



U.S. Department of Energy
Energy Efficiency
and Renewable Energy



Clean Cities Update

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Clean Cities Program

U.S. Department of Energy

Northeast and Mid-Atlantic Regional Peer Exchange

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The President's State of the Union Address

“Tonight, I ask Congress to join me in pursuing a great goal. Let us build on the work we've done and reduce gasoline usage in the United States by 20 percent in the next 10 years.”

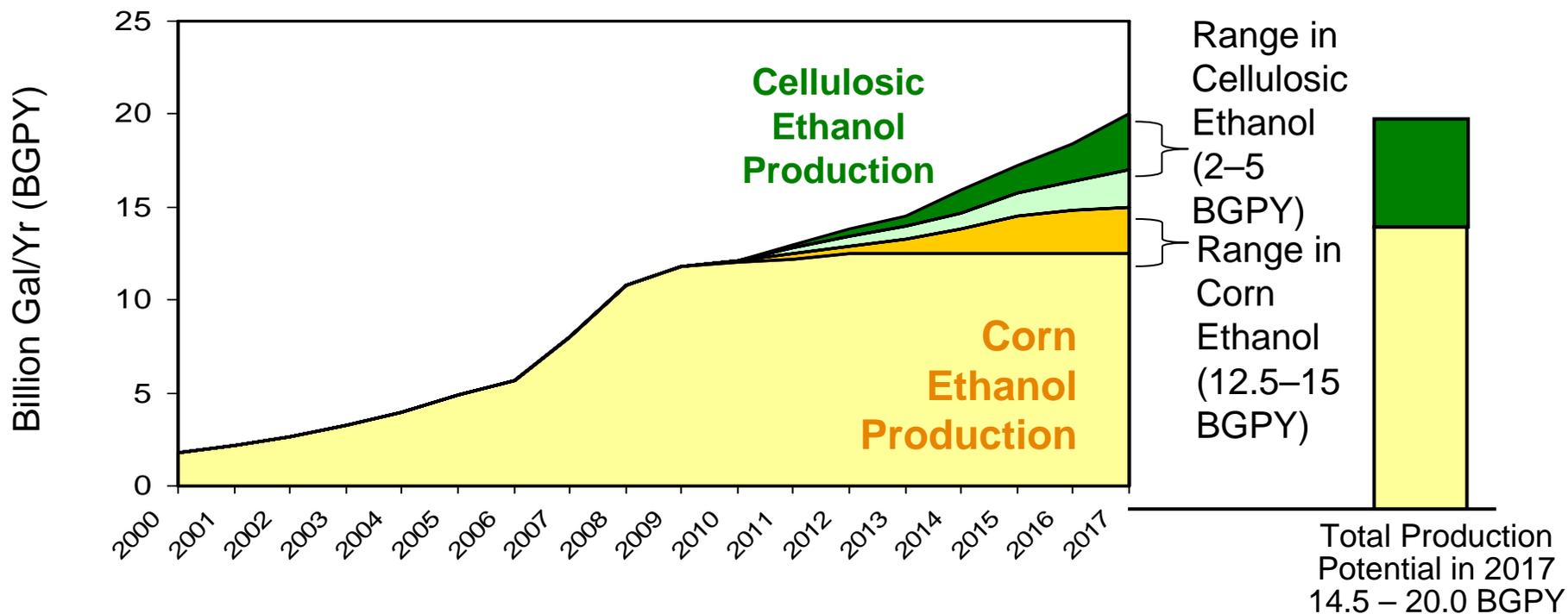
20 in 10

- **Increase supply of renewable and alternative fuels**
 - Set Alternative Fuels Standards (AFS) at 35 billion gallons per year by 2017
 - 5X the current Renewable Fuels Standard for 2012
 - **15%** of projected annual gasoline use in 2017
- **Increase vehicle efficiency**
 - Reform and modernize CAFÉ
 - **5%** of projected annual gasoline use in 2017



Future growth in corn and cellulosic ethanol will contribute to the 20 in 10 goal

Potential Growth in U.S. Ethanol Production Capacity

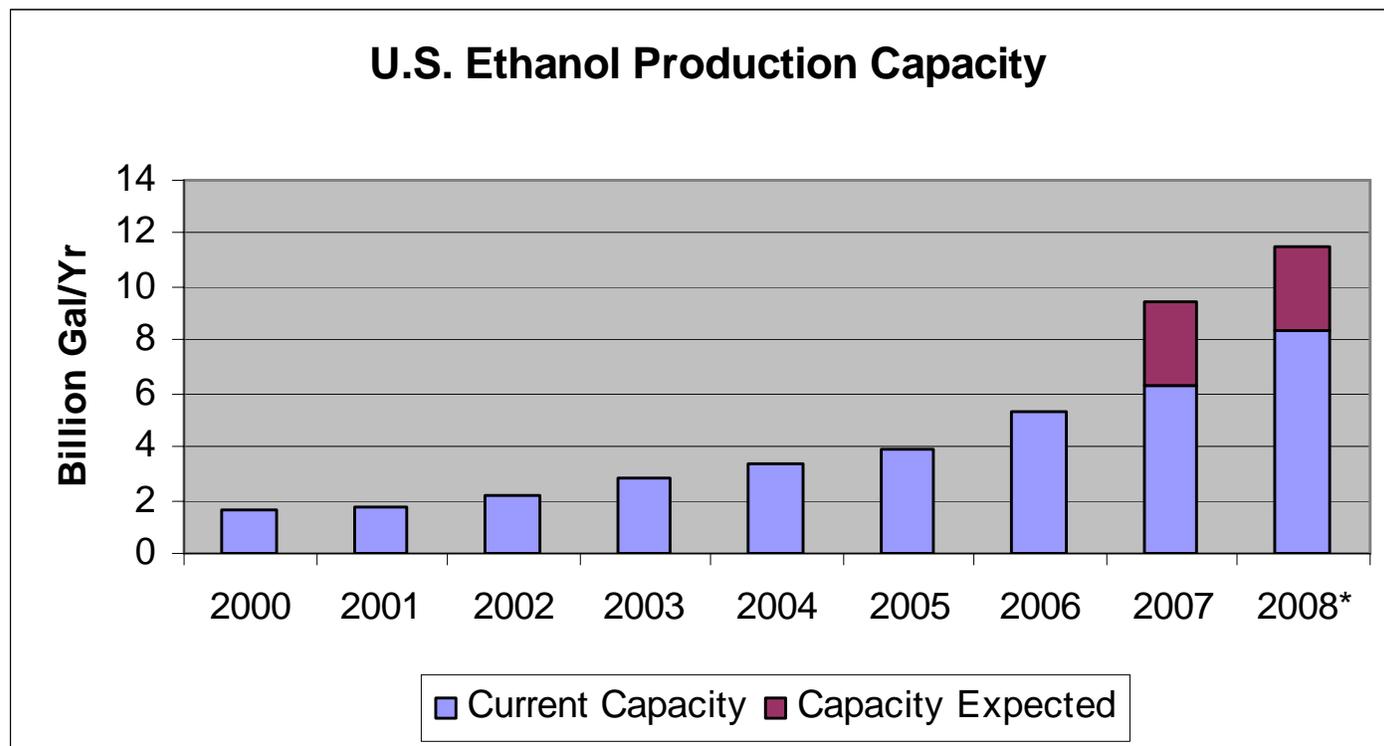


Advances in technology will enable commercial production of cellulosic ethanol by 2012



While biofuels represent only 3% of transportation fuels today, production is growing rapidly

- 212 ethanol biorefineries are in operation, with 75 new biorefineries under construction
- Current EtOH Production Capacity is 6.28 BGPY, with an additional 6.25 BGPY anticipated
- Total Capacity with Current and New Construction = 12.53 BGPY
- Increasing use of biofuels will reduce our rising dependence on imported oil.

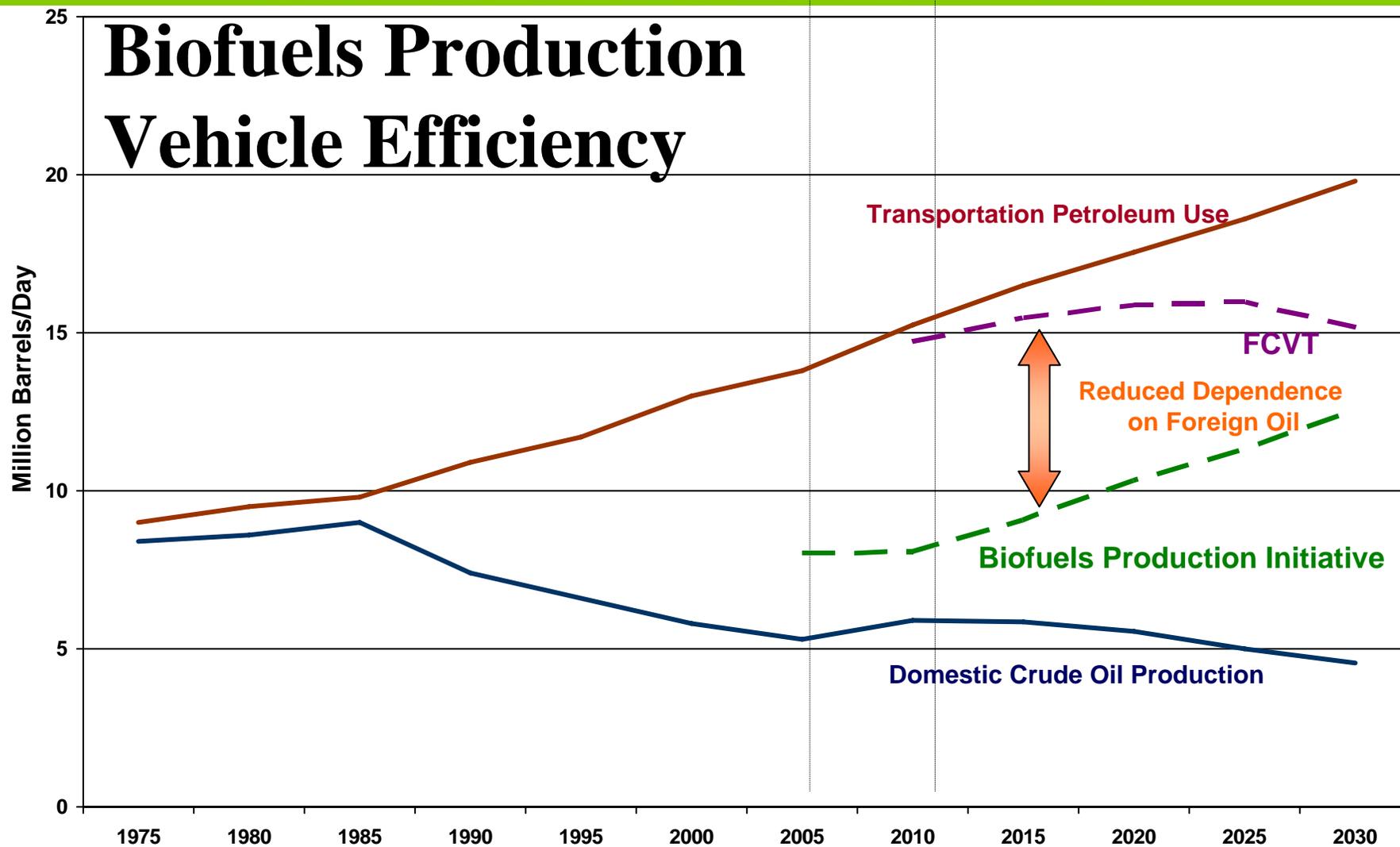


*Estimated. Source: Renewable Fuels Association and 06/18/07 Biofuels Market Report, BCS.



What does this mean for EERE?

- Develop cost-competitive cellulosic ethanol conversion technologies via two platforms
 - Biochemical platform – cellulose hydrolysis and fermentation of the component sugars to ethanol
 - Thermochemical platform – gasification to syngas and conversion to mixed alcohols; or ethanol via fermentation; or Fischer-Tropsch liquids
 - Develop integrated biorefinery processes that can utilize a wide variety of feedstocks to produce ethanol and bio-based co-products
- Conduct feedstock resource assessments and develop technologies to collect and convert future feedstocks (energy crops, agricultural residues, forestry residues, mill residues) into a readily usable form
- Analysis of issues relevant to biofuels
 - State-of-the-art technologies and potential areas of improvement
 - Environmental issues (water, emissions)
 - Land requirement, food versus fuel
- Public/private partnerships – EPAct Section 932 solicitations
- Inter-agency coordination – USDA, EPA and others



The combination of increased vehicle efficiency and biofuels production will result in reduced dependence on foreign oil imports.

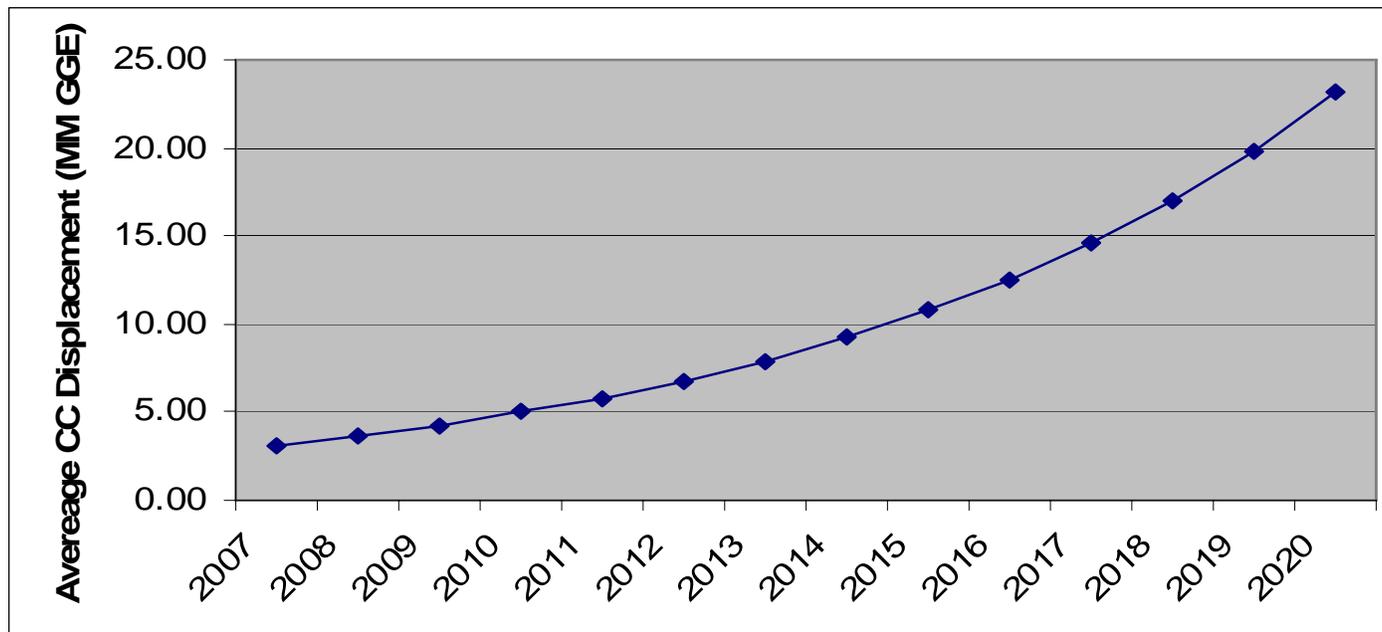


Goals & Annual Survey - Background

- Analysis was done in 2003 to support 2004 Roadmap that expanded Clean Cities portfolio beyond alt fuels
- Clean Cities' annual fuel displacement potential is estimated to be roughly 2.5 billion GGE per year in 2020
- To achieve the 2020 goal, CC must achieve a 14.5% fuel displacement increase annually beginning with the 2006 petroleum displacement of 375 million gallons reported.
- Actual annual savings to be estimated through coalition questionnaires and ORNL fuel economy assessment



Displacement For 14.5% Growth Rate



- Assumes

- Clean Cities achieves 14.5% growth rate annually
- Minimum number of coalitions reporting annually is 80 coalitions
- If more coalitions submit annual surveys, the required 14.5% annual growth rate needed to meet the 2020 goal may be reduced



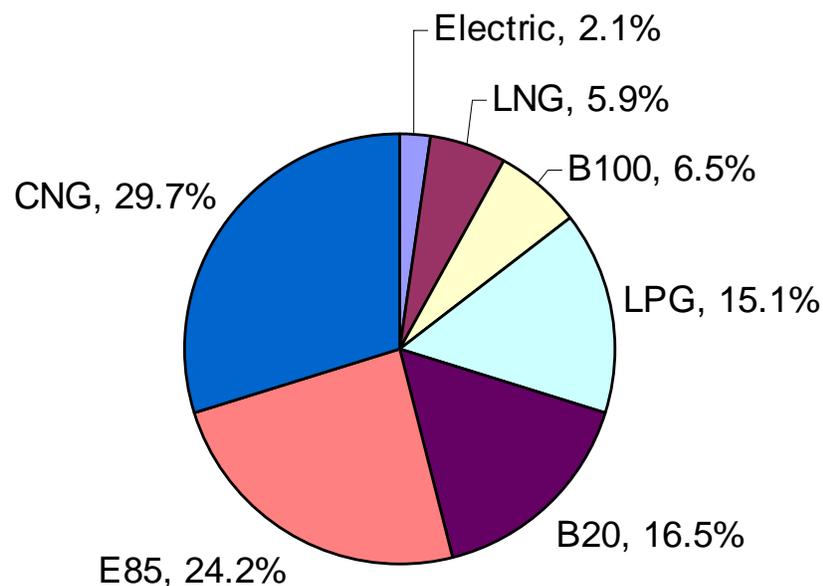
Portfolio Performance To Date

- 2006 is the third year of the new portfolio and the online survey
- 2006 data finalized and annual report under development
 - 80 coalitions completed their report
 - 375 million GGE displaced during 2006 due to Clean Cities efforts
 - Coalitions directly responsible for 302 million (over 80%) of this displacement
 - Average fuel displaced per reporting coalition increased from 2.9 last year to 3.8 million GGE



Clean Cities and Petroleum Displacement

- During 2006, Clean Cities efforts led to the displacement of 375 million gallons of petroleum
 - 50% increase from 2005
- Alternative fuels and AFVs represent 71% of displacement
 - 408,000 AFVs reported in 2006
 - Over 50% are E-85 FFVs
 - Number of refueling stations offering E-85 doubled in 2006, and continues to increase
 - CNG contribution mainly from HDV AFVs





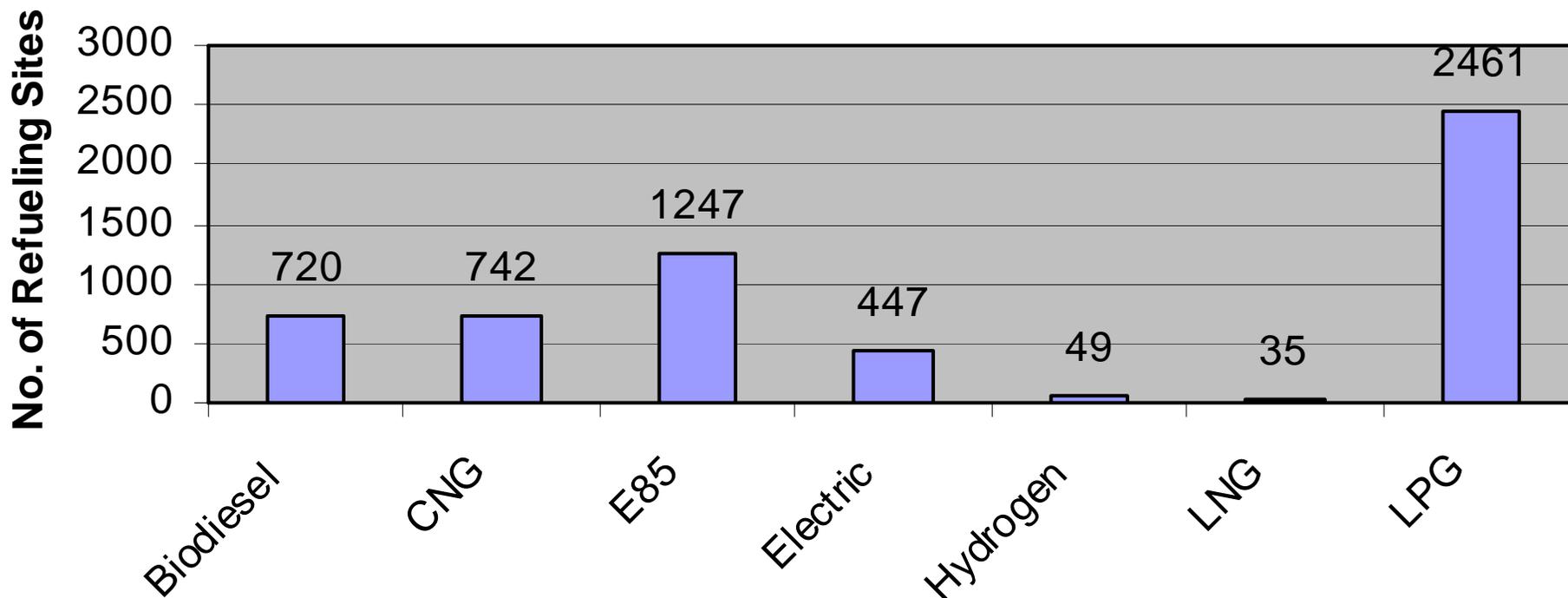
2006 Petroleum Displacement by Technology

Technology	Million GGEs	% of GGEs	% Change from 2005
AFVs	268	71%	64%
Fuel Economy	7	2%	470%
Fuel Economy – ORNL	73	19%	16%
Blends	10	3%	17%
Hybrid Electric Vehicles	9	2%	137%
Idle Reduction	8	2%	-15%
TOTALS:	375	100%	50%



5,701 Alternative Refueling Sites Nationwide

Alternative Fuel Stations Currently Available Nationwide By Fuel Type





2006 Annual Data Summary: Northeast

State	Coalition	Gasoline Displaced (gal)
CT	Capital Clean Cities of Connecticut, Inc.	203,802
CT	Southwestern CT Clean Cities	526,990
CT	Norwich Clean Cities Coalition	166,320
CT	Greater New Haven Clean Cities, Inc.	2,349,647
MA	Massachusetts	3,070,154
ME	Maine Clean Communities	1,067,802
NH	Granite State Clean Cities Coalition	1,163,400
RI	Ocean State Clean Cities Coalition	611,544
VT	State of Vermont	1,036,671
TOTAL:		10,196,330



2006 Annual Data Summary: Northeast

State	Coalition	Gasoline Displaced (gal)
NJ	New Jersey	2,797,946
NY	Capital District (Albany)	645,079
NY	Central New York	1,075,281
NY	Genesee Region	237,516
NY	Greater Long Island, Inc.	4,232,070
NY	New York City	8,830,457
NY	Western New York, Inc.	2,323,059
TOTAL:		20,141,408



2006 Annual Data Summary: Mid-Atlantic

State	Coalition	Gasoline Displaced (gal)
DE	State of Delaware	1,929,865
MD	Maryland Clean Cities	3,699,751
PA	Greater Philadelphia Clean Cities Program	3,459,189
PA	Pittsburgh	13,703
VA	Hampton Roads Clean Cities Coalition	2,930,082
WV	West Virginia Clean State Program	293,869
TOTAL:		12,326,459



2006: Another Outstanding Year for Coalitions!

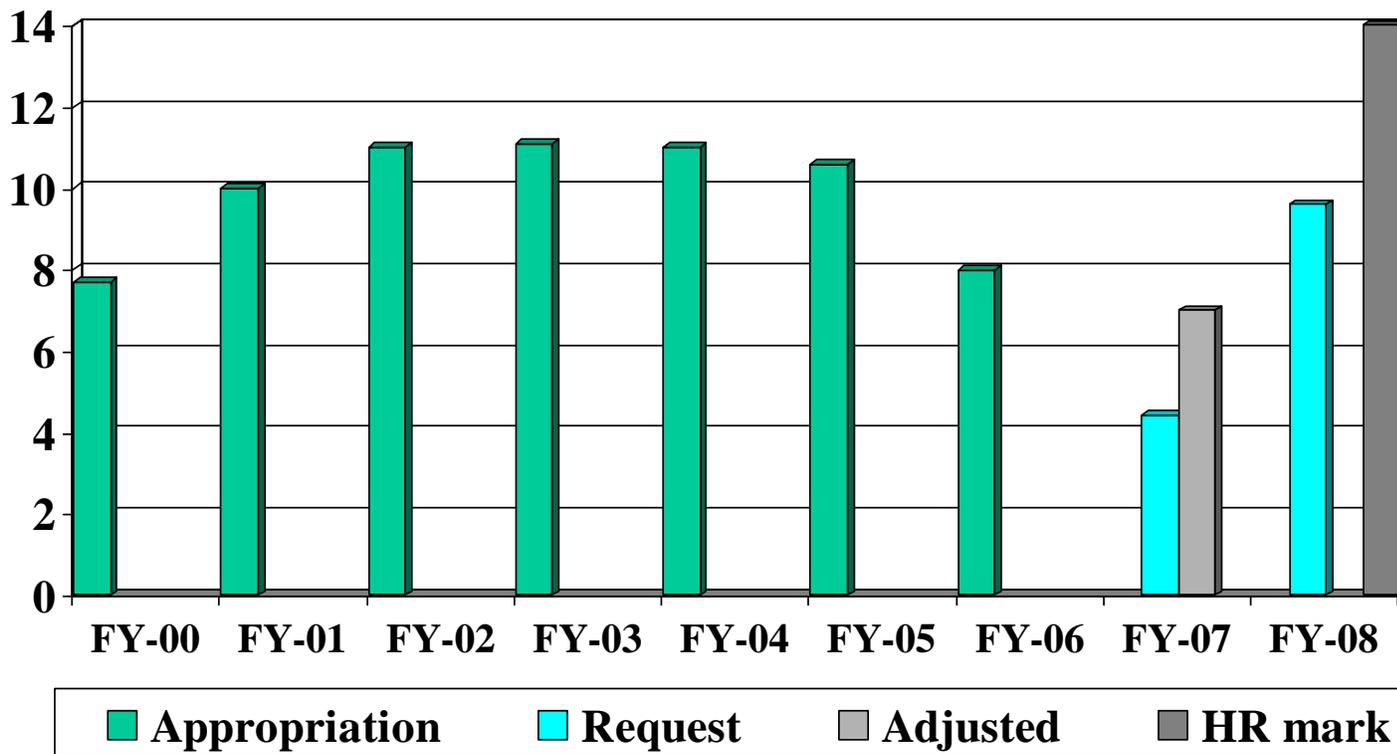
- Education and Outreach Efforts
 - 917 education and outreach activities reported
 - ~ 21 million people reached
 - AFVs and fuel blends the most popular topics
 - 590 new stakeholders
- Funding
 - 165 grants, worth \$87.3M awarded to coalitions
 - \$33.1M in leveraged funds
- Coordinators
 - Avg. coordinator has been on the job for 4.9 years
 - Spends 22 hrs/week (average) on Clean Cities
 - Coordinators worked over 80,000 hours pursuing Clean Cities program goals





VT (Clean Cities) Deployment Budget

\$ Millions



In the past,
50% of Clean
Cities \$\$ went
to hardware –
deploying
technologies

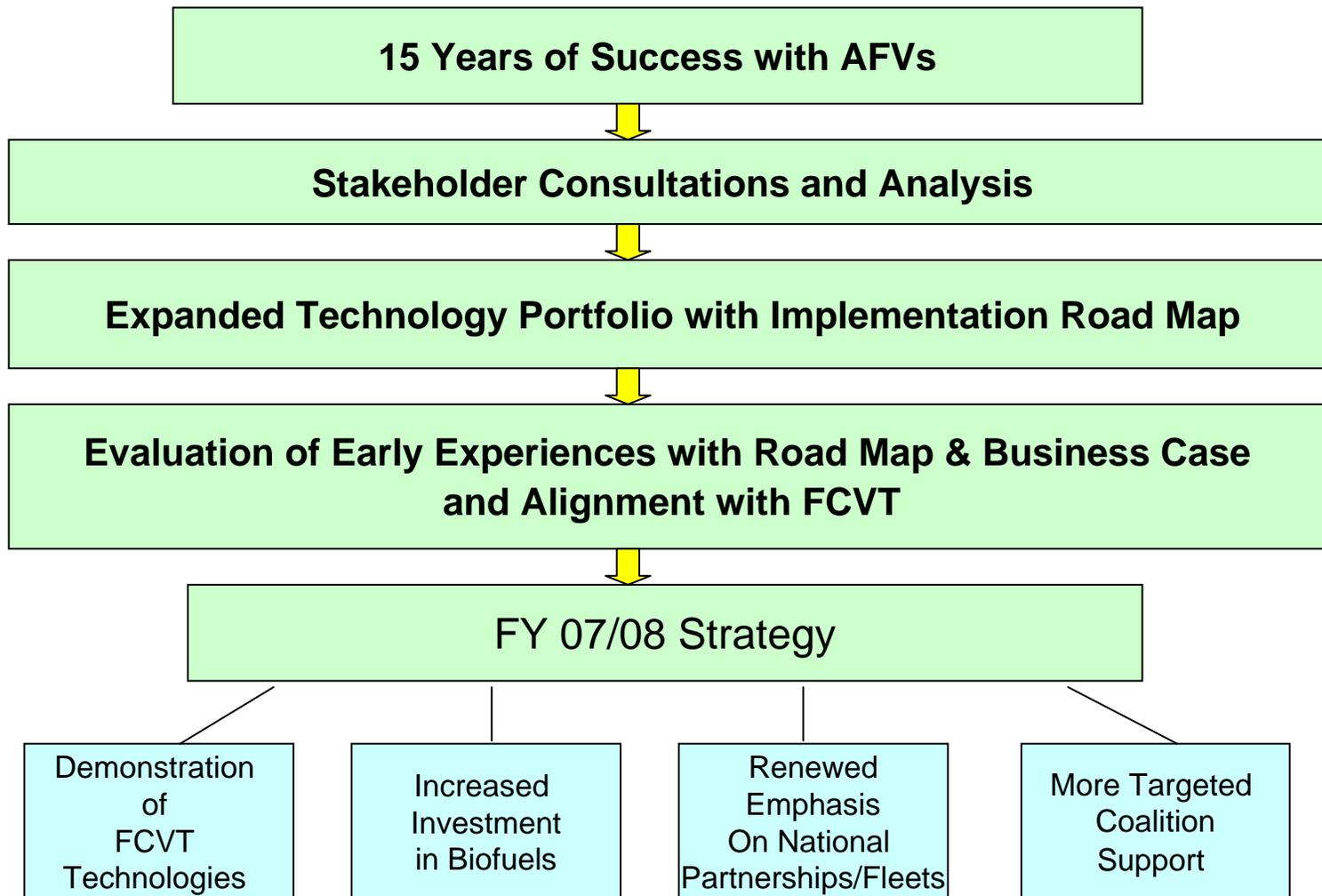


*When planning for a year,
plant corn. When planning
for a decade, plant trees.
When planning for life,
train and educate people.*

Chinese Proverb



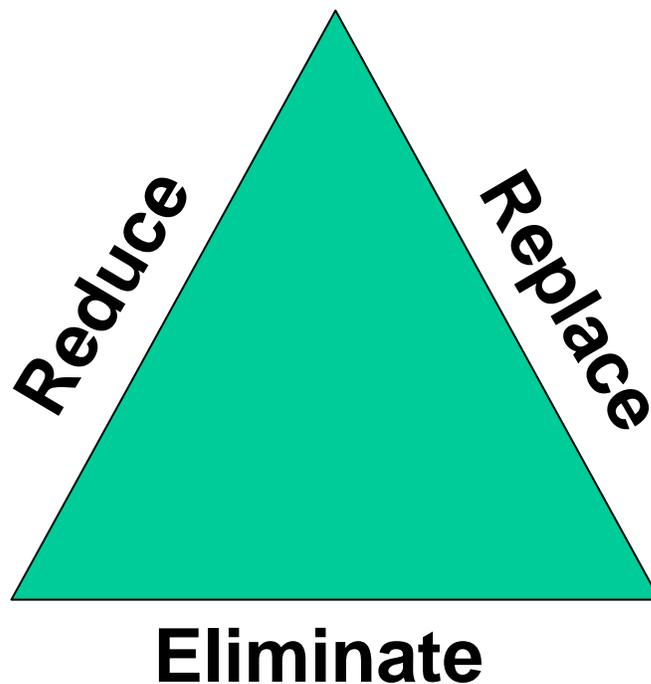
Clean Cities Progression





Goal: Petroleum Reduction

How to Achieve the Goal





Strategy: FCVT Technology Demonstrations

Demonstrate and deploy FCVT technologies by utilizing the network of Clean Cities coalitions and coordinators, including the skills, experience, successes, lessons learned, and industry and association relationships to demonstrate and deploy FCVT technologies. Clean Cities will focus efforts on:

- Educating industry, associations, the public, and all other stakeholders by developing outreach materials that describe and promote FCVT technologies, publishing success stories, etc.
- Identifying fleets and other users to demonstrate FCVT technologies.
- Developing national, regional and local projects that include data collection and analysis to help determine future R&D needs and strategies to transform transportation markets
- Building and strengthening partnerships between DOE R&D and Deployment teams, states, industry, associations, fleets and end-users
- Leverage funding to deploy FCVT and Clean Cities technologies, in part, by identify internal and external funding opportunities



Strategy: Biofuels

Examples of Technical Support Efforts and Activities to transition E85 refueling infrastructure to a scale and scope to support achievement of the Administration's Twenty in Ten proposal.

Provide Technical Assistance to E85 Early Adopters/Users

- Work with potential fuel providers/retailers to enhance their understanding of ethanol, safety issues, codes and standards requirements, and how to best coordinate with local authorities having jurisdiction over the construction and regulation of refueling stations and related infrastructure.
- Know and Direct expert technical advice and design assistance to those who are planning and constructing E85 refueling stations and related facilities.
- Coordinate Specialized Training and Outreach to public safety officials, first responders, fleet maintenance personnel, etc. Distribute incident response procedures and guidelines.
- Conduct Education and Outreach efforts related to the safe and proper use of FFVs and E85 refueling equipment/stations (target audience: general public, auto dealerships, convenience store operator, service providers, etc.)
- Find Anchor Fleets



Strategy: EPAct Regulatory Programs and Universities

- Strengthen relationships and develop new projects with the EPAct regulatory programs (State and Fuel Providers, and Federal Fleets)
- Specific emphasis will be placed on working with universities by:
 - State University Campus Showcases, including creating student competitions, tying projects and activities to educational curricula, increasing the use of AFV and alternative fuels in campus fleets, working to install on-campus alternative fuel refueling and facilitating partnerships that will allow campus fleets to use nearby government or private fleet refueling
- Ensure fuel displacement from EPAct programs is included in annual questionnaire



Strategy: Partnerships

Internal DOE Partners

- Office of Biomass
- EPart Regulatory Programs
 - State and Fuel Provider
 - Federal Fleet

Government Agencies

- DOT-FHWA (CMAQ)
- EPA
- USDA
- National Park Service

Fuel and Other Associations

- EPIC – Ethanol Promotion and Information Council
- NBB – National Biodiesel Board
- NGV America – Natural Gas Vehicles for America
- PERC – Propane Education and Research Council
- NAFA – National Association of Fleet Administrators
- NCSFA – National Conference of State Fleet Administrators
- SIGMA – Society of Independent Gas Marketers of America
- IPMA – Independent Petroleum Marketers Association
- NACS – National Association of Convenience Stores
- NATSO – National Association of Truck Stop Owners
- USCAR – U.S. Council of Automotive Research
- AAA—Automobile Association of America



Fortune 500 Fleet Initiative

Do your part and “Drive American Fuels.”

Goal:

To accelerate the use of light, medium and heavy-duty hybrids; advanced combustion efficiency; and alternative fuels in partnership with Fortune 500 companies to dramatically demonstrate to the public the benefits of these vehicles.

- Combine pledges for a bulk purchase of various vehicles to demonstrate to automakers and engine companies that there is a sufficient market.
- Fortune 500 companies would choose approach: 1) Purchase AFVs for their own fleet; 2) Offer incentives to their employees for hybrids/AFVs; 3) Offer the fuel to their customers.
- Pair key Fortune 500 employees with the appropriate local Clean Cities Coordinator for follow-up and technical expertise.



Fortune 500 Fleet Initiative (continued)

- Invite Senior Executives of Fortune 500 Companies to a high-level summit on Hybrids, ethanol, biodiesel, and other alternative fuels to secure their commitment to transportation energy security and reducing their company's carbon footprint.
- Verizon and Enterprise collectively have nearly 1M fleet vehicles, and have already expressed a desire to **deploy significant number of advanced vehicle technologies in their fleets.**
- Google, Kellogg and Kraft have also expressed interest.
- Bank of America offers **incentives to their employees.**
- Wal-Mart, Kroger **offer alternative fuels (e.g., E85) to their customers.**
- Long standing partnerships exist with UPS, Allied Waste Industries.



We never stop working for you.





Strategy: Strengthening Coalitions

- Funding
- Training
- New Tools
- Web Casts and Training
- Regional and National Peer Exchanges
- Updated Designation and Redesignation Processes
- Coordinator Council
- National and Regional Partnerships
- PMCs Staffed at Previous Levels



First Annual Clean Cities Coordinator Leadership Retreat

- **When:** September 25-27, 2007
- **Where:** Mammoth Cave National Park -
Cave City, Kentucky



We will be staying in cottages on-site at the park, right up the street from the GM Corvette assembly plant and the National Corvette Museum.

GM Bowling Green Assembly Plant Tour

The only place in the world where the Chevrolet Corvette and the Cadillac XLR are produced.



Resources

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