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Jonathan Rubin

Kathryn Ballingall

Erin Brown

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Maine Transportation & Equity

Jonathan Rubin, Kathryn Ballingall, Erin Brown

20 May 2021

Strategy: Embrace the Future of Transportation in Maine

- ▶ Accelerate Maine's transition to electric vehicles
- ▶ Increase fuel efficiency
- ▶ Reduce light-duty vehicle miles travelled
- ▶ Adapt Maine's infrastructure critical to the state
- ▶ Explore mechanisms to fund transportation needs and reduce emissions

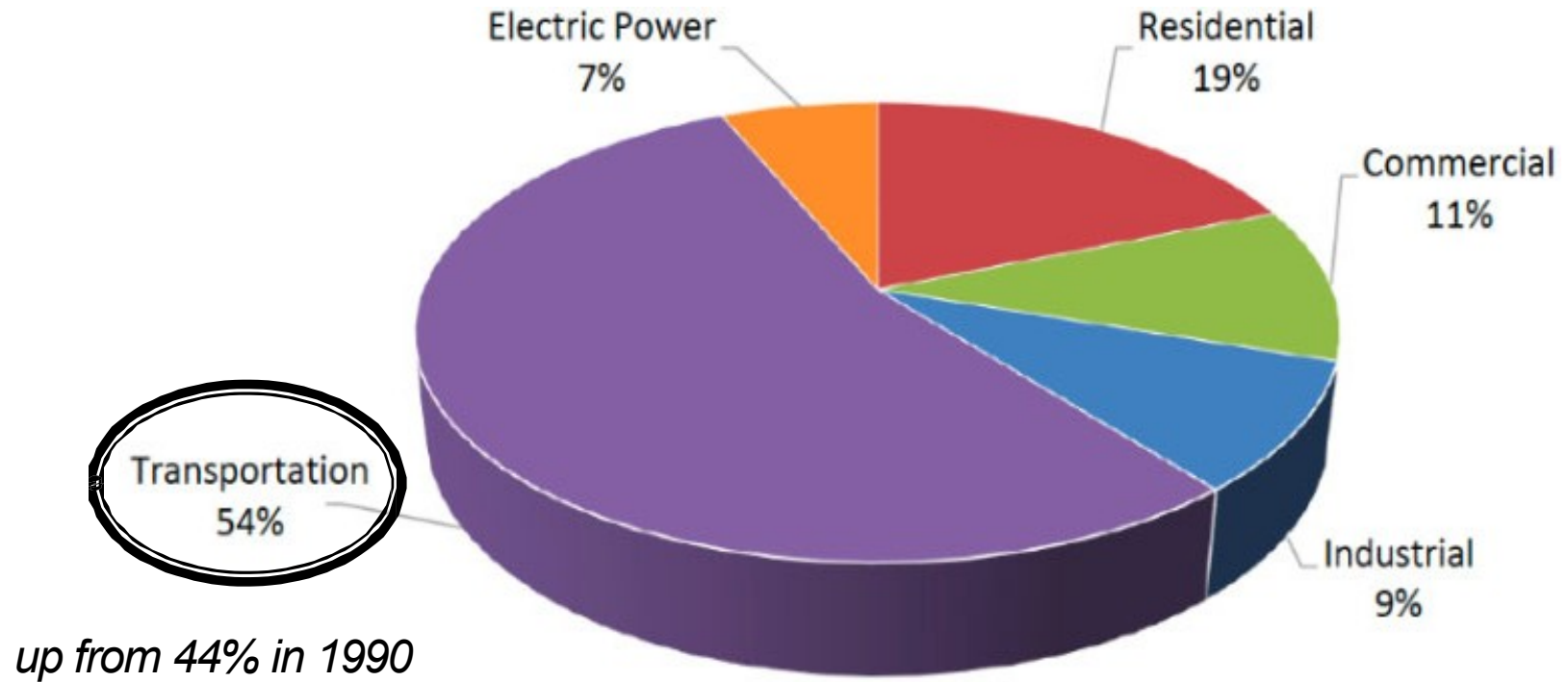
Equity Considerations

- ▶ **Social impacts**
 - Wealth
 - Health
 - Accessibility
- ▶ **Vulnerable Populations**
 - Economic, racial, geographic, older adults, disabled
- ▶ **Participation and inclusion**
- ▶ **Businesses treated equally/fairly**
 - Different sectors: retail v. natural resource based v. hospitality

Background

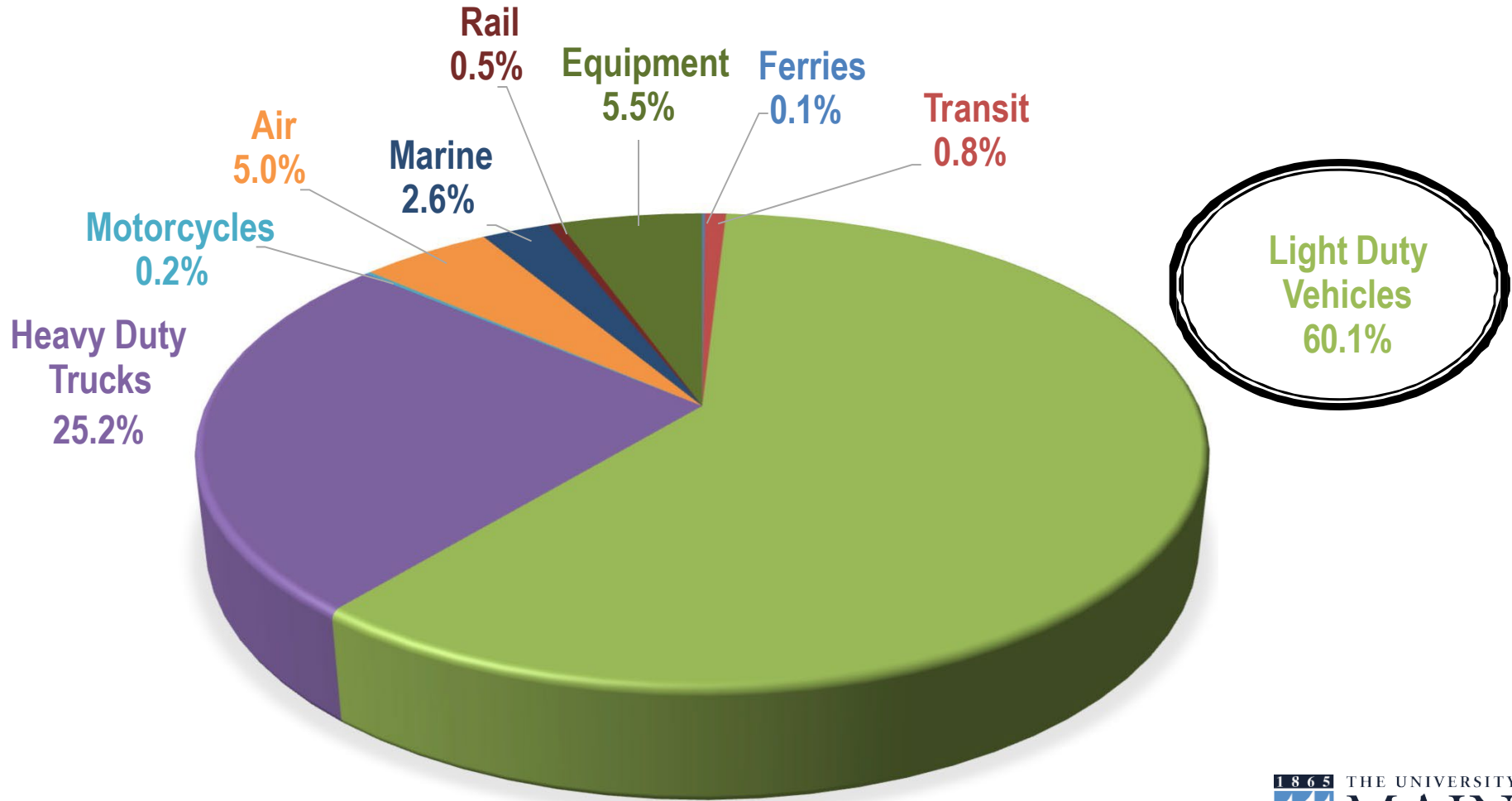
Maine's Transportation Sector

Where Do Maine's GHGs Come From?



Source: 2017 GHGs by Sector, Maine DEP "Eighth Biennial Report on Progress toward Greenhouse Gas Reduction Goals," published January 2020.

2017 Maine Transportation Emissions from Fossil Fuel Consumption (MMTCOs)



Maine Household Travel

▶ Mainers drive on average:

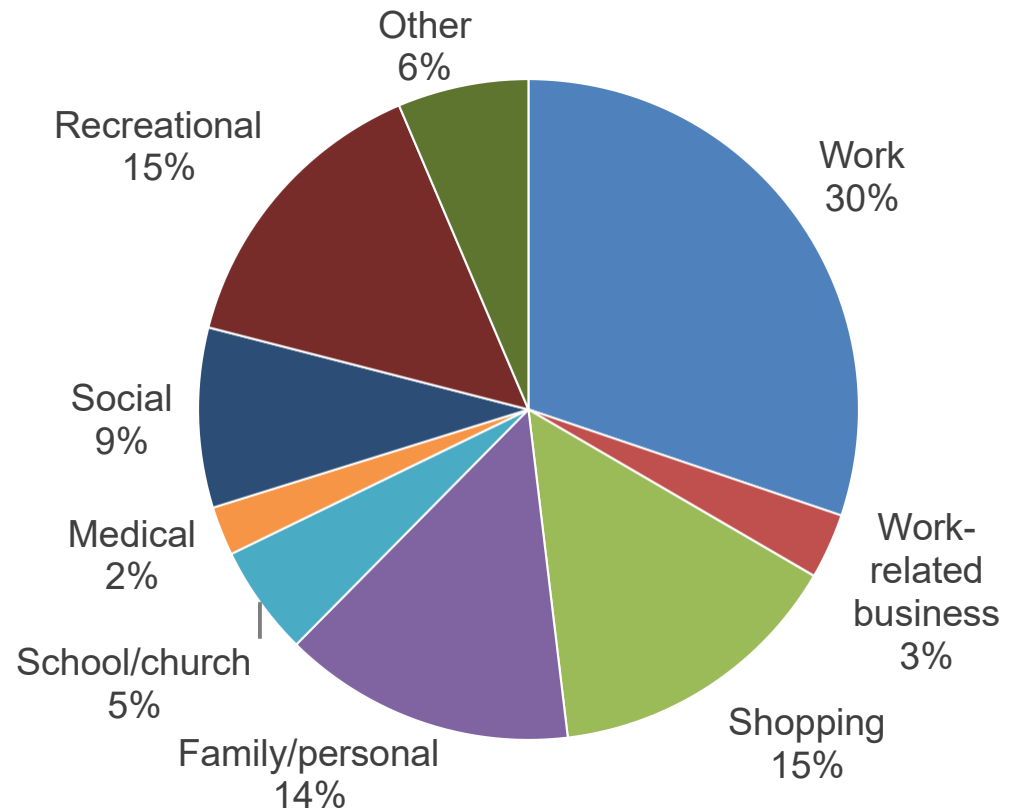
- 12,000 miles per year
- ~ 33 miles a day

▶ Mainers commute:

- 89% by car
- 5% by walking and biking
- 4% work from home
- 1% by transit

▶ Families in Maine:

- 93% own at least one car
- 7% do not own a car: 40,000



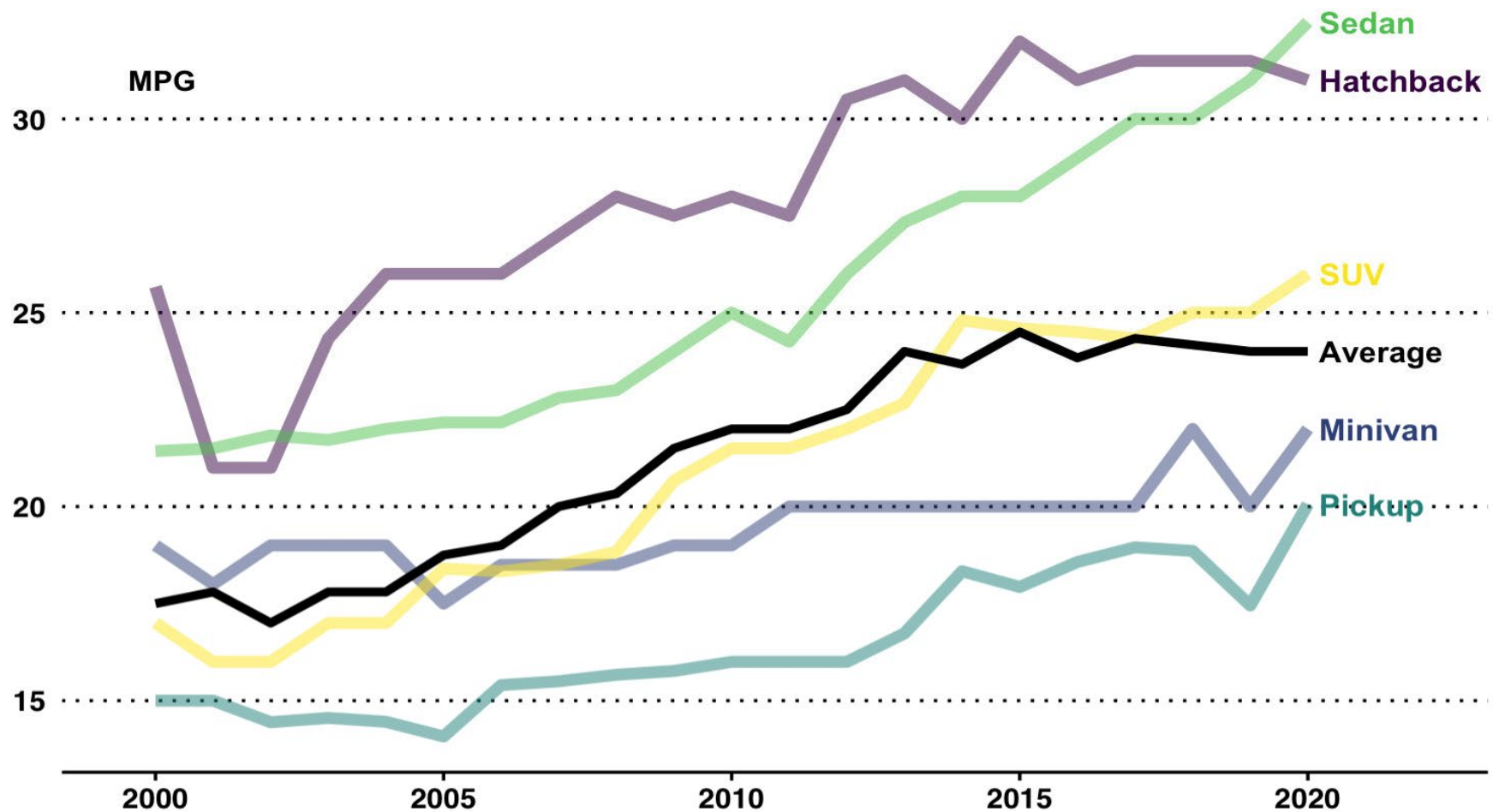
Source: 2017 National Household Travel Survey nhts.ornl.gov

Source: 2017 American Community Survey

Fuel Efficiency of Maine's Light Duty Vehicles

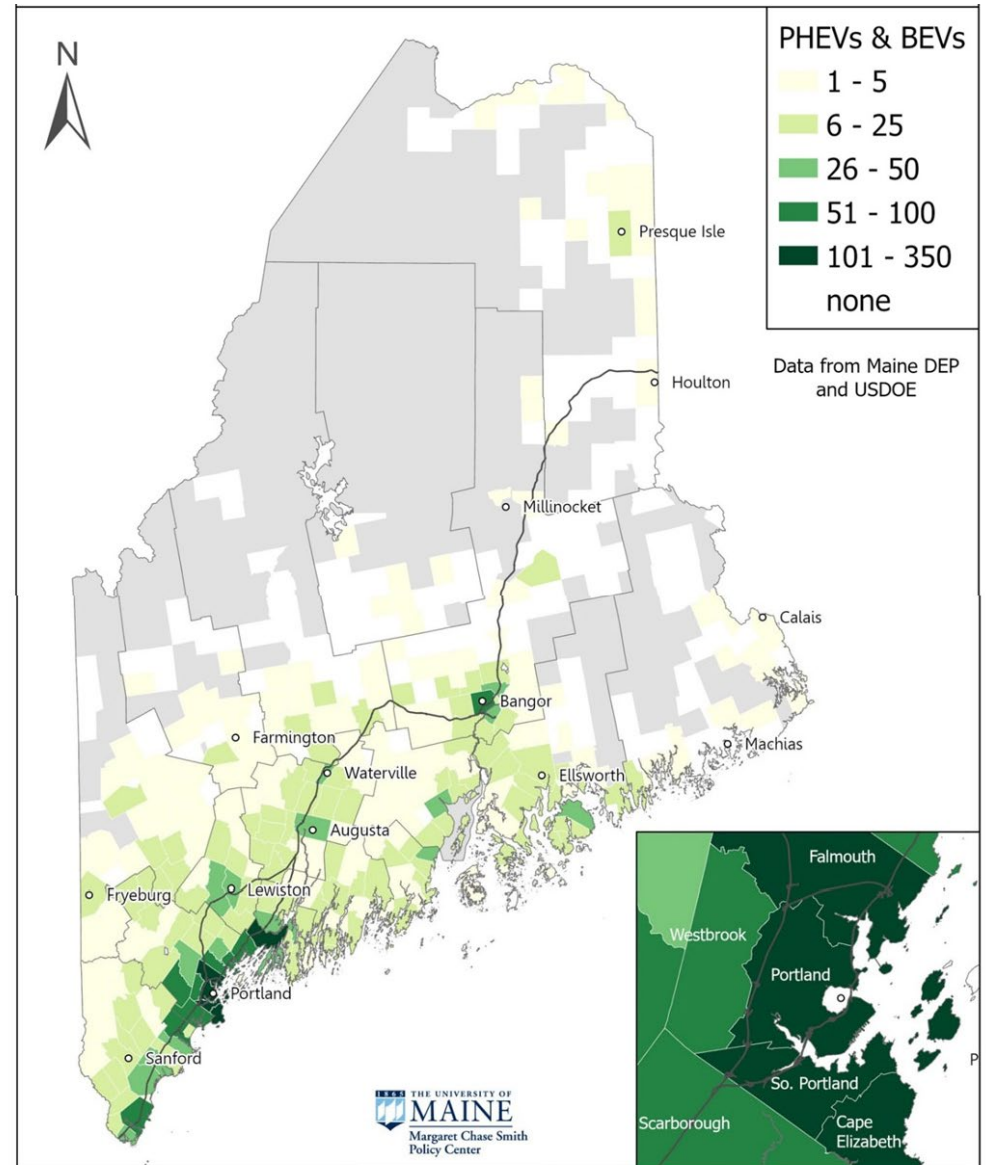
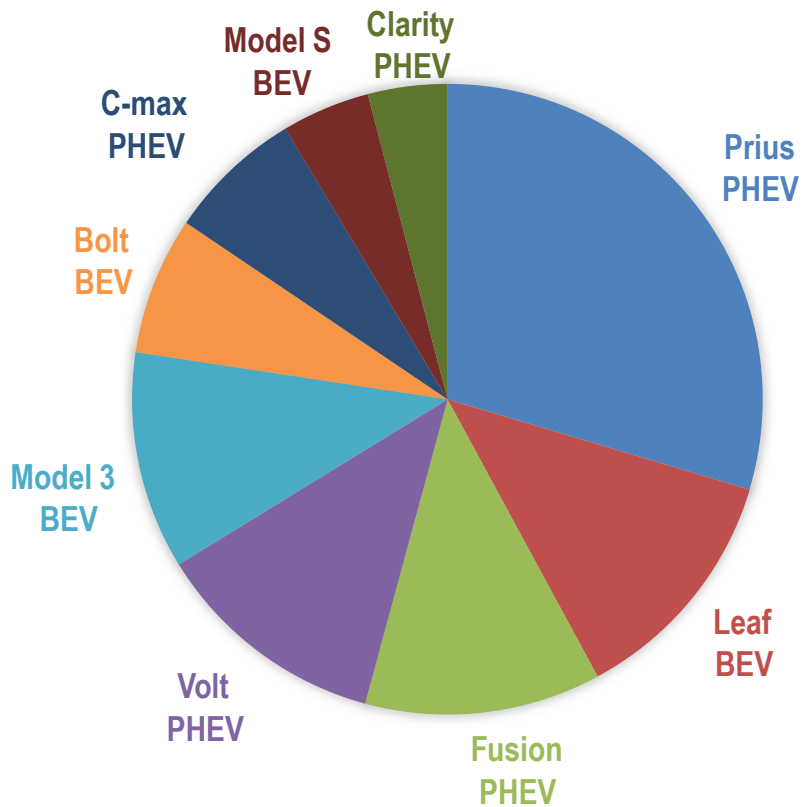
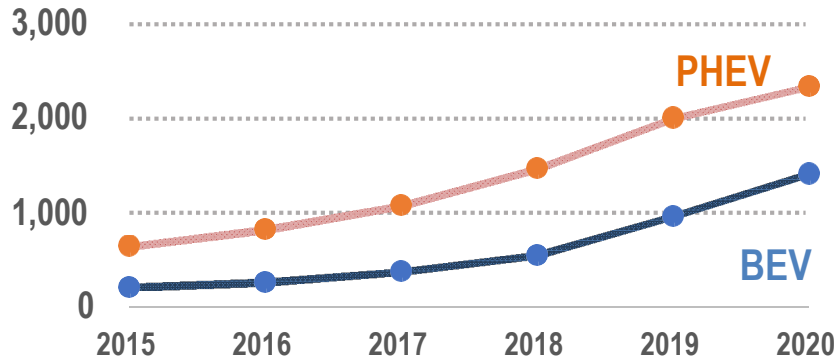
Maine's average fuel efficiency unchanged

- Vehicle sales mix trending to SUVs & light-trucks



Data Source: Maine DEP & US DOE

Battery Electrics and Plug-In Hybrids



Equity Considerations & Maine's Transportation Plan

▶ 1. How to make clean vehicles more affordable?

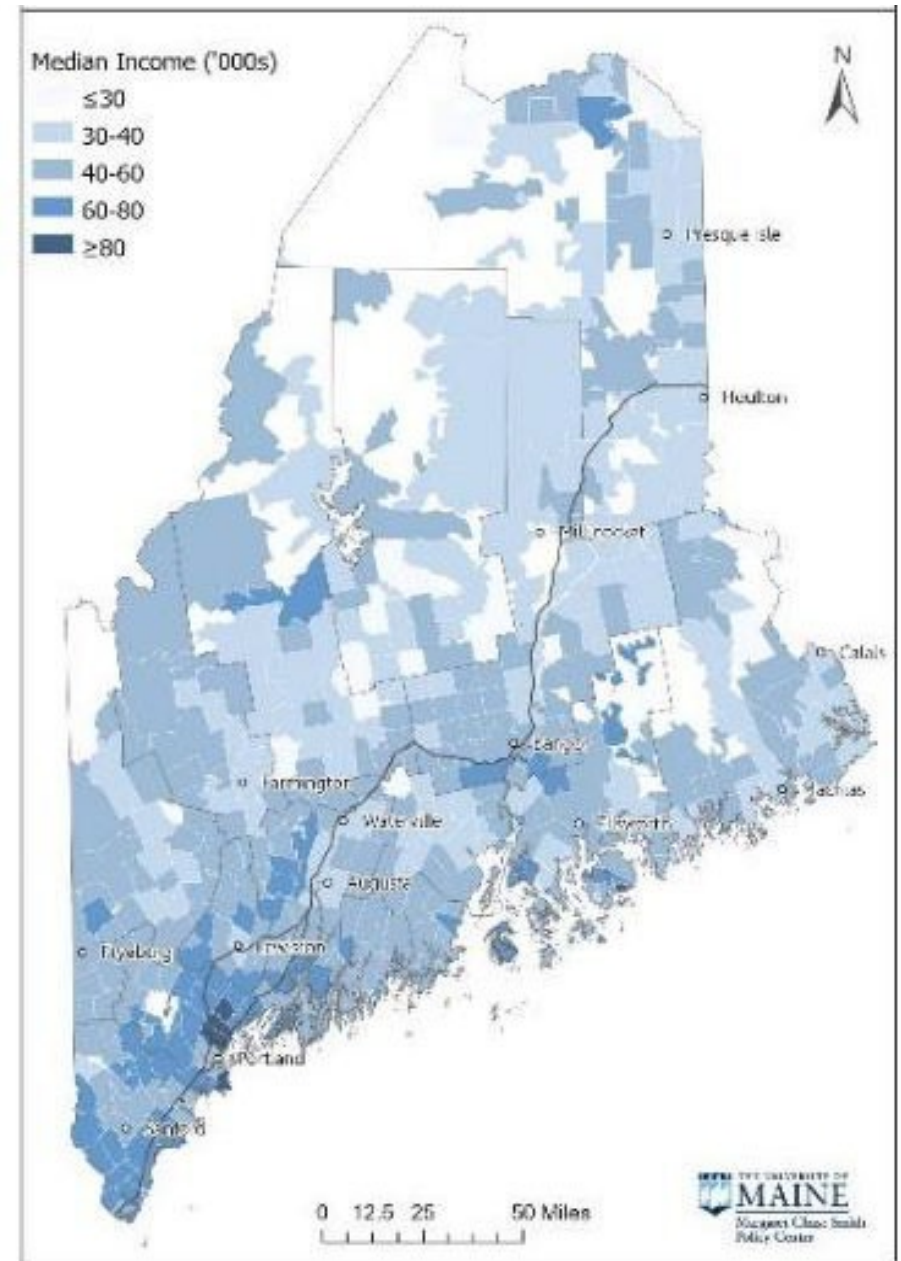
- Access and affordability of better used cars
- Fuel efficient, reliable, safe
- EVs in different vehicle classes (i.e., pickup trucks, SUVs)
- Identify vehicles to scrap

▶ 2. How to improve accessibility?











- Recommend a holistic review of Maine transit programs
- Identify opportunities to incorporate innovative programs
- Identify additional funding mechanisms including further coordination w/federal programs (DHHS transportation funds)

Efficiency Maine's EV Rebates for Low-Income

- ▶ **Standard EV Rebate**
 - \$2,000/ new EV, \$1,000/ new PHEV
- ▶ **Low-income households**
 - \$2,500/ used PHEV or BEV
 - \$4,000/ new PHEV
 - \$5,500/ new BEV
- ▶ **State & Tribal Government program**
 - \$12,000/ BEV, \$5,000/ PHEV
- ▶ **Current Eligibility: 60% median income**
 - 30% households
- ▶ **Expand to: 80% of median income**
 - 41% Maine households



Accelerated Vehicle Replacement: Financing (LLR), Paired with Scrappage

Current Vehicle (2011 model)		Replacement Vehicle (2017 model)		Tons of CO2 Saved over 10 years	Fuel Cost Savings over 10 years
Ford F150 2WD (8 cyl.) MPG = 14		Ford F150 2WD (6 cyl.) MPG = 22	 +8	26.1	\$5,510
Chevrolet Equinox AWD MPG = 23		Toyota RAV 4 Hybrid AWD MPG = 32	 +9	12.6	\$2,660
Ford Fusion FWD MPG = 21		Ford Fusion Energi FWD Plug-in Hybrid MPGe = 57	 +36	30.1	\$2,880
Toyota Corolla gasoline MPG = 29		Toyota Prius Hybrid MPG = 52	 +23	17.8	\$3,760
Honda Fit gasoline MPG = 31		Chevrolet Volt Plug-in Hybrid (PHEV) MPGe = 77	 +46	34.5	\$1,880

How to Make Cleaner Cars More Affordable for All Mainers?

- ▶ **Financing new cleaner cars is a barrier to some**
- ▶ **Education on total cost of ownership**
- ▶ **Maine should consider setting up a publicly funded loan loss reserve (LLR) program**
 - LLR: Can offer below-market-rates to increase the affordability of higher fuel economy used conventional and electric vehicles to identified groups to enhance social equity

How to Improve Accessibility while Reducing Vehicle Miles Travelled?

▶ **Public Transit**

- Innovative Rural Transit Solutions
- Increase funding for existing systems

▶ **Active transportation**

- Walking – better pavement, more sidewalks, snow clearing
- Biking – more bike lanes, community bike shops

▶ **Trip demand reduction**

- Broadband Internet access and affordability
- Telework, telemedicine, distance learning

Maine Rural Transit

- ▶ **Livable Communities, Aging in Place, Supports Employment**
- ▶ **Maine Independent Transportation Network**
(Portland, Millinocket, Kennebunk, York, Fryeburg)
 - Community-based transport for older adults, visually impaired
 - Private vehicles, volunteer drivers, paid drivers form community network
- ▶ **Alternative/Innovative Public Transit and Pilot Programs**
 - On-demand micro-transit
 - First-mile/last mile connections
 - Rides-to-Wellness (medical access)
 - Recovery & Job Access Rides Pilot (SUD)

Discussion

▶ 1. How to make clean vehicles more affordable?

- Easier financing for low-income households
- Education about cost and benefits of EVs and better used high MPG vehicles

▶ 2. How to improve accessibility?

- Being able to get to where you need to go, cheaply and quickly
- More transit in more communities?
- More creative transit

▶ 3. How to improve health benefits ?

- Air quality, reduce “criteria” air pollutants exposure, possibly very significant
 - Low emissions vehicles and trucks can benefits adjacent neighborhood
- Better/safer paths for walking and biking

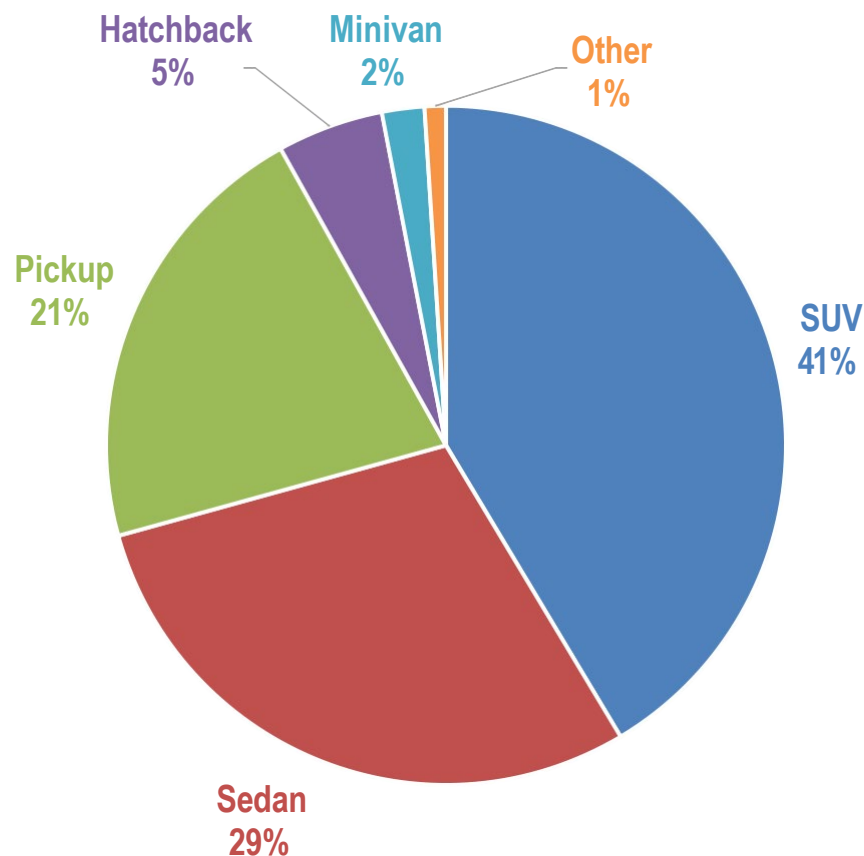
Supplementary Information

Electric, Hybrid and High Fuel Efficiency Vehicles: Cost-Effective and Equitable GHG Emission Reductions in Maine

Rural Public Transportation and Maine: Review of State Best Practices

Light Duty Vehicles in Maine

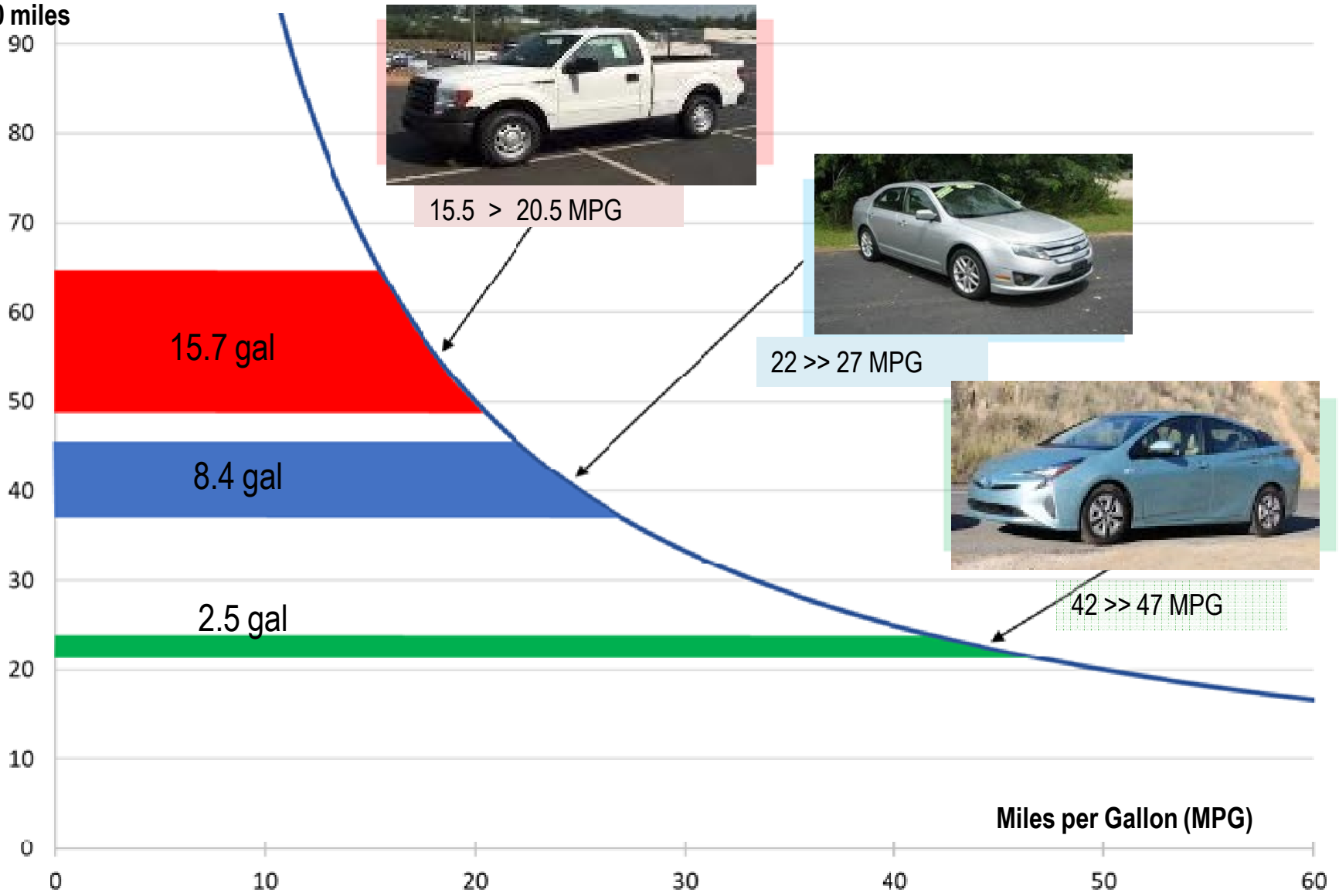
- ▶ There are approximately 1.12 million light-duty vehicles registered in Maine in 2020
- ▶ Average vehicle in Maine is 10 years old and 22.4 MPG
- ▶ **Most popular models:**
 - Pickup: Chevy Silverado
 - SUV: Subaru Forrester
 - Sedan: Toyota Camry



Data Source: Maine DEP & US DOE

Benefits of Increasing 5 MPG Is Not Linear

Gallons of fuel per
1,000 miles



Maine Rural Transit: Livable Communities, Aging in Place, Supports Employment

Peer States Comparison

Funding sources for operating expenses of rural transit providers, by state

State	Fares	Local Funds	State Funds	Federal Assistance	Other Funds	Total
Vermont	\$443,560 1.72%	\$1,849,562 7.16%	\$7,152,124 27.69%	\$15,927,587 61.66%	\$457,571 1.77%	\$25,830,404
New Hampshire	\$297,310 4.91%	\$819,322 13.52%	\$364,893 6.02%	\$3,167,172 52.27%	\$1,410,480 23.28%	\$6,059,177
North Dakota	\$1,183,284 10.53%	\$1,335,581 11.89%	\$2,564,221 22.82%	\$5,901,160 52.53%	\$250,321 2.23%	\$11,234,567
Maine	\$457,088 3.50%	\$3,203,701 24.56%	\$920,090 7.05%	\$2,394,795 18.36%	\$6,066,360 46.51%	\$13,042,034

Source: Office of Budget and Policy 2020

