

HELPING L.I. COMMUNITIES “GREEN” BUS & TRUCK FLEETS

A LEADERSHIP ROLE FOR BUSINESSES

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ENERGY VISION



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- **FOCUS:** Founded (2007) to promote sustainable transportation using research, public ed, and collaboration with public and private leaders to advance alt fuels projects
- **TEAM:** 15 years studying alt fuels: 11 reports compared fuels & published 1st analysis of options for transit buses (*Bus Futures 2000*) and refuse trucks (*Greening Garbage Trucks, 2003 & 2006*)
- **IMPACTS:** Inspired 1st CNG refuse fleet in NY (Smithtown) and in NJ (Hamilton) Smithtown lead to Brookhaven, Huntington & Oyster Bay!!!! Initiated national discussion of renewable natural gas!

WHAT BUSINESSES NEED TO KNOW TO HELP COMMUNITIES “GREEN” THEIR FLEETS

1. **Drivers** that communities & industries need to consider (or are considering) for ending reliance of their fleets on petroleum-based fuels and building new green economies and jobs
2. **Solutions** and how your skills can turn them into business opportunities
3. **Public policies** that can accelerate the pace of change and that provide \$\$\$

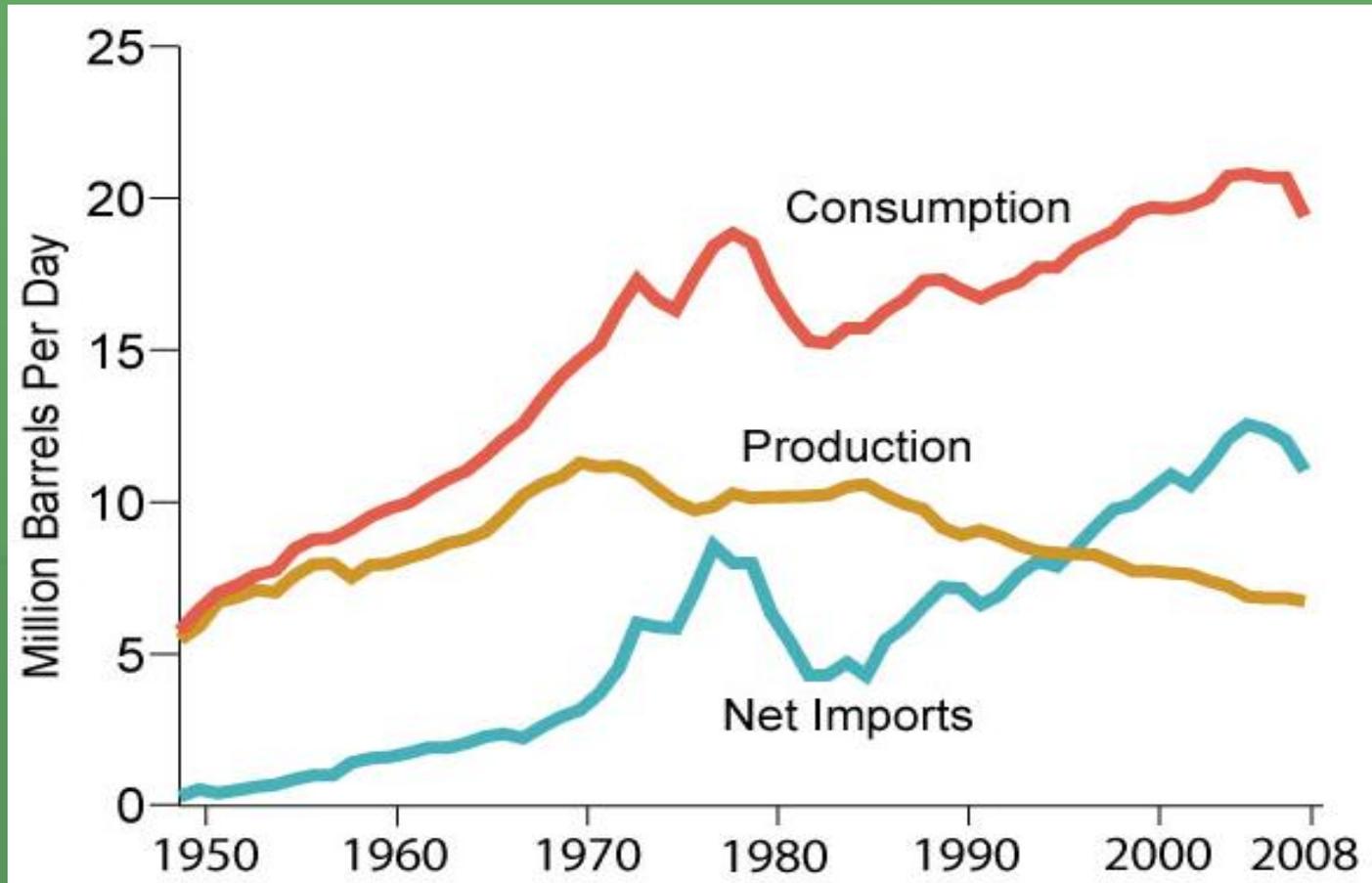
DRIVER FOR CHANGE - OIL

A Fuel the U.S. Can't Count On

- **1947:** U.S. self sufficient - a net oil exporter to our WWII allies.
- **Today:** Hooked on imports - 1973 (35%); 1992 (40%); 2008 (65%)
- **US:** 5% of world's people using 25% of oil consumed worldwide – wrong image for our country

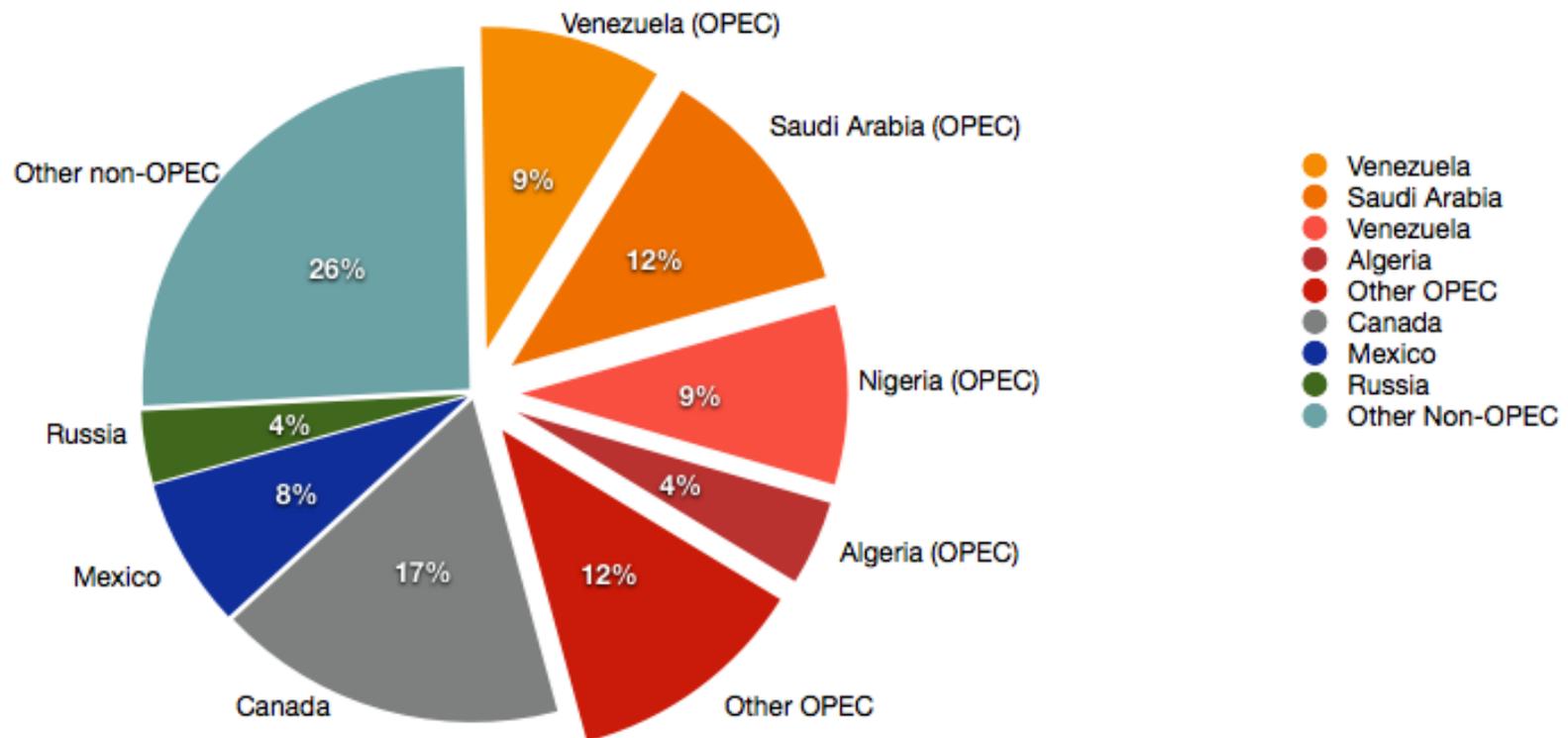
OIL: THE U.S. CRUNCH!

Using More & Producing Less (1949-2008)



OIL: RISKS TO US SUPPLY

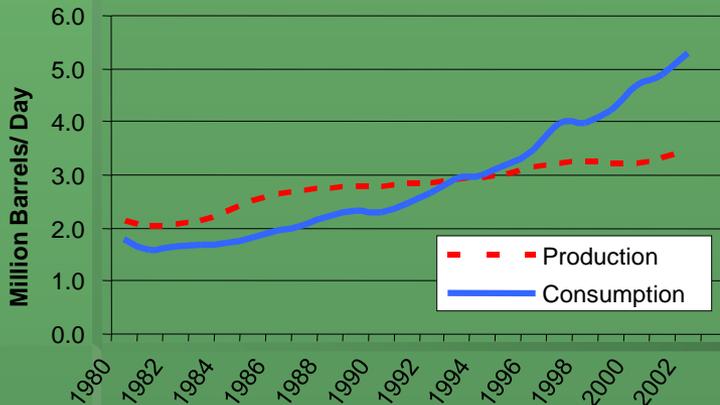
46% of Net Imports of Crude Oil & Petroleum Products From Unreliable OPEC Sources



OIL: THE WORLD CRUNCH!

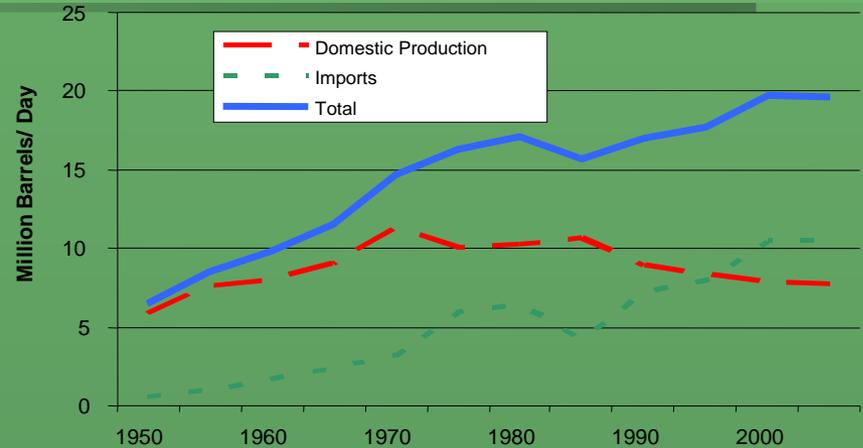
3 Countries (1/3 of all people), with Rising Consumption, vie for Imports

CHINA

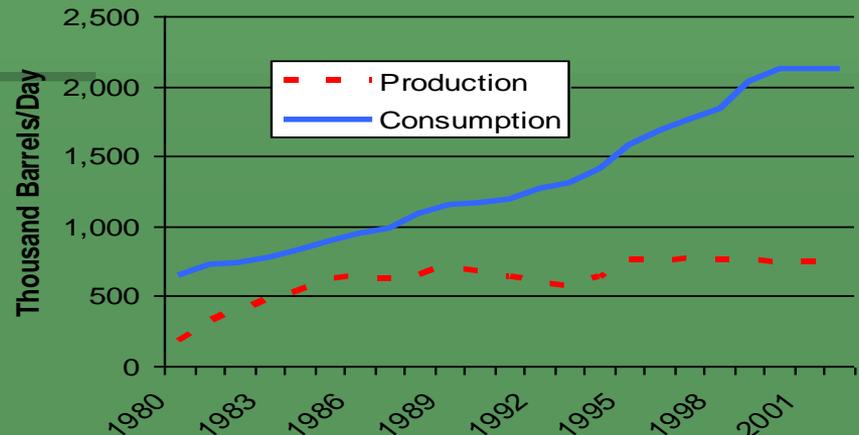


Source: EIA

USA



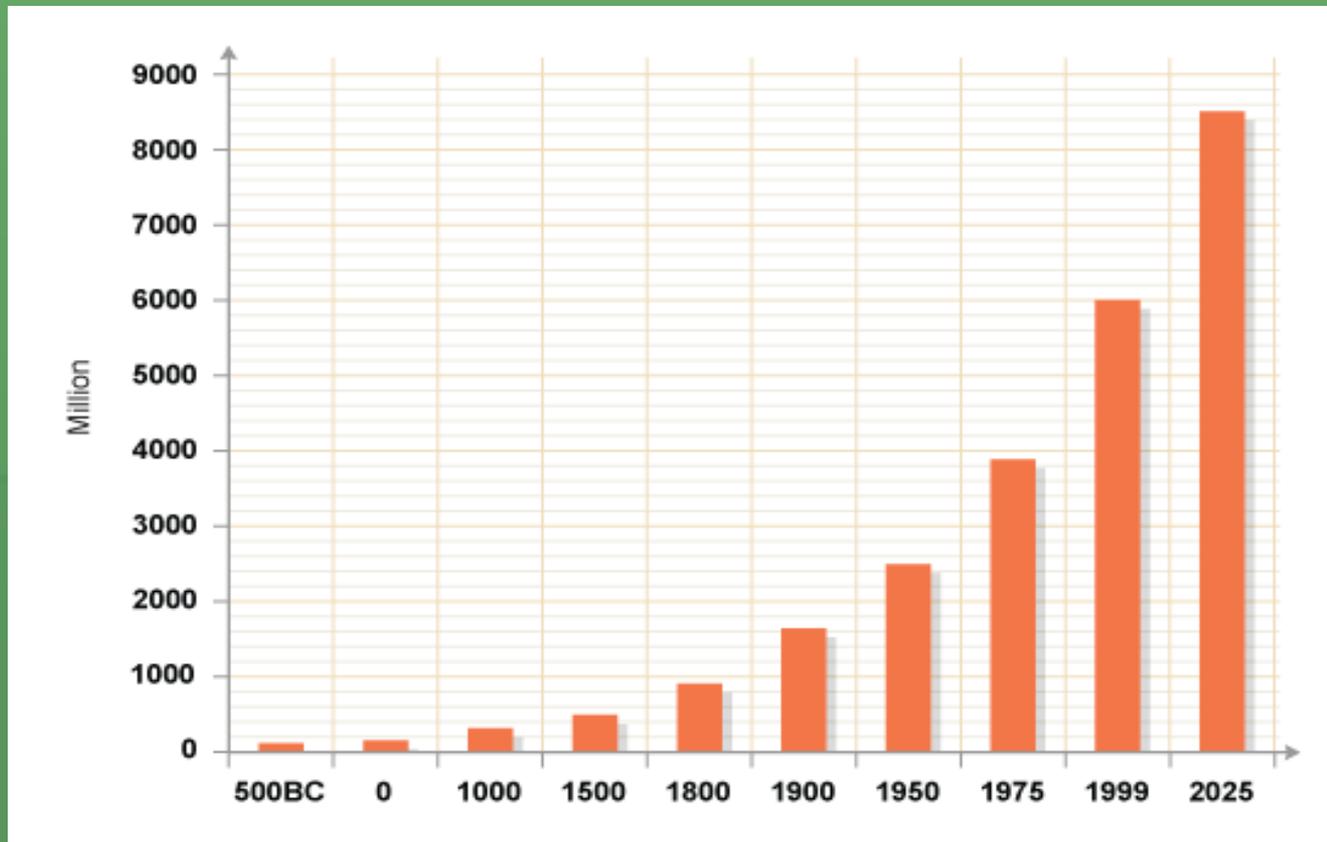
INDIA



OIL: THE WORLD CRUNCH

More People.....

156,000 more a day!



OIL – #2

Drain on Our Economy

- **\$\$\$\$** More than \$300 billion a year sent abroad to buy our oil- \$820 million a day (\$120 million for fleets)
- **LIVES:** Billions more spent defending sources of our oil
- **JOBS:** More than a million energy jobs lost since the 1970s. We need green energy jobs in the US.

OIL #3

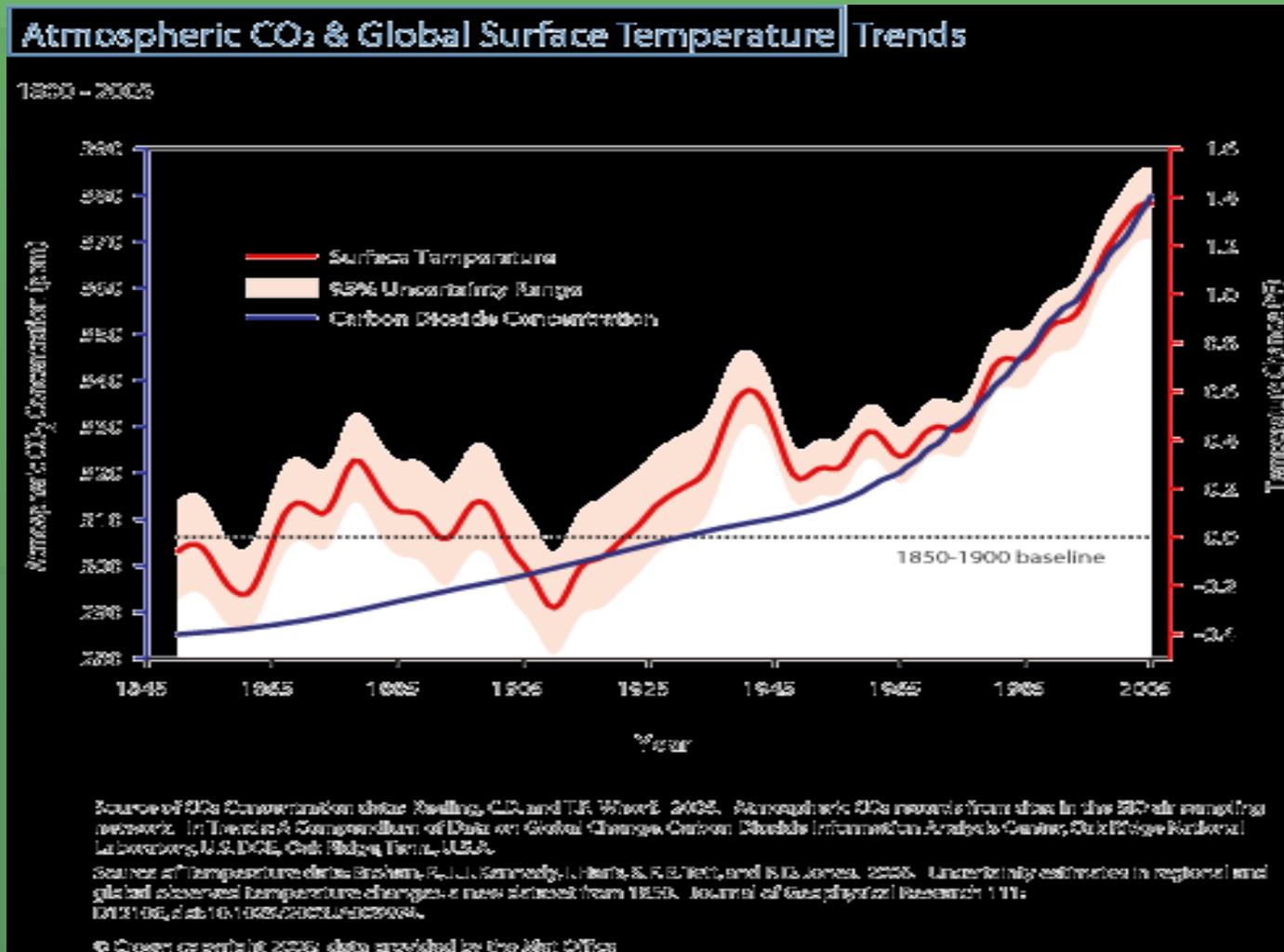
Too Much Pollution

- Emissions of Soot and Nitrogen Oxides damage lungs and aggravate cardiovascular disease
- Emissions of toxic substances - significant cancer risk
- 175 million Americans live where air violates public health standards.

OIL - # 4

Too Much Carbon

GHG Emissions & Concentrations 1751-2004

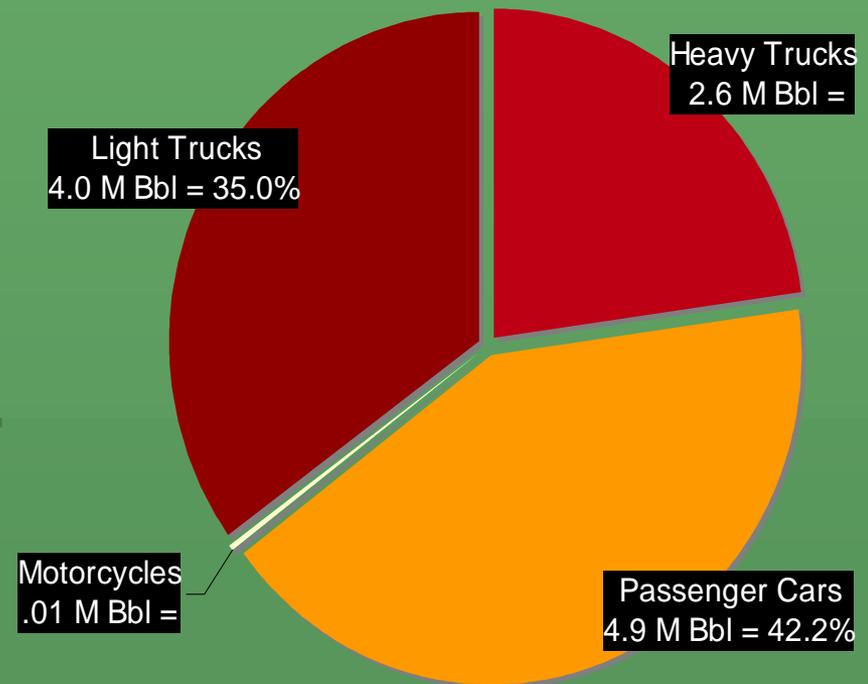
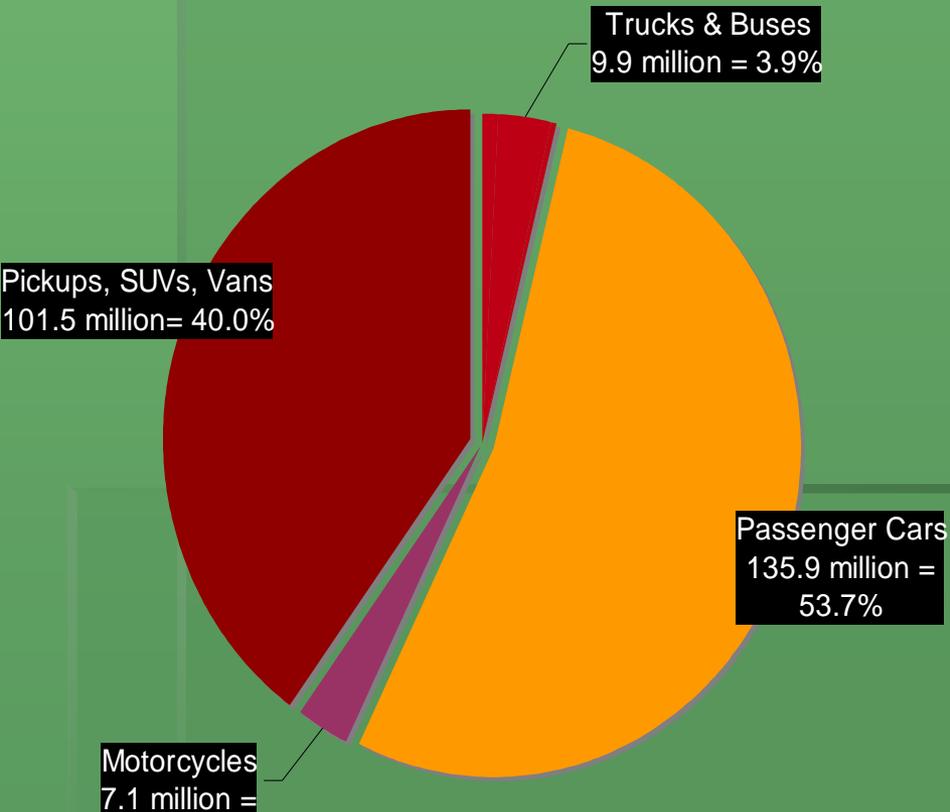


PRACTICAL SOLUTIONS: WHERE TO BEGIN?



10 MILLION TRUCKS/BUSES

4% of vehicles – 23% of fuel



10 MILLION TRUCKS/BUSES

Major Emitters: GHG & Pollution

- **Major urban polluters:** soot, smog-causing NOx & carcinogens
- **Emit 26 % of GHGs** in transportation
- **Refuse/recycling Fleets – top target:**
180,000 (twice # of transit buses)
Greatest fuel guzzlers (2.8 miles per gal.)
Noise pollution disrupts communities,
damages workers hearing

10 MILLION TRUCKS/BUSES Leave Diesel Era Behind! Step 1

NATURAL GAS NOW

- Only commercial option for heavy duty fleets today – all classes
- A century's domestic supply
- Cleaner - 80% cut in criteria pollutants
- 20% cut in GHGs
- Fuel cheaper & more stable prices

NATURAL GAS REFUSE FLEETS – LONG ISLAND –EAST COAST LEADERSHIP!

CNG Refuse Trucks

Smithtown	39
Brookhaven	67
Huntington	30
Oyster Bay	44
Hempstead	7
Rockaway	6

1st NYS 100% CNG fleet



NATURAL GAS FLEETS

2009-2010

1st NJ 100% CNG fleet
Hamilton, NJ

Metro Paper Recycling
New York City



NATURAL GAS FLEETS

The “Clean Hankie” Test!



NATURAL GAS REFUELING

1000 US STATIONS*5 on L.I.

Estimated Annual Fuel Savings with CNG/LNG

Class 8 Tractor Trailer	\$15,000
Garbage Truck	\$10,000
Transit Bus	\$8,000
Shuttle	\$6,000
Taxi	\$4,000

On LI: Smithtown
Huntington
Brookhaven
Oyster Bay
Hempstead



10 MILLION TRUCKS/BUSES Leave Diesel Era Behind! Step 2 “RNG” First Sustainable Fuel

Huge domestic renewable resource, biogases created by organic wastes could displace 25-30% of diesel fuel

- 1,500 EPA regulated Landfills
- 16,500 sewage treatment plants
- Agricultural & dairy wastes
- Anaerobic digesters for faster processing

Supply Potential: greatest biomass resource (usda study)

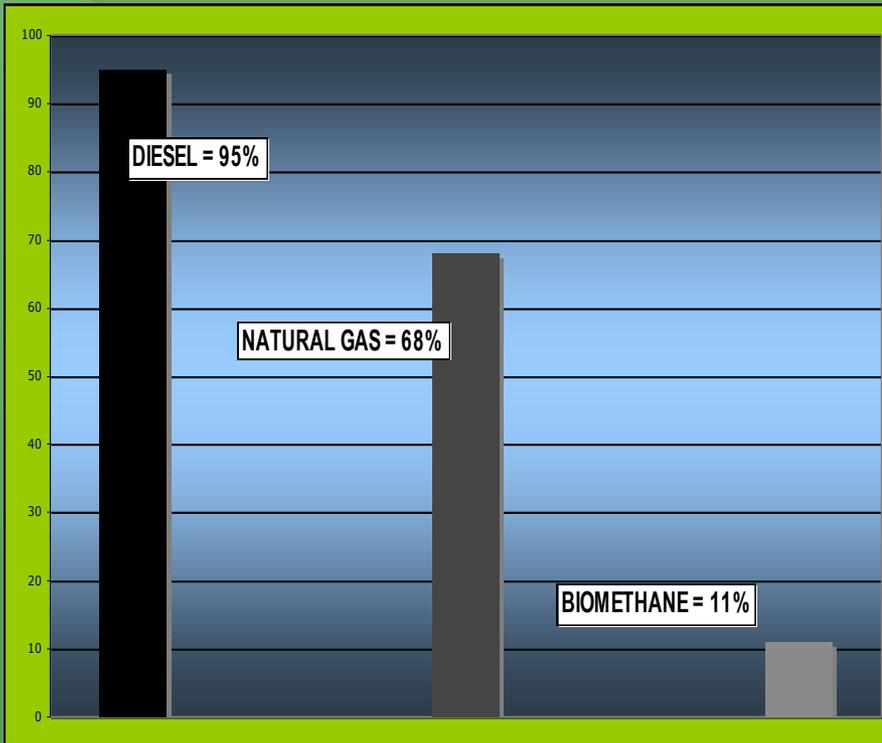
Biodiesel: 1 billion gallons MAXIMUM all US sources

Biomethane: 9.4 billion DGEs from landfills alone

On L.I. BNL/AERTC study found: organic wastes could produce 7.7 billion cubic feet of gas a year!!

RNG/BIOMETHANE (CH₄)

First Sustainable Fuel



RNG: Carbon neutral fuel

- Natural gas: 28% lower in carbon density than diesel
- RNG: 88% lower than diesel

CARB data (wells to wheels)

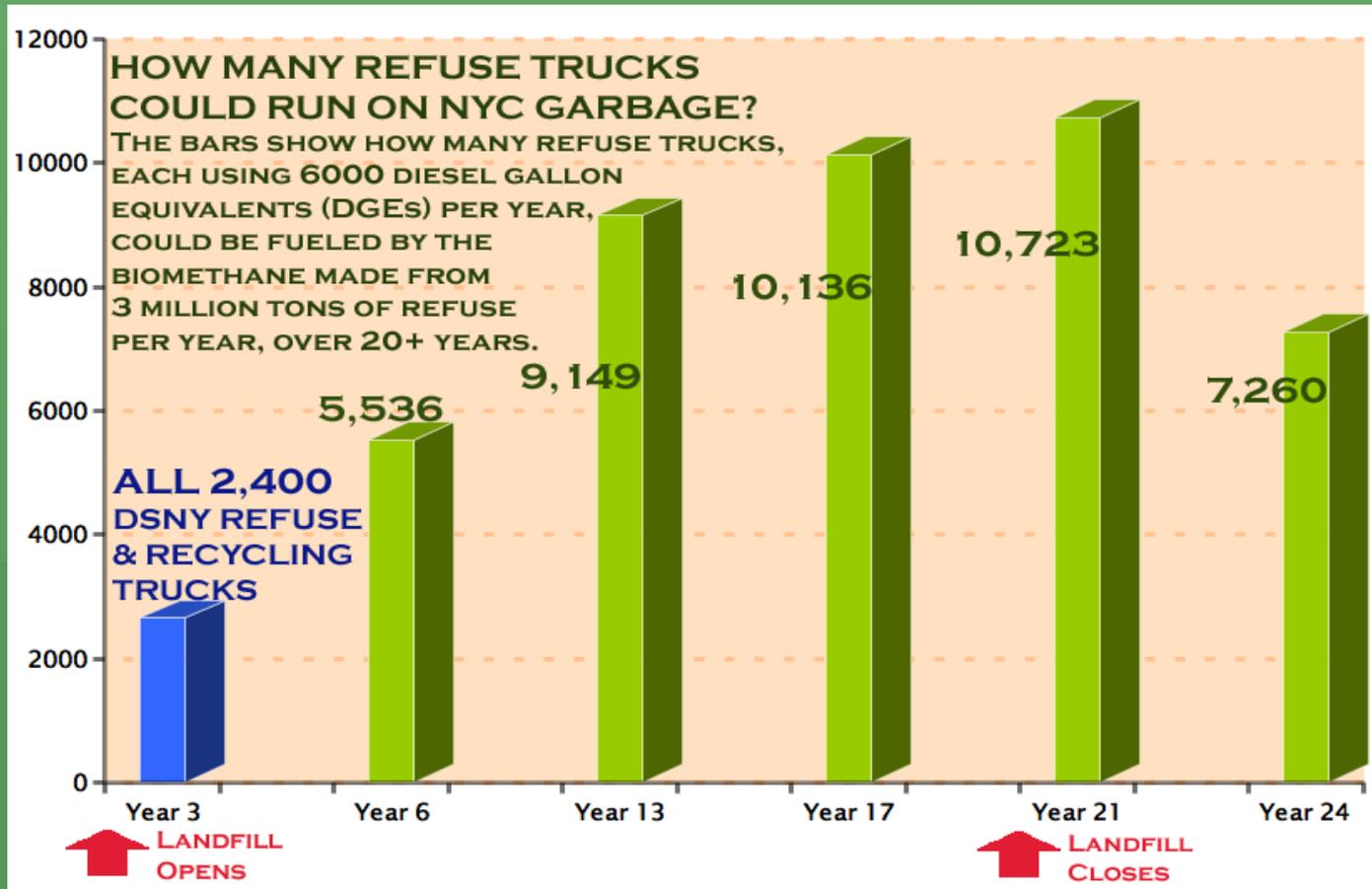
RNG/BIOMETHANE (CH₄)

A Commercial Fuel Today

- **Powers thousands of vehicles in Europe including:**
 - 500 refuse trucks - Madrid
 - 300 city buses - Lille, France
 - Over 760 buses & refuse trucks in Swedish cities
 - 200 buses in Norway
- **Entering US now:** Altamont, CA, Franklin Cy OH, McCommas Bluffs Landfill, TX

EV BIOMETHANE PROJECT

How Many Trucks Could Run on NYC'S Wastes?



LEADERSHIP FOR BUSINESSES

Assess your Skills

- **Educate municipal/corporate clients** about near & long term benefits of CNG/LNG
- **Offer planning, design, construction, engineering services**
cost/benefit studies; refueling needs, depot modifications; partners needed, identify/pursue funding
- **Propose language** for community waste contracts mandating use of “natural gas” (Smithtown, NY; Hamilton, NJ, etc)

LEADERSHIP FOR ENGINEERS

Show Clients Long Term Goal: RNG

- **Propose organics inventory:** quantity & sources: landfills, transfer stations, wastewater treatment plants, composting operations, pooled wastes from several communities, anaerobic digesters
- **Evaluate gas collection and refining technologies:** what works with what feedstocks
- **Forecast impacts:** cost/savings; GHG reductions; markets for CO₂; soil amendments
- **Propose federal policies:** putting use of RNG for vehicles on same footing as RNG for power generation

LEADERSHIP FOR ENGINEERS

Support State/Regional Planning

EV/Rutgers University “NJ Work Group on RNG”

Goal: To jump start RNG industry in New Jersey

30 public/private sector leaders work to identify:

- RNG feedstocks
- Technologies
- Action steps
- policy needs

Outreach to Implement



WHAT'S AT STAKE?



For more information, articles, publications, corporate memberships

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