Reducing GHG Emissions in Transport: State Best Practices & Experience

Greening Growth Partnership &
Economics and Environmental Policy Research Network
Annual Symposium, 28 February 2020

Jonathan Rubin

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Momentum in States, Cities, Local

- **NCHRP: 25-56: Methods for State DOTs to Reduce Greenhouse Gas Emissions from the Transportation Sector**
  - Identify and describe **tools, methods, and data sources** that State DOTs can use to measures GHG emissions and evaluate GHG reduction opportunities
  - Help State DOTs understand how they can address GHGs through **all stages of their activities**
  - Help State DOTs respond to and support **state, local, and/or federal GHG requirements or initiatives**
  - Workshops summer 2019 and TRB January 2020 Session (Minnesota, Washington State, Texas)

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Levels of Engagement

Level	Policy	Practice – Internal	Practice - System	Data & Analysis
Level 1	New to the topic; few or no formal actions to address GHG.			
Level 2	Has established general policies, goals, and/or objectives related to GHG.	Agency emissions considered.	No formal consideration of transportation system emission reduction.	No or limited/partial GHG inventory.
Level 3	Has established specific policies, goals, and/or objectives related to GHG.	Applies quantitative project or program evaluation criteria to agency emissions.	Qualitative project or program evaluation criteria.	Has developed GHG inventory and/or forecast.
Level 4	Serious multiagency effort.	Strategic planning: has evaluated GHG reduction strategies, linked strategies to plans and programs, and conducted quantitative assessment.		Has developed inventory, forecast, specific data and tracking methods, and established specific policies and goals related to targeted GHG reductions.

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Issues & Motivation: State, Provincial, Local

- Infrastructure, facilities at risk
  - Sea level rise and severe weather
  - Disruption and maintenance costs
  - Bridges with more freeze thaw cycles
- Co-benefits in terms of local air quality
  - Fewer criteria/particulate emissions with EVs
- Public demand for action

What policy levers are available/effective at sub-national level?

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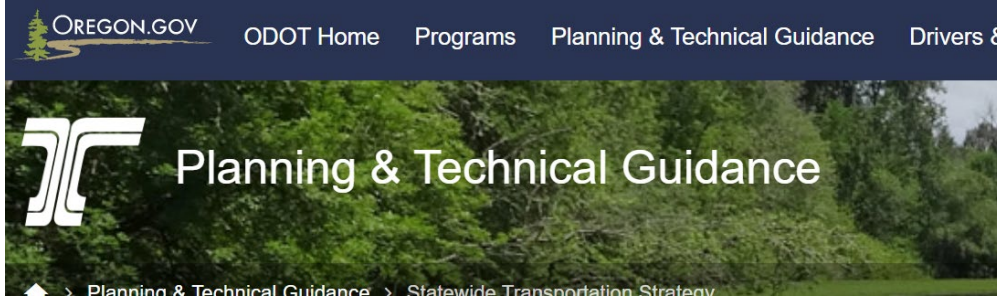
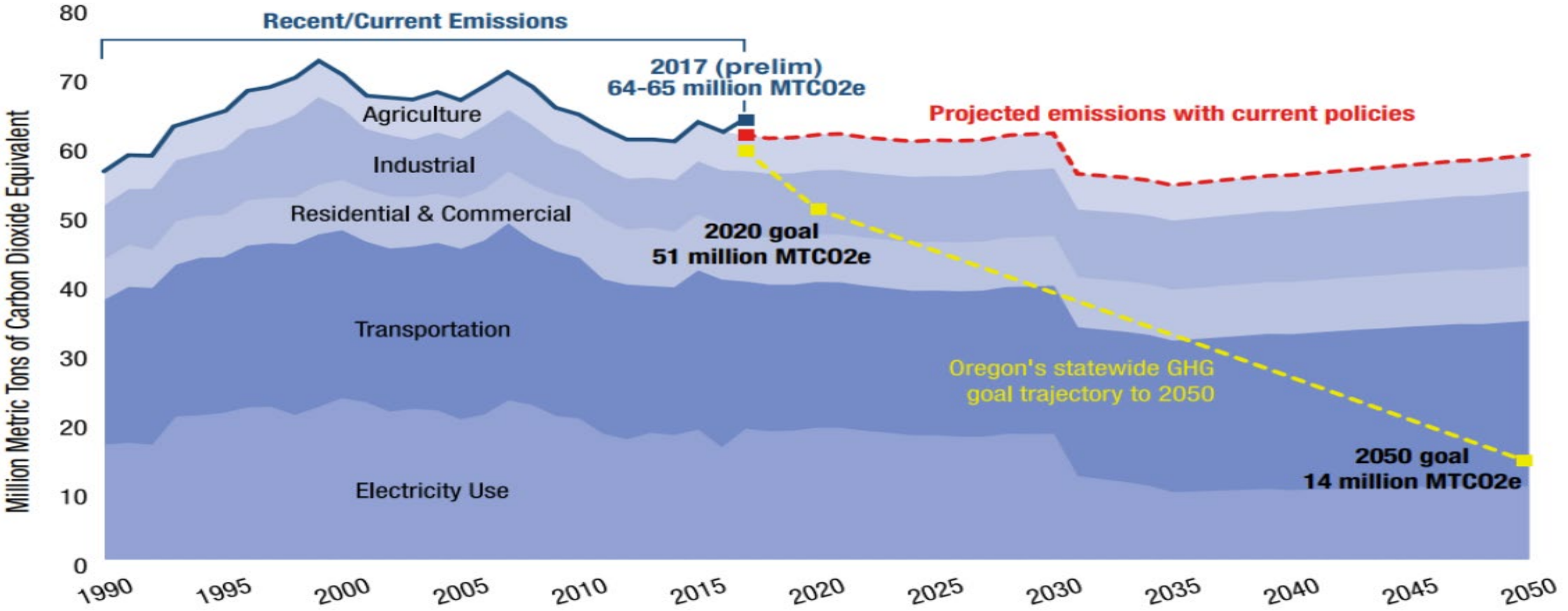
Oregon



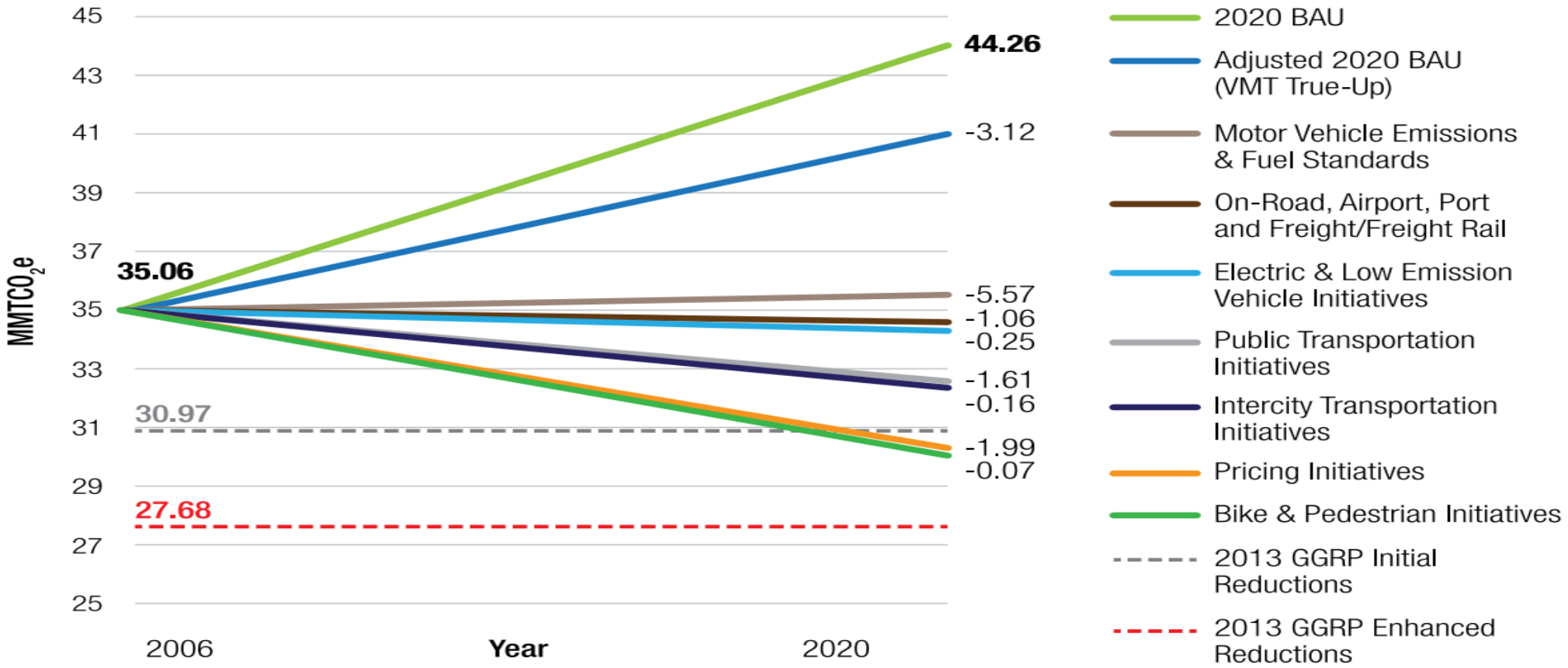
Achieve GHGs 75% below 1990 levels by 2050



Maryland

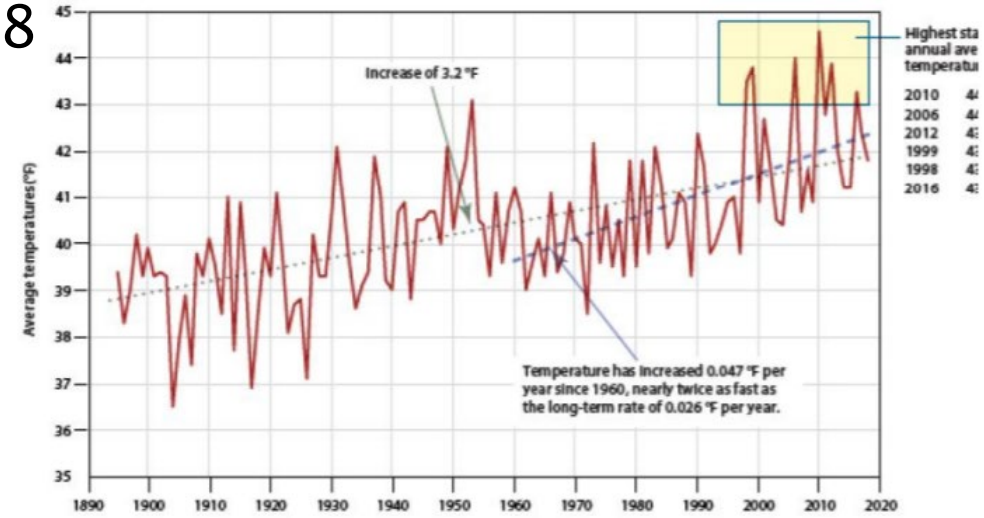
40% reduction in statewide GHG emissions from 2006 levels by 2030

Figure ES.1 – 2020 Transportation Sector GHG Emissions



State of Maine
Governor's Office of Policy Innovation and the Future

- **The Maine Climate Council** is charged with developing a plan to meet state greenhouse gas emissions reduction targets that are now in law, including a gross 45% greenhouse gas emissions reduction below 1990 levels by 2030 and at least 80% by 2050.
- Historical records: Maine's statewide mean annual temperature has increased by 3.2 °F (≈1.8 °C) since 1895



- Scientific and Technical Subcommittee
- Energy Working Group
- Transportation Working Group
- Buildings, Infrastructure and Housing Working Group
- Coastal and Marine Working Group
- Natural and Working Lands Working Group
- Community Resilience Planning, Public Health, and Emergency Management Working Group

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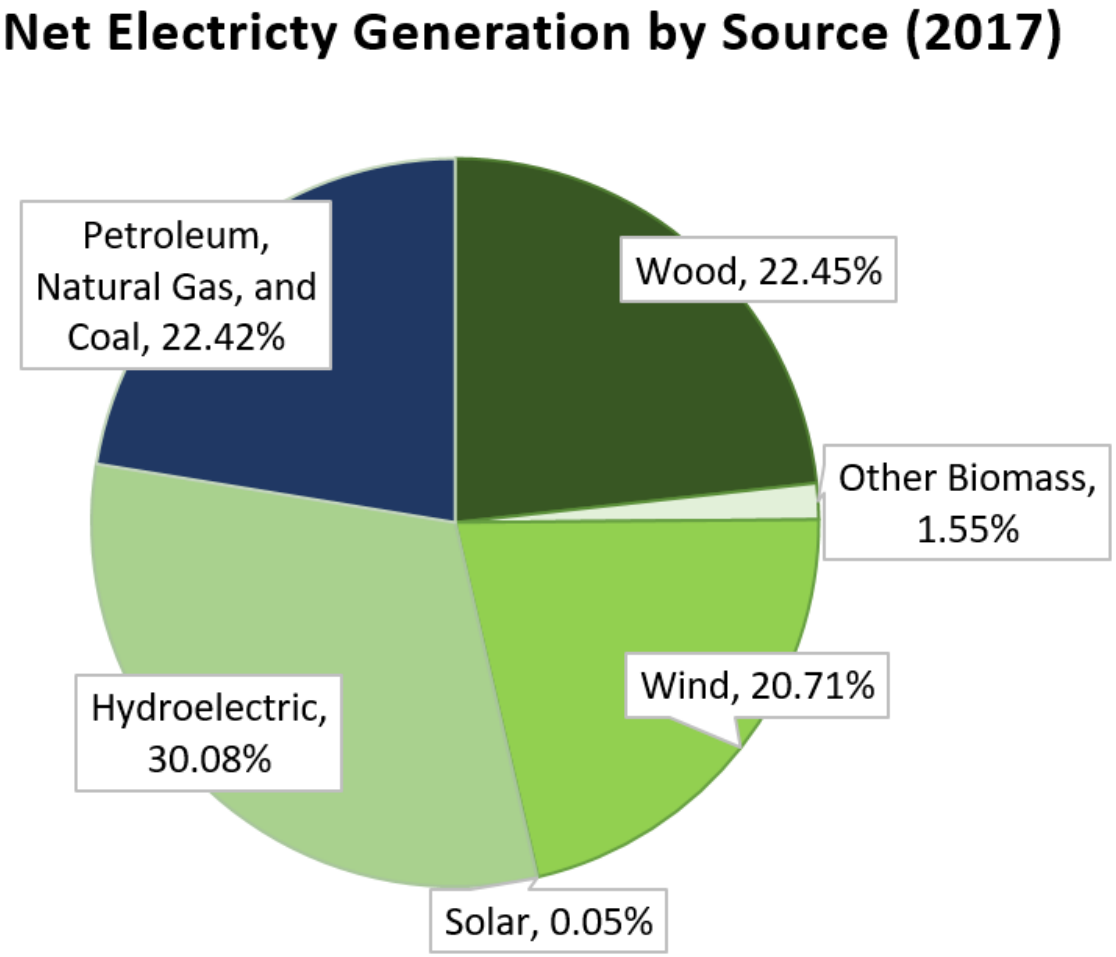
Maine Energy Generation: 75% Renewable

- Nearly 2/3 of Maine households use fuel oil for home heating
- Petroleum products ~50% all energy used in state
- **Net Electricity ~75% renewable**
  - Hydro, wood & wind
- Opportunities:
  - Fuel switching: heating and transport
  - Renewable energy generation



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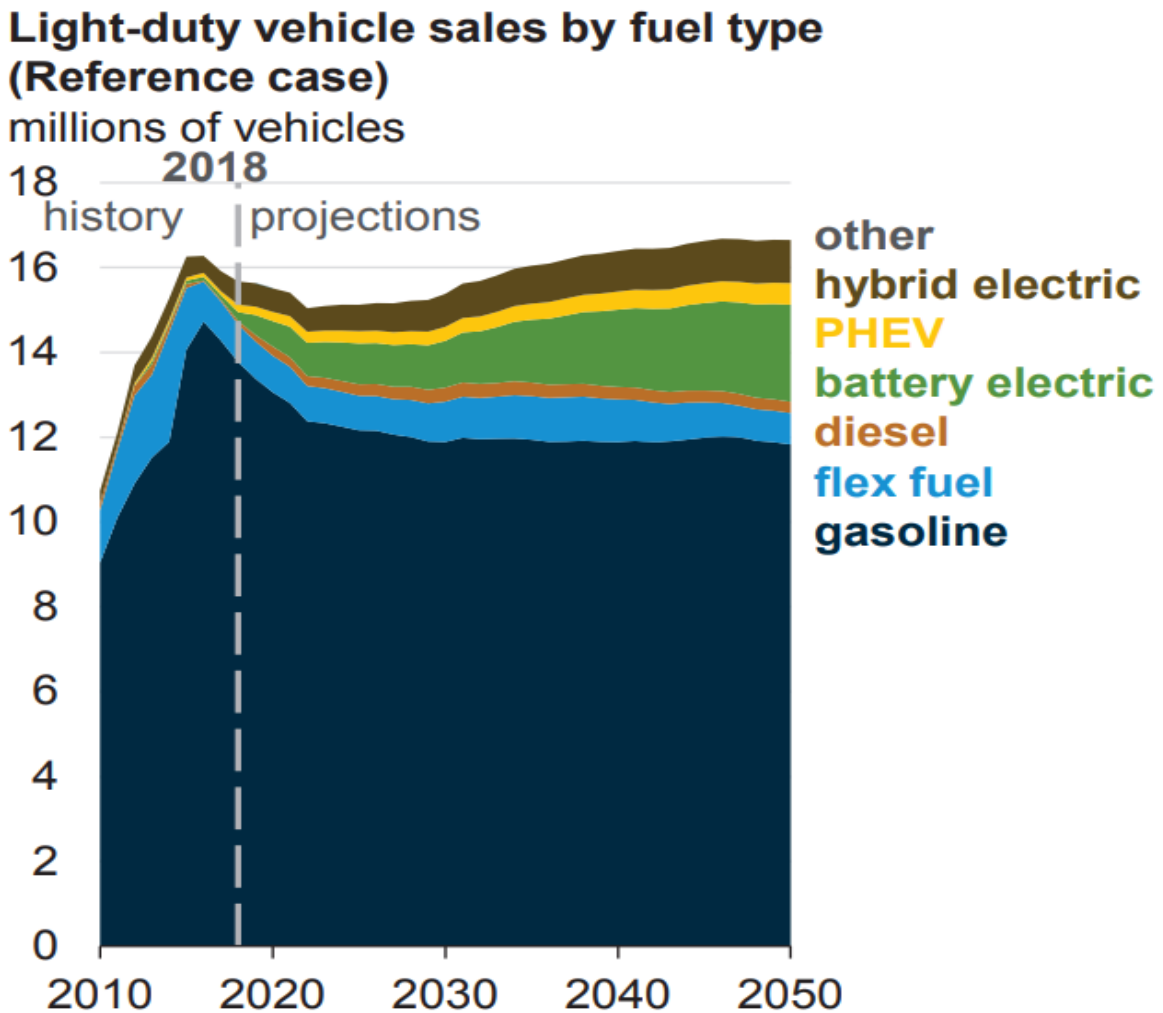
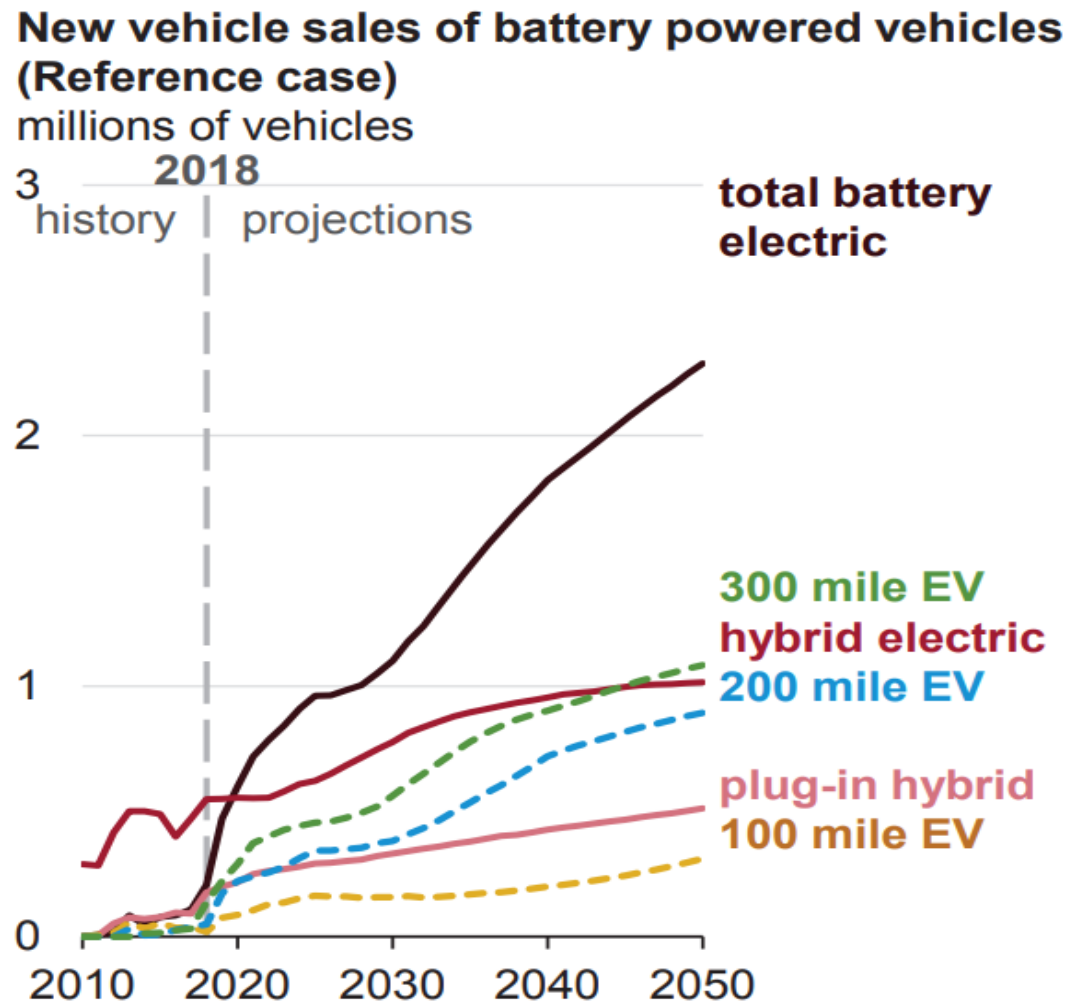
EVs Gain Market Share





What Can a DOTs Do to Support GHG Goals?

Lesson Learned	DOT Role
Most emission reductions will come from clean vehicle and fuel technologies	Support EV/AFV infrastructure, clean transit & fleets
Demand reduction and systems efficiency strategies can get us another ~5-20%	Implement ITS/efficient traffic operations Support alternative modes
Additional 2-3% reduction potential from DOT construction materials, fuels/fleets, & buildings	Use low-carbon, recycled/reused materials where feasible Switch to clean fuel light and heavy vehicles
GHG reduction targets of 75-80% by 2050 are challenging and will require widespread electrification + clean grid	Collaborate with other state, regional, and local agencies to do everything within collective power
Most strategies require implementation at multiple levels (state, regional, local)	

Thanks: Chris Porter, Cambridge Systematics

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