



# The Future of Transportation

Regional EV Conference

NOAA Sandpoint Offices

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CATES

Center for Advanced Transportation and Energy Solutions

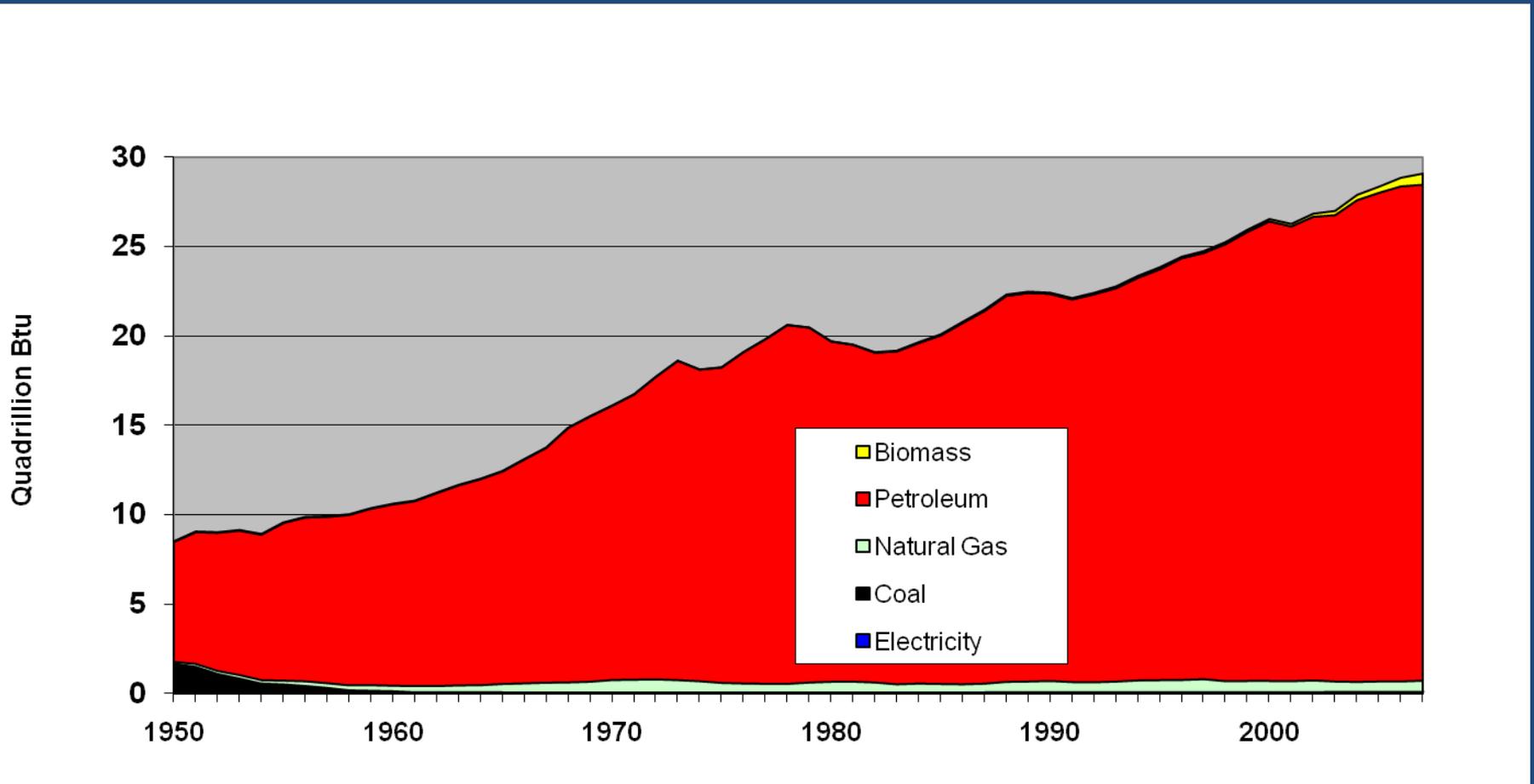
# The Future of Transportation

- Better vehicles—cars without oil, accidents or congestion. Smart, connected, electric and ultimately self-driving.
- Better transit –connecting personal vehicles to public transit and other more flexible options into core areas.

## Problem 1: Oil Dependence in Transportation

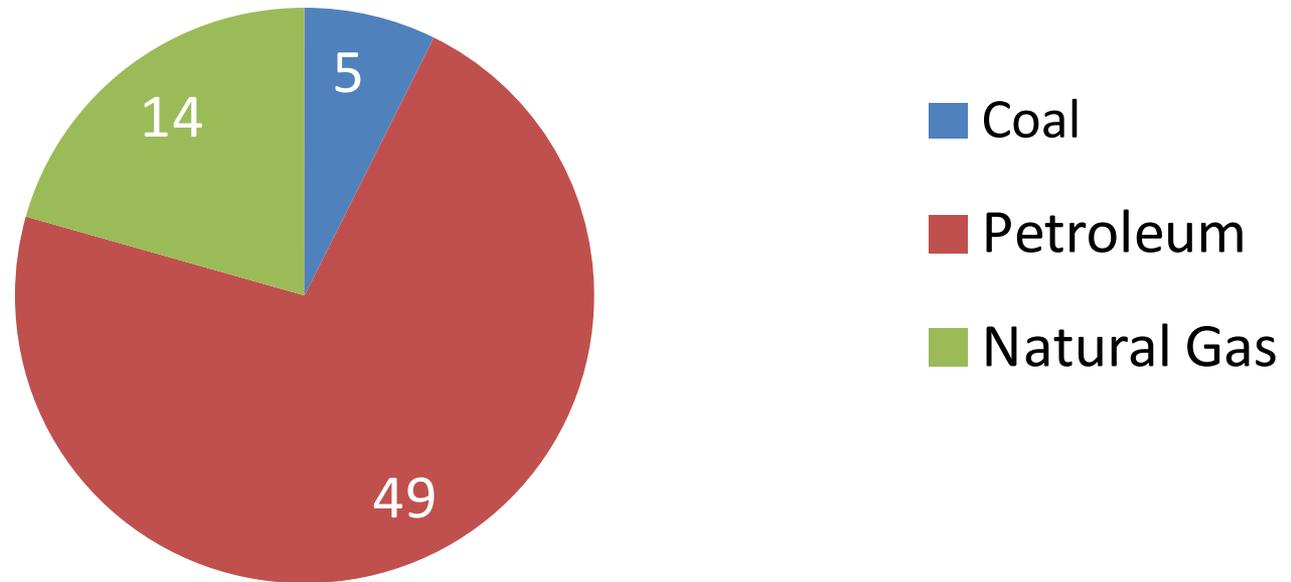
- Oil fuels 97 percent of U.S. transportation
- Oil harms national security, the economy and the environment
- Oil imports = \$1 billion a day
- Half of U.S. trade imbalance is from oil imports
- Burning oil is one of single largest causes of GHG emissions and urban pollution.
- The annual U.S. military cost to protect world oil supply lines exceeds \$80 billion.

# U.S. Transportation Energy Use



# Petroleum Use Produces Most of the Washington State CO<sub>2</sub> Emissions

**Washington State Fossil Fuel Use in 2011**  
**Millions of Metric Tons of CO<sub>2</sub>**



# Electric vehicles

“To reduce oil dependence, nothing would do more good more quickly than making cars that would connect to the electric grid.”

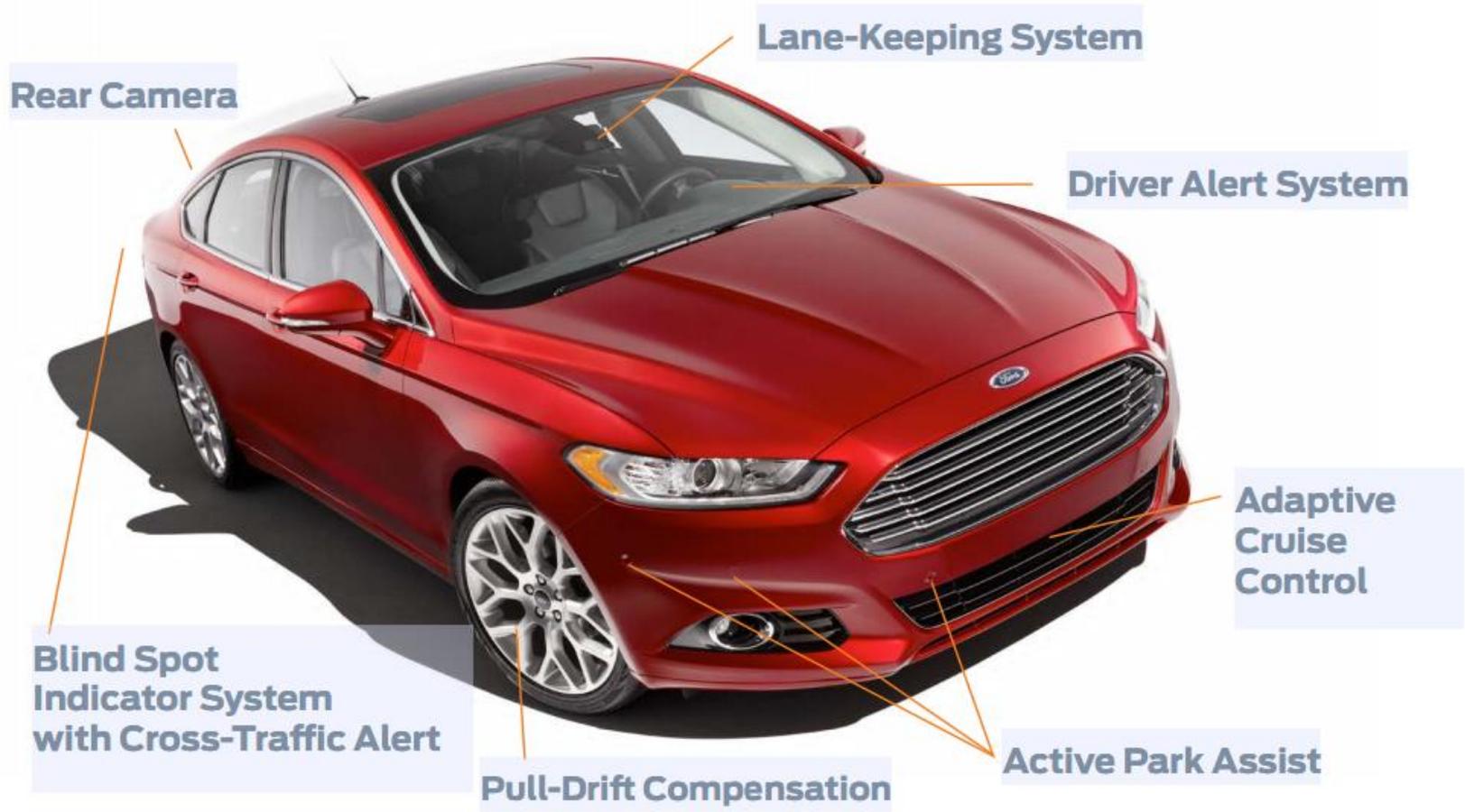
David Sandalow, former Assistant Secretary for Policy and International Affairs, U.S. Department of Energy

## Problem 2: Collisions, deaths and injuries

- 33,000 U.S. road deaths last year
- One million worldwide road deaths a year
- Leading killer of U.S. children age 10–19.
- Sixth leading killer of all ages in U.S.
- Cost of U.S. vehicle deaths and injuries: Over \$230 billion a year.



## 2013 Ford Fusion: Driver-Assist Technologies



Rear Camera

Lane-Keeping System

Driver Alert System

Adaptive  
Cruise  
Control

Blind Spot  
Indicator System  
with Cross-Traffic Alert

Pull-Drift Compensation

Active Park Assist

# Ford's Autonomous Test Car



## Problem 3: Low Use of Public Transit

- The percentage of daily trips on public transit has been low and flat.
- PSRC projects low transit use through 2040.
- Changing work and family patterns require more flexible transit options

## Connecting Personal Vehicles to Public Transit

- Drivers will access transit, van pool and car pool information and reserve seats and parking
- Focus on most efficient public transit routes
- Eventual automated transit
- Use of virtual dedicated lanes to make full use of lane capacity

# King County Metro's Nissan Leaf Vanpool



# Via Motors Extended Range Electric Van

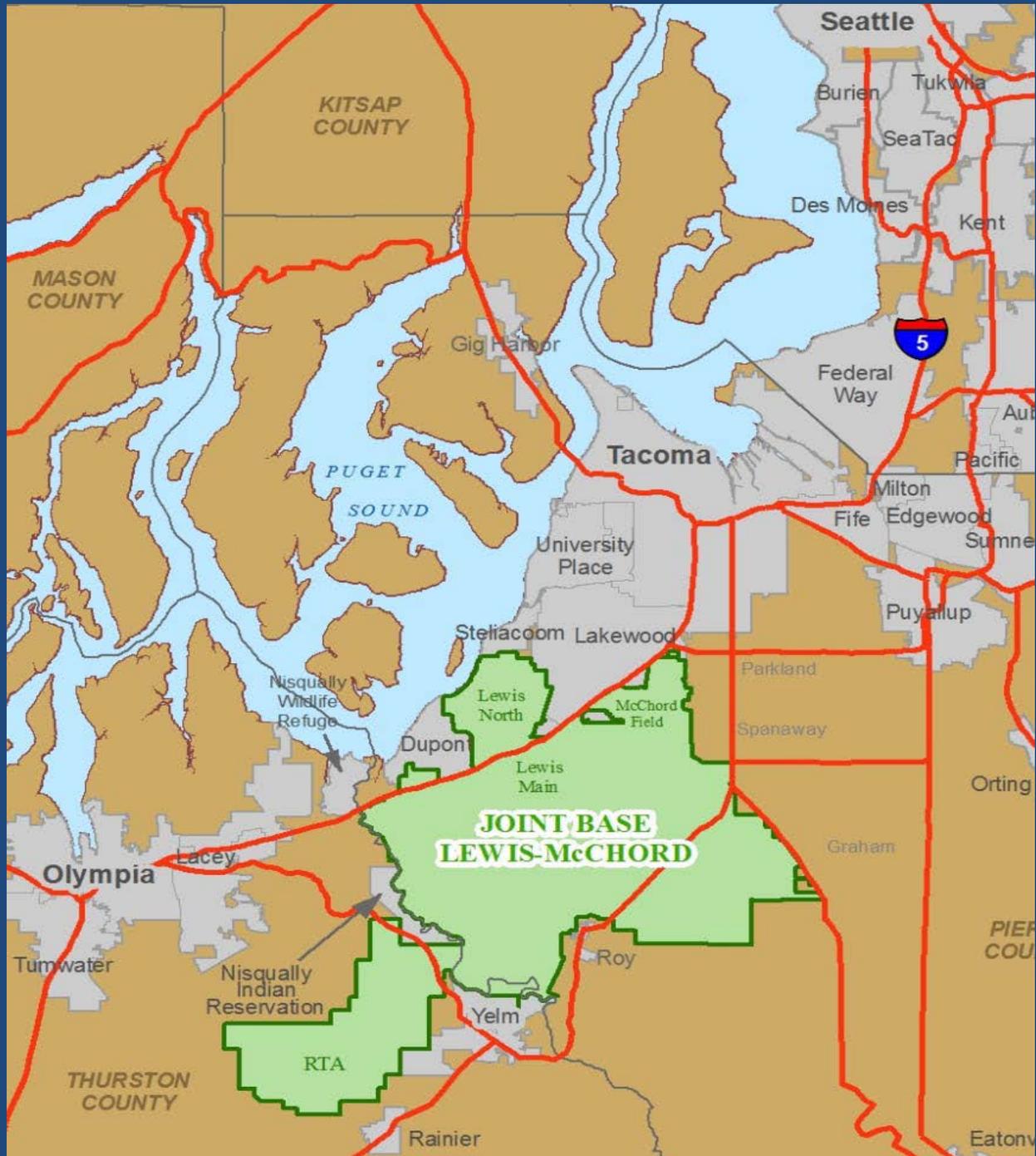


# High Tech Mobility Hubs

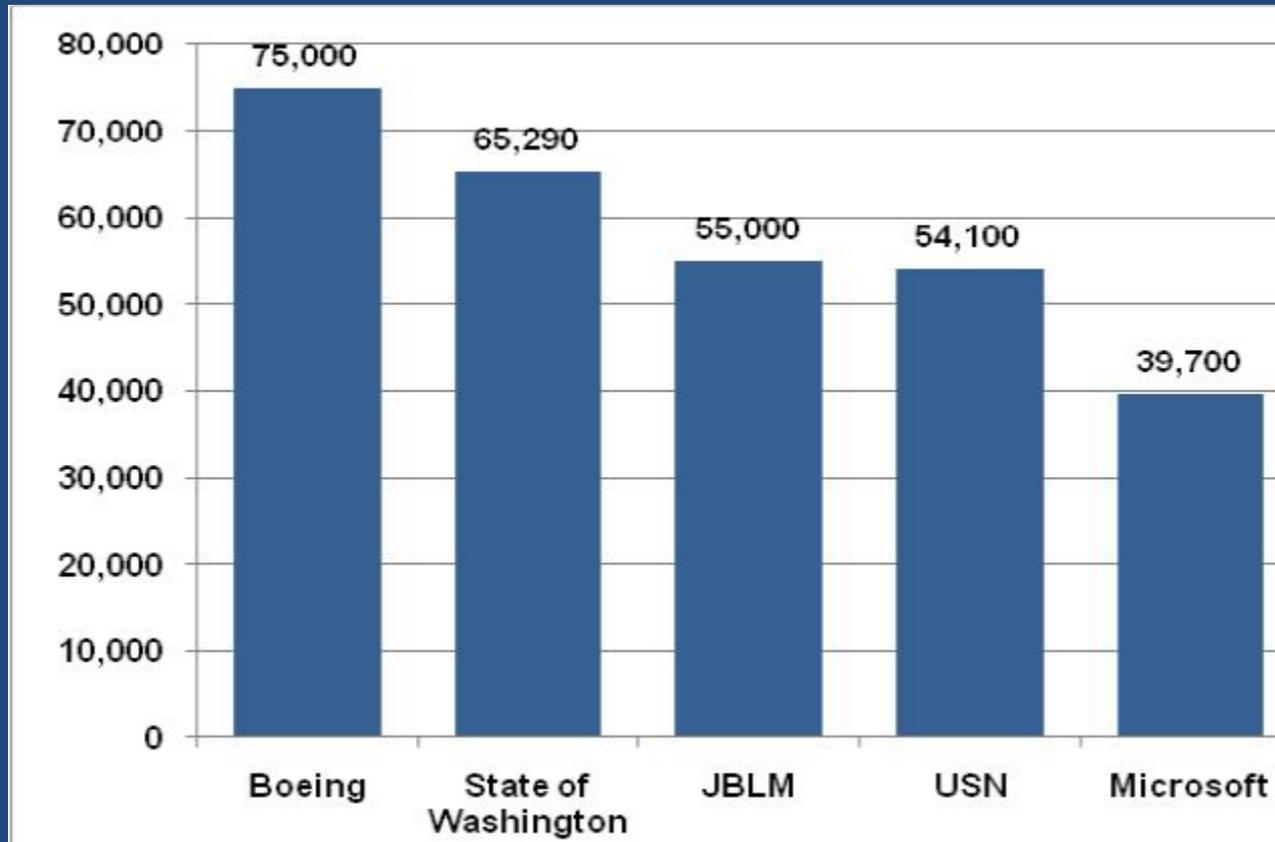


# Test Driving Future Transportation at JBLM: A Systems Approach

- DOE/DOD MOU
- HUD/EPA/DOT Sustainable Communities
- Executive Orders and GSA EV purchasing
- DOE/INL EV Project at JBLM
- USDOT EV Vanpool and I-5 funding
- EPA /USDOT Fuel Standards
- Inrix data connections
- Cisco, Microsoft, Verizon, Ford, GM, Nissan connected vehicles



# JBLM is 3<sup>rd</sup> largest employer in state



# Additional JBLM Goals

- Complete transition from gasoline to EVs
- EV vanpool systems to and from base
- Autonomous shuttles on base
- Autonomous truck convoy testing
- EV batteries to back up critical circuits