Minnesota Distance-Based Fee Demonstration Technical Advisory Committee

September 3rd, 2020

Scott Peterson, MNDOT Deputy Commissioner,

TAC Chair

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Agenda

1. Welcome – Scott Peterson
2. Zoom meeting guidelines – Lee Munich, HHH (5 min)
3. Agenda review and project update – Ken Buckeye, MnDOT (5 min)
4. Demonstration update – Mike Warren, WSP (15 min)
5. DBF demonstration scope – Chris Berrens, MnDOT (15 min)
6. Taxation principles – Jerry Zhao, HHH (10 min)
7. Policy considerations in developing a rate setting framework – Frank Douma, HHH (10 min)
8. Modal equity policy brief discussion – Camila Fonseca & Jerry Zhao, HHH (15 min)
9. Open discussion – TAC Members (15 min)
10. Adjourn

Welcome

Scott Peterson
MnDOT

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Meeting Guidelines

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Humphrey School of Public Affairs
University of Minnesota

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Meeting Guidelines

- Mute your audio when you are not speaking. Unmute your audio when you are called on to speak.
- TAC members turn on your video. Project team members should mute your video except when speaking.
- Open the participant box. Use the hand raising icon if you would like to ask a question.
- You may also open the chat box and type in questions or comments at any time during the meeting. If you have a technical issue or comment, you may send a message to the host only.
- The meeting is not being recorded but the chat box comments will be saved.

Agenda Review & Project Update

Ken Buckeye, kenneth.buckeye@state.mn.us
MnDOT

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Charge to the DBF Technical Advisory Committee

- Provide Advise and Guidance on Technical and Policy Issues to the Project Team and MnDOT
- Be an Informed Constituency in DBF Discussions with the Public and Policy Makers
- Help Ensure that the Project Contributes to the State and National Research Efforts

Demonstration Update

Michael Warren, Michael.Warren@wsp.com
WSP

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Timeline & Status

WE ARE HERE

Transitioning to Stage 2 - Providers are preparing to create their own Revenue Reports

Apr '20 – Jul '20

STAGE 1

Providers send sanitized data

Project Team creates Revenue Reports

Aug '20 – Nov '20

STAGE 2

Providers send sanitized data

Providers create Revenue Reports;

sends to Project Team for validation

Dec '20 – Mar '21

STAGE 3

Providers send sanitized data

Providers create Revenue Reports;

sends directly to State

By the Numbers

Total Miles Traveled	Total Fuel Gallons Purchased	Average Fuel Economy (miles per gallon)
183,124	6,062.411	30.21

As of data reported through July 31, 2020

- 2 Shared Mobility Providers
- 61 total vehicles have participated / collected data
- 55 active vehicles as of July 31, 2020
  - *Some vehicles are not utilized every month or have been decommissioned*

By the Numbers

Total Gross Distance Based Fees (DBF) *(state and federal)*	Total Gross Fuels Tax Credits *(state and federal)*	Net Total DBF Assessed *(Simulated)*
$4,944.34	$2,843.16	**$2,101.18**

As of data reported through July 31, 2020

- Project Monthly Revenue Reports (simulated) generated for April thru July 2020

C/AV Testing

- **<u>Connected/Automated Vehicle Testing:</u>**
- **State Border Crossing**: Capture mileage both within and outside of Minnesota to determine how DBFs could vary based on multi-state travel
- **Lane Differentiation**: Capture data in specific lanes to determine if variable DBFs could be charged for one lane use over another, such as HOV/HOT lanes
- **Occupancy Detection**: Capture passenger counts to determine if DBF discounts could be applied for carpooling
- **Congestion** *(Area and Time of Day)*: Capture vehicle congestion, time of day of travel, and specific cordons to determine if DBFs could vary based on when and where a vehicle travels

Revenue Reporting

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TEMPLATE

COMPANY INFORMATION

Company Name	***Tax Report Period***
Shared Mobility Provider	April 1, 2020 - April 30, 2020

Fuel Type	Total Miles Driven	Total Fuel Purchased*	Average MPG**	Federal DBF Rate/Mile	Total Federal DBF	State DBF Rate/Mile	Total State DBF	Federal Fuel Tax Rate/Gallon	Total Federal Fuel Tax Credit	State Fuel Tax Rate/Gallon	Total State Fuels Tax Credit	DBF Total
Gas	12,521	633.000	19.78	$ 0.011	$ 137.73	$ 0.016	$ 200.34	$ 0.184	$ (116.47)	$ 0.285	$ (180.41)	$ 41.19
Alcohol	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.285	$ (28.50)	$ (12.50)
E-85	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.2025	$ (20.25)	$ (4.25)
Diesel (1 & 2)	1,000	100	10.00	$ 0.011	$ 11.00	$ 0.016	$ 16.00	$ 0.244	$ (24.40)	$ 0.285	$ (28.50)	$ (25.90)
Biodiesel	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.285	$ (28.50)	$ (12.50)
LPG	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.2135	$ (21.35)	$ (5.35)
CNG (cubic ft)	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.00225	$ (0.23)	$ 15.78
LNG	1,000	100	10.00	$ -	$ -	$ 0.016	$ 16.00	$ -	$ -	$ 0.171	$ (17.10)	$ (1.10)
HEV	10,668	142	75.13	$ 0.011	$ 117.35	$ 0.016	$ 170.69	$ 0.184	$ (26.13)	$ 0.285	$ (40.47)	$ 221.44
EV	9,999	N/A		$ 0.011	$ 109.99	$ 0.016	$ 159.98					$ 269.97

*Unit of measure gallons unless noted

**Average MPG calculated based on total miles divided by fuel purchased

DBF Total Owed to State $ 486.78

Disclaimer: The per-mile rates and calculated revenues reflected in this report are for demonstration purposes only and do not reflect any intent of a proposed rate structure by the Minnesota Department of Transportation.

Next Steps

- **SM Providers generate Revenue Reports August 2020 through March 2021**
- **Project Team conduct mock audits with both SM Providers late 2020**
  - Validate data accuracy and integrity
  - Simulate real-world revenue audit processes
  - Identify areas of alignment with current fuels tax audit processes; areas for improvement
- **Complete Demonstration on March 31, 2021**
- **Final Report developed following Demonstration completion**
  - Demonstration Observations and Results
  - Alignment with STSFA Grant Program Objectives
  - Opportunities and Challenges
  - Policy Considerations and Recommendations

DBF Demonstration Scope

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MnDOT

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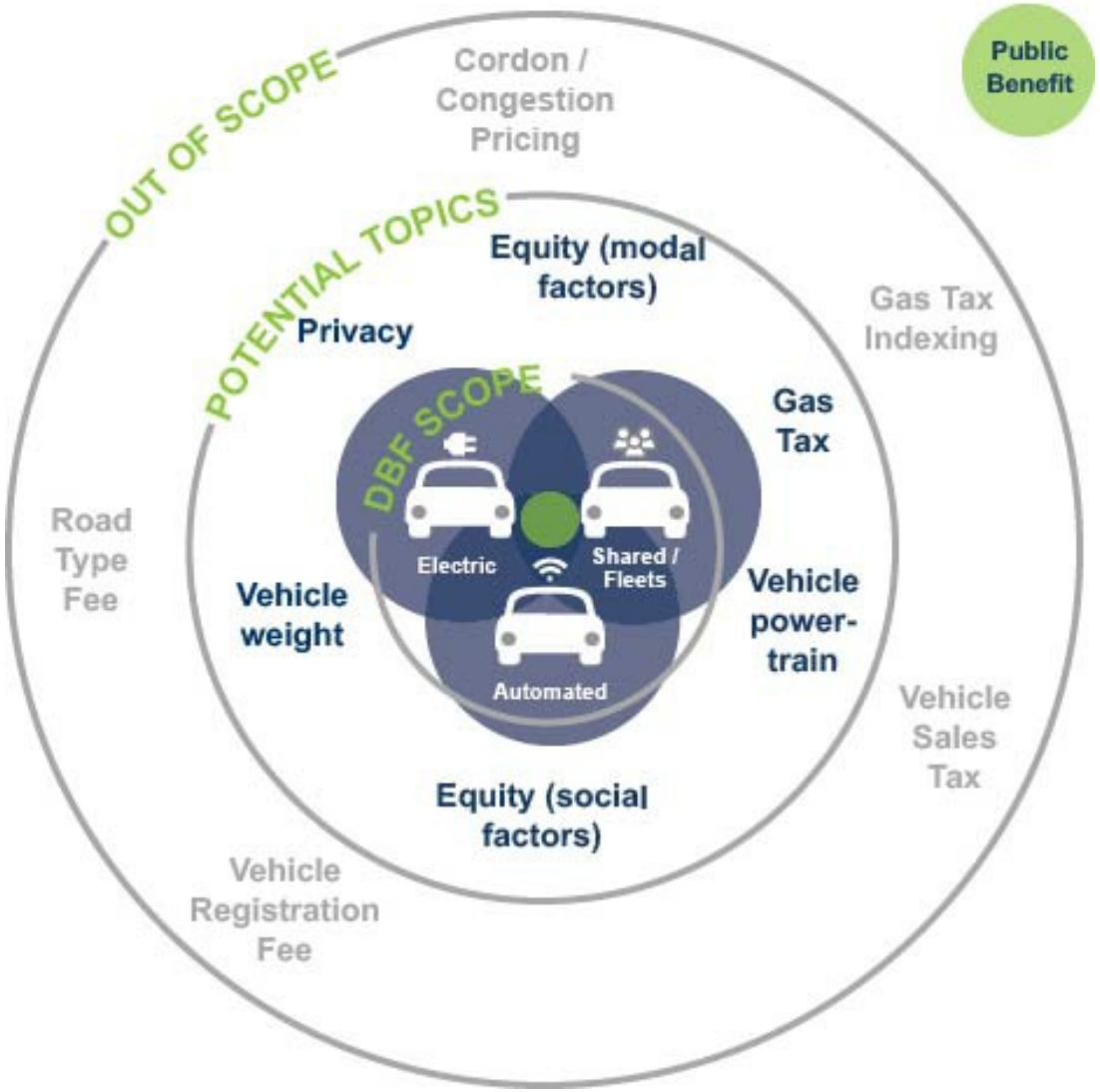
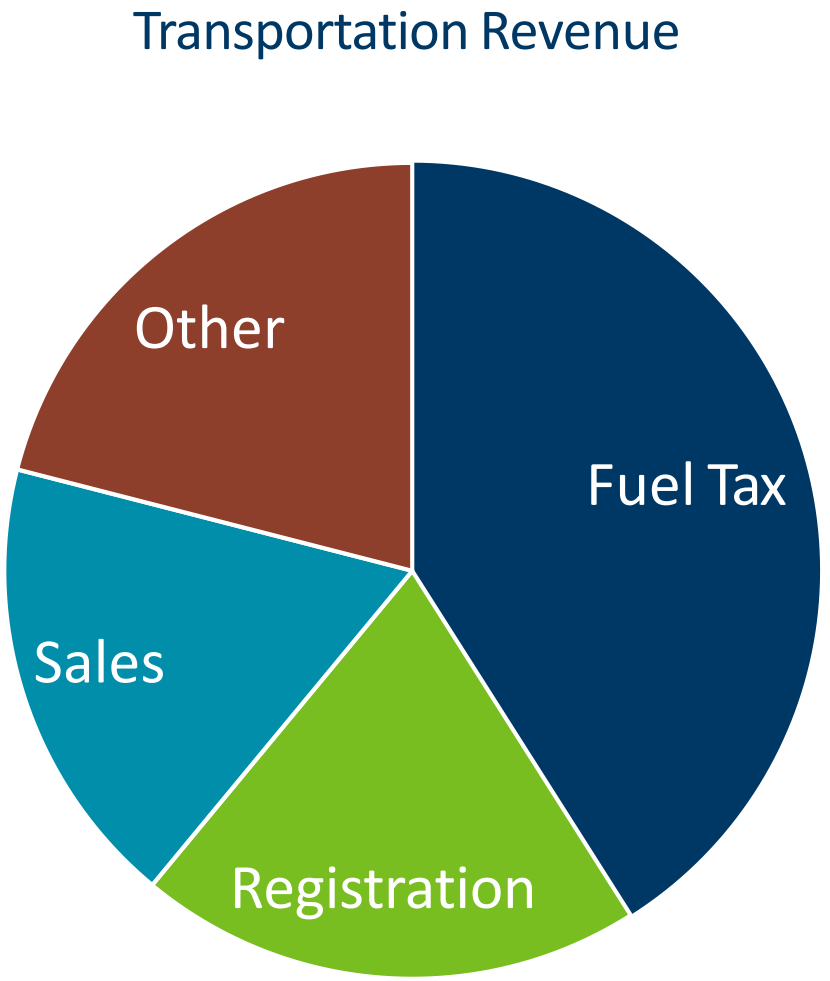
Scope

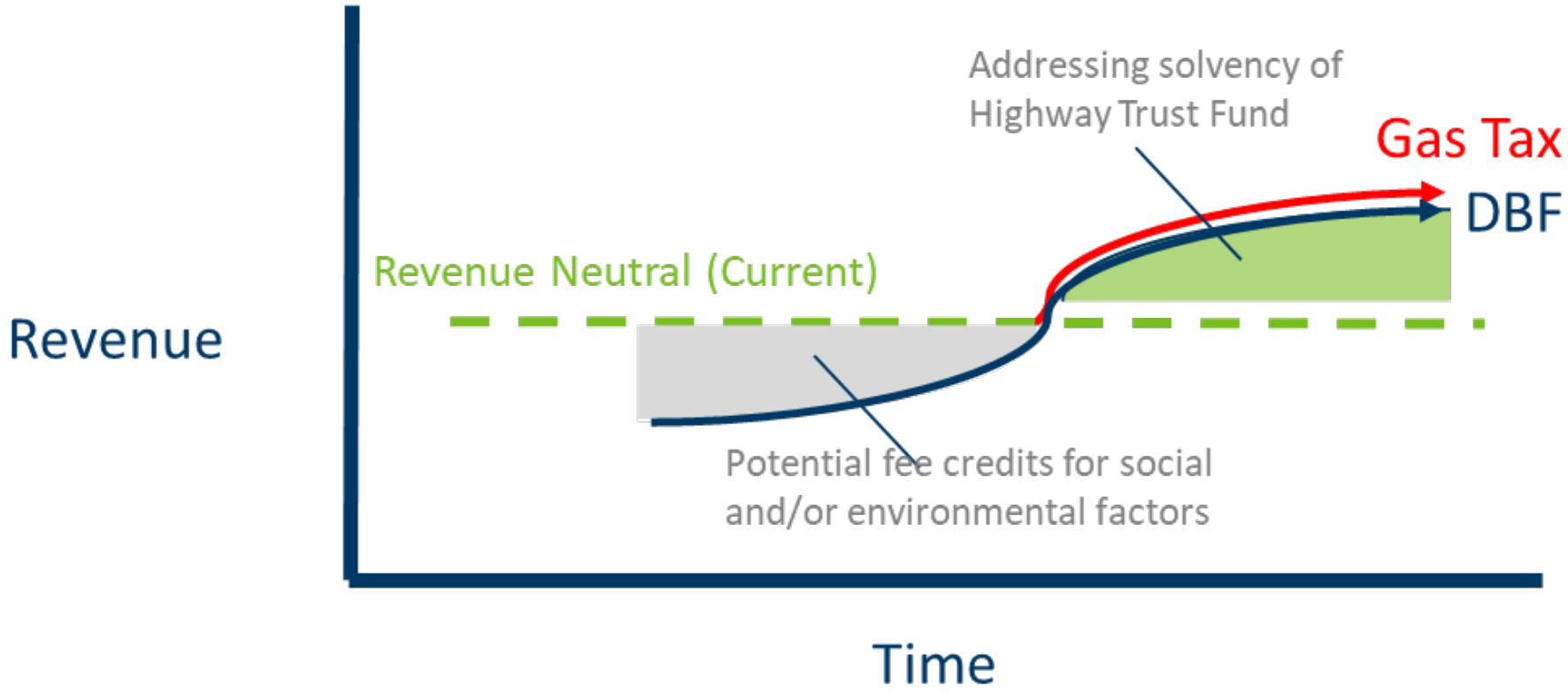

OUT OF SCOPE
Cordon / Congestion Pricing
Public Benefit
POTENTIAL TOPICS
Equity (modal factors)
Privacy
Gas Tax Indexing
DBF SCOPE
Gas Tax
Road Type Fee
Electric
Shared / Fleets
Vehicle weight
Vehicle power-train
Automated
Vehicle Sales Tax
Equity (social factors)
Vehicle Registration Fee

Scope
Fuel Tax Focus



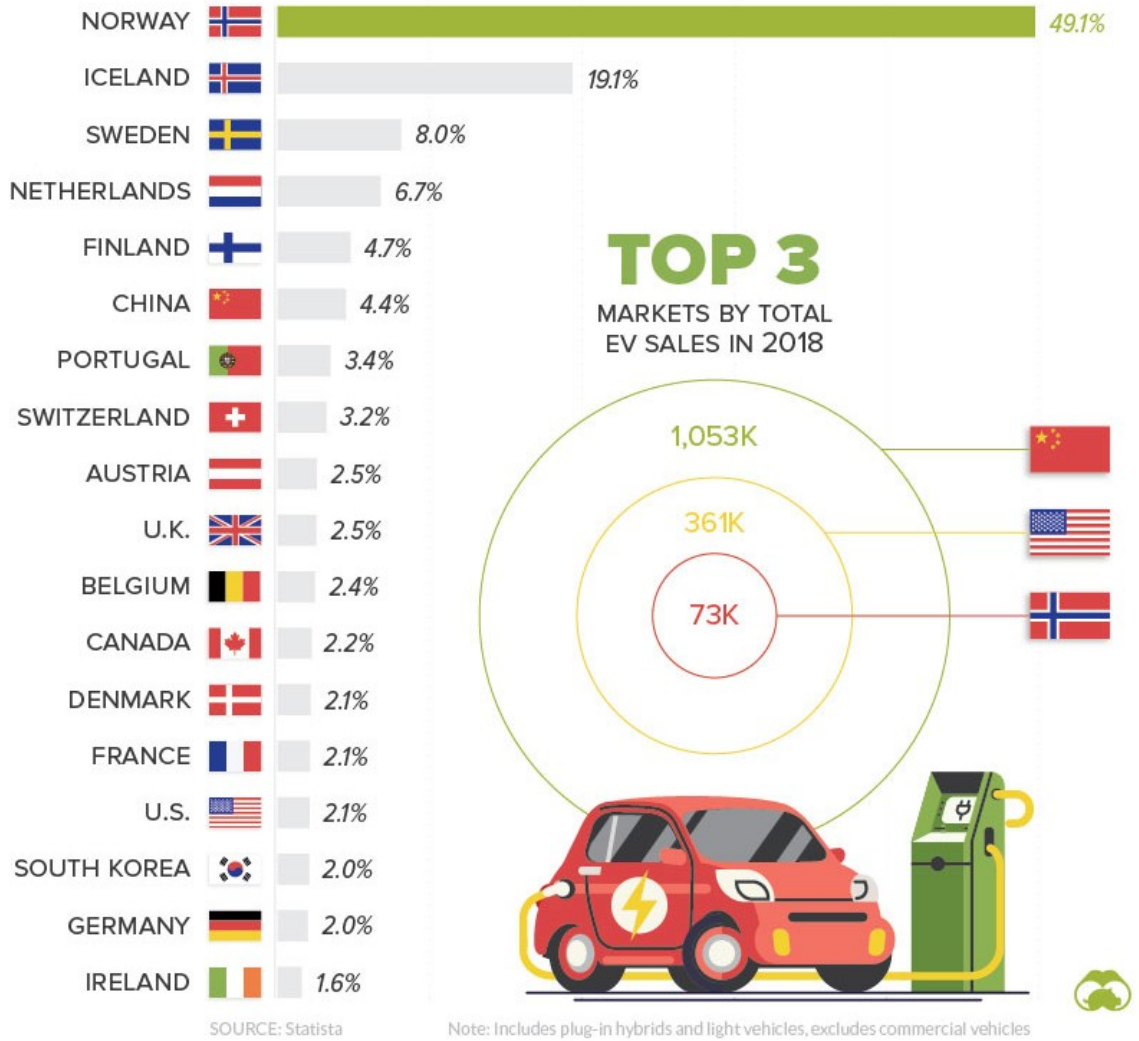
Hypothetical: Distance Based Fees over Time

Social, environmental, & revenue objectives can be aligned



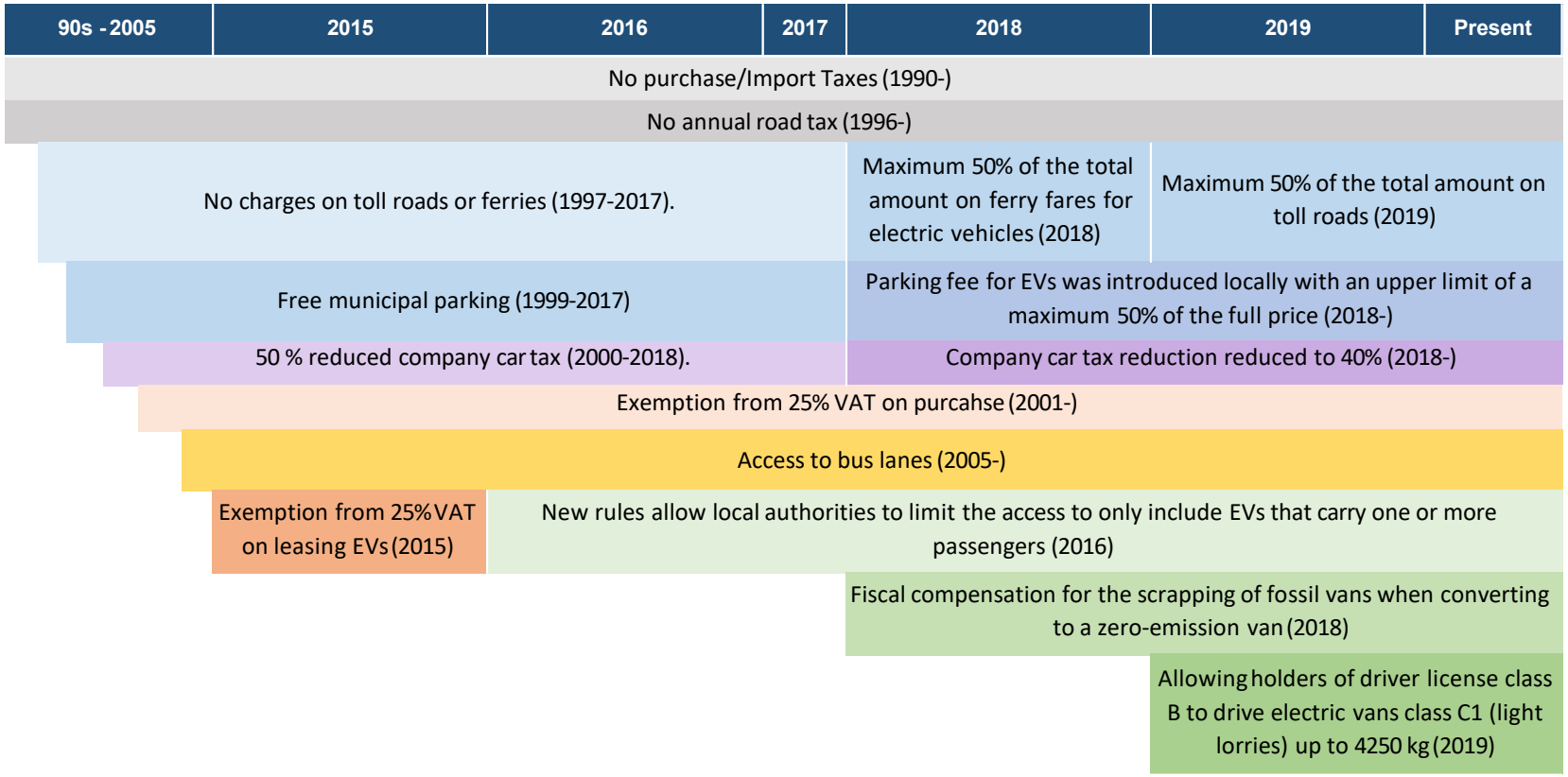
Example

EVs as a Percentage of Total Vehicle Sales (2018)



Example

Timeline of Norway EV Incentives Shifting



Tax Principles: A Brief Introduction

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Many Different Aspects about Tax

- **Type**: taxes; fees, charges
- **Level of government**: federal, state, or local government
- **Base**: ownership; transaction; usage
- **Rationale**:
  - To generate revenue
  - To offset service costs
  - To regulate behaviors

Tax Evaluation Framework

Criterion	Sub-criterion	Sample Questions for a Transportation Tax
Efficiency	Demand-side efficiency	How does the tax affect the behavior of transportation users?
	Supply-side efficiency	How does the tax provide incentives for investing in transportation?
Equity	Benefit-received principle	Does the tax payment align with benefits received?
	Ability-to-pay principle	Is the tax regressive or progressive for different income groups?
Adequacy	Revenue-raising capacity	Does the tax raise sufficient revenue to fund transportation?
	Revenue sustainability	Will the tax keep up with increasing funding needs in the future?
Feasibility	Political feasibility	Is the tax a sensitive issue politically?
	Administrative feasibility	Is the tax easy to administer and to comply with?

Tax Evaluation Framework: Efficiency

- **Efficiency:**
  - In general, taxes that lead to less behavior changes are more efficient
  - However, taxes that reduce excessive behaviors are efficient
- **Tax efficiency for transportation**
  - **Demand-side**: How does the tax affect the behavior of transportation users?
  - **Supply-side**: Does the tax provide incentives for investing in transportation?

Tax Evaluation Framework: Equity

- **Equity: Is the tax fair? It depends on which principle is applied.**
- **Equity from benefit-received principle**
  - Does the tax payment align with benefits received?
  - This principle is typically applied for user fees and charges.
- **Equity from ability-to-pay principle**
  - Is the tax regressive or progressive for different income groups?
  - Increasingly used for all kinds of taxes, fees, and charges.

Tax Evaluation Framework: Adequacy

- **Revenue-raising capacity**
  - Does the tax raise sufficient revenue to fund transportation?
  - It is mainly affected by the tax base, tax rate, and elasticity.
- **Revenue sustainability**
  - Will the tax keep up with increasing funding needs in the future?
  - It is about whether the revenue can catch up with income growth or demand change over time.

Tax Evaluation Framework: Feasibility

- **Political feasibility**
  - Sensitivity to political agenda or public opinion.
  - It is often affected by visibility and the potential of tax exportation.
- **Administrative feasibility**
  - **Admin cost**: The cost of implementation, operation, and enforcement.
  - **Compliance cost**: Whether it is convenient for user to pay the tax?

Tax Evaluation Framework

Criterion	Sub-criterion	Current Fuel Tax System	Distance-Based Fee
Efficiency	Demand-side efficiency	Moderate	Strong
	Supply-side efficiency	Moderate	Strong
Equity	Benefit-received principle	Moderate	Strong
	Ability-to-pay principle	Moderate	Moderate
Adequacy	Revenue-raising capacity	Moderate	Moderate
	Revenue sustainability	Weak	Moderate
Feasibility	Political feasibility	Weak	?
	Administrative feasibility	Strong	?

Zhao et al. (2015). Revisiting the Fuel Tax-Based Transportation Funding System in the United States. Public Works Management & Policy. 20(2): 105-126.

Policy Considerations in Developing a Rate Setting Framework

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Policy Considerations for Developing a Rate Setting Framework

- The process of setting fee rates includes implicit choices
- Depending on these choices, some pay more, some pay less
- In a perfect world, these choices reflect explicit policy directives
- Our world is not perfect, but to get closer, it helps to isolate some issues

Policy Considerations for Developing a Rate Setting Framework

- We propose 5 perspectives to “isolate” certain issues, one per TAC meeting
- Purpose is to raise the potential implications
- But not to resolve potential conflicts at this time
- Once we have reviewed all 5 perspectives, we will engage in a more holistic rate setting discussion
- This demonstration project is limited to gauging the technical feasibility of DBF collection
- The amount and type of DBF will be determined by policymakers in the future, not this demonstration project

Policy Considerations for Developing a Rate Setting Framework

Proposed order of review:

1. Modal equity (today)
2. Social equity
3. Collection methods and Administrative costs
4. Privacy
5. Urban / Rural distinctions

Modal Equity

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Modal Equity

- The costs different modes of transportation impose in the transportation system
  - Direct costs & Indirect costs

- The contributions of these modes to cover these costs
  - Motor fuel taxes and Registration fees for EVs

Individual Mobility

Passenger Vehicles and Heavy Vehicles

- Heavier vehicles impose higher costs on the transportation infrastructure

- It is unclear whether they contribute correspondingly to the cost they impose

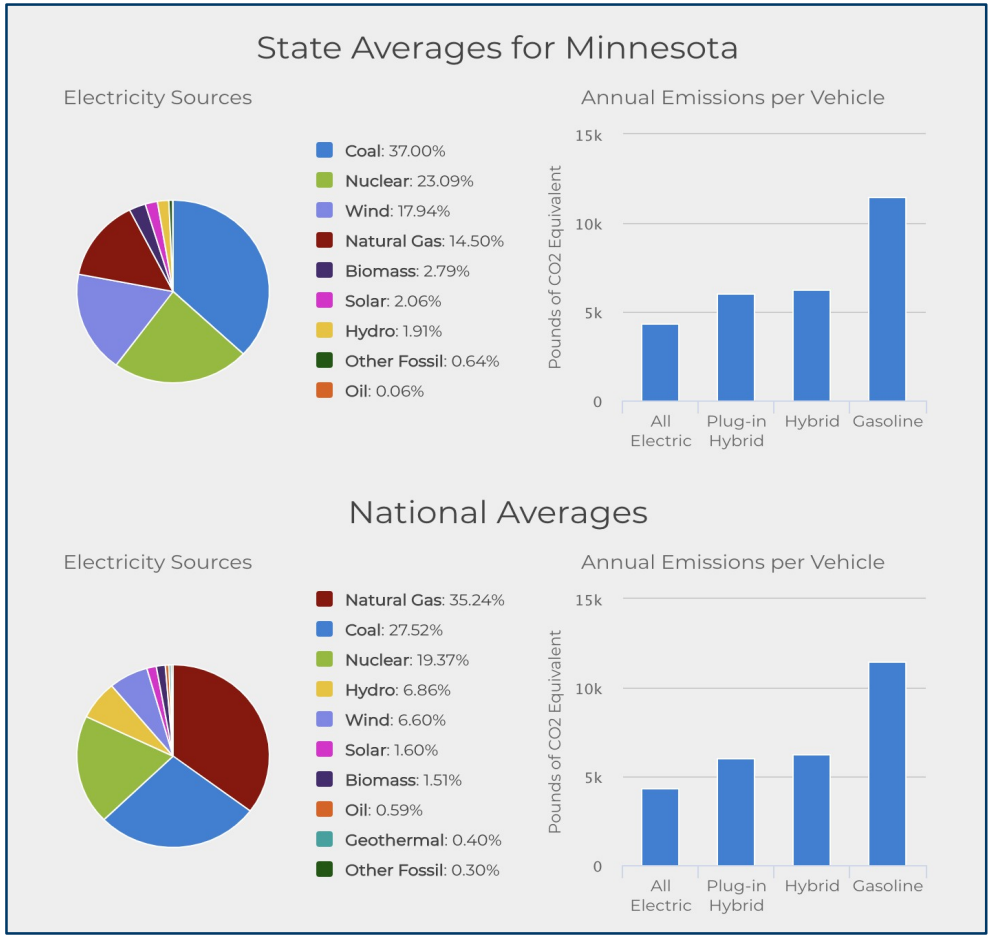
Vehicle Type	Passenger Car Equivalents
Cars	1
Vans/Pickups	7
Large Pickups/Delivery vans	15
Large Delivery Trucks	163
Local Delivery Trucks	236
Residential Recycling Trucks	274
Buses	851
Residential Trash Trucks	1,279
Long Haul Semi-Trailers	1,408

Source: *Wilde (2014)*

Individual Mobility

Electric Vehicles

- EVs and ICE vehicles generate comparable road damage
- EVs are expected to impose lower environmental costs compared to ICE
  - Depends on the method used to generate electricity
  - Cradle to grave carbon footprint
- EVs contribute relatively less than ICE vehicles in terms of the motor fuel tax



Source: *U.S. Department of Energy (2019)*

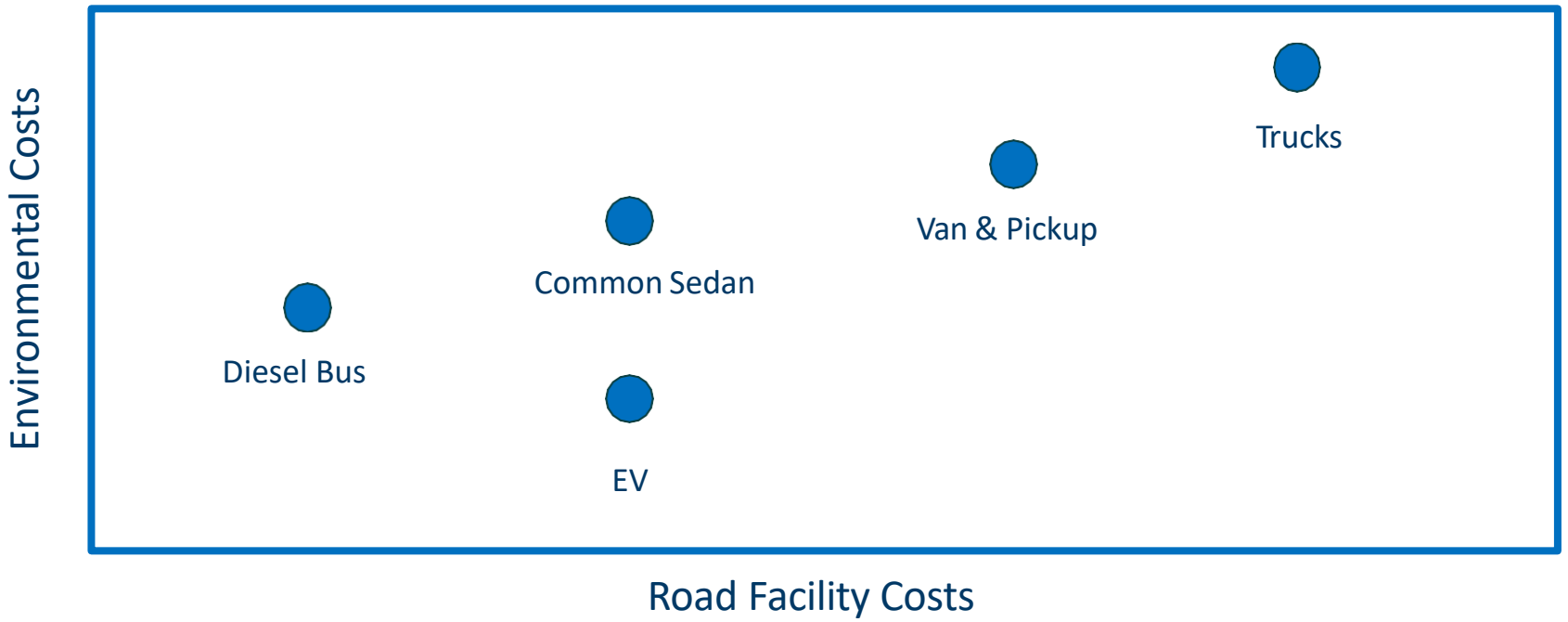
Transit

- Vehicles used for transit impose higher costs than vehicles used for individual mobility.
  - When comparing costs per passenger, however, the costs imposed per transit passenger are lower.

- Transit underpays for the transportation costs it imposes.
  - Transit services are exempt in various ways from the payment of motor fuel taxes in most of the states.
  - Transit services are heavily subsidized, in part, because of their potential to reduce congestion and pollution.

Per-Passenger Costs & Contributions

COSTS



CONTRIBUTIONS

Shared Mobility

- Likely increase VMT
- Likely increase GHG emissions

- Unclear impact on VMT
- Decrease GHG emissions

Automation and Connectivity

- Unclear impact on road damage
- Decrease GHG emissions

Questions to Guide the Discussion

- Is the current registration fee of $75 on EVs appropriate to cover the costs they impose on the roadway system?
  - Should all vehicles pay the same for the use of our roadway system regardless of their powertrain?
  - Should EVs pay a discounted fee due to their environmental benefits?
  - Should ICE vehicles pay an additional surcharge for their environmental costs?
- How to account for different vehicle categories and the road damage they impose on the transportation system?
- How should we think about funding the roadway system considering a future with autonomous and connected vehicles?

DBF Demonstration Evaluation

- Please fill the online survey at: https://umn.qualtrics.com/jfe/form/SV_1Zc6T7XnCKOl74F
- The survey will take about 10-15 minutes to complete
- Please complete the survey by September 11th.

Thank you in advance for your participation! This demonstration and evaluation are a critical part of future transportation funding in Minnesota.

Adjourn

Thank you for your participation!

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