2007 Joint Outlook on Renewable Energy in America

U.S. Energy Collaborative Analysis Initiative Workshop
Washington, DC June 27, 2007

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American Council On Renewable Energy
www.acore.org

Topics

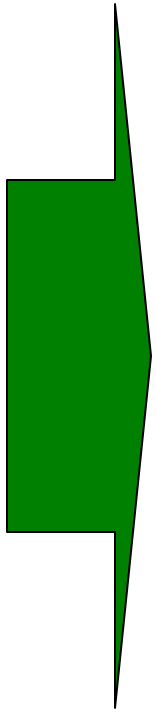
1. 2007 Joint Outlook
2. Outlook on Key RE Markets
   - Wind
   - Geothermal
   - Hydro
   - CSP
   - Solar PV
   - Biomass
   - Biofuels
3. Analytical Issues

ACORE's Policy Work

Phase II of Renewable Energy in America

Phase I: "Development"

- 25 Years 1975 – 2000
- Focus on RD&D
- Develop Technologies:
  - Wind
  - Solar
  - Hydro
  - Geothermal
  - Ocean
  - Biomass
  - Biofuels
- "Commercialization"
- Method: "push"
- Lead: Federal



Phase II: "Utilization"

- 25 Years 2000 - 2025
- Focus on National Needs
- Implement Solutions:
  - National energy supply
  - National security
  - Environment
  - Climate change
  - Economic growth
  - Investment
  - Jobs
- "Scale-up"
- Method: "pull"
- Lead: State / Federal

Policy Conference

"Phase II of Renewable Energy in America"

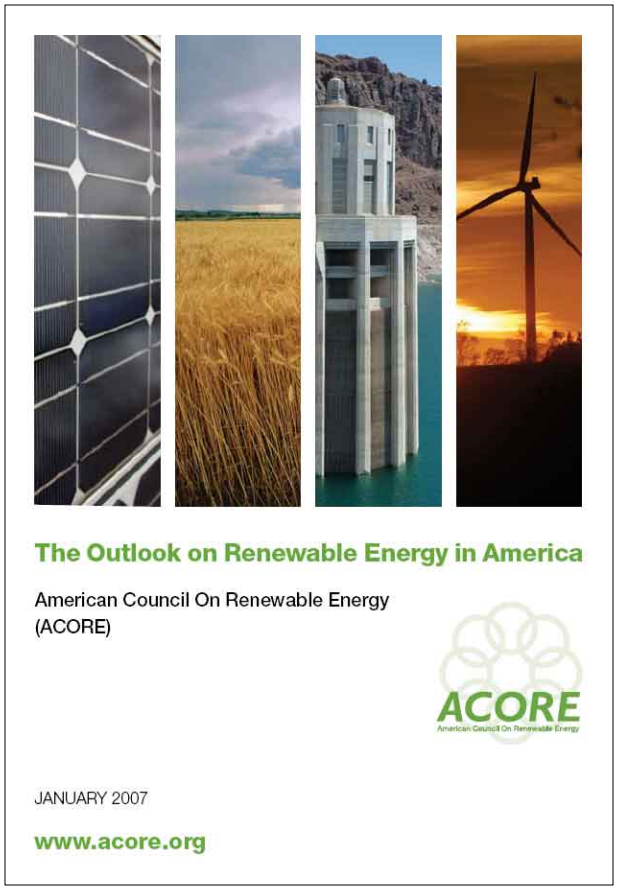
November 30, 2006

Cannon Caucus Room, Washington, DC

Outlook On Renewable Energy in America

18 Participating Organizations:

- **Trade Associations:**
  - American Wind Energy Association
  - Biomass Coordinating Council
  - Geothermal Energy Association
  - National Biodiesel Board
  - National Hydropower Association
  - Ocean Energy Council
  - Renewable Fuels Association
  - Solar Energy Industries Association
- **Nonprofit Groups and Universities:**
  - American Solar Energy Society
  - Apollo Alliance
  - Energy Future Coalition 25x'25
  - Union of Concerned Scientists
  - University of California at Berkeley
  - Worldwatch Institute
- **Research Institutions:**
  - National Renewable Energy Laboratory
  - Electric Power Research Institute
- **Government:**
  - Department of Energy
  - Energy Information Administration



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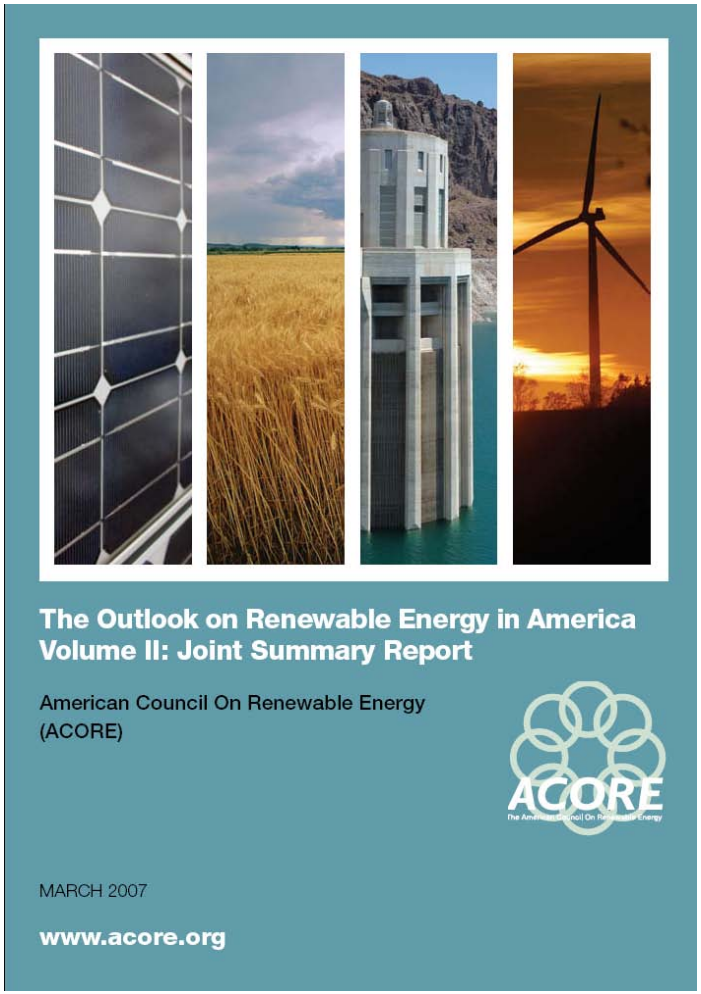
2007 Joint Outlook on RE in America



Technically Feasibly Renewable Electricity by 2025:

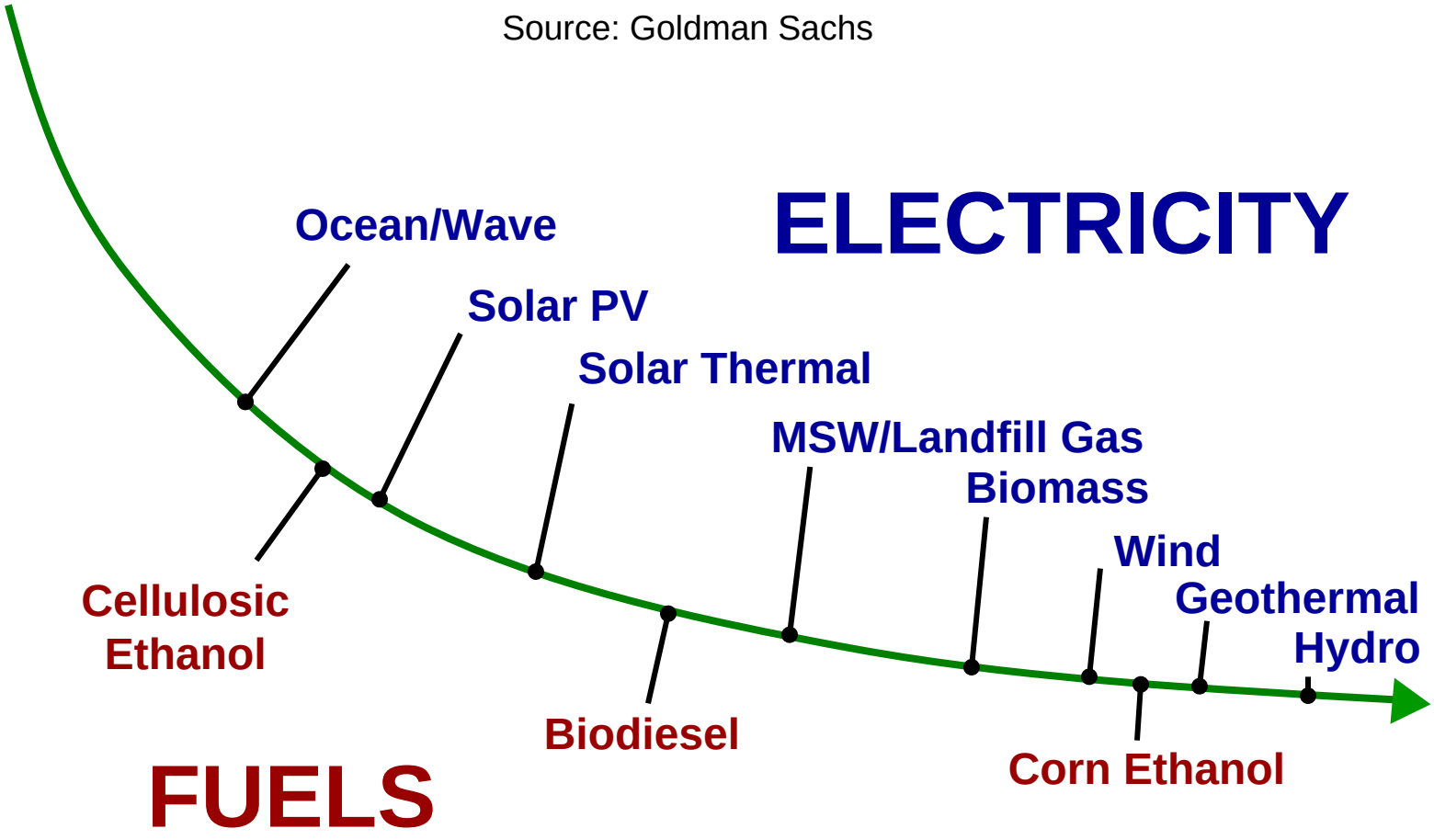
Wind Power	248 GW
Solar Energy and Power	164 GW
Water Power	23 GW
Geothermal Energy and Power	100 GW
Biomass energy, fuels and Power	100 GW
Total Renewable Electricity	**635 GW**

PLUS. 30% of motor fuels from renewable fuels by 2030.

Technology Solutions

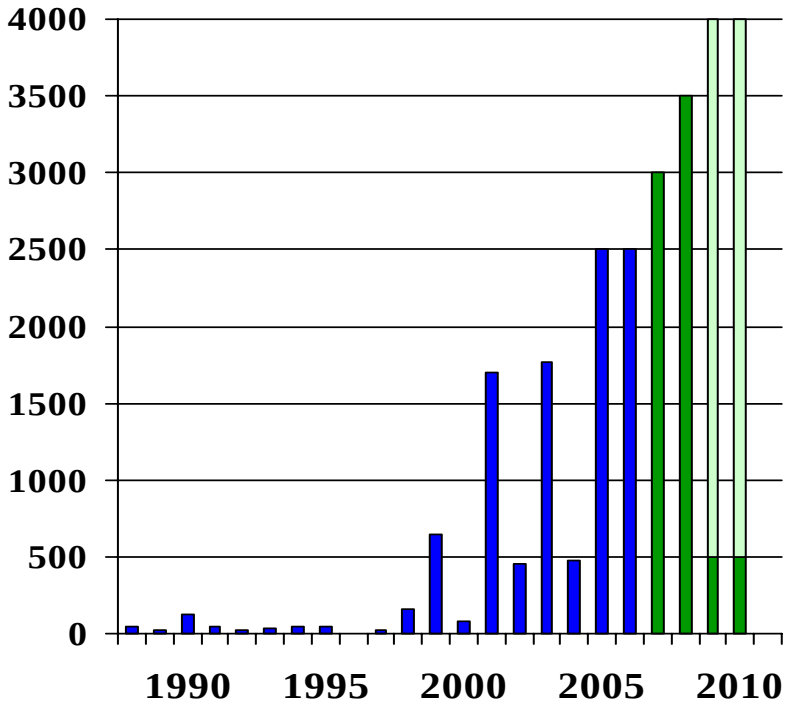
Maturing of Renewable Energy Technologies – A Pipeline

Source: Goldman Sachs



Wind Power

US Wind Power Installations (MW/Year)



Sources: AWEA (actual) and ACORE (forecast)

Outlook: 248 GW by 2025

Geothermal Energy and Power

Technology Transfer !

Geothermal Power:

3,600 MW in operation

3,000 MW in development

100,000 MW mid-term future

Vision: 500,000 MW potential, displacing coal as baseload power

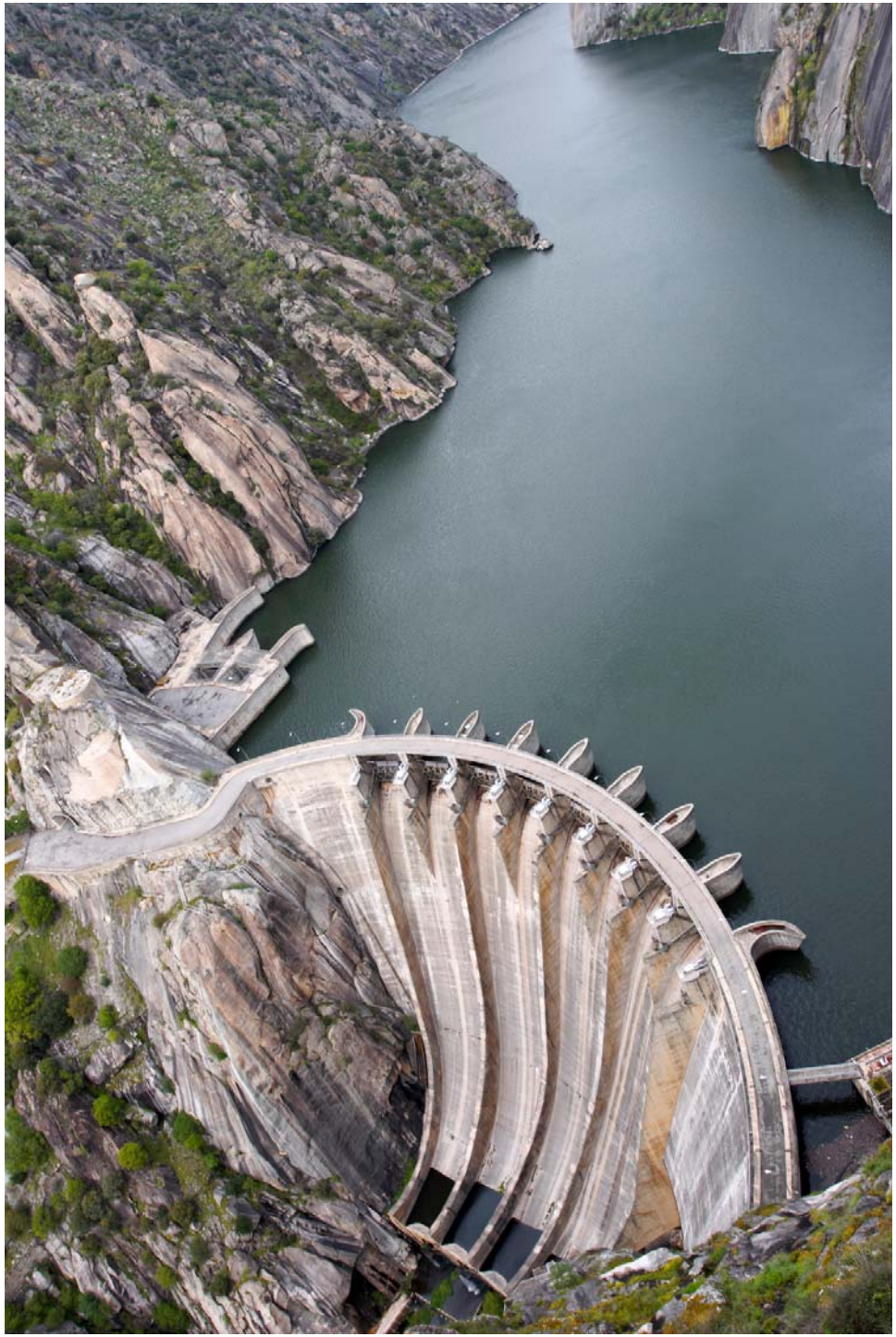
Hydropower

72,000 MW
in place

+ 23,000 MW
incremental hydro

+ 90,000 MW
total “water power”

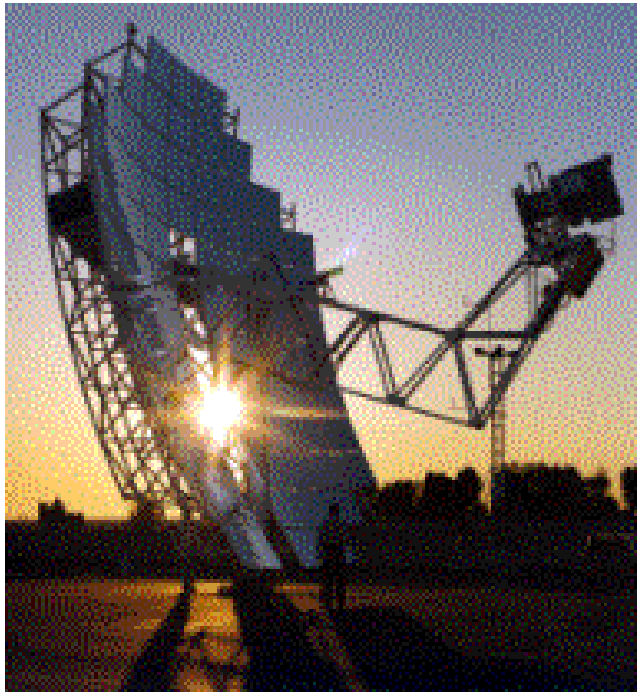
- Ocean
- Kinetic power



Concentrating Solar Power

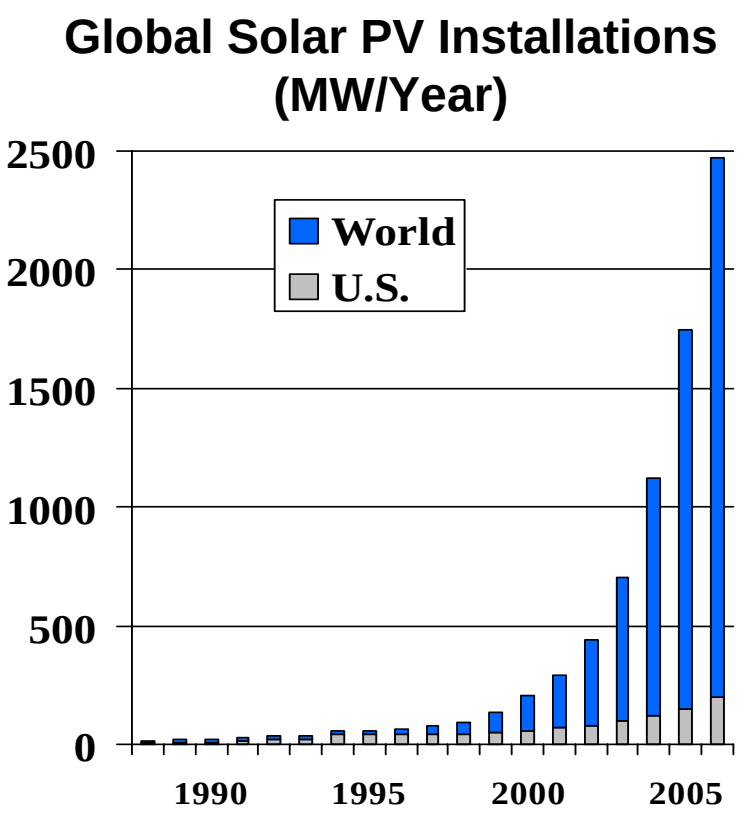
Solar Trough:
64 MW Newly Completed
3,000+ MW Proposed

Outlook:
1 GW/Year



Solar Dish-Sterling:
850 MW Contracts
500 MW Letter of Intent

Solar PV



Outlook: 164 GW by 2025

Biomass Energy

Outlook to 2025:

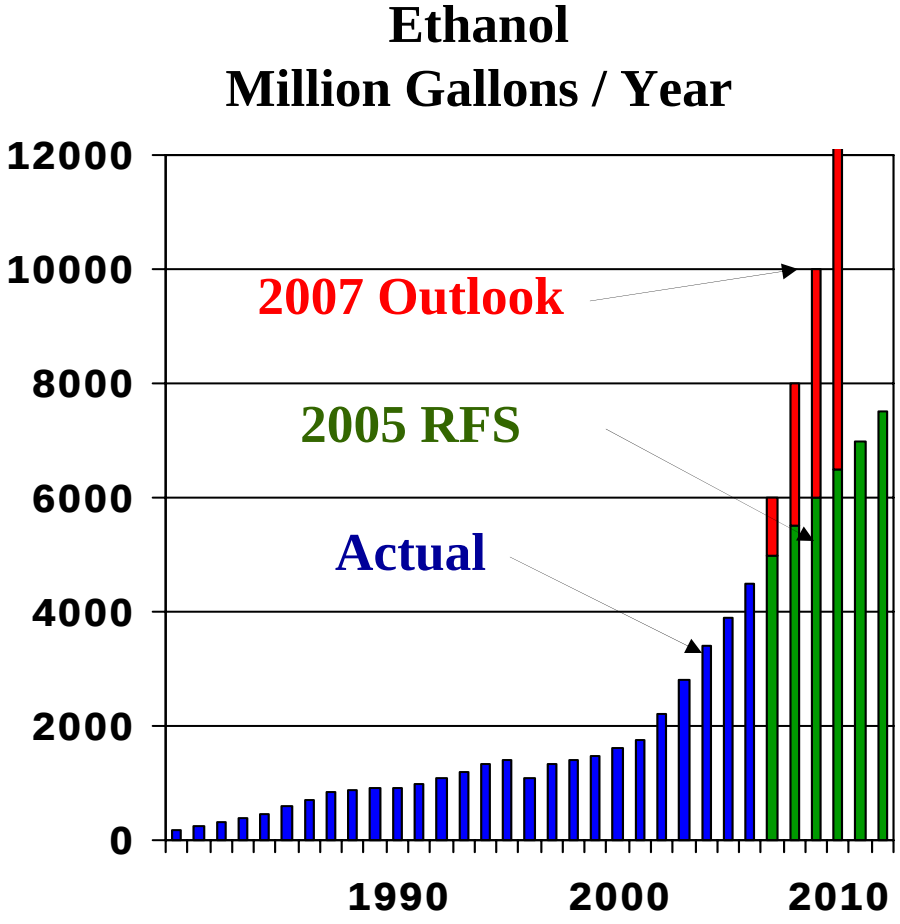
Industrial CHP: 57 GW

Wholesale power: 37 GW

Solid Waste: 10 GW

Ethanol

110 Biorefineries + 73 projects under Construction + 8 Under Expansion in 19 States

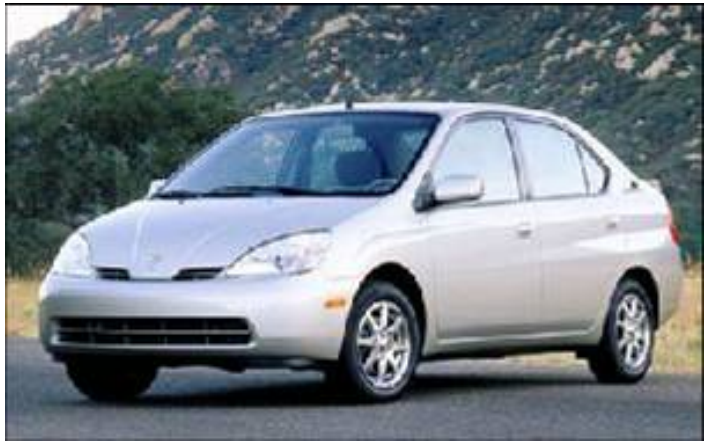


- MTBE replacement done
- Now blend up to 10%
- Demand for ethanol? E85?
- Flex fuel vehicles?
- President says 35 BGY by 2017
- Senate Bill says 36 BGY by 2020
- LT goal = 30% of motor fuels

Revolutionary Opportunity at our Doorstep

Biofuels + Hybrid Engines

50 – 100 mpg of fuel by Hybrid Vehicles
300–600 mpg of gasoline when running E85
10x to 20x improvement



2003 Toyota Prius
47 mpg

2006 Toyota Prius
51 mpg

Analytic Issues
(Basic)

- Modeling / forecasting
  - REMAP
- Environment / Climate
- Economic inputs analysis:
  - Resources
  - Capital
  - Jobs
- Economic impacts analysis:
  - Economic growth
  - Tax effects
  - International trade

Analytic Issues
(Continued)

- Policy Alternatives:
  - Technology programs
  - Incentive programs
  - Regulation / mandates
- Net-Net Analysis:
  - RE/RF vs. oil, gas, coal
  - RE vs. Nuclear for low-carbon future
- Social Impacts:
  - Health / lifetime
  - Military
  - Other

ACORE
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Thank You

be a member

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