>
<td>114</td>
</tr>
</tbody>
</table>
Please indicate your level of satisfaction with your RUC Service Provider for each of the following:

**Drive Sync**

- **Overall customer service and account management**
  - n=777
  - Very satisfied: 44%
  - Satisfied: 37%
  - Unsatisfied: 13%
  - Very unsatisfied: 4%
  - Unsure: 0%

- **Ability to resolve your issues and/or answer your questions**
  - n=608
  - Very satisfied: 41%
  - Satisfied: 36%
  - Unsatisfied: 12%
  - Very unsatisfied: 7%
  - Unsure: 0%

- **Promptness of responses**
  - n=618
  - Very satisfied: 44%
  - Satisfied: 35%
  - Unsatisfied: 14%
  - Very unsatisfied: 6%
  - Unsure: 0%

**Emovis**

- **Overall customer service and account management**
  - n=96
  - Very satisfied: 46%
  - Satisfied: 38%
  - Unsatisfied: 13%
  - Very unsatisfied: 3%
  - Unsure: 0%

- **Ability to resolve your issues and/or answer your questions**
  - n=69
  - Very satisfied: 46%
  - Satisfied: 28%
  - Unsatisfied: 14%
  - Very unsatisfied: 10%
  - Unsure: 0%

- **Promptness of responses**
  - n=71
  - Very satisfied: 52%
  - Satisfied: 24%
  - Unsatisfied: 11%
  - Very unsatisfied: 10%
  - Unsure: 0%

Legend:
- Very satisfied
- Satisfied
- Unsatisfied
- Very unsatisfied
- Unsure
Thinking about your full experience with the RUC Pilot, how satisfied were you overall? \((n=1,491)\)

91% were satisfied or very satisfied
Thinking about your specific experiences with the RUC Pilot, how satisfied are you with each of the following: \((n=1,491)\)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Very satisfied</th>
<th>Satisfied</th>
<th>Unsatisfied</th>
<th>Very unsatisfied</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>The opportunity to try something out before decisions are made</td>
<td>68%</td>
<td>26%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>about whether to implement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The guarantees made about the security of your personal information</td>
<td>41%</td>
<td>41%</td>
<td>3%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Opportunities to provide feedback on the pilot and your experience</td>
<td>51%</td>
<td>41%</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of time you spent participating in the pilot</td>
<td>62%</td>
<td>35%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of communications and instructions you received about the pilot</td>
<td>54%</td>
<td>41%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of participating in the pilot</td>
<td>64%</td>
<td>31%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

### Survey 3

<table>
<thead>
<tr>
<th></th>
<th>Very satisfied</th>
<th>Satisfied</th>
<th>Unsatisfied</th>
<th>Very unsatisfied</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>68%</td>
<td>26%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>41%</td>
<td>41%</td>
<td>3%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>51%</td>
<td>41%</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>62%</td>
<td>35%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>54%</td>
<td>41%</td>
<td>3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Survey 2

<table>
<thead>
<tr>
<th></th>
<th>Very satisfied</th>
<th>Satisfied</th>
<th>Unsatisfied</th>
<th>Very unsatisfied</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>58%</td>
<td>29%</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>45%</td>
<td>40%</td>
<td>8%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>59%</td>
<td>36%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>49%</td>
<td>42%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>62%</td>
<td>31%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 many miles I drive each month than when I started the pilot
  - Strongly agree: 28%
  - Agree: 26%
  - Neither agree nor disagree: 30%
  - Disagree: 13%
  - Strongly disagree: 5%

- the amount of transportation taxes I pay than when I started the pilot
  - Strongly agree: 38%
  - Agree: 35%
  - Neither agree nor disagree: 19%
  - Disagree: 4%
  - Strongly disagree: 1%
How important to you are the following principles for a potential RUC system: (n=1,491)

- Privacy: 89% Very important, 3% Important, 6% Fairly important, 1% Slightly important, 1% Not at all important
- Simplicity: 78% Very important, 5% Important, 15% Fairly important, 1% Slightly important, 1% Not at all important
- Data security: 75% Very important, 7% Important, 16% Fairly important, 1% Slightly important, 1% Not at all important
- Transparency: 70% Very important, 8% Important, 21% Fairly important, 1% Slightly important, 1% Not at all important
- Cost-effectiveness: 65% Very important, 11% Important, 19% Fairly important, 2% Slightly important, 1% Not at all important
- Equity: 61% Very important, 10% Important, 15% Fairly important, 7% Slightly important, 1% Not at all important
- Enforcement: 58% Very important, 12% Important, 24% Fairly important, 3% Slightly important, 1% Not at all important
- User options: 52% Very important, 13% Important, 28% Fairly important, 4% Slightly important, 1% Not at all important
- Charging out of state drivers: 39% Very important, 16% Important, 23% Fairly important, 13% Slightly important, 1% Not at all important
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)

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>My understanding is better with a RUC than with the gas tax</td>
<td>790</td>
</tr>
<tr>
<td>My understanding is the same as with the gas tax</td>
<td>498</td>
</tr>
<tr>
<td>My understanding is worse with a RUC than with gas tax</td>
<td>95</td>
</tr>
<tr>
<td>No opinion</td>
<td>108</td>
</tr>
</tbody>
</table>
Based on your experience in the pilot, how has your attitude towards a RUC system changed? (n=1,491)

- **24%** Much more supportive
- **24%** A little more supportive
- **36%** Same as before my RUC experience
- **7%** A little less supportive
- **9%** A lot less supportive
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?

**Survey 1**
- n=1,166
- 64% A road usage charge where you pay by the mile
- 19% A gas tax where you pay by the gallon of gas
- 12% A RUC and a gas tax are equally fair
- 6% Neither the gas tax nor the RUC is fair

**Survey 3**
- n=1,491
- 61% A road usage charge where you pay by the mile
- 16% A gas tax where you pay by the gallon of gas
- 14% A RUC and a gas tax are equally fair
- 8% Neither the gas tax nor the RUC is 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?

Survey 1
n=1,670
- 43%: A road usage charge where you pay by the mile
- 9%: Equally prefer a RUC or gas tax
- 17%: A gas tax where you pay by the gallon of gas
- 6%: Don’t prefer either a gas tax or RUC
- 26%: Not sure/need more information (please specify)

Survey 3
n=1,482
- 53%: A road usage charge where you pay by the mile
- 15%: Equally prefer a RUC or gas tax
- 19%: A gas tax where you pay by the gallon of gas
- 6%: Don’t prefer either a gas tax or RUC
- 8%: Not sure/need more information (please specify)
Funding preferences in Survey 3 for those that answered “not sure/need more information” in Survey 1 (n=292)

<table>
<thead>
<tr>
<th>Survey 3</th>
<th>A road usage charge where you pay by the mile</th>
<th>Equally prefer a RUC or gas tax</th>
<th>A gas tax where you pay by the gallon of gas</th>
<th>Don’t prefer either a gas tax or RUC</th>
<th>Not sure/need more information (please specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=292</td>
<td>42%</td>
<td>17%</td>
<td>18%</td>
<td>10%</td>
<td>13%</td>
</tr>
</tbody>
</table>

Survey 3
n=1,482

Survey 1
n=1,670
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?

Survey 1 (n=1,675):
- Strongly support: 22%
- Somewhat support: 29%
- Somewhat oppose: 9%
- Strongly oppose: 8%
- Not sure/need more information: 32%

Survey 2 (n=1,572):
- Strongly support: 34%
- Somewhat support: 31%
- Somewhat oppose: 10%
- Strongly oppose: 10%
- Not sure/need more information: 14%

Survey 3 (n=1,491):
- Strongly support: 38%
- Somewhat support: 34%
- Somewhat oppose: 8%
- Strongly oppose: 13%
- Not sure/need more information: 7%
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)

- **Move forward now to implement a RUC system in place of the gas tax as soon as the program can be made ready**: 28% (423)
- **Gradually phase in a RUC system over a five to ten year period so that it eventually replaces the gas tax**: 33% (493)
- **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**: 19% (284)
- **Apply a RUC system only to all-electric vehicles that are paying no gas tax**: 9% (139)
- **Take no further action on starting a RUC system for the foreseeable future**: 10% (152)
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

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

Roshini Durand
D'Artagnan Consulting
Participant vehicle enrollment overview

- Cumulative number of vehicles
- Cumulative number of active vehicles

- 2,475 Enrolled
- 2,044 Active
Overview of vehicle propulsion type

Distribution by Vehicle Propulsion Type

- **Gasoline**: 75% [21.9 MPG]
- **Hybrid**: 8% [36.8 MPG]
- **Other**: 8% [24.5 MPG]
- **Electric**: 5% N/A
- **Diesel**: 2% [21 MPG]
- **Plugin Hybrid**: 2% [66.7 MPG]

Average Fuel efficiency of WA RUC pilot fleet: 23.1 MPG
Mileage and revenue overview

Distance Reported
(~ 2,000 participants)
~ 15 million miles

(99.5%) Distance Charged

RUC
~ $357K

Fuel Tax Credits
~ $311K

Net RUC
(15% of fuel tax credits)
~ $46K

[Avg RUC Rate: 2.36 cents/mile]

[Avg Fuel Tax Rate: 48.8 cents/gallon]

[WA RUC pilot fleet
Average MPG: 23]
Mileage and revenue overview per vehicle

- **Distance Reported**: 11,155 mi
- **(99.5%) Distance Charged**: 11,100 mi
- **Fuel Consumed**: 465 gallons
- **RUC**: $261
- **Fuel Tax Credits**: $227
- **Net RUC**: (15% of fuel tax credits) $34
### Distribution by region

<table>
<thead>
<tr>
<th>Region</th>
<th>% Total Participants</th>
<th>% Total Miles Driven</th>
<th>% Total EVs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Puget Sound</td>
<td>22.9 MPG</td>
<td>57%</td>
<td>54%</td>
</tr>
<tr>
<td>Central Washington</td>
<td>23.2 MPG</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>Eastern Washington</td>
<td>22 MPG</td>
<td>11%</td>
<td>12%</td>
</tr>
<tr>
<td>NW Washington</td>
<td>24.1 MPG</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>SW Washington</td>
<td>22.8 MPG</td>
<td>1%</td>
<td>6%</td>
</tr>
</tbody>
</table>

- **Central Puget Sound**: 75% total participants, 54% total miles driven, 57% total EVs.
- **Central Washington**: 13% total participants, 12% total miles driven, 13% total EVs.
- **Eastern Washington**: 12% total participants, 12% total miles driven, 12% total EVs.
- **NW Washington**: 7% total participants, 5% total miles driven, 6% total EVs.
- **SW Washington**: 6% total participants, 6% total miles driven, 1% total EVs.
Distribution by age

- **18 to 45**
  - 22.2 MPG
  - % Total Participants: 38%
  - % Total Miles Driven: 39%
  - % Total EVs: 32%

- **46 to 65**
  - 23.2 MPG
  - % Total Participants: 40%
  - % Total Miles Driven: 43%
  - % Total EVs: 43%

- **Over 65**
  - 24.1 MPG
  - % Total Participants: 17%
  - % Total Miles Driven: 14%
  - % Total EVs: 22%

- **No answer**
  - 29.8 MPG
  - % Total Participants: 4%
  - % Total Miles Driven: 3%
  - % Total EVs: 4%
Distribution by gender

- **Male**: 22.6 MPG, 53% Total Participants, 55% Total Miles Driven, 78% Total EVs
- **Female**: 23.3 MPG, 41% Total Participants, 44% Total Miles Driven
- **Prefer to self-describe**: 0.4%, 0.3%
- **Prefer not to answer**: 0.8%, 0.7%, 2%
- **No answer**: 4%
Distribution by race/ethnicity

- Caucasian or white: 81% [22.8 MPG]
- Asian: 3% [25.8 MPG]
- African-American or black: 1% [25 MPG]
- American Indian or Alaska Native: 1% [20.1 MPG]
- Hispanic: 2% [25.4 MPG]
- Indian subcontinent: 0.3% [25.5 MPG]
- Native Hawaiian or other Pacific Islander: 0.4% [22.8 MPG]
- Other - Write In: 4% [22.8 MPG]
- None of the above: 0.4% [22.8 MPG]
- Prefer not to answer: 3% [22.8 MPG]
- Undetermined: 3% [22.8 MPG]
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

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2050</th>
</tr>
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<tbody>
<tr>
<td><strong>U.S.</strong></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75% eVMT</td>
</tr>
<tr>
<td><strong>Washington</strong></td>
<td></td>
<td>50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>California</td>
<td>1.5 mil</td>
<td>5 mil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td></td>
<td>50,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ZEV states</td>
<td></td>
<td></td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td></td>
<td>851,855</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td></td>
<td>43,596</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>British Columbia</td>
<td></td>
<td></td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Seattle</strong></td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Los Angeles</td>
<td>25%</td>
<td></td>
<td>80%</td>
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<td></td>
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<td>100%</td>
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<tr>
<td>Israel</td>
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<td></td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>U.K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

*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

Model 3 187,971
Model S 149,367
Leaf 134,392
Prius PHV/Prime 100,759
Model X 72,127
Fusion Energi 63,964
Bolt EV 48,517
C-Max Energi 42,231
i3 38,868
500e 26,868
Clarity PHEV 25,018
X5 xDrive40e 16,818
e-Golf 14,941
530e 14,805

May 2019
Total: 1,241,437

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

Top States by ATV Sales

<table>
<thead>
<tr>
<th>State</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>511,412</td>
</tr>
<tr>
<td>New York</td>
<td>46,399</td>
</tr>
<tr>
<td>Washington</td>
<td>41,459</td>
</tr>
<tr>
<td>Florida</td>
<td>40,550</td>
</tr>
<tr>
<td>Texas</td>
<td>34,239</td>
</tr>
<tr>
<td>Georgia</td>
<td>33,947</td>
</tr>
<tr>
<td>New Jersey</td>
<td>25,946</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>22,824</td>
</tr>
<tr>
<td>Illinois</td>
<td>22,476</td>
</tr>
<tr>
<td>Oregon</td>
<td>21,433</td>
</tr>
<tr>
<td>Colorado</td>
<td>19,738</td>
</tr>
<tr>
<td>Michigan</td>
<td>18,434</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>18,248</td>
</tr>
</tbody>
</table>

Data include 50 states and Washington D.C.
PEV Market Share: Washington is #2 in PEV adoption rate

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>94,873</td>
<td>153,442</td>
<td>61.73%</td>
<td>5.02%</td>
<td>7.84%</td>
<td>56.18%</td>
</tr>
<tr>
<td>Washington</td>
<td>7,068</td>
<td>12,650</td>
<td>78.98%</td>
<td>2.51%</td>
<td>4.28%</td>
<td>70.52%</td>
</tr>
<tr>
<td>Oregon</td>
<td>3,988</td>
<td>5,976</td>
<td>49.85%</td>
<td>2.36%</td>
<td>3.41%</td>
<td>44.49%</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>398</td>
<td>761</td>
<td>91.21%</td>
<td>1.87%</td>
<td>3.34%</td>
<td>78.61%</td>
</tr>
<tr>
<td>Colorado</td>
<td>4,156</td>
<td>7,051</td>
<td>69.66%</td>
<td>1.57%</td>
<td>2.61%</td>
<td>66.24%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1,934</td>
<td>2,296</td>
<td>18.72%</td>
<td>2.33%</td>
<td>2.59%</td>
<td>11.16%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4,632</td>
<td>8,990</td>
<td>94.08%</td>
<td>1.35%</td>
<td>2.53%</td>
<td>87.41%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>2,304</td>
<td>3,415</td>
<td>48.22%</td>
<td>1.39%</td>
<td>2.02%</td>
<td>45.32%</td>
</tr>
<tr>
<td>Total</td>
<td>187,985</td>
<td>328,118</td>
<td>74.54%</td>
<td>1.20%</td>
<td>1.96%</td>
<td>63.33%</td>
</tr>
</tbody>
</table>

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

- 2.5% Innovators
- 13.5% Early Adopters
- 34% Early Majority
- 34% Late Majority
- 16% Laggards

"The Chasm"

Washington: 4.28%

Area under the curve represents number of customers
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.

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.

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.

Challenges to consumer adoption
Barriers to purchase: EV Drivers vs. non-EV Drivers

The top barrier to PEV purchase: range anxiety

65% of EV drivers say they had range anxiety when they first purchased an EV, but it went away after a few months.

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 average 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

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

States with the most public Electric Vehicle Supply Equipment charging outlets

- California: 20,285
- Texas: 3,117
- Florida: 3,106
- New York: 3,061
- Washington: 2,416
- Georgia: 2,405
- Colorado: 1,917

Source: U.S. Energy Department data as of May 22, 2019

United States

- Home: 51% (2020), 44% (2030)
- Work: 15% (2020), 12% (2030)
- Long distance: 7% (2020), 11% (2030)
- Public: 28% (2020), 33% (2030)

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

The Incredible Shrinking Car Battery
EV battery cost for U.S. medium-size car as a percentage of retail price

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

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 operates 15 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

<table>
<thead>
<tr>
<th></th>
<th>Volkswagen Golf Cost in Euros</th>
<th>Volkswagen e-Golf Cost in Euros</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Import price:</strong></td>
<td>22,046</td>
<td>33,037</td>
</tr>
<tr>
<td><strong>CO2 tax (113g/kg):</strong></td>
<td>4348</td>
<td>0</td>
</tr>
<tr>
<td><strong>NOx tax:</strong></td>
<td>206</td>
<td>0</td>
</tr>
<tr>
<td><strong>Weight tax:</strong></td>
<td>1,715</td>
<td>0</td>
</tr>
<tr>
<td><strong>Scrapping fee:</strong></td>
<td>249</td>
<td>249</td>
</tr>
<tr>
<td><strong>25% VAT</strong></td>
<td>5,512</td>
<td>0</td>
</tr>
<tr>
<td><strong>Retail price:</strong></td>
<td>34,076€</td>
<td>33,286€</td>
</tr>
</tbody>
</table>

[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:

<table>
<thead>
<tr>
<th>Effective Dates</th>
<th>Sales Tax Exemption</th>
<th>Maximum Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through July 31, 2021</td>
<td>6.5%</td>
<td>Applied to first $25,000 of purchase price</td>
</tr>
<tr>
<td>August 1, 2021 – July 31, 2023</td>
<td>6.5%</td>
<td>Applied to first $20,000 of purchase price</td>
</tr>
<tr>
<td>August 1, 2023 – July 21, 2025</td>
<td>6.5%</td>
<td>Applied to first $15,000 of purchase price</td>
</tr>
</tbody>
</table>
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.
## Amount, distribution and use of Washington’s PEV annual registration fee

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

= $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 to 18 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%
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**

<table>
<thead>
<tr>
<th>Cruise ICE</th>
<th>Bolt EV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gas</strong> 31 miles</td>
<td><strong>Electricity</strong> 127 miles</td>
</tr>
</tbody>
</table>

- **Local gasoline price/gallon**
  - Cruise ICE: $3.60
  - Bolt EV: $3.60
- **Estimated MPG of gas vehicle**
  - Cruise ICE: 31
- **Estimated kWh/mile for EV**
  - Cruise ICE: 0.283
  - Bolt EV: 0.283
- **Utility kWh rate**
  - Cruise ICE: $0.1000
  - Bolt EV: $0.1000

**Step 2**

How much should it cost to drive 12,000 miles per year?

- **Cruise ICE**
  - Gasoline: $1,393/yr
- **Bolt EV**
  - EV: $339/yr

Average annual driving estimates vary across the US, but the EPA/DOE use 15,000 miles/year as the average for most fuel use estimates. This estimate is based on the above inputs.

Switch to EV and save big on fuel! Estimated annual savings:

$1,053
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.

<table>
<thead>
<tr>
<th></th>
<th>Cruise ICE</th>
<th>Bolt EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline $/5 yrs</td>
<td>$6,967</td>
<td>$1,697</td>
</tr>
</tbody>
</table>

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

**$ 5,269**
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*)

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

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
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?

<table>
<thead>
<tr>
<th>Option</th>
<th>PEV</th>
<th>PEV %</th>
<th>Hybrid</th>
<th>Hybrid %</th>
<th>ICE</th>
<th>ICE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A RUC and a gas tax are equally fair</td>
<td>14</td>
<td>14%</td>
<td>13</td>
<td>11%</td>
<td>185</td>
<td>17%</td>
</tr>
<tr>
<td>A road usage charge where you pay by the mile</td>
<td>58</td>
<td>57%</td>
<td>80</td>
<td>66%</td>
<td>686</td>
<td>62%</td>
</tr>
<tr>
<td>Neither the gas tax nor the RUC is fair</td>
<td>12</td>
<td>12%</td>
<td>9</td>
<td>7%</td>
<td>87</td>
<td>8%</td>
</tr>
<tr>
<td>A gas tax where you pay by the gallon of gas</td>
<td>17</td>
<td>17%</td>
<td>20</td>
<td>16%</td>
<td>151</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>101</td>
<td></td>
<td>122</td>
<td></td>
<td>1109</td>
<td></td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th>Method</th>
<th>PEV</th>
<th>Hybrid</th>
<th>ICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equally prefer a RUC or gas tax</td>
<td>12</td>
<td>12%</td>
<td>12</td>
</tr>
<tr>
<td>A road usage charge where you pay by the mile</td>
<td>55</td>
<td>55%</td>
<td>62</td>
</tr>
<tr>
<td>Don’t prefer either a gas tax or RUC</td>
<td>2</td>
<td>2%</td>
<td>6</td>
</tr>
<tr>
<td>A gas tax where you pay by the gallon of gas</td>
<td>17</td>
<td>17%</td>
<td>27</td>
</tr>
<tr>
<td>Not sure/need more information (please specify)</td>
<td>15</td>
<td>15%</td>
<td>13</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>101</strong></td>
<td><strong>120</strong></td>
<td><strong>1103</strong></td>
</tr>
</tbody>
</table>
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?

<table>
<thead>
<tr>
<th></th>
<th>PEV</th>
<th>Hybrid</th>
<th>ICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly support</td>
<td>38</td>
<td>44</td>
<td>429</td>
</tr>
<tr>
<td>Somewhat support</td>
<td>28</td>
<td>47</td>
<td>375</td>
</tr>
<tr>
<td>Somewhat oppose</td>
<td>11</td>
<td>14</td>
<td>90</td>
</tr>
<tr>
<td>Strongly oppose</td>
<td>17</td>
<td>12</td>
<td>136</td>
</tr>
<tr>
<td>Not sure/need more information</td>
<td>7</td>
<td>5</td>
<td>79</td>
</tr>
<tr>
<td>Subtotal</td>
<td>101</td>
<td>122</td>
<td>1109</td>
</tr>
</tbody>
</table>
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?

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

• Goals

Ara Swanson
EnvirolIssues
RECRUITMENT AND LIVE TEST DRIVE HELP DESK COMMUNICATIONS SUMMARY

Ara Swanson
Envirolissues
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
Total incoming communications: 1,945
WHO DID WE HEAR FROM?

Pilot test drive: Incoming communications by user type

- 62% Non-participants
- 38% Participants

Communications received from all users by communication type

- 71% Email
- 29% Phone

(WA RUC logo)
WHO DID WE HEAR FROM?

BY REGION

<table>
<thead>
<tr>
<th>Region</th>
<th>Population distribution</th>
<th>Participant distribution</th>
<th>Percentage of communications received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>13%</td>
<td>13%</td>
<td>11.2%</td>
</tr>
<tr>
<td>East</td>
<td>9%</td>
<td>13%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Northwest</td>
<td>6%</td>
<td>6%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Puget Sound</td>
<td>62%</td>
<td>60%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Southwest</td>
<td>9%</td>
<td>6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Unknown</td>
<td>N/A</td>
<td>N/A</td>
<td>12.0%</td>
</tr>
</tbody>
</table>
## WHO DID WE HEAR FROM?

### BY MILEAGE REPORTING METHOD

<table>
<thead>
<tr>
<th>MRM</th>
<th>Participant distribution</th>
<th>MRM source of communications received (in percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mileage permit</td>
<td>1.0%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Plug-in device</td>
<td>21.0%</td>
<td>14.3%</td>
</tr>
<tr>
<td>Plug-in device with GPS</td>
<td>34.0%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Odometer reading</td>
<td>29.0%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Smartphone app</td>
<td>15.0%</td>
<td>9.5%</td>
</tr>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>0.7%</td>
</tr>
</tbody>
</table>
### POPULAR TOPICS (OVERALL BY PHASE)

<table>
<thead>
<tr>
<th>Recruitment and Enrollment</th>
<th>Live Pilot Test Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enrollment inquiries</td>
<td>• Mileage reporting method</td>
</tr>
<tr>
<td>• Policy, implementation</td>
<td>• DriveSync transfer</td>
</tr>
<tr>
<td>• General RUC inquiry</td>
<td>• General RUC inquiry</td>
</tr>
<tr>
<td>• Vehicle weight</td>
<td>• Enrollment inquiries</td>
</tr>
<tr>
<td></td>
<td>• Survey/Incentives</td>
</tr>
</tbody>
</table>
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
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
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
COMMUNICATIONS UPDATES

Ara Swanson
EnvirolIssues
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 Phase 3 Communications Timeline

**Draft: April 29, 2019**

## Phase 3 Communication Timeline

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Steering Committee and WSTC meetings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5G Agenda topics</td>
<td>5G Agenda topics</td>
<td>5G Agenda topics</td>
<td>5G Agenda topics</td>
<td>5G Agenda topics</td>
<td>WSTC meeting</td>
<td>WSTC meeting</td>
<td>Legislative report</td>
<td></td>
</tr>
<tr>
<td>+ Experiences</td>
<td>+ Audits</td>
<td>+ Private sector resources</td>
<td>+ IT needs</td>
<td>+ Driving experience</td>
<td>+ User interface</td>
<td>+ Technical challenges</td>
<td>+ Legislative</td>
<td></td>
</tr>
<tr>
<td><strong>Email updates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-level Steering Committee meeting and materials</td>
<td>High-level Steering Committee meeting and materials</td>
<td>High-level Steering Committee meeting and materials</td>
<td>High-level Steering Committee meeting and materials</td>
<td>High-level Steering Committee meeting and materials</td>
<td>High-level Steering Committee meeting and materials</td>
<td>Ambassador - compilation of final report and presentation to stakeholders</td>
<td>Ambass</td>
<td></td>
</tr>
<tr>
<td><strong>Media outreach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Press release</td>
<td>+ Press release</td>
<td>+ Press release</td>
<td>+ Share findings about potential translation strategy (TBD)</td>
<td>+ Share findings about potential translation strategy (TBD)</td>
<td>+ Share findings about potential translation strategy (TBD)</td>
<td>+ Share findings about potential translation strategy (TBD)</td>
<td>+ Share findings about potential translation strategy (TBD)</td>
<td></td>
</tr>
<tr>
<td><strong>Video</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td>+ Review study footage</td>
<td></td>
</tr>
<tr>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td>+ Video script</td>
<td></td>
</tr>
<tr>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td>+ Coordinate video production</td>
<td></td>
</tr>
<tr>
<td><strong>Roadshow: In-person (speaking engagements) and digital (webinars)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Confirm list of groups to engage</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td>+ Coordinate virtual speaking events</td>
<td></td>
</tr>
<tr>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td>+ Update PPT and handouts</td>
<td></td>
</tr>
<tr>
<td><strong>Speaking engagements: 13-12 events</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Outline goals and topics for webinars</td>
<td>+ Outline goals and topics for webinars</td>
<td>+ Outline goals and topics for webinars</td>
<td>+ Outline goals and topics for webinars</td>
<td>+ Outline goals and topics for webinars</td>
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## Key

- **Star**: Milestone
- **Task**: Task throughout dates ranges (length of time coordinating, preparing for, or implementing activities)
CURRENT COMMUNICATIONS – ACTIVITIES

- Responsive and proactive media engagement
- Regular e-newsletters
- Steering Committee meetings
- Video highlighting the participant experience
- Briefings and webinars
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
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
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
PARTICIPANT EXPERIENCE VIDEO
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
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**.
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

1. Existing or new agency?
   - New
   - Existing

2. Assign functions
   - DOL
   - DOT
   - OST
   - WSTC

3. Build scenarios for assembling functions
 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
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
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)

Management and Planning

Function #1
Manage policy, regulation, budget, resources, and performance

Function #2
Plan and Forecast Revenue

Function #3
Audit RUC program data and IT/system compliance

Function #4
Manage internal communications

Function #5
Provide external communications
RUC functions: operations (2 of 3)

Operations

Function #6
Enable enrollment in RUC accounts for end users

Function #7
Process data, calculate RUC, and levy charges

Function #8
Provide customer service

Function #9
Enforce and adjudicate RUC

Function #10
Manage funds and refunds

Function #11
Manage interoperability
RUC functions: support (3 of 3)

Support

Function #12
Ensure IT and system compliance

Function #13
Create and update system design

Function #14
Establish and manage service providers for end-user RUC accounts

Function #15
Manage a digital definition of the charged road network
RUC functions: summary

**Management and Planning**
- Function #1: Manage policy, regulation, budget, resources, and performance
- Function #2: Plan and Forecast Revenue
- Function #3: Audit RUC program data and IT/system compliance
- Function #4: Manage internal communications
- Function #5: Provide external communications

**Operations**
- Function #6: Enable enrollment in RUC accounts for end users
- Function #7: Process data, calculate RUC, and levy charges
- Function #8: Provide customer service
- Function #9: Enforce and adjudicate RUC
- Function #10: Manage funds and refunds
- Function #11: Manage interoperability

**Support**
- Function #12: Ensure IT and system compliance
- Function #13: Create and update system design
- Function #14: Establish and manage service providers for end-user RUC accounts
- Function #15: Manage a digital definition of the charged road network
Functions: RUC functions by agency

**DOL**
- RUC operations
- Internal governance and management
- External communications

**OST**
- Support for funds handling
- Receive revenue forecasts

**WSDOT**
- Technical support for operations
- Generate revenue forecasts

**WSTC**
- Independent policy and performance evaluation
- Inter-agency coordination
- Support for design and operations
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

Legislature + Governor

DOL
- RUC operations
- Internal governance and management
- External communications

OST
- Support for funds handling
- Receive revenue forecasts

WSDOT
- Technical support for operations
- Generate revenue forecasts

WSTC
- Independent policy and performance evaluation
- Inter-agency coordination
- Support for design and operations
Scenario 2: Coordination of operations and independent evaluation

Legislature + Governor

WSTC
- Independent policy and performance evaluation
- Inter-agency coordination
- Support for design and operations

DOL
- RUC operations
- Internal governance and management
- External communications

OST
- Support for funds handling
- Receive revenue forecasts

WSDOT
- Technical support for operations
- Generate revenue forecasts
Scenario 3: Delegate authority for organizational design

Legislature + Governor

Independent authority (new or existing entity)

DOL
- RUC operations
- Internal governance and management
- External communications

OST
- Support for funds handling
- Receive revenue forecasts

WSDOT
- Technical support for operations
- Generate revenue forecasts

WSTC
- Independent policy and performance evaluation
- Inter-agency coordination
- Support for design and operations
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

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

James Whitty
D’Artagnan Consulting
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

<table>
<thead>
<tr>
<th>Configurations</th>
<th>RUC System Delivery Description</th>
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<tbody>
<tr>
<td>Configuration 1</td>
<td>Government agency</td>
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<tr>
<td>Configuration 2</td>
<td>Single private-sector services provider</td>
</tr>
<tr>
<td>Configuration 3</td>
<td>Open market for multiple private-sector service providers</td>
</tr>
<tr>
<td>Configuration 4</td>
<td>Combination of government agency and open market for multiple private-sector providers</td>
</tr>
<tr>
<td>Configuration 5</td>
<td>Combination of government agency and single private-sector provider</td>
</tr>
</tbody>
</table>
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
### Guiding Principles

<table>
<thead>
<tr>
<th>Principles</th>
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<tbody>
<tr>
<td>Transparency</td>
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<tr>
<td>Complimentary policy objectives</td>
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<td>Cost-effectiveness</td>
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<td>Equity</td>
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<td>Privacy</td>
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<td>Data security</td>
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<tr>
<td>Simplicity</td>
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<td>Accountability</td>
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<td>Enforcement</td>
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<td>System Flexibility</td>
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<tr>
<td>User Options</td>
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<tr>
<td>Interoperability and Cooperation</td>
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<tr>
<td>Phasing</td>
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</tbody>
</table>
**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
Assessment Criteria Categories

- Administrative effectiveness
- Participant experience
- Operational performance
- Practical availability
- Flexibility
- Policy Alignment
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
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
• Identify the final end state delivery configuration to which RUC program aspires
  ◦ Government-only
  ◦ Open commercial market
  ◦ Combination of government and open commercial market
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
Additional criteria for transition pathways

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

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

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 driven.
Per-mile revenue from 49.4 cents/gallon fuel tax, by vehicle MPG

- 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.

At the Wash. state average of 20.5 MPG, a driver pays 2.4 cents/mile in state fuel tax.
Per-mile revenue from 49.4 cents/gallon fuel tax, by vehicle MPG

- 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.

At the Wash. state average of 20.5 MPG, a driver pays 2.4 cents/mile in state fuel tax.
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)
THANK YOU!

**Questions?** Contact: Reema Griffith, Executive Director
Washington State Transportation Commission
griffir@wstc.wa.gov
360-705-7070

Consultant support provided by: