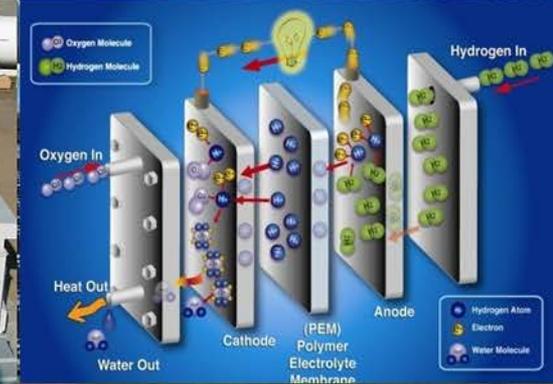


Opportunities and Challenges in Sustainable Transportation

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

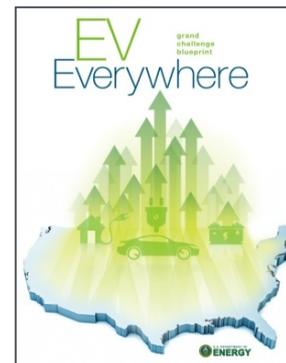
GHG Emissions

↓ **17%** by 2020
>80% by 2050

Core Focus

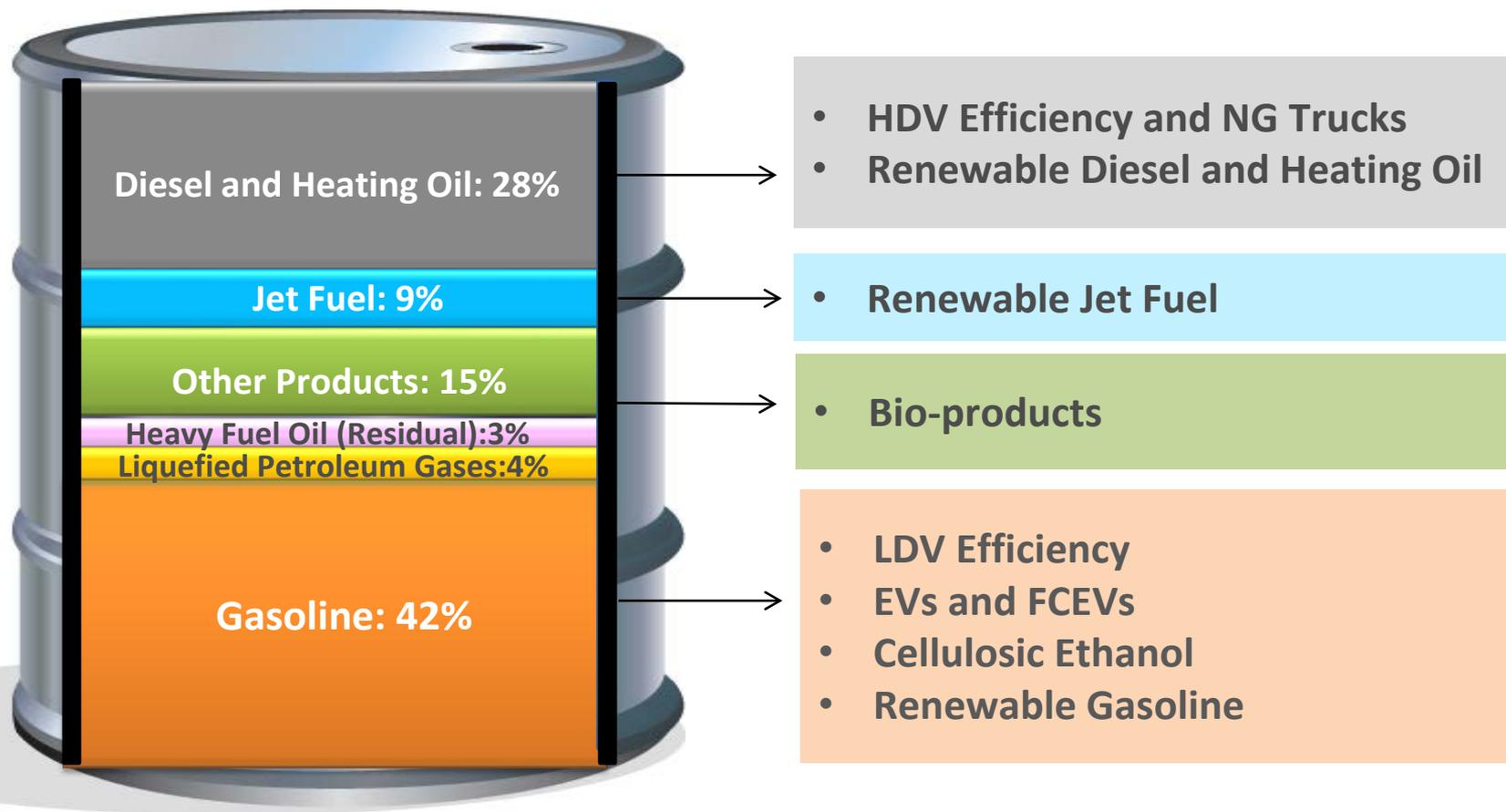
- Vehicle Electrification
- Materials Lightweighting
- Advanced Combustion
- Drop-in Biofuels
- Community Partner Projects
- Fuel Cell Technology
- Hydrogen Infrastructure
- Crosscuts (multi-office)

Programs & Initiatives



Portfolio of technology R&D and market transformation activities

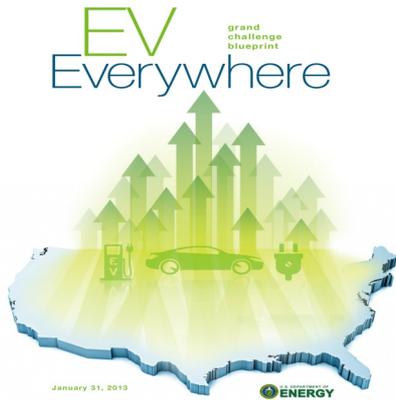
Replacing the Whole Oil Barrel



\$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
Transportation	614,955	705,183	557,500	636,200
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
Renewable Electricity	449,524	521,300	378,500	487,500
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
End-Use Efficiency	617,449	857,700	644,000	716,441
Advanced Manufacturing	180,471	305,100	206,000	231,841
Federal Energy Managemetn 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
Corporate Support Programs	231,513	237,779	218,000	238,000
Subtotal EERE	1,913,441	2,321,962	1,798,000	2,078,141
Adjustments	-12,800	-5,213	-25,111	-24,178
Total	1,900,641	2,316,749	1,772,889	2,053,963

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

Thank you

Reuben Sarkar

Deputy Assistant Secretary
Sustainable Transportation