



A New Road Financing Model: Taxation for Distance Traveled

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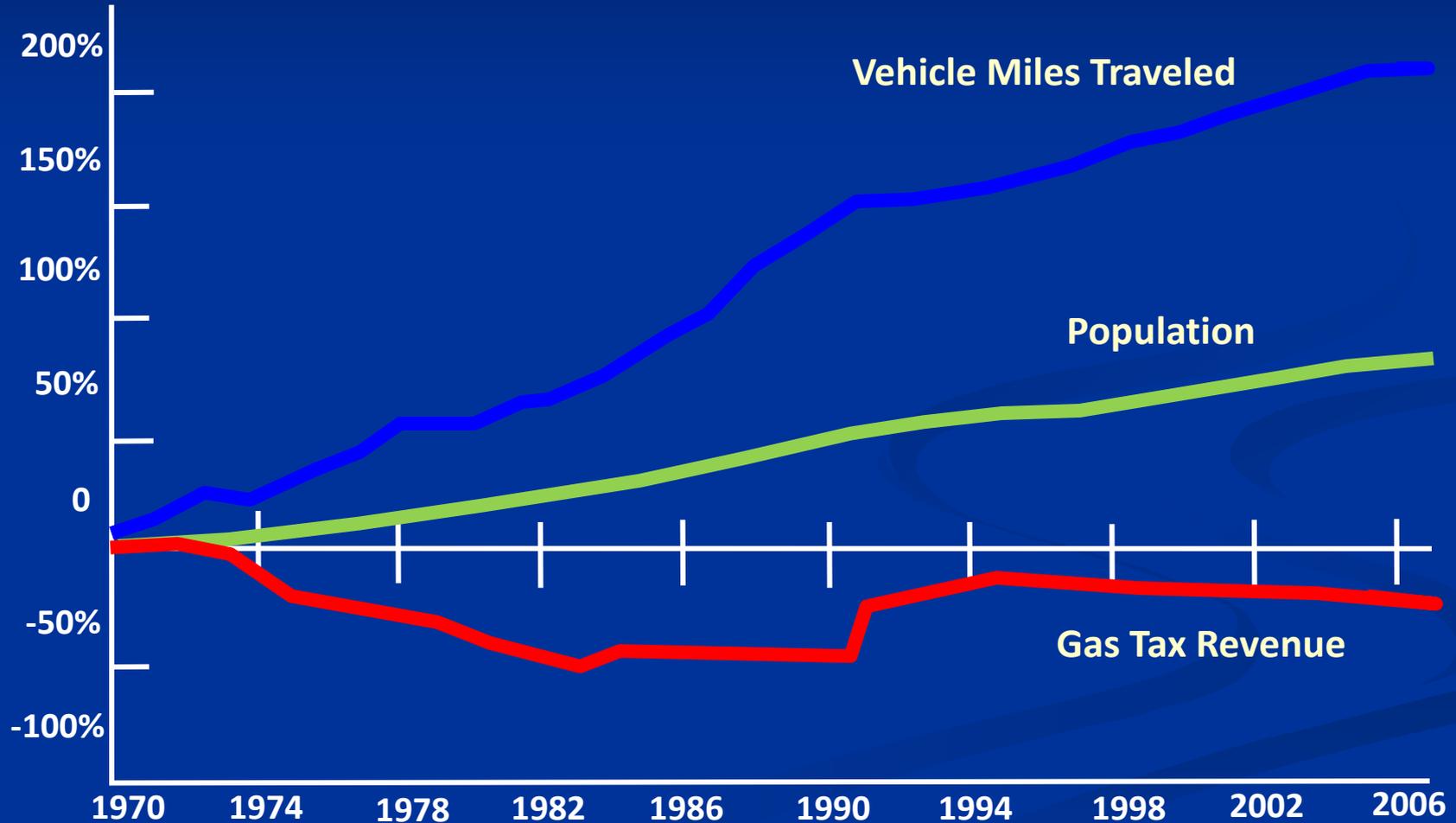


Transportation Funding in the Age of Fuel Efficiency

- Federal government and state fuel tax receipts are in decline and this decline is permanent
- Standard vehicles with 100 percent electric motive power entered marketplace in 2010
- Plug-in hybrid vehicles enter marketplace in 2012
- CAFE standards for 2025 raised 80 percent in July 2011



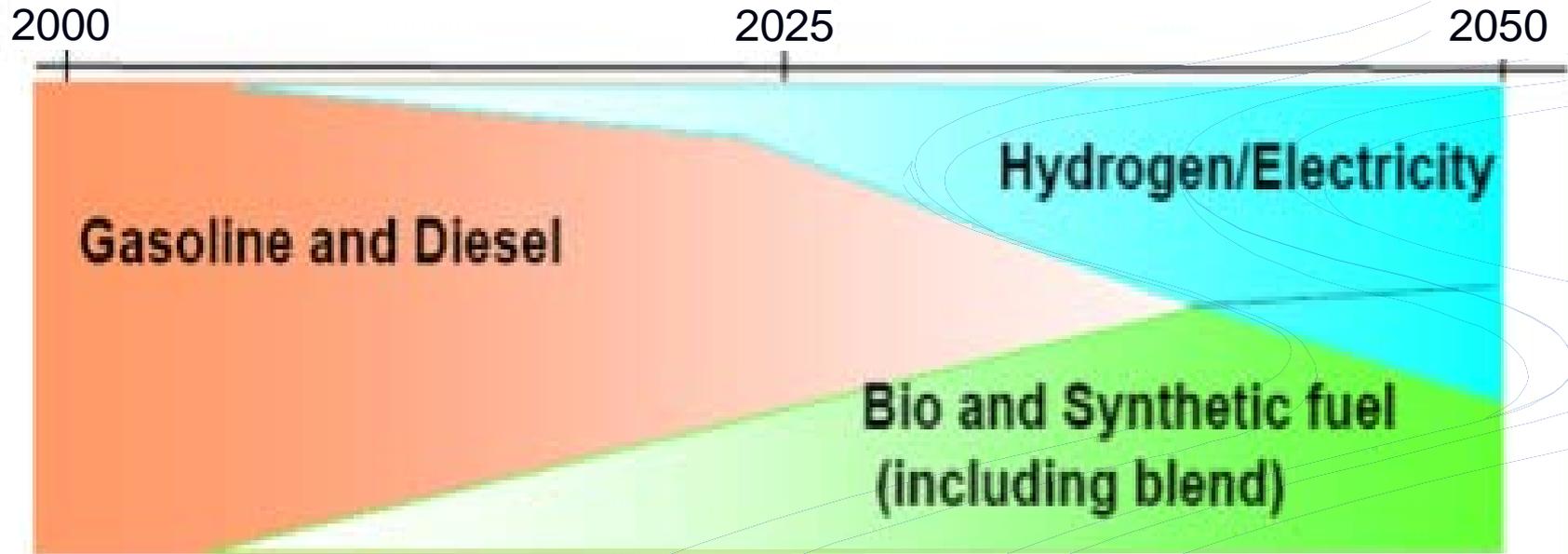
Revenues have not kept pace with VMT growth



For the near to mid-term future, gasoline and diesel will be the main automotive fuel

The US has instituted policies to drastically reducing fuel consumption and CO2 emissions of light vehicles

Automotive fuel perspective

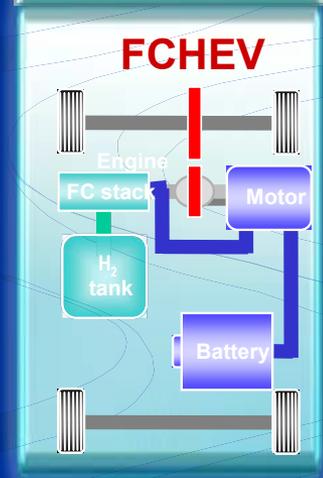
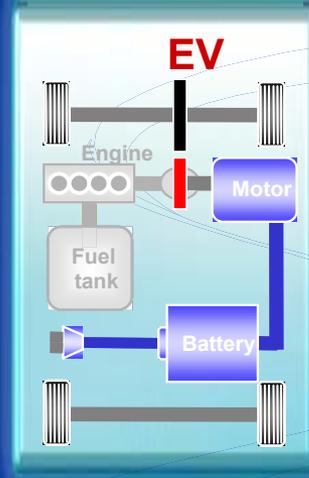
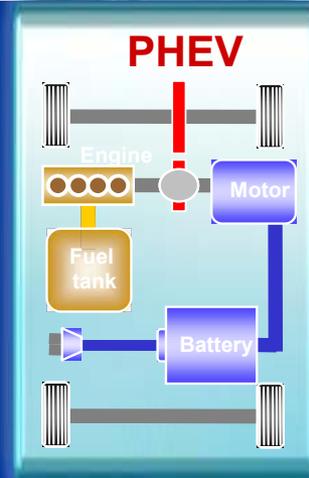
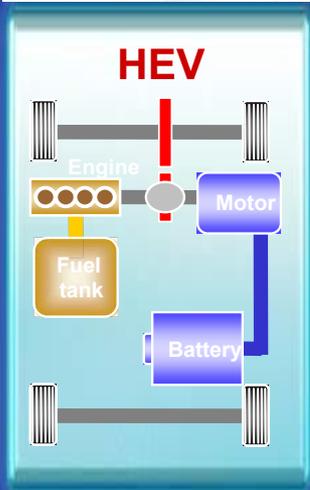


Choice: Hybrid Technology Strategic

(with applications in many future technologies)



Using hybrid technology for PHEV, EV and FCHEV



Effect of improving fuel efficiency when gas excise tax and VMT are held constant

Current (EMFAC 2007)

1 million auto and light truck VMT

☐ 19.9 mpg

= 50,250 gallons of gasoline

☐ 18.4¢ Fed gas excise tax

= \$9,246 in nominal revenues



- 39%

Est. 2016 CAFE Standard

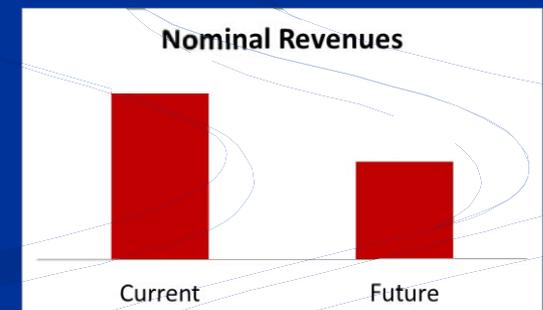
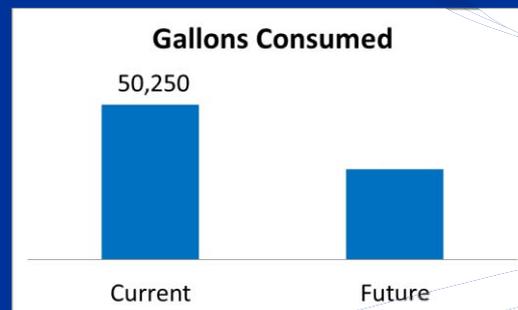
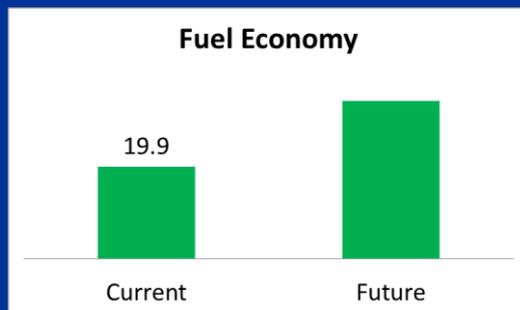
1 million auto and light truck VMT

☐ 32.8 mpg (estimated)

= 30,488 gallons of gasoline

☐ 18.4¢ Fed gas excise tax

= \$5,610 in nominal revenues



*Assuming only 5% annual construction cost growth,
this is purchasing power of only \$1,550 – an **80% reduction!***



Effect of improving fuel efficiency when State fuel tax and VMT are held constant

Current (EMFAC 2007)

1 million auto and light truck VMT

□ 19.9 mpg

= 50,250 gallons of gasoline

□ 31¢ Oregon State fuel tax

= \$15,578 in nominal revenues



Est. 2016 CAFÉ Standard

1 million auto and light truck VMT

□ 34.5 mpg (mandated)

= 28,986 gallons of gasoline

□ 31¢ Oregon State fuel tax

= \$8,986 in nominal revenues



Est. 2025 CAFE Standard

1 million auto and light truck VMT

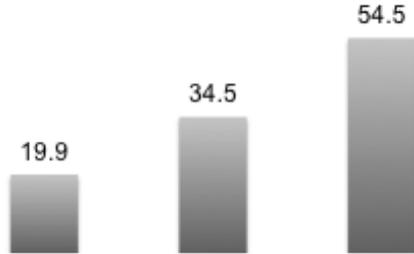
□ 54.5 mpg (mandated)

= 18,349 gallons of gasoline

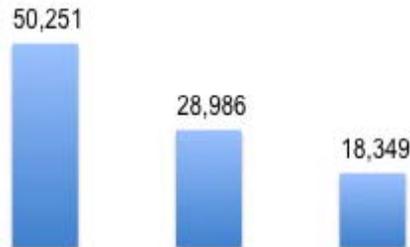
□ 31¢ Oregon State fuel tax

= \$5,688 in nominal revenues

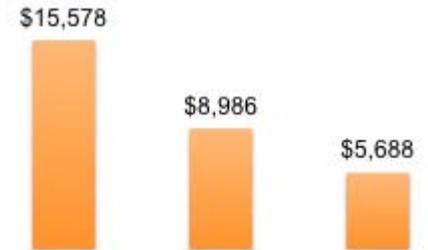
Fuel Economy



Gallons Consumed



Nominal Revenues - State





Road User Fee Task Force

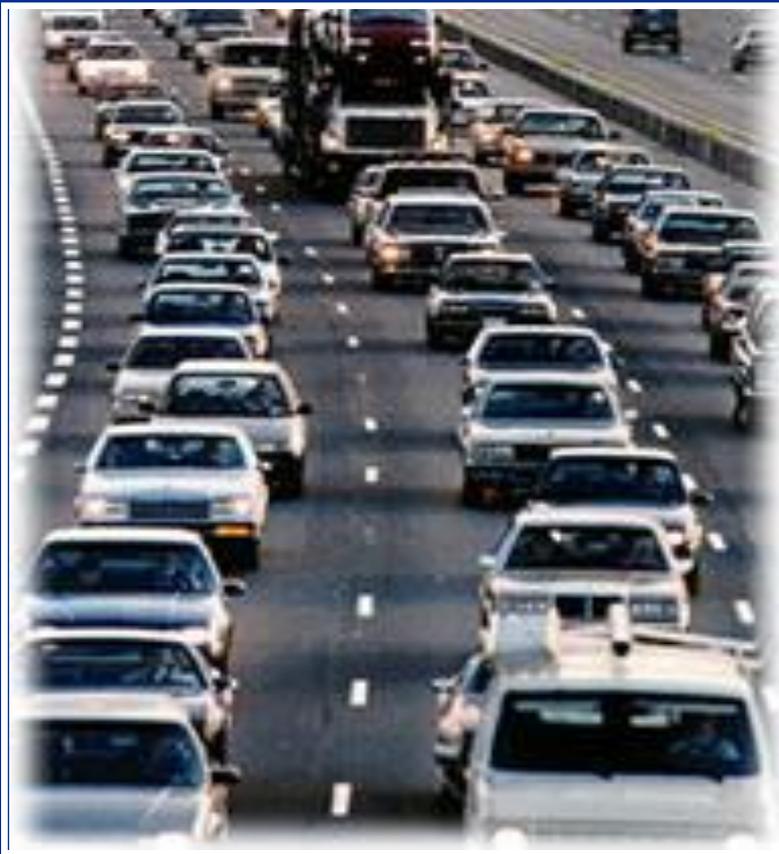


Legislative Mandate

“To develop a design for revenue collection for Oregon’s roads and highways that will replace the current system for revenue collection.”



Task Force Selection



A Tax on Vehicle
Miles Traveled



Essential Precept

“Technology should *not* drive system design.
Public policy should determine the nature of
any mileage charging system.”



Policy Directives to ODOT

Statutory Directives

- Reliability
- Ease of motorist use
- Enforceability
- Low capital costs
- Low relative operating costs

Road User Fee Task Force Directives

- Not charge out-of-state travel
- Protect motorist privacy
- Provide gas tax credit
- Seamless transition
- Minimal private sector burden



Structural Issues for Mileage Based Fees

- Administration
- Integration with existing systems
- How to credit gas tax
- Reliability and back up system
- Managing nonpayment and fraud
- Operating costs relative to revenue
- Transition management
- Overall system risk





Fundamentals of Mileage Charging

Six Things A Mileage Charging System Must Do

1. Calculate miles driven
2. Access mileage data
3. Apply mileage charging rates
4. Provide a billing
5. Collect payment
6. Enforce payment



[300 miles x 1.2 cents = \$3.60]

EXPENSE	DESCRIPTION	AMOUNT	TAX	TOTAL
1	Hardware/Coord...	20.00		20.00
2	Hardware/Coord...	1.00		1.00
3	Hardware/Coord...	120.00		120.00
4	Hardware/Coord...	22.00		22.00
5	Hardware/Coord...	38.00		38.00
6	Hardware/Coord...	-37.60		-37.60
7	Hardware/Coord...	10.00		10.00
Total		163.40	20.00	183.40

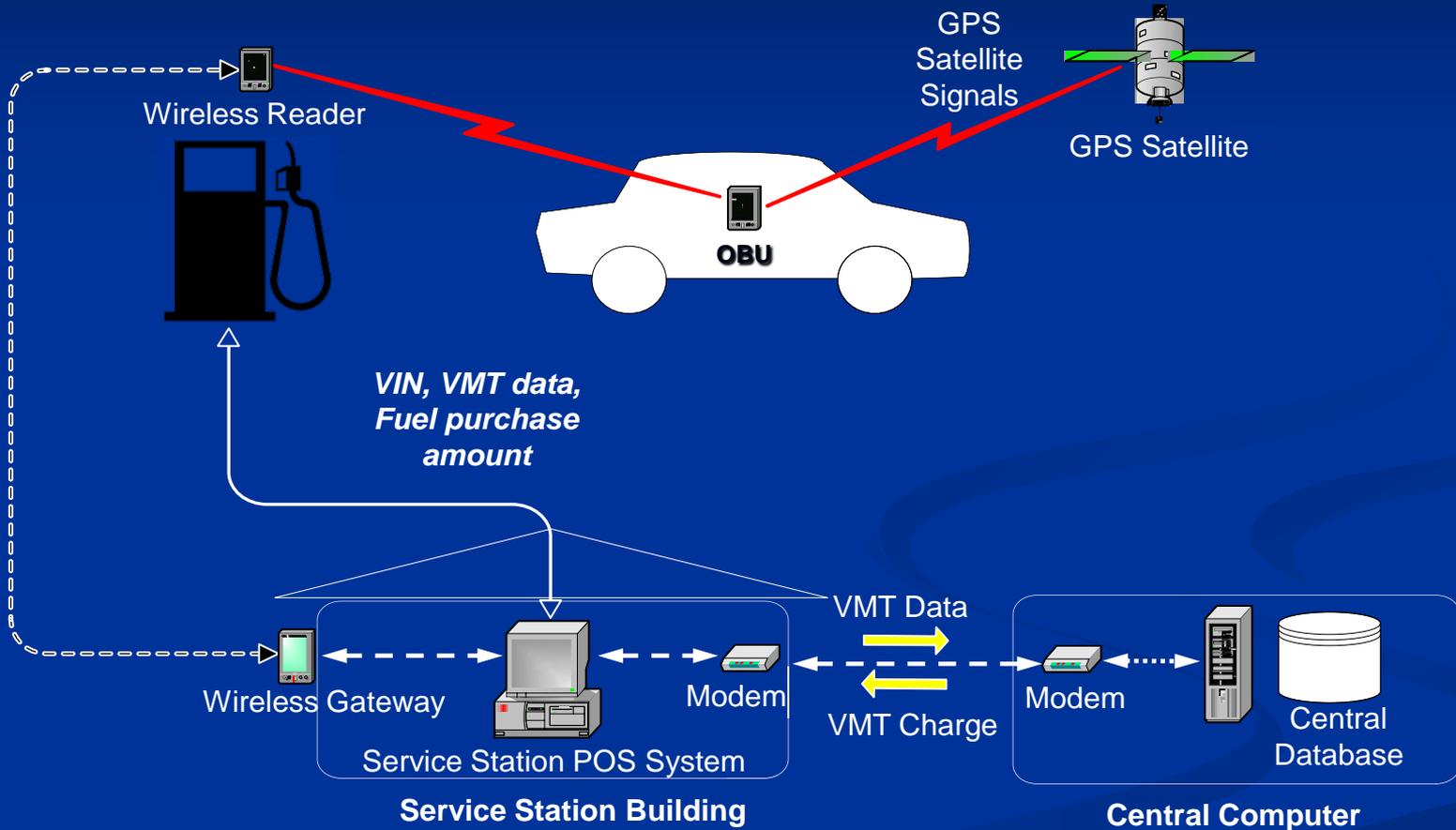


The Challenge

Create a system to emulate
best attributes of the fuel tax



The Old Vision: A Pay-at-the-Pump Model





The Receipt

csr

R# 1 S# 1 T# 882316 10:55 AM
06/09/06

Leathers Fuels
11421 SE Powell Blvd
Portland, OR 97266

Pump# 1 Unleaded

19.50 @ 2.549	49.71
ST Fuel Tax @ .24	(4.68)
VMT Fee :	5.12
Rush Hour :	40
In-Oregon :	28.6
Non-Oregon:	0
No Signal :	0
Subtotal	50.15
Total	50.15
Cash	50.15

Thank You !

Fuel tax deducted from
fuel purchase price

Mileage fee imposed as
part of fuel purchase



National Support for VMT

- National Surface Transportation Policy & Revenue Study Commission, 2007
- American Association of State Highway Transportation Officials, 2008
- National Surface Transportation Infrastructure Financing Commission, 2009
- Miller Commission, 2010

National Surface
TRANSPORTATION POLICY
AND REVENUE STUDY COMMISSION



NATIONAL SURFACE TRANSPORTATION
INFRASTRUCTURE FINANCING COMMISSION



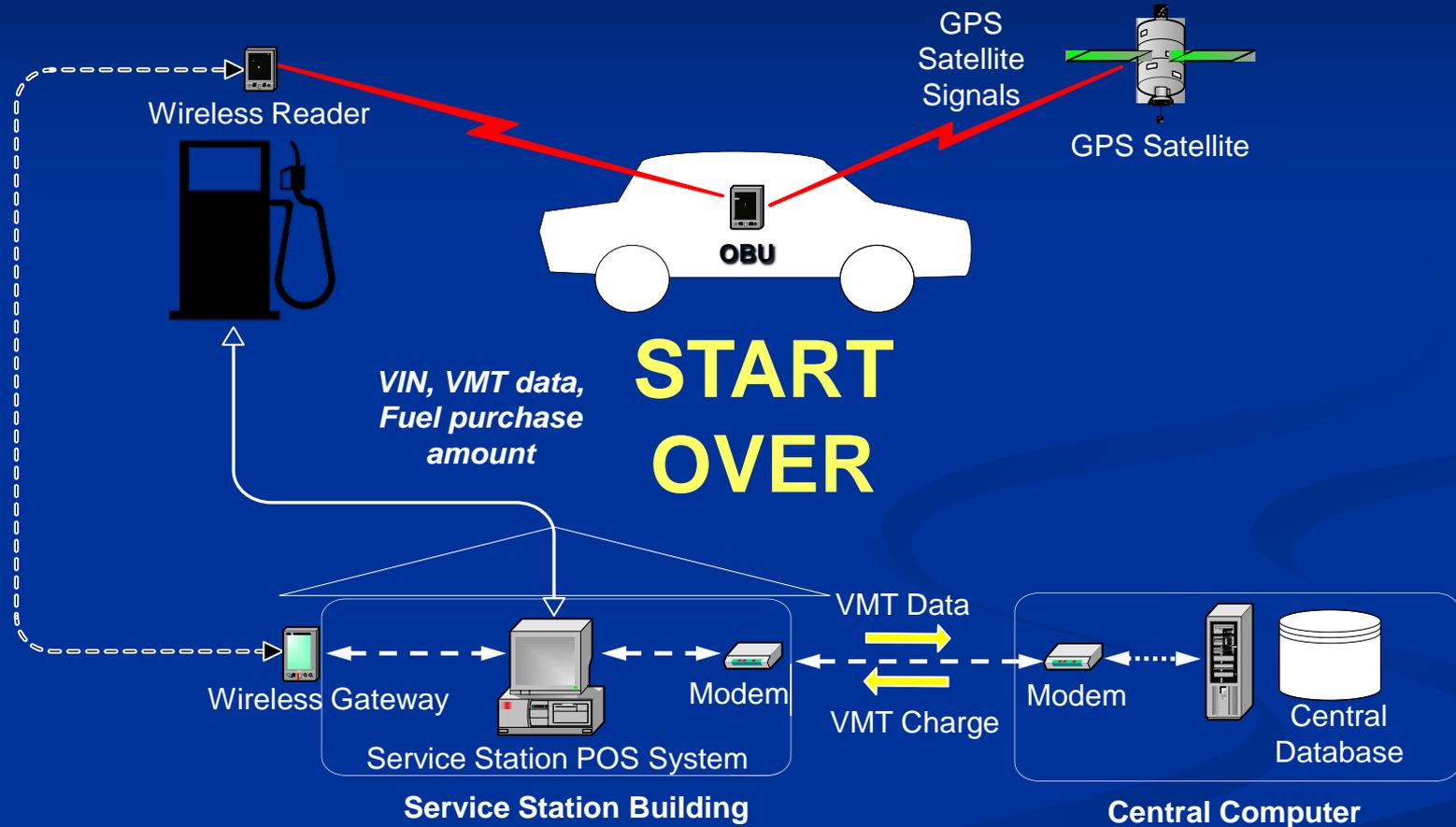
Assessment of Pay-at-the-Pump Model

Critique

- Long period for development and implementation
- Implementation potentially complex and expensive
- Slow technological evolution
- Does *not* cover vehicles not visiting commercial fueling stations
- Public concerns about privacy
- Public concerns about fairness
- Public concerns about equity
- Public concerns about costly bureaucracy



Pay-at-the-Pump Model



Observations Concerning Mobile Technologies Circa 2011

- Large numbers of motorists use all electronic toll technology
- Citizens around globe apprehensive about mandates for GPS in passenger vehicles
 - The United States
 - The United Kingdom
 - The Netherlands
 - Singapore
- Citizens around globe use GPS in mobile phones purchased in marketplace
- Mobile phone/computer technologies evolves with consumer demand
- Market for smart devices in passenger vehicles now emerging





New Goal: Build a Road User Charging System Based on *Existing Realities* of the Marketplace

- **No Mandate for GPS.** Government should not mandate or push motorists to particular technology
- **Motorist Choice.** Motorists should choose collection method from several *options* to meet individual preferences
- **An Open System.** Allow for technologies to evolve
- **Private Sector Administration.** Tap into market forces to allow the public to *choose* either government or private sector provision of data collection and payment services



Other Requirements for a VMT System

- Auditable. Keep it fair by limiting cheating
- Privacy. Allow motorists to protect personal information
- Cost efficiency. For motorist and ODOT
- Minimize disruption to the marketplace



What the Public Wants

Keep it simple!

Problem

Simple is in the mind of the individual



Solution: Motorists Select Their Version of Simple

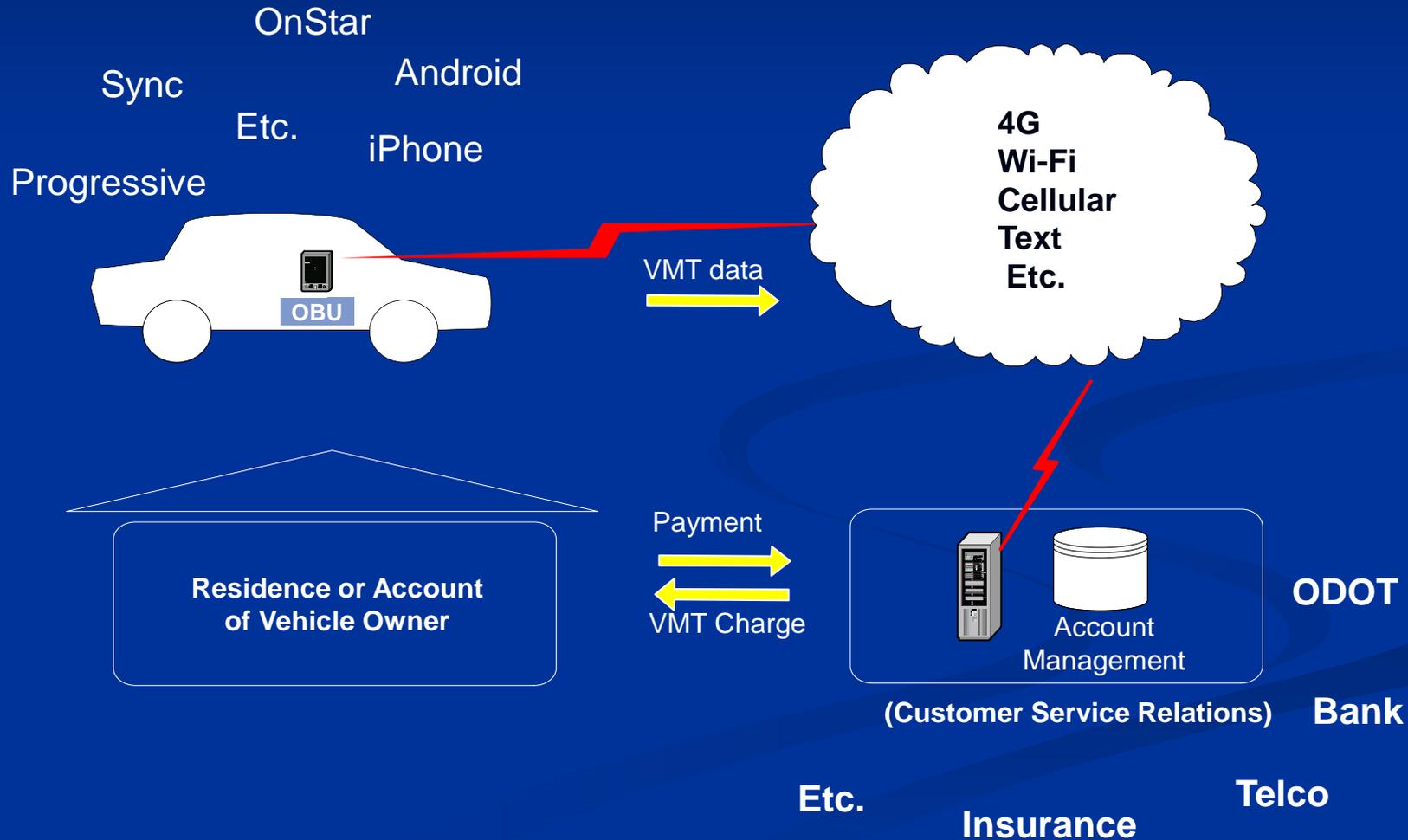
Choose Reporting Method From Four Potential Options

1. **Flat Annual Tax.** Purchases unlimited mileage
2. **Self Reporting.** Periodic reporting of mileage via on-line form
3. **Electronic Reporting from Odometer.** Wireless transfer of mileage data directly from odometer
4. **Electronic Reporting from Advanced OBU.** Wireless transfer of mileage data from on-board unit with vehicle location capability





OBU Reporting Through Internet Cloud Under An Open System





“... the unfamiliar, the vaguely perceived, the mysterious, the hidden, the unexpected are all apt to be threatening. One way of rendering them familiar, predictable, manageable, controllable, i.e., unafrightening, and harmless, is to know them and to understand them.”

Abraham Maslow

The Opportunity



- Strong policy case for application of VMT to electric and plug-in hybrid vehicles
- Enactment of a small, partial program to electric vehicles will
 - Enable development of the mileage tax collection system in a small risk environment
 - Enable collection system to grow as electric vehicle market grows
 - Allow the motoring public to view an actual mileage use fee collection system in operation
 - Potentially provide the legislature with confidence to add vehicle groupings as comfort with mileage fee system grows



Mileage Tax Legislative Policies Approved by the Road User Fee Task Force

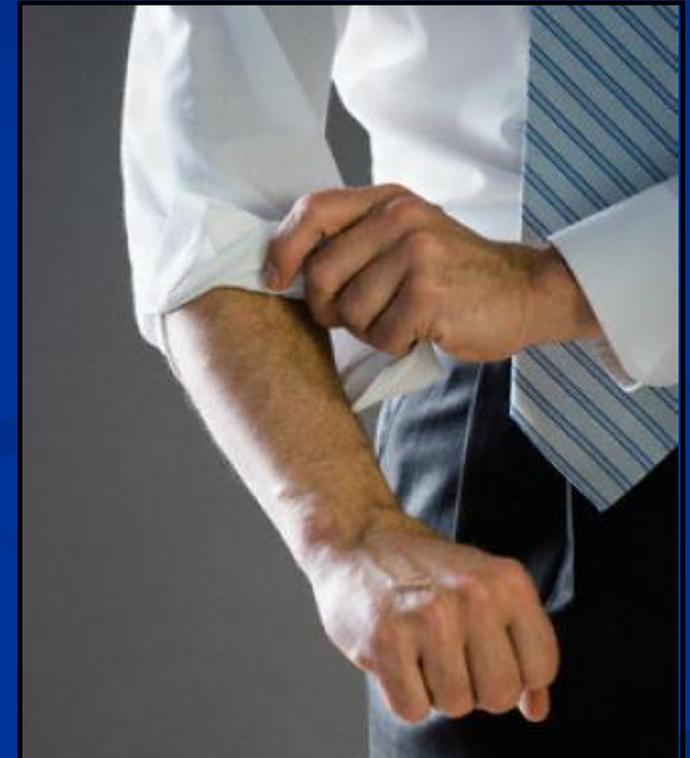
- Require owners of electric vehicles and plug-in hybrids vehicles to either periodically report miles driven or pre-pay a flat annual tax in lieu of reporting
- Road user charge to begin July 2015 for 2016 model year
- Full mileage tax rate equal to amount average motorist pays in gas taxes
- Direct Oregon DOT to develop compliance methods, one of which must not involve vehicle location technology
- Direct Oregon DOT to establish standards under an open system for technologies and methods for identifying vehicles and reporting miles driven.
- Allow creation of public private partnerships for mileage data and payment collection
- Protected personally identifiable information
- Establish offsets or refunds of gas tax paid and driving on private property

VMT Work Underway in Oregon

- **Assessing methods for compliance**
 - Effectiveness
 - Administrative viability
 - Administrative costs
 - Enforcement capabilities

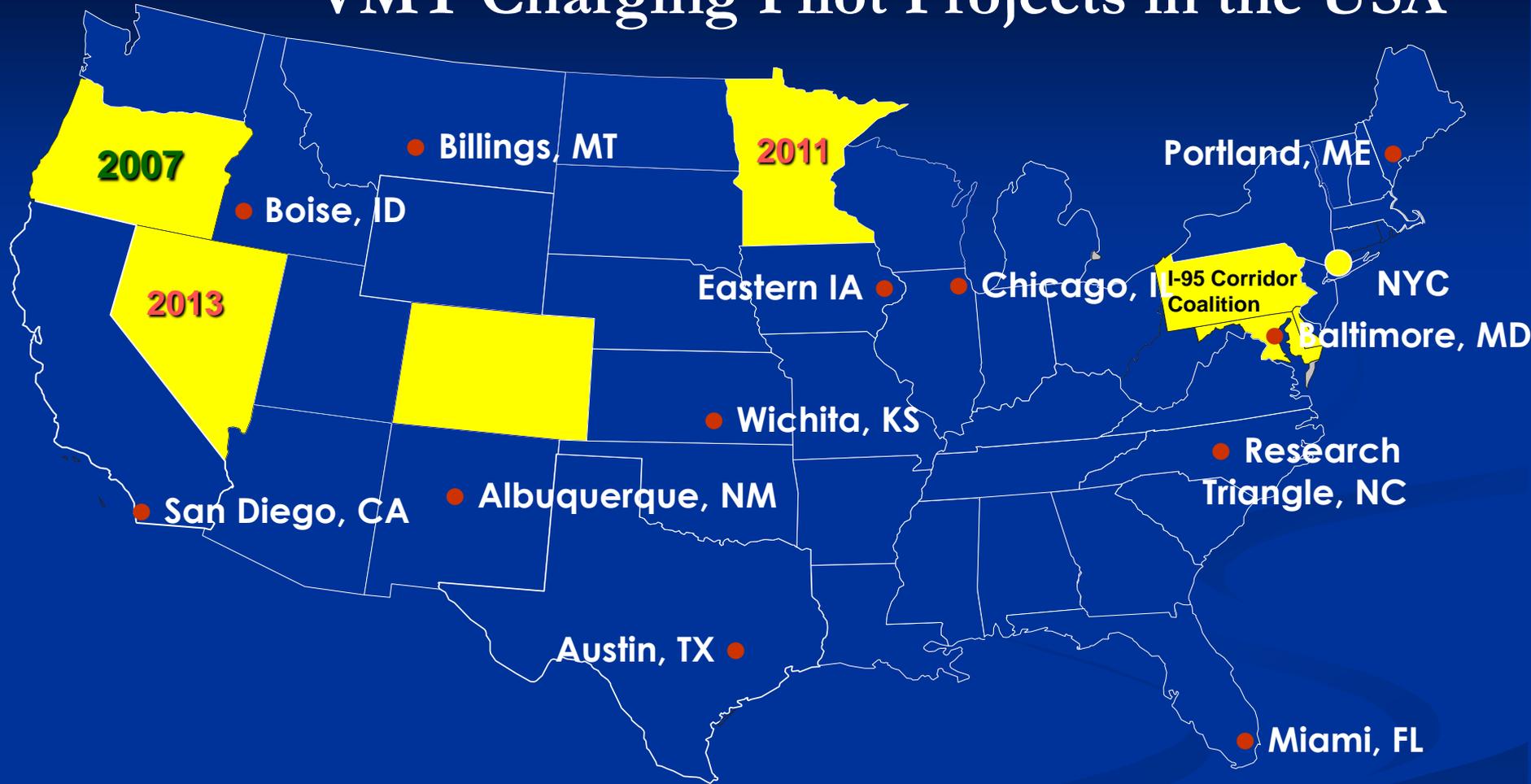
- **Technology and systems**
 - Integration with other systems
 - Business rules
 - Market rules
 - Common standards
 - Certification agency

- **Preparation of Legislation for 2013**
 - Motorist choice of compliance method





VMT Charging Pilot Projects in the USA



● University of Iowa Field Tests *(completed 2010)*

■ Pilot projects completed, underway and under development



What Congress Should Do

- Direct FHWA to fund research into VMT collections systems at federal and state levels
- Fund for several state pilot programs under development
- Fund a multi-state pilot program

