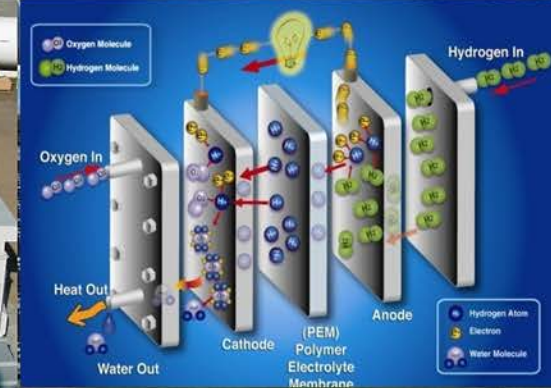


# Opportunities and Challenges in Sustainable Transportation

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



## Hydrogen and Fuel Cell Technical Advisory Committee

November 18, 2014

Washington, DC

## Reuben Sarkar

U.S. Department of Energy  
Deputy Assistant Secretary  
Sustainable Transportation



*“We’ve got to invest in a serious, sustained, **all-of-the-above energy strategy** that develops every resource available for the 21st century.”*

*- President Barack Obama*

*“As part of an all-of-the-above energy approach, **fuel cell technologies** are paving the way to competitiveness in the global clean energy market and to new jobs and business creation across the country.”*

*- Secretary Moniz,  
U.S. Department of Energy*



Secretary Moniz at DC Auto Show



## Sustainable TRANSPORTATION

## Renewable ELECTRICITY GENERATION

## Energy Saving HOMES, BUILDINGS, & MANUFACTURING



## Sustainable TRANSPORTATION

- Transportation Efficiency
- Diverse Fuel Sources
- Domestic & Renewable



Hydrogen and Fuel Cells



Vehicles



Bioenergy

National Energy Goals  
&  
Climate Action Plan

Net Oil Imports

↓ **50%** by 2020

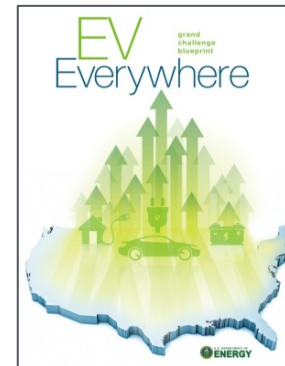
GHG Emissions

↓ **17%** by 2020  
**>80%** by 2050

## Core Focus

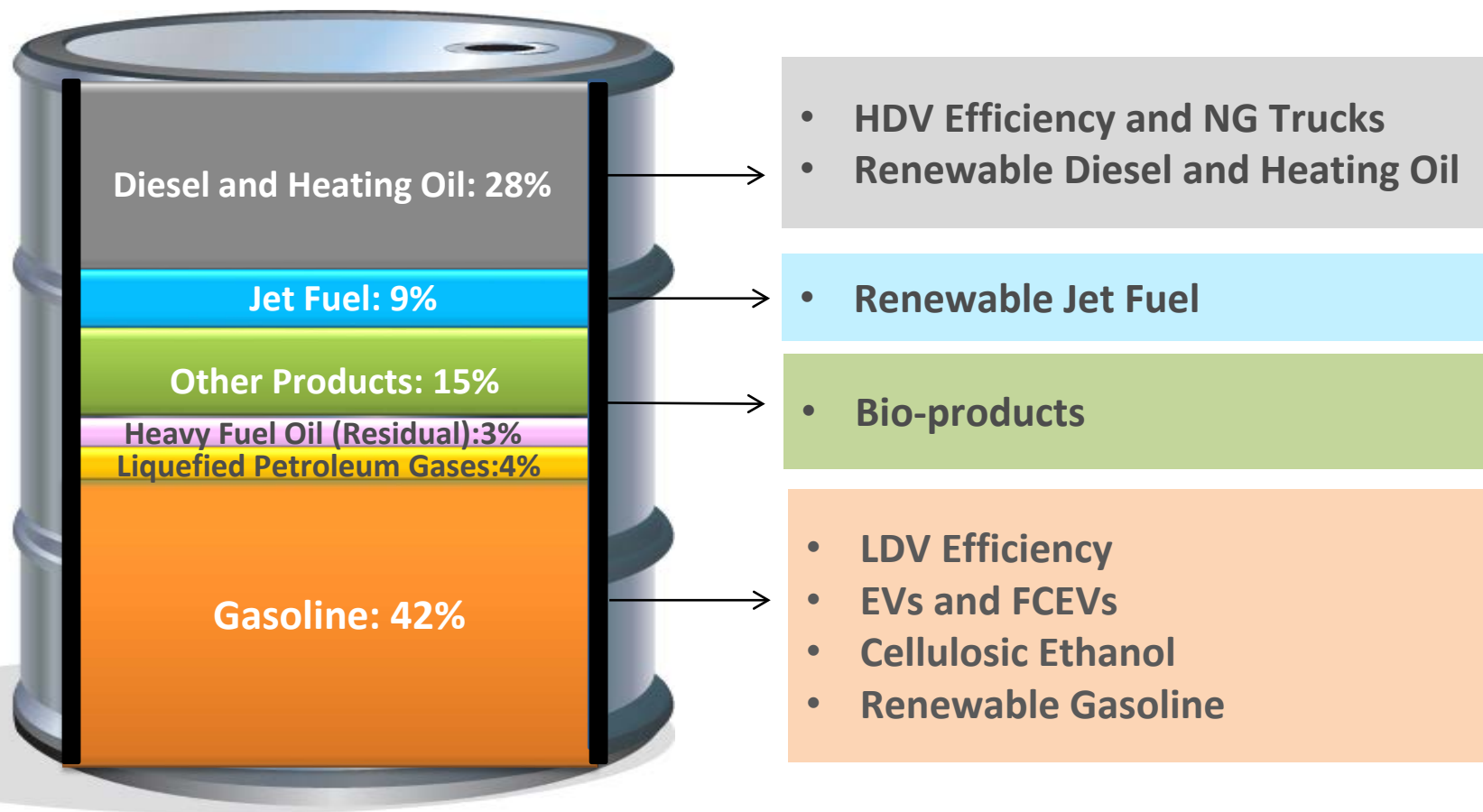
- Vehicle Electrification
- Materials Lightweighting
- Advanced Combustion
- Drop-in Biofuels
- Community Partner Projects
- Fuel Cell Technology
- Hydrogen Infrastructure
- Crosscuts (multi-office)

## Programs & Initiatives



*Portfolio of technology R&D and market transformation activities*

# Replacing the Whole Oil Barrel

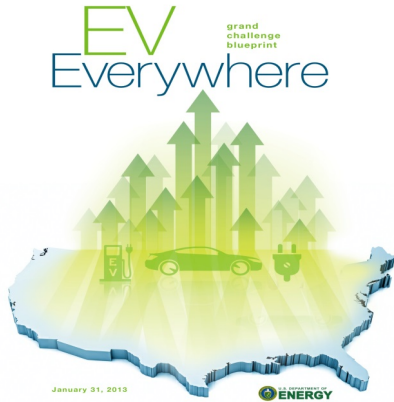


**\$1B/day spent on crude oil imports**

\*American Petroleum Institute

*Focus is a range of technologies to displace the barrel of petroleum crude*



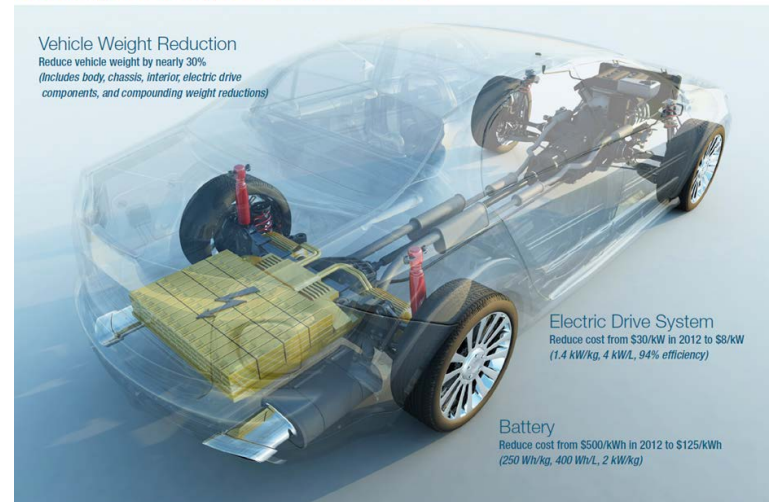


.... to produce **plug-in electric vehicles** (PEVs) as **affordable** and **convenient** for the American family as gasoline-powered vehicles **by 2022**



Announced May 2012 at Daimler Trucks in NC

### 2022 technology performance and cost targets for key PEV technical areas



**\$504M total DOE R&D and market transformation effort since 2012**

# EERE Budget (\$K)

Program Office	FY14 Current	FY15 Request	FY15 House Mark	FY15 Senate Mark
<b>Transportation</b>	<b>614,955</b>	<b>705,183</b>	<b>557,500</b>	<b>636,200</b>
Vehicles Technologies	289,737	359,000	277,500	290,000
Bioenergy Technologies Office	232,290	253,200	180,000	253,200
Hydrogen and Fuel Cell Technologies	92,928	92,983	100,000	93,000
<b>Renewable Electricity</b>	<b>449,524</b>	<b>521,300</b>	<b>378,500</b>	<b>487,500</b>
Solar Energy	257,058	282,300	178,000	248,000
Wind Energy	88,126	115,000	107,000	109,000
Water Power	58,565	62,500	47,500	69,000
Geothermal Technologies	45,775	61,500	46,000	61,500
<b>End-Use Efficiency</b>	<b>617,449</b>	<b>857,700</b>	<b>644,000</b>	<b>716,441</b>
Advanced Manufacturing	180,471	305,100	206,000	231,841
Federal Energy Management Program	28,248	36,200	20,000	29,000
Building Technologies	177,868	211,700	165,000	178,000
Weatherization and Intergovernmental Office	230,862	304,700	253,000	277,600
<b>Corporate Support Programs</b>	<b>231,513</b>	<b>237,779</b>	<b>218,000</b>	<b>238,000</b>
<b>Subtotal EERE</b>	<b>1,913,441</b>	<b>2,321,962</b>	<b>1,798,000</b>	<b>2,078,141</b>
Adjustments	-12,800	-5,213	-25,111	-24,178
<b>Total</b>	<b>1,900,641</b>	<b>2,316,749</b>	<b>1,772,889</b>	<b>2,053,963</b>

*Aligned with EERE's overall strategy to meet targets on time*



# Thank you

**Reuben Sarkar**

Deputy Assistant Secretary  
Sustainable Transportation