



GM and E85 Efforts

September 2006

Mary Beth Stanek



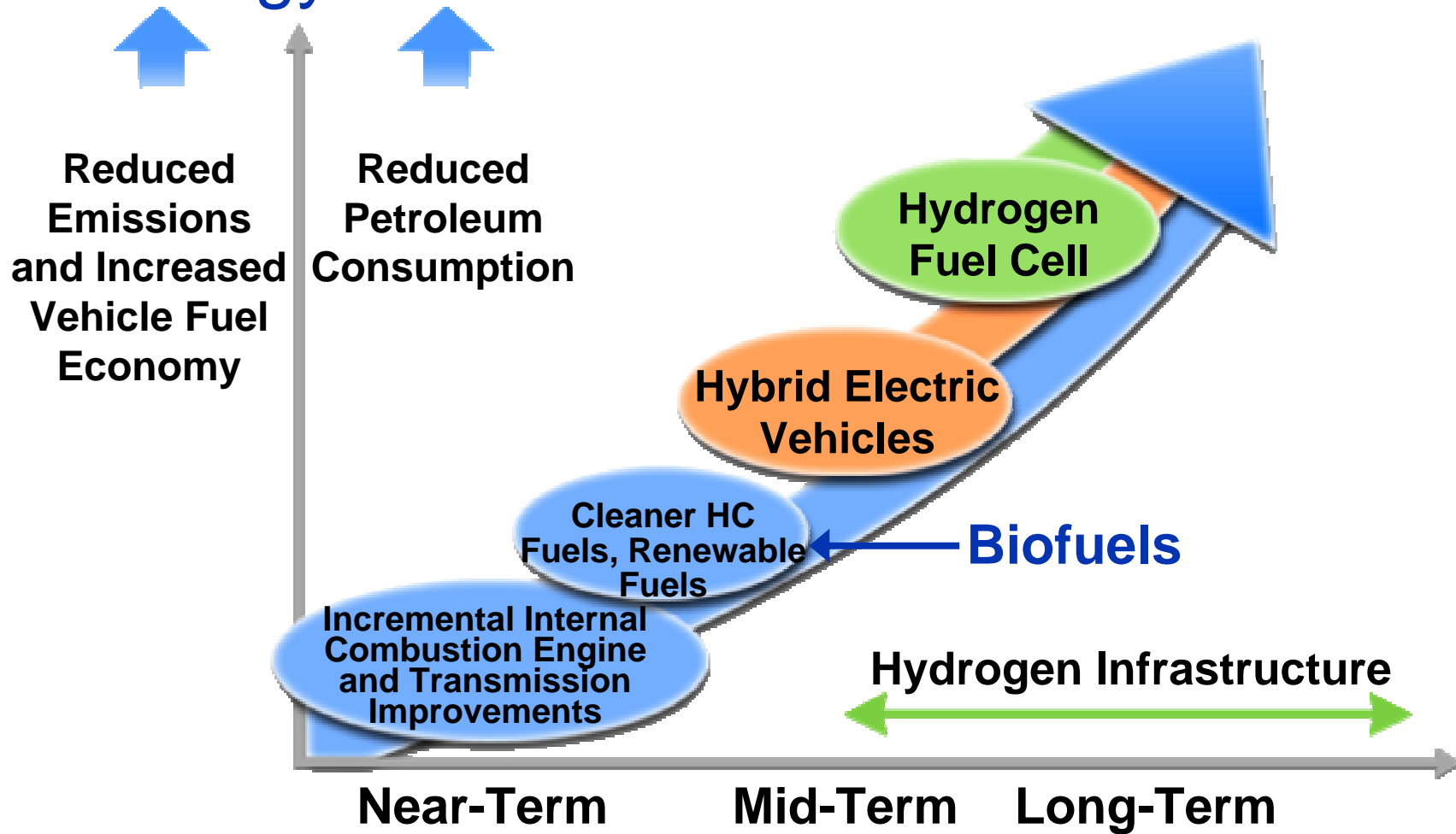


General Motors Commitment

- Implement Propulsion Technologies that improve fuel efficiency and reduce environmental impact
- Work to assure that new propulsion and fuel technologies are linked
- Promote the use of alternative fuels that make sense economically and environmentally including biofuels and hydrogen



Advanced Propulsion Technology Strategy



GM Perspective on Ethanol

Opportunity

- Renewable.
- Reduce U.S. dependence on oil – “Grown in America” appeal.
- High octane consumer alternative to gasoline
- Potential to displace significant amounts of petroleum.
- Greenhouse gas benefit – depending on production methods and raw materials employed.
- Infrastructure issues much simpler and less costly than gaseous alternative fuels (CNG, LPG, Hydrogen).
- U.S. Job Creation

Challenge

- Low concentration ethanol blends (E10, E6) present emission challenges.
- High concentration blend (E85) consumer availability is limited, infrastructure needed.
- Reduced volumetric fuel economy (miles per gallon) immediately observed by customer in typical E85 Flex Fuel Vehicles (FFVs).
- Near term pricing



2006 Chevrolet E85 FlexFuel Vehicles – U.S.

Silverado



Avalanche



Suburban



Tahoe



GM Confidential

2006 GMC E85 FlexFuel Vehicles – U.S.

Sierra



Yukon



Yukon XL



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New in 2006 – E85 FlexFuel Passenger Cars

Chevrolet Monte Carlo



Chevrolet Impala



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New 2007 E85 FlexFuel Utilities on Sale Now



GMC Yukon



Chevrolet Tahoe



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North America – Pending E85 FlexFuel Vehicle

Applications
Chevrolet Malibu



**Chevrolet
Uplander
(Fleet)**



Full-Size Van



GM Confidential

Europe



BioPower



GM Confidential

GM do Brasil – Flex-Fuel . . .



Ethanol Has Traction!

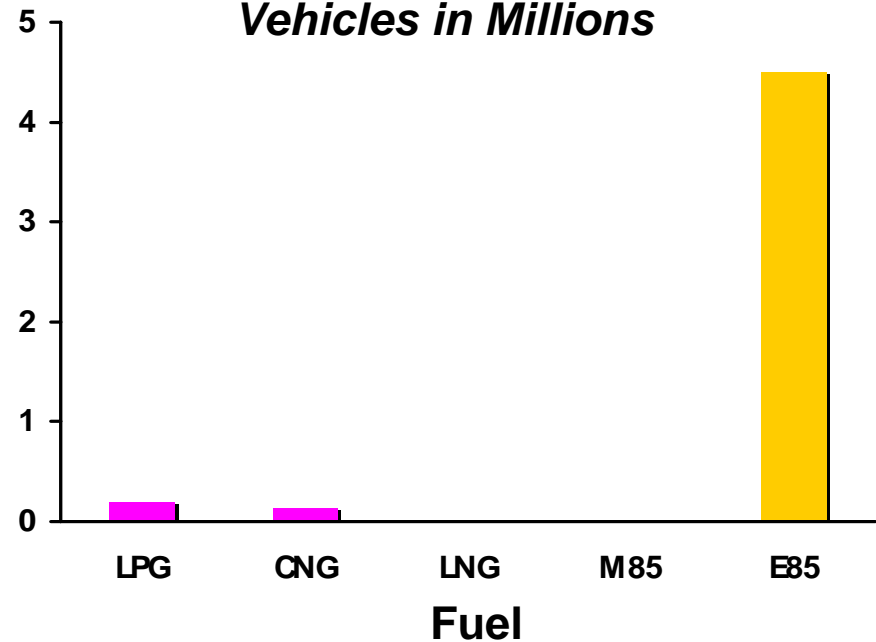
Large number of E85 FlexFuel vehicles in U.S. fleet:

- AMFA of 1988 provided option to obtain CAFE credits since 1993
- U.S. vehicle fleet exceeds 5 million cars and trucks today
- The only alternative fuel where chicken & egg dilemma has traction



30% of U.S. Gasoline is sold as E10

2004 U.S. Fleet Alternative Fuels Vehicles in Millions



uranium. Also, we are aware that the steam generated in plant designs, it is not u

Energy accounting systems energy use results from discussion of total fossil meaningful when comparin

4.1.2 Fossil Energy U

Figure 4-3 presents WTW pe use here includes petroleum energy use can help understand issues.



Well-to-Wheels Analysis of Advanced Fuel/Vehicle Systems — A North American Study of Energy Use, Greenhouse Gas Emissions, and Criteria Pollutant Emissions

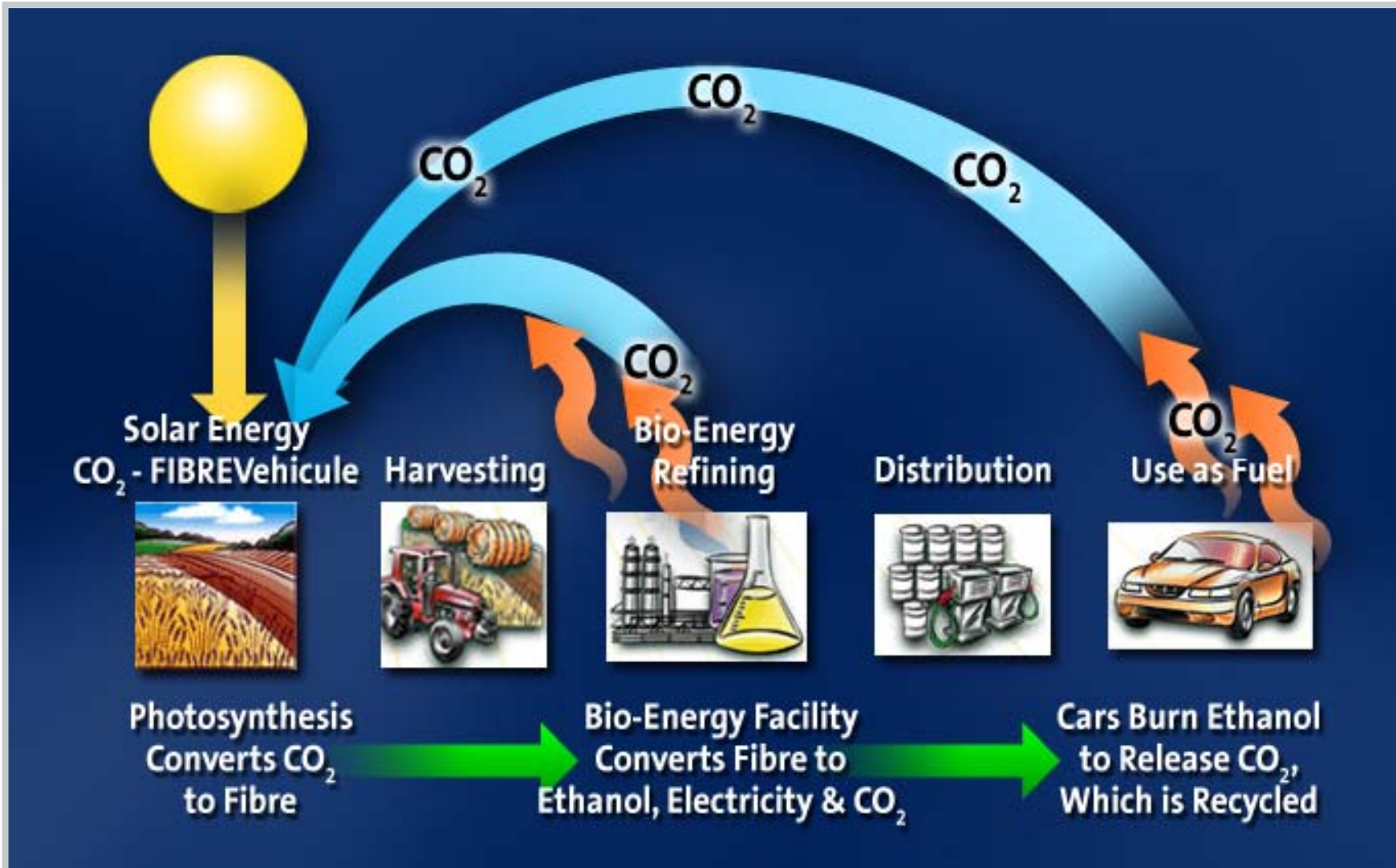
May 2005



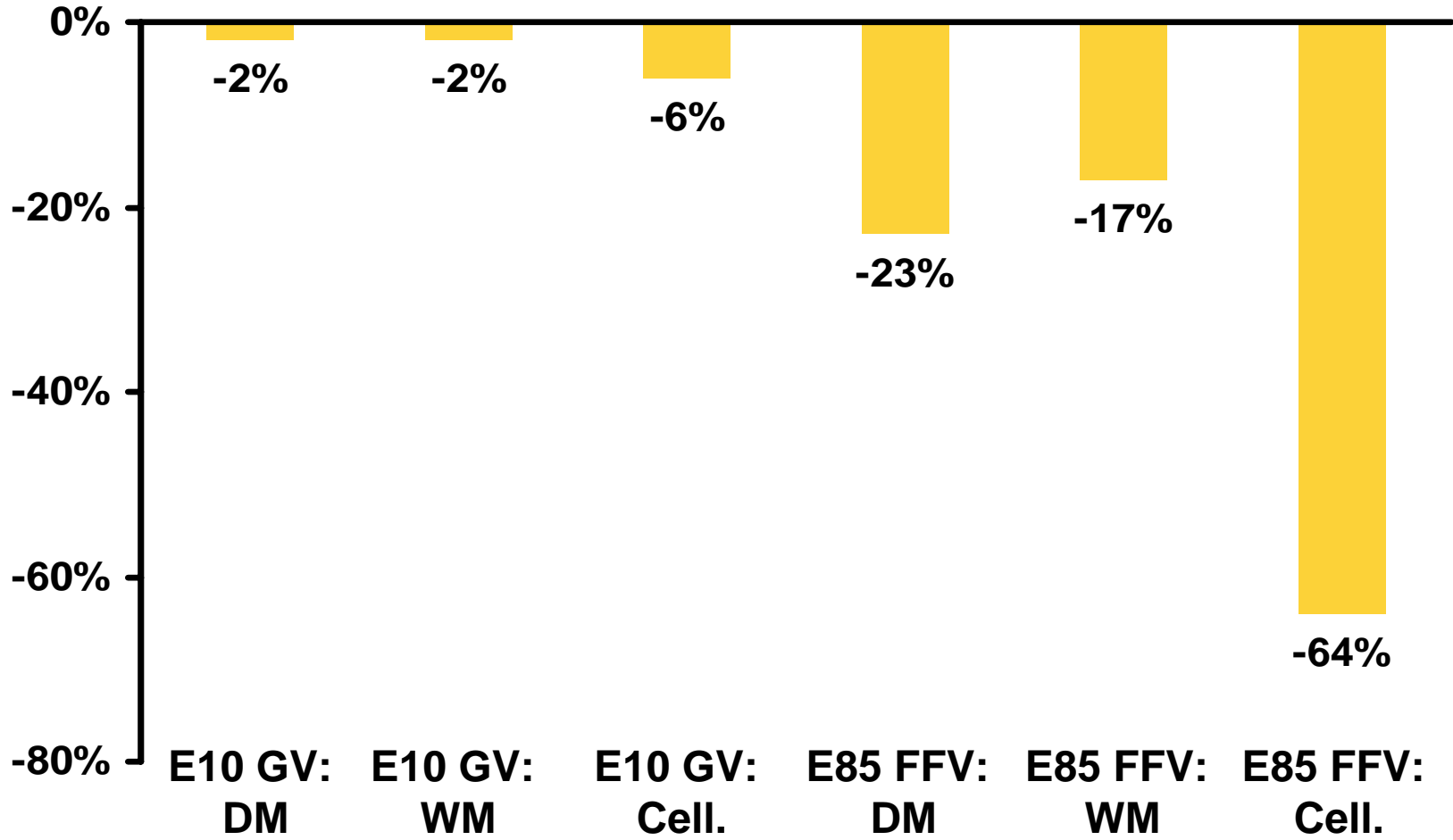
Well-to-Wheels Analysis – Petroleum System



Well-to-Wheels Analysis – Biofuel System



Ethanol Blends, Especially E85 Made from Cellulosic Ethanol, Can Significantly Reduce GHG Emissions

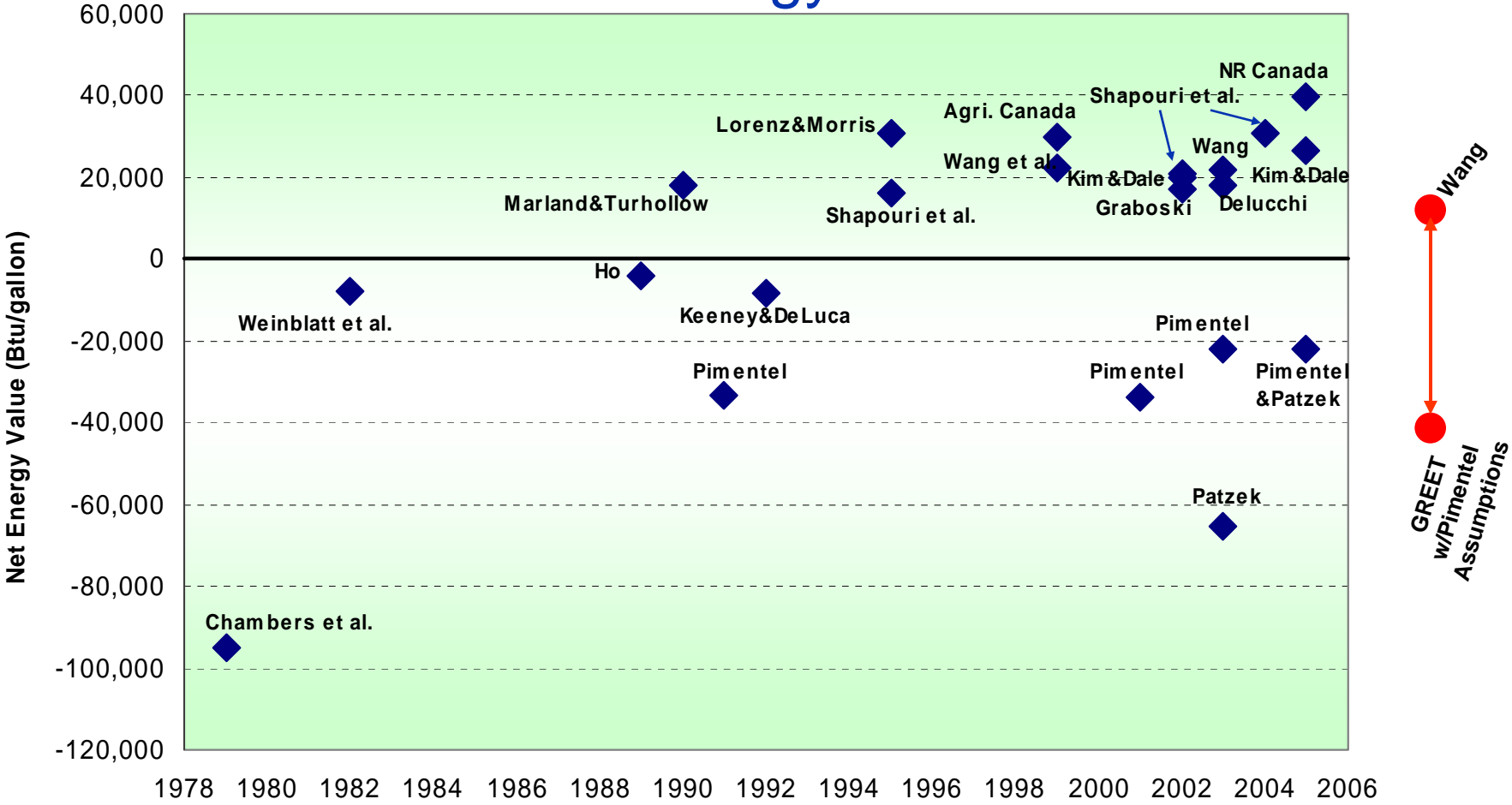


Reductions in Per-Mile GHG Emissions by Ethanol Blend to Displace Gasoline



Source : Argonne National Laboratory - Wang

Most of the Recent Corn EtOH Studies Show a Positive Net Energy Balance

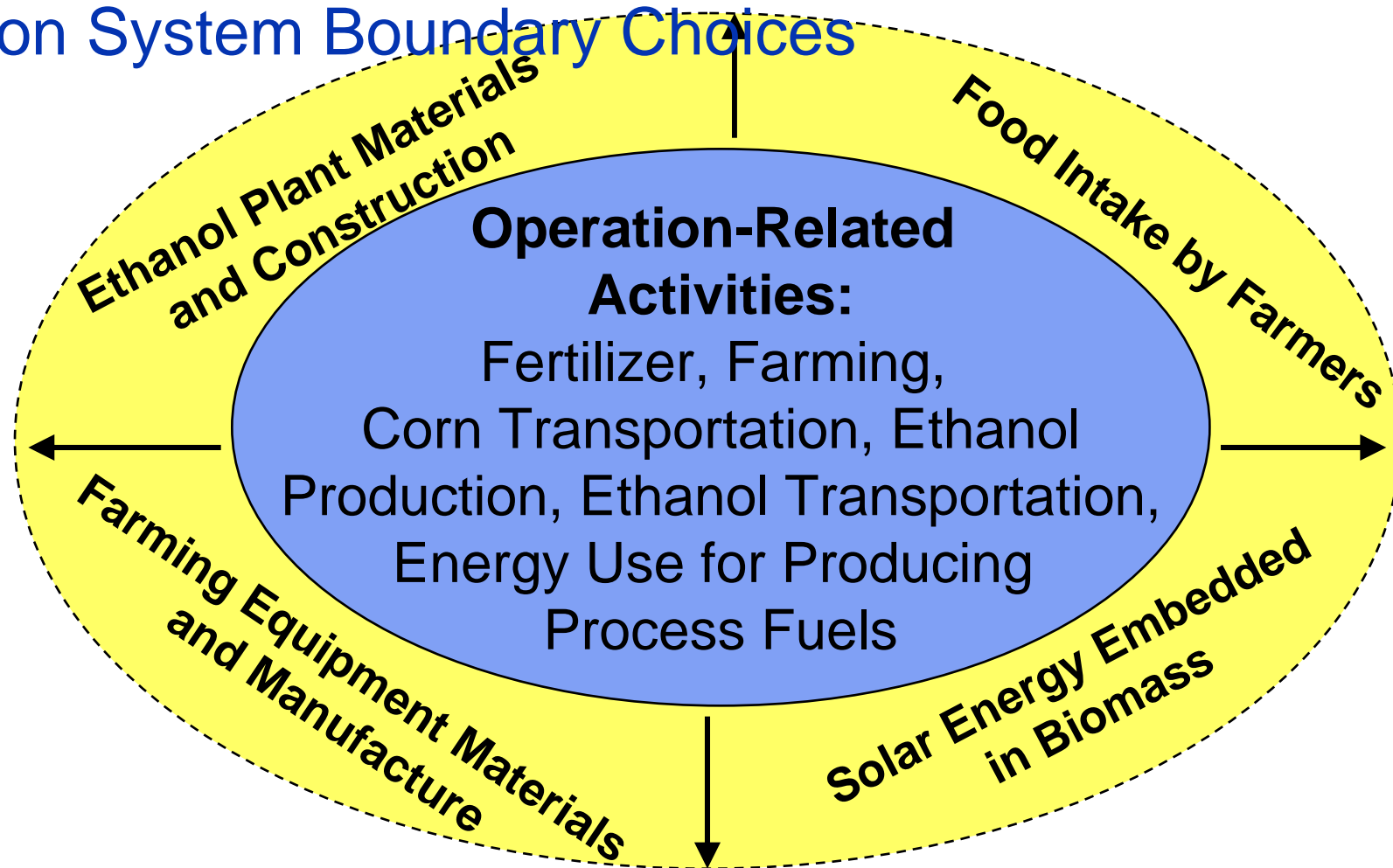


Energy balance here is defined as Btu content a gallon of ethanol minus fossil energy used to produce a gallon of ethanol

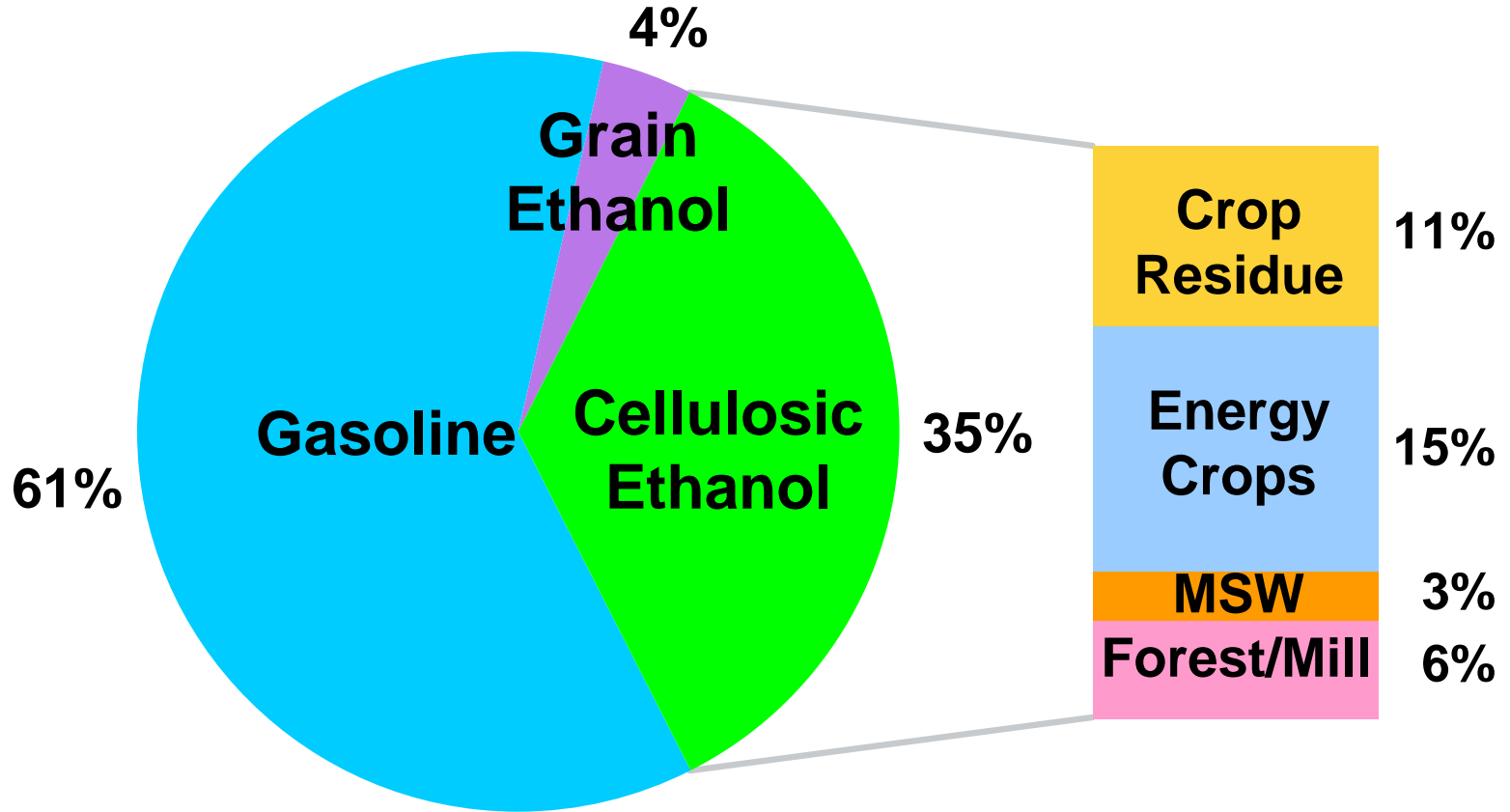
Source : Argonne National Laboratory - Wang



Energy Balance Results of Ethanol Depend Heavily on System Boundary Choices



GMR Practical Estimate of Potential U.S. Ethanol (Portion of U.S. Light-Duty Fuels - Year 2020)



*All percentages are on an energy equivalent basis
Based on University of Toronto data*



Marketing, Communications, and Partnering

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goyellow
.com



ABENGOA



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E85 Marketing Activities

- Yellow Cap pull
- FlexFuel badging
- Introduced E85 TV, print and radio campaign “Live Green Go Yellow”
- Educational livegreengoyellow.com web site created
- New E85 auto show exhibit incorporated
- LiveGreenGoYellow street marketing teams
- Extensive dealer training and IDL broadcast
- Chevy and GMC in-showroom point-of-sale materials
- Owner direct mail E85 campaign
- Extensive in-school (grades 5-8) education program



LiveGreenGoYellow.com

- Record 1,500,000 site visits in 2 weeks; 2/19 – nearly 100,000 visits/day; achieved 64% more visits in a 2-week period than all of 2005 for GM Ability
- Exit rate of 20% vs. 35% average indicating high interest

E85: the 411
cornulator
video cobcast
stalk car race
get stuff
go yellow links

E85 ON TV:
WATCH ▶

E85 IN PRINT:
SEE ▶

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goyellow

E85 is here

Thanks to GM's pioneering efforts to make cleaner E85 ethanol a viable alternative to gasoline, there are already more than 1.5 million GM FlexFuel vehicles on the road that are capable of running on E85. Discover how E85 ethanol can change our landscape for the better.

FLEXFUEL
E85 ETHANOL

E-mail this link ▶

Only GM




Chicago Auto Show





GM is proud to work with the State of Texas to supply E85 FlexFuel Vehicles.
We thank Kroger and Abengoa Bioenergy for their efforts to provide E85 ethanol fuel.



These vehicles can run on E85 ethanol, an alternative fuel derived from corn made from a blend of 85% ethanol and 15% gasoline. This homegrown fuel source may reduce greenhouse gas emissions and diversify energy supply. GM already has 1.5 million FlexFuel Vehicles on the road and more of those are in Texas than any other state in the union, and those vehicles can run on gasoline or E85 ethanol. And it's just the beginning. For more information on how we can lead our country towards energy independence, visit LiveGreenGoYellow.com. Only 



E85 Launch Magazine

**In our FlexFuel Vehicles,
Yellow means Go.**

 What if every vehicle in America was yellow? What if they could run on E85 ethanol, an alternative fuel made from a blend of 85% ethanol and 15% gasoline derived from corn? America could move towards energy independence with a homegrown, renewable fuel source that reduces greenhouse gas emissions while it boosts your engine's performance. Can every vehicle in America run on yellow? Not yet. But GM already has 1.5 million FlexFuel Vehicles on the road that can run on gasoline or E85 ethanol. And it's just the beginning. Join the ride. Help turn your world yellow at LiveGreenGoYellow.com. Learn more about E85 ethanol, which GM vehicles can run on it, where you can get it and how you can make a difference. One car company can show you how.

Only 

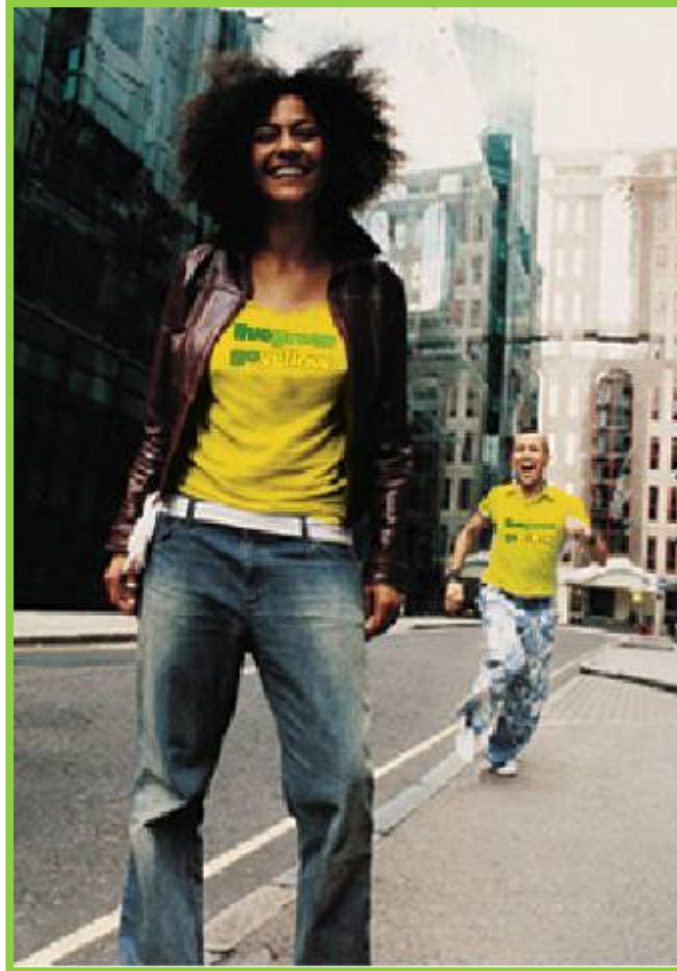


Vehicle not available in color states.

**livegreen
goyellow**
.com



Street Teams



- 1-on-1 contact with consumers
- Provide memorable experiences
- Tied to key events



Street teams with IL State Senator and proud Yukon owner, Bill Brady

Example of GM Marketing

North Central Region

E85 Fuel Card Promotion



- With the sale of a new E85 Chevy or GMC, consumer receives \$1000 Fuel Card to be used at participating E85 retailers
- Markets: Chicago/Rockford, IL
Minneapolis, MN
- Promotion will run May 2 through July 31
- Fuel Card purchases will be limited to fuel purchases at participating retailers
- Card will be active for one year





West to East Partnership

Agreements

- | | | |
|--|-----------|----|
| ● GM & VeraSun | May, 2005 | SD |
| ● GM, Chevron & State of CA | Jan, 2006 | CA |
| ● GM & VeraSun, GM & Shell
IL | Feb, 2006 | |
| ● GM & VeraSun | Mar, 2006 | MN |
| ● GM, Kroger, Abengoa & State of TX | Mar, 2006 | TX |
| ● GM, Meijer, CleanFuelUSA & State of MI | Apr, 2006 | MI |
| ● GM, Meijer & State of Indiana | May, 2006 | IN |
| ● GM, Kroger & State of Ohio | July 2006 | OH |
| ● GM, VeraSun & State of PA | July 2006 | PA |



2006 Ethanol Activities

Governors Ethanol Coalition



- Implemented 28 vehicle E85 FFV demonstration fleet in 2005
- RFA, NEVC, CFDC included in demonstration fleet deployment
- Supported significant GEC vehicle media events in 10 states
- Extension and refresh announced in Texas in March 2006

