Roadmap for Electric Transportation
Realize benefits of electrified transportation for state residents

- Improved public health
- Savings for EV drivers
- More jobs
- Stronger energy security
- Climate change mitigation
- Improved electricity system efficiency
Action plan for electrification of transportation

- Plan your destination
- Drive investment with incentives
- Remove roadblocks
- Empower regulators
PLAN YOUR DESTINATION
Plan your destination

- Establish goals and timelines
- Create state EV policy plans
- Lead by example with state fleet vehicles
- Enable regular statewide assessment updates
- Plan for future transportation funding sources
Establish EV goals and timelines

Set state goals for EVs
- Number and type of EVs
- Number and type of charging stations
- Goals for communities served

Set timelines for reaching the goal
Create state EV policy plans

- Create a vision for electrified transportation in a state, and connect state goals, priorities and actions
- Promote alignment with the public interest (reflecting cost, risk and environmental management) and consider the application of some consumer protection guardrails
- Enable coordination between state agencies of transportation, air quality and environment, commerce, tourism and energy, and the public utilities commission
- Ensure mechanisms exist to coordinate between various offices of state government and local jurisdictions
Electrify state fleets

- States can lead by example
- Help create infrastructure
- Save money on maintenance
Track and evaluate progress

Require periodic assessments
Track progress toward state goals
Plan for transportation funding sources

Federal gas tax has not changed in 25 years

Dwindling fund is almost entirely due to cost of construction and inflation, not EVs

Need new, equitable way to fund roads
DRIVE INVESTMENT WITH INCENTIVES
Four types of financial incentives

- Income tax credits
- Vehicle purchase rebates
- One-time vehicle tax reductions
- Annual vehicle tax reductions
Best practices for structuring financial incentives

- Apply incentives at the point of purchase
- Be transparent
- Make incentive programs durable
Apply incentives at the point of purchase

Individual, business, municipal and state government customers pay attention to cost

Incentives that directly reduce the cost at the time of purchase or through tax exemptions are most successful
Be transparent

- Simple incentives work
- Make the public aware of the incentives and vehicles eligible for incentives
- Clearly link incentives to public policy goals
Make incentive programs durable

Predictable incentives are successful

Provide certainty for manufacturers, dealers, consumers and public outreach campaigns
Nonfinancial incentives

- States need to provide and enforce parking and charging for EVs
- Access to high-occupancy vehicle lanes for EVs
REMOVE ROADBLOCKS
Consumer roadblock concerns

Reasons given for not considering buying or leasing a plug-in EV

<table>
<thead>
<tr>
<th>Reason</th>
<th>February 2015</th>
<th>February 2016</th>
<th>February 2017</th>
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<tbody>
<tr>
<td>Too expensive</td>
<td>55%</td>
<td>55%</td>
<td>51%</td>
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<td>Unable to charge away from home</td>
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<td>Technology is not dependable</td>
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<td>31%</td>
<td>35%</td>
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<td>Not available in segment considering</td>
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<td>35%</td>
<td>28%</td>
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<tr>
<td>Poor performance</td>
<td>27%</td>
<td>26%</td>
<td>24%</td>
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<tr>
<td>Other</td>
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<td>21%</td>
<td>17%</td>
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<tr>
<td>Don’t know</td>
<td>7%</td>
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</tbody>
</table>

Source: Based on Singer, M. (2017). The Barriers to Acceptance of Plug-In Electric Vehicles: 2017 Update
How to remove roadblocks

- Ensure consumer-friendly charging infrastructure is widely available
- Ensure building codes provide for an electrified future
- Ensure electrification benefits all of society, including rural and low-income communities
We need infrastructure for people to buy cars, but need lots of electric vehicles for infrastructure to be built.
Ensure building codes provide for an electrified future

- Single-family homes
- Multiunit dwellings
- Rentals
Benefit all of society with electrification

Legislative actions can include:

◦ Engage diverse stakeholders in planning
◦ Require studies to fill information gaps
◦ Identify barriers and develop solutions that deliver on inclusivity goals
◦ Ensure electrified transport is accessible to all regardless of economic or geographic circumstances
EMPOWER REGULATORS
Steps to empower regulators

- Clarify roles and regulation in developing charging infrastructure
- Ensure integrated planning that includes EVs
- Develop smart rate design for EVs
- Consider enabling performance-based regulation for utility EV programs
Clarify role of utility

- **Utility as facilitator:** The utility treats EV charging like any other potential load
- **Utility as enabler:** The utility deploys additional infrastructure to build out capacity in key areas — also called the make-ready option
- **Utility as manager:** The utility manages the charging operation to better integrate charging with grid capabilities and grid needs
- **Utility as provider** (may include manager role): The utility delivers electric service to the charging equipment, which the utility owns and is able to earn a return on, and the utility provides charging services
Potential roles for utilities in EV charging infrastructure

Electric distribution service
- Utility distribution network
- Utility pad mounted transformer
- Meter

Electric vehicle supply equipment
- Panel
- EV charger
- Electric vehicle

Manager
Provider

Integrated planning process considerations

State legislators may want to consider:

- Whether an existing planning process, such as an integrated resource plan, considers all existing resources
- Whether the requirement should be solely on electric utilities or electric distribution companies
- Whether other state agencies should be involved in the planning process
- The length of the planning horizon required (typically 10 to 20 years)
Further integrated planning considerations

Whether the planning process (new or existing) requires utilities to utilize all cost-effective energy efficiency, demand response and renewable energy to meet EV charging needs

Whether the plan requires utilities to make use of charging to meet flexible demand

Whether utilities should be required to consider utilizing the storage capability of EVs
Ensuring the implementation of dynamic rate design is one of the most important directions state legislation can provide.
Ensure smart rate design for EVs
Critical rate design points

- EV charging can be shifted to avoid the few critical hours when the grid is stressed.
- EV charging can be shifted to take advantage of hours when the grid is loaded lightly.
- EV charging can be managed to avoid the cost of expensive new resources, like new generation plants and storage, and save consumers money.
Critical rate design points

- EVs can help integrate renewable energy by charging when this energy is abundant.

- Future technology may enable EVs to be a resource to the grid by providing storage and discharge.
Consider performance-based regulatory tools for EV programs

Check if the public utility commission has the authority to apply performance-based rewards and penalties to utilities

Consider a performance-based regulation program to incentivize state goals, which can include:

- Customer engagement and empowerment
- Environmental outcomes
- Cost-effectiveness
Legislative action is necessary to realize these benefits:

1. Improved public health
2. Savings for EV drivers
3. More jobs
4. Stronger energy security
5. Climate change mitigation
6. Improved electric system efficiency
This PowerPoint file was prepared by the Regulatory Assistance Project (RAP)®, which is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable and efficient energy future.

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www.raponline.org/EV-roadmap