NCEP staff perspective on bio-energy

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National Commission on Energy Policy

What is the NCEP?

- Bi-Partisan group of 18 experts from academia, government, industry, labor, consumer protection and environment.
- Developing long-term strategy of Near-term measures. Final Report January 2005.
- Philanthropic. Hewlett, Pew, MacArthur Packard and Energy Foundations.
- Seek to combine academic credibility and political immediacy.

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Research & Analysis

Completed Studies

- Reviving the Electricity Sector
- Increasing Natural Gas Supplies

Studies Underway

30+ Studies Underway in 3 Topic Areas:

- National Security
- Climate Change
- Technology Policy

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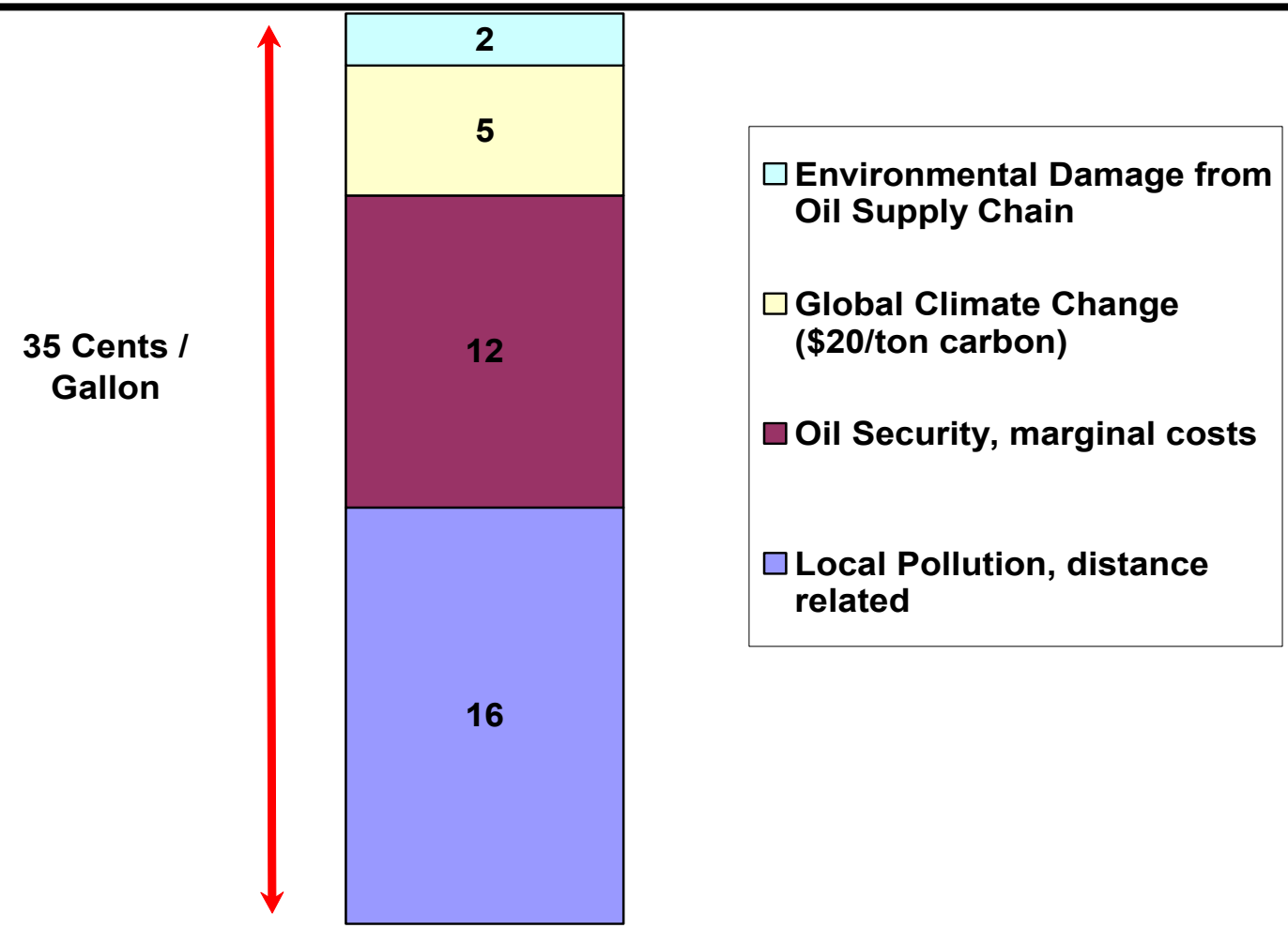
Quantifiable Externalities: Economic literature finds significant external costs in transportation / oil use.

Note: These are midpoint estimates within wide ranges of possible values.



Sources: Parry (2003), Sweeney (2002), Delucchi (1998), Lieby (1997).

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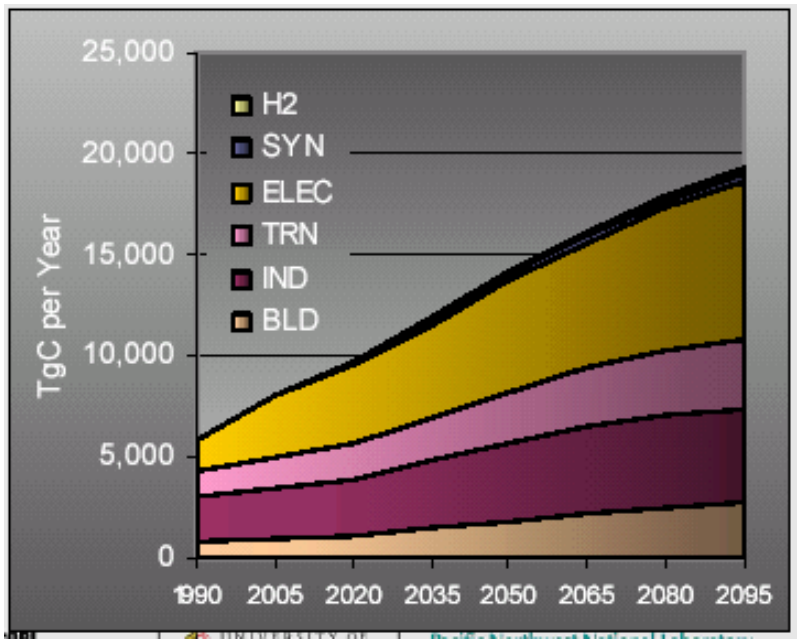
Difficult-to-Quantify Market Failures

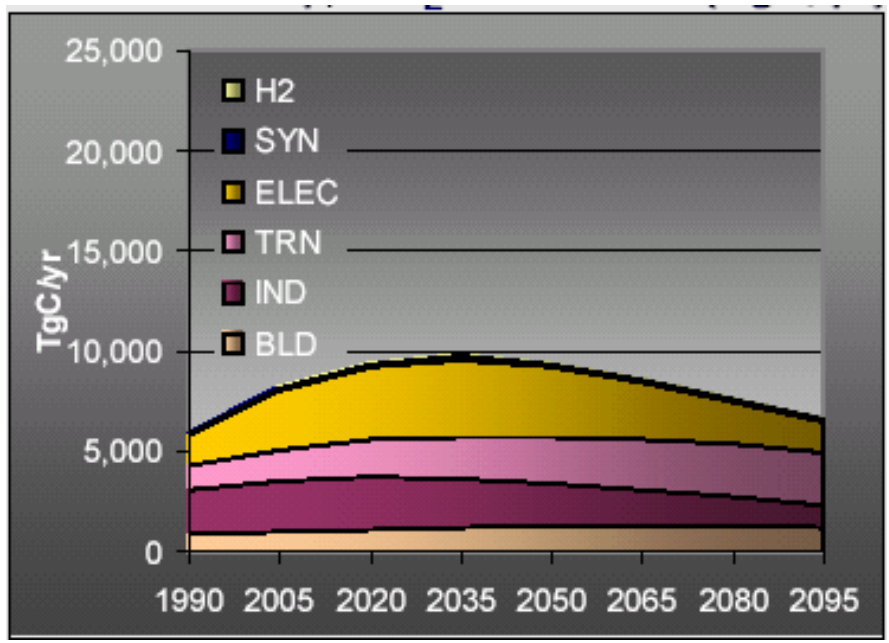
- These market failures are important to consider when making policy choices, despite difficulty in quantifying marginal costs.
- Examples:
  - Indirectly funding our terrorist organizations with petro-dollars, particularly after 9/11.
  - Preparing for the future economic scarcity of oil
  - Uncertainty surrounding the political stability of Saudi Arabia
  - Potential conflict with China over future oil reserves
  - Diplomatic coddling of hostile regimes.

Transportation Largely Unaffected by a Global Carbon Price Because No Alternative to Oil.

Base Case



Carbon Stabilization Regime



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Jae Edmonds, PNNL / Battelle, MiniCam Modeling, 2003.

Table 1: Major* Transportation Policy Evaluation

Policy	Cost Effectiveness		Other Externalities		Politics and Equity	Ease of Implementation
	Oil	Climate Change	Traffic	Local Pollutants		
Gasoline Tax (28 cents/gal) Tax is a Transfer Payment	◎◎	◎◎	◎	◎	●●	◎◎
Passenger vehicle fuel economy standards (15% increase)	◎◎	◎◎	●	●	●	◎◎
Heavy and medium duty fuel economy standards (38% increase)	◎◎	◎◎	●	●	●	●●
Bioethanol (Agricultural Waste and Energy Crops)	◎	◎	○	○	◎	◎
Domestic Oil Production (ANWR+)	◎	○	○	●	●	◎
Gasoline Tax (28 cents/gal) Tax is a Cost	●●	●●	◎	◎	●●	◎◎

Key: ◎◎ **= Excellent,** ◎ **= Good,** ○ **= Mixed or Neutral,** ● **= Fair,** ●● **= Poor**

*Major Transportation Policies are capable of reducing or generating ~ 1 MMBD oil by 2025.

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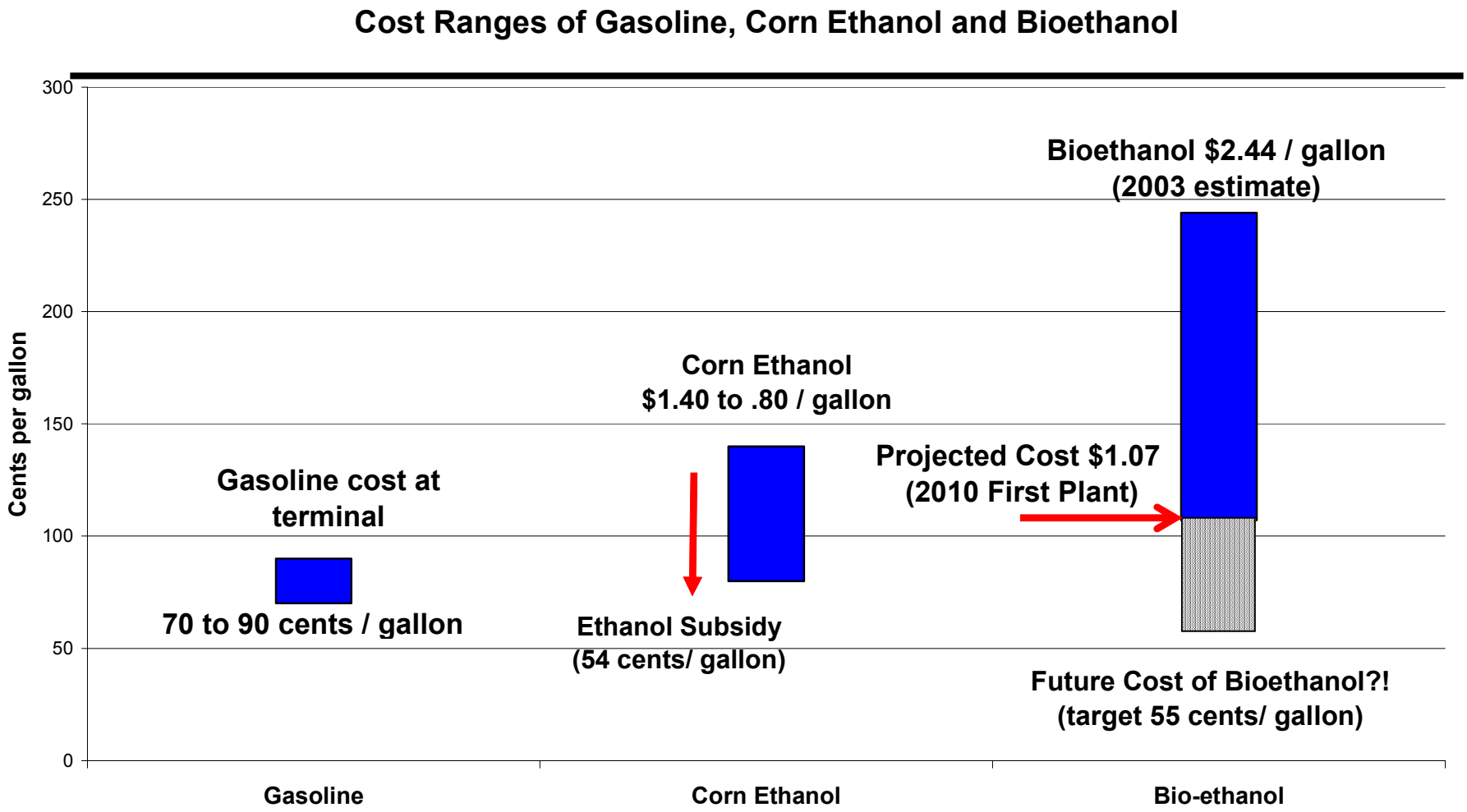
What we hope to learn. . .

- How much land will it take to meet half our transportation fuel consumption needs?
- How much more will a gallon of bioethanol cost compared to a gallon of gasoline / diesel fuel with and without accounting for?
- When will commercial plants become competitive, and what and where are the most likely early feedstocks?
- What will be the impact on wildlife, farmer incomes, agricultural subsidies?
- What are the three major challenges for R&D, and how might we better target current efforts?
- What policies are needed to accelerate the transition towards significant production of bioethanol in the US?

Cost of bioethanol ranges widely based on DOE cost estimates.



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Five pending commercial bio-ethanol plants suggests that for certain waste feedstocks, bio-ethanol costs are much lower than current DOE estimates.

Company Project location	Startup	Technology	Feedstock	Ethanol production
BCI Jennings, LA	2003	Two-stage dilute acid	Bagasse	20 MM GPY (gallon/year)
Masada Middletown, NY	2003	Concentrated acid	MSW	10 MM GPY
BCI/Gridley LLC Gridley, CA	2004	Two-stage dilute acid	agricultural wastes and wood wastes	20 MM GPY
Sealaska Ketchikan, Alaska	2004	Two-stage Dilute acid	Timber harvest and mill residues	6 MM GPY
BCI/Collins Pine Chester, CA	2003	Enzymatic	Timber harvest and mill residues	20 MM GPY