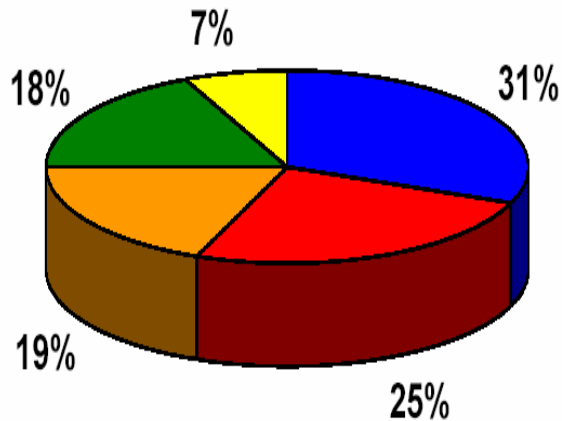




# German NGV Program: Strong National Leadership

Natural gas supplies for Germany 2002



- Long-term commitment to preferential tax policy for natural gas – through 2020
- 20,000 to > 500,000 NGVs by 2018
- 1,000 new stations in next four years

# Hybrid Truck Users Forum (HTUF)



- Goal: facilitate the development of medium- and heavy-duty hybrid trucks in the U.S.
- User driven process
- Joint CALSTART-U.S. Army (NAC) program



# Hybrid Truck Users Forum Meeting: Kalamazoo 2004



- 250 fleet and industry attendees (45% increase over 2003)
- 14 hybrid medium- and heavy-duty trucks in ride and drive





# CALSTART Secured \$1M in DOD Funding to Reduce Cost of 20+ Trucks



**International Truck and Engine Announces Plans to Begin Limited Commercial Production in 2006**

**Class 6/7**

**Hybrid Electric**

**40-60% Fuel Economy Improvement**

**Greatly Improved Total Emissions**

**Idle Reduction (shuts off at work site)**

**25 kW power export**

**Meets or exceeds driving performance requirements**

**20+ pre-production trucks to be built and assessed**





## Clean Heavy-Duty Vehicle 2005

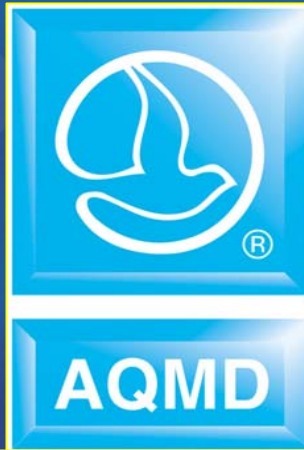
### ***Making the Connection: Emissions, Efficiency and Energy Security***

- Largest national conference dedicated to clean, energy efficient heavy-duty vehicle technologies and products
- Sessions on non-road developments, new technologies, fuels, fleet user experiences, and new regulations
- Panel of leading HDV engine and truck manufacturers on EPA 2010 emissions standards
- Ride and Drive, Vehicle Displays, and information booths
- La Quinta, CA – February 22-24, 2005
- Register on line at [www.calstart.org](http://www.calstart.org) or for more information, contact Sue Romeo at [sromeo@calstart.org](mailto:sromeo@calstart.org) or (626) 744-5686



# Clean Heavy-Duty Vehicle 2005

## Platinum Sponsor



## Silver Sponsors



### UTC Fuel Cells

A United Technologies Company



## Gold Sponsors

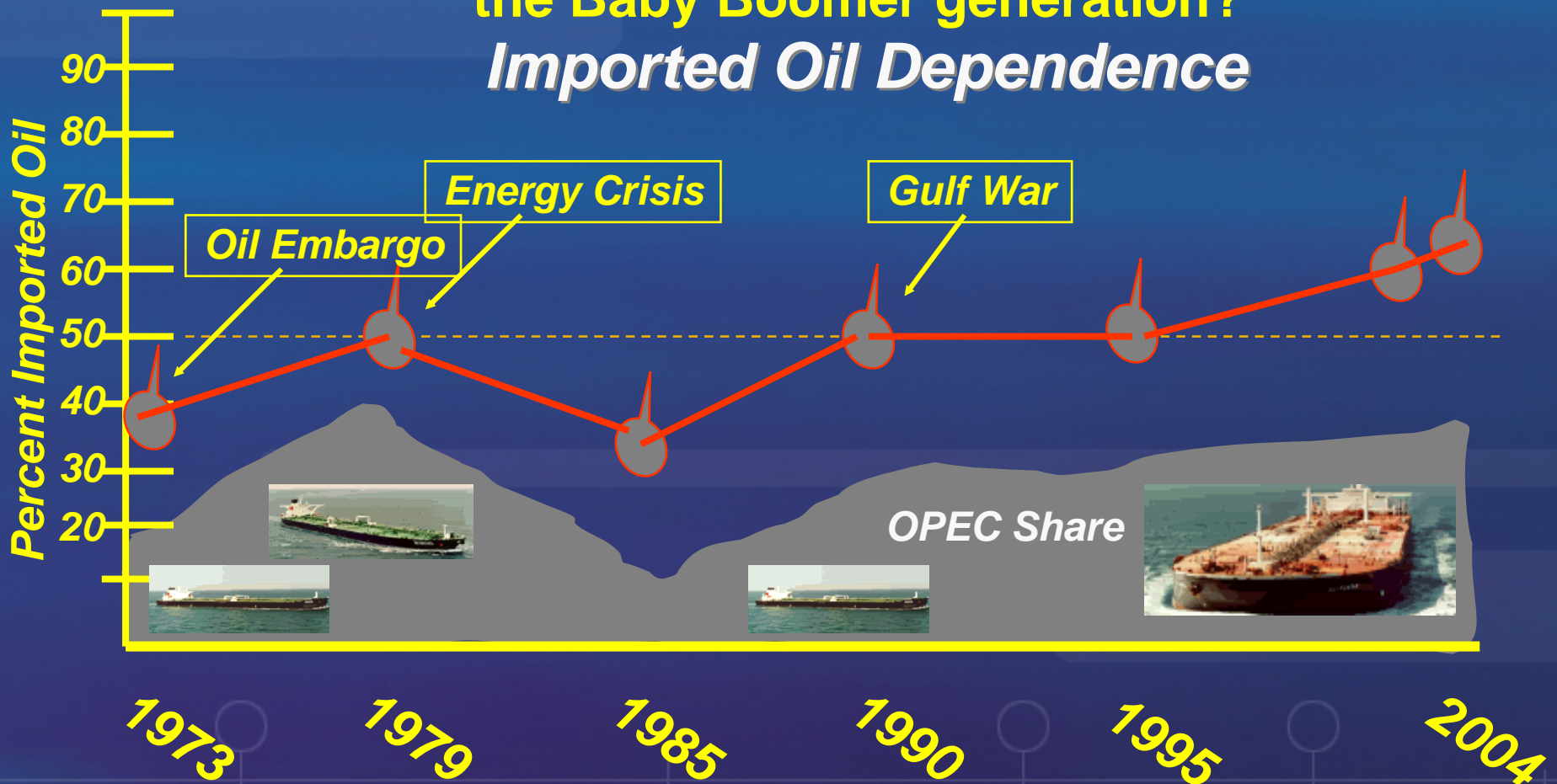


## Bronze Sponsors

# From 40 to 65% in 31 Years

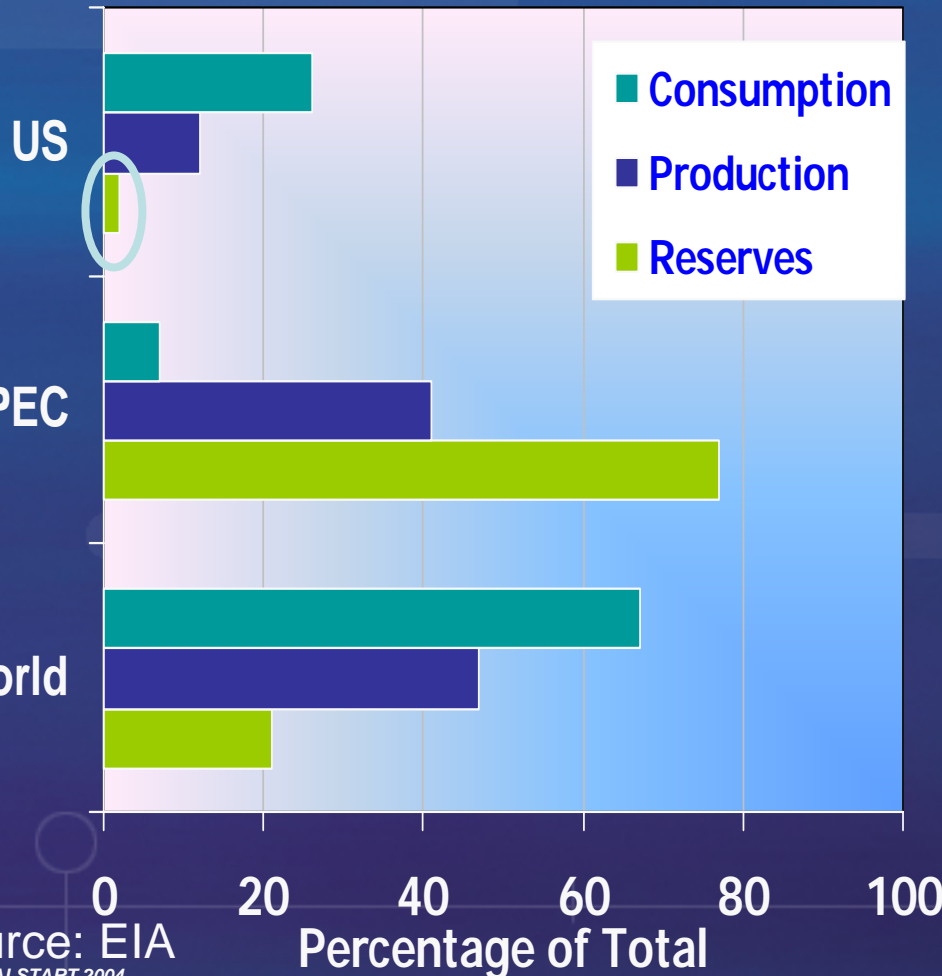


Will this be another legacy of the Baby Boomer generation?  
*Imported Oil Dependence*





# Energy Security – The Growing Risk



- Most major U.S. reserves have been drained
- By 2020, OPEC will control 70% of world oil reserves

Source: EIA

# The Oil Imbalance Is Growing



## Nations that HAVE oil

64%

Saudi Arabia	26.4%
Iraq	11.5%
Kuwait	9.8%
Iran	9.6%
UAE	6.3%
Russia	5.4%
Venezuela	4.7%
Libya	3.0%
China	3.0%
Mexico	2.7%
Nigeria	2.4%
U.S.	2.2%

## Nations that NEED oil

U.S.	24.9%
Japan	7.3%
China	6.4%
Germany	3.7%
Russia	3.4%
S. Korea	2.9%
Brazil	2.9%
France	2.7%
India	2.7%
Canada	2.6%
Italy	2.5%
Mexico	2.5%

Source: EIA International Petroleum Information,  
December 2002. Data for 2000

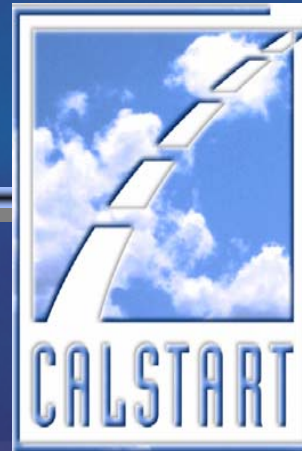


# Summary

- **Project underway to test LNG in Port Vehicles**
- **Cost of LNG likely to decrease due to imports and new technology**
- **Hybrid Truck public private partnership model useful for Port LNG truck operations**
- **LNG can provide additional energy security**

***Clean Transportation Solutions*** <sup>SM</sup>

***Advanced Transportation Technologies*** <sup>SM</sup>



**[www.weststart.org](http://www.weststart.org)**