Sorting the wheat from the chaff: the economic gains and offsets of emerging energy developments

David Swenson
Department of Economics
Iowa State University

Economic Impacts

With the evolution of energy generating initiatives, projects, and opportunities has come an evolution of strategies for eliciting public support.

One of the most frequent tactics is to come up with an economic impact" declaration for the activity.

Many economic impact analyses are either done incorrectly or interpreted incorrectly – limits to the findings are often obscured or ignored

There is a tendency by people to minimize or maximize economic outcomes depending on your side of an issue

Impacts Continued

There are temporal and spatial aspects to economic change.

- Timing of the changes
- Winners and losers
- Short run versus long run

There are structural and consumption adjustments as well

- A change in one sector of the economy will have an effect on others
- Consumer behavior is unpredictable

Procedural Issues

- Cavalier if not misleading use of the term economic impact
- A variety of methods for producing results all of which can (and should) be criticized roundly
- A variety of practitioners producing results all of whom probably ought to be criticized roundly
- An absence of oversight and review – truth squads
- Confusing a statistical relationship with causation

Benefits and Costs

In public finance and in public policy, benefits and costs have very specific meanings.

Benefits are the cumulative welfare gains to consumers (or producers) that result from a government policy or project

Costs are the public costs that must be borne in producing the benefit

Economic efficiency means the benefits exceed the costs

Comparing the Two

- Economic impacts of the kind typically measured for biofuels or other alternative energy strategies are not benefits in a public policy sense.
- They are either enhancements or reductions in the net productive capacity of an industry or a region – they are not welfare enhancements
- They should be calculated net of all other effects, but they rarely are.
- In general, they are highly localized and may not be realized on a national basis

Categories

- Wind power and other very clean energy alternatives
- Uses of biomass and waste
- Liquid biofuels
- Energy reductions – conservation, consolidation, and efficiencies
- Community / regional structural realignments and investments

Categories of Impact

- Construction and the nature of capital investment
- Direct and indirect activities plus spin-off manufacturing or services
- Household effects
- Other important non-economic categories:
  - Environment
  - Households
  - Society

Additional Considerations

Offsets and disruptions

Subsidies and credits

Local and state fiscal consequences

Local financing

Local ownership

Scale economies

Basic Economic Outcomes

Existing and clearly emerging industries

- Dry mill ethanol production -- integrations
- Biodiesel
- Wind energy
- Other passive and active systems

Anticipated (promised) advances

- Few if any to-scale production systems to evaluate
- Can't project from the existing economic structure

Expected Job Impacts of a 50 MGY Ethanol Plant in Rural Iowa

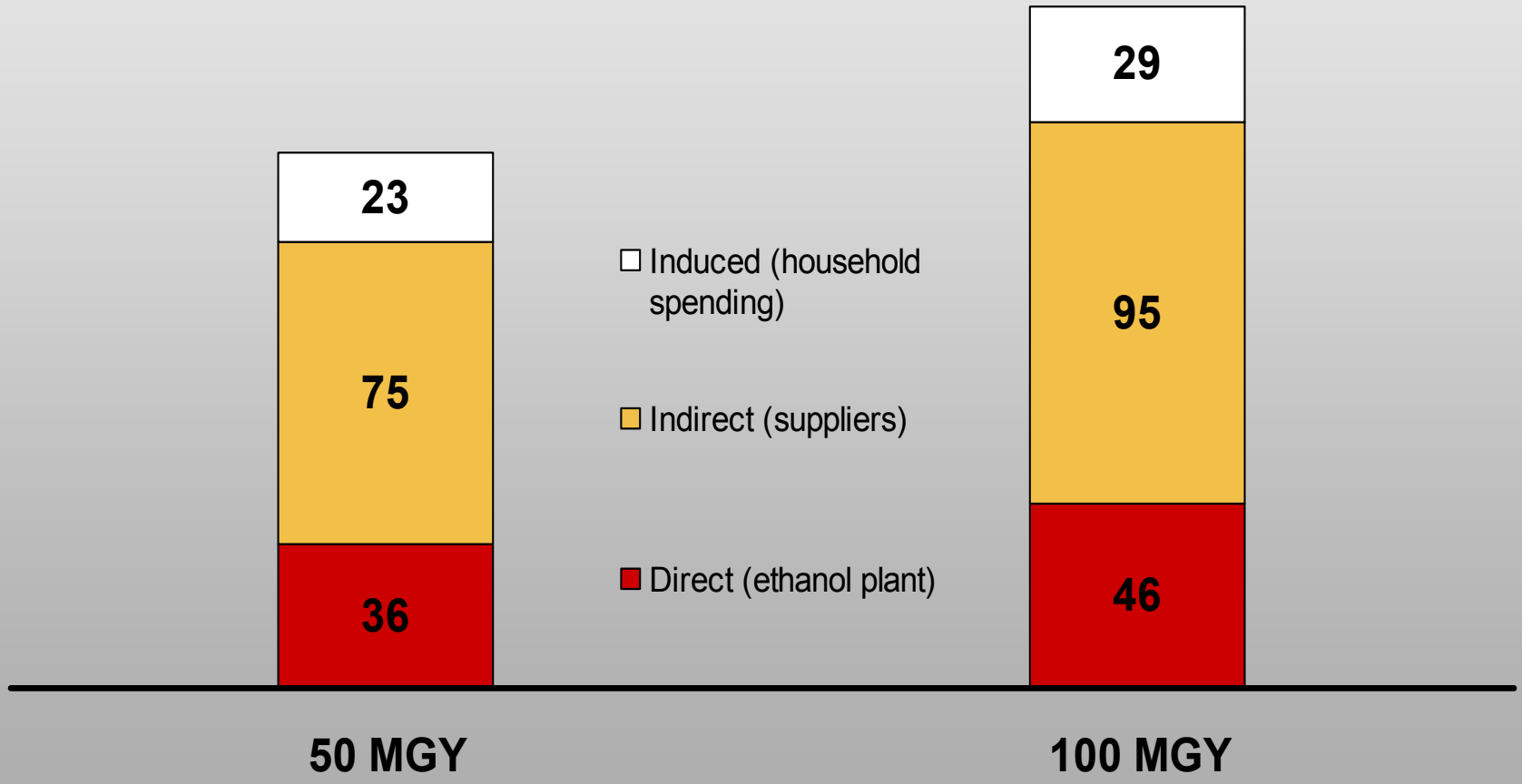
Positive Local Economic Consequences of Ethanol Production

- Add new economic product – *value added* – to a crop that had been exported
- Boost area returns to corn farmers
- Dividends to local investors (provided profitable)
- Well paying manufacturing jobs
- Expected to have strong technical linkages with the area economy
- Main-street spending boosts

Negative Local Consequences

- Higher localized grain prices for animal feeders
- Disruptions in the use of existing grain handling, storage, and transportation investments
- Infrastructure capacity and deterioration
- Water and air quality
- Community clamor

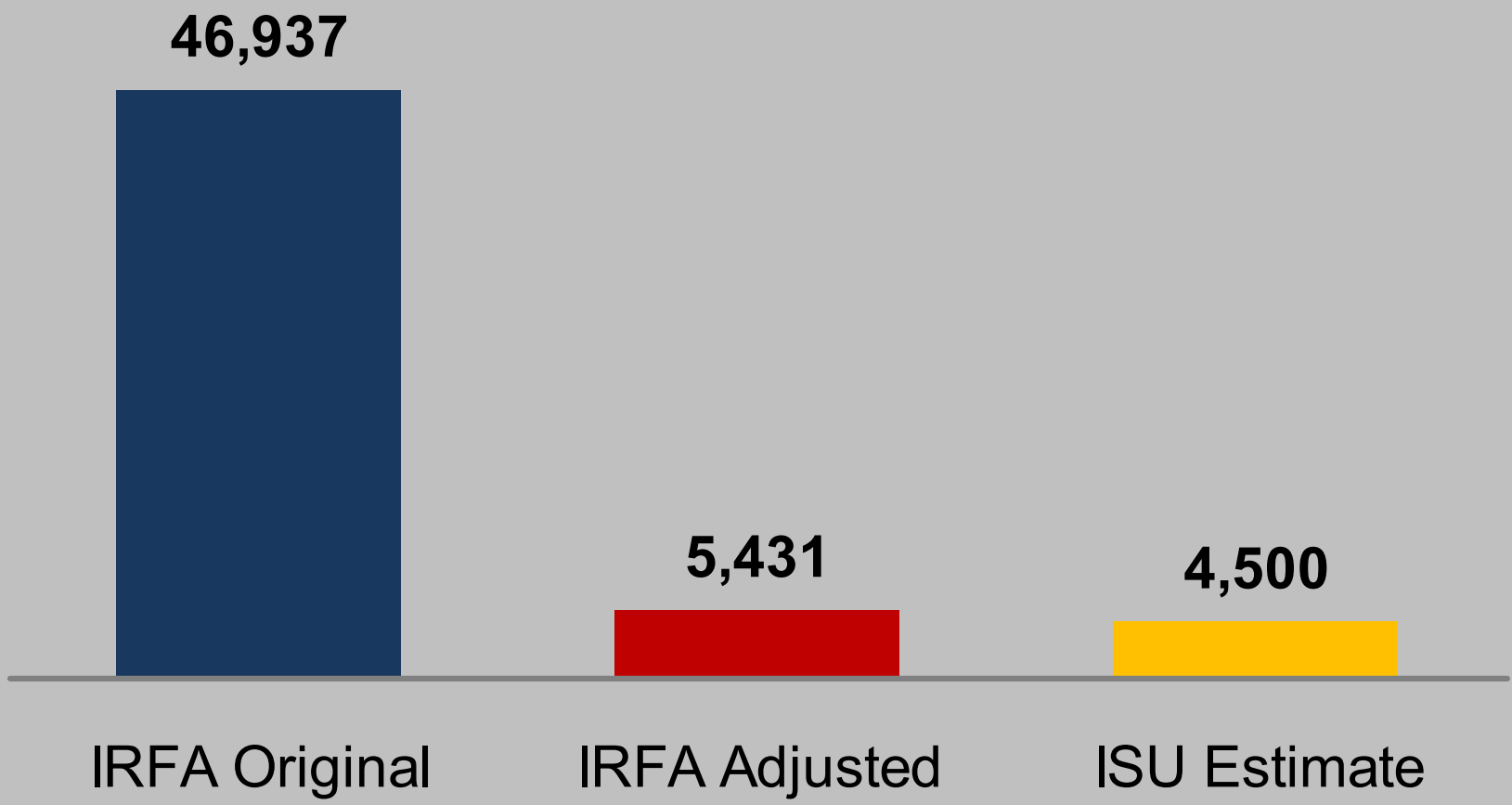
Regional Job Impacts in a 50 MGY and a 100 MGY Ethanol Plant



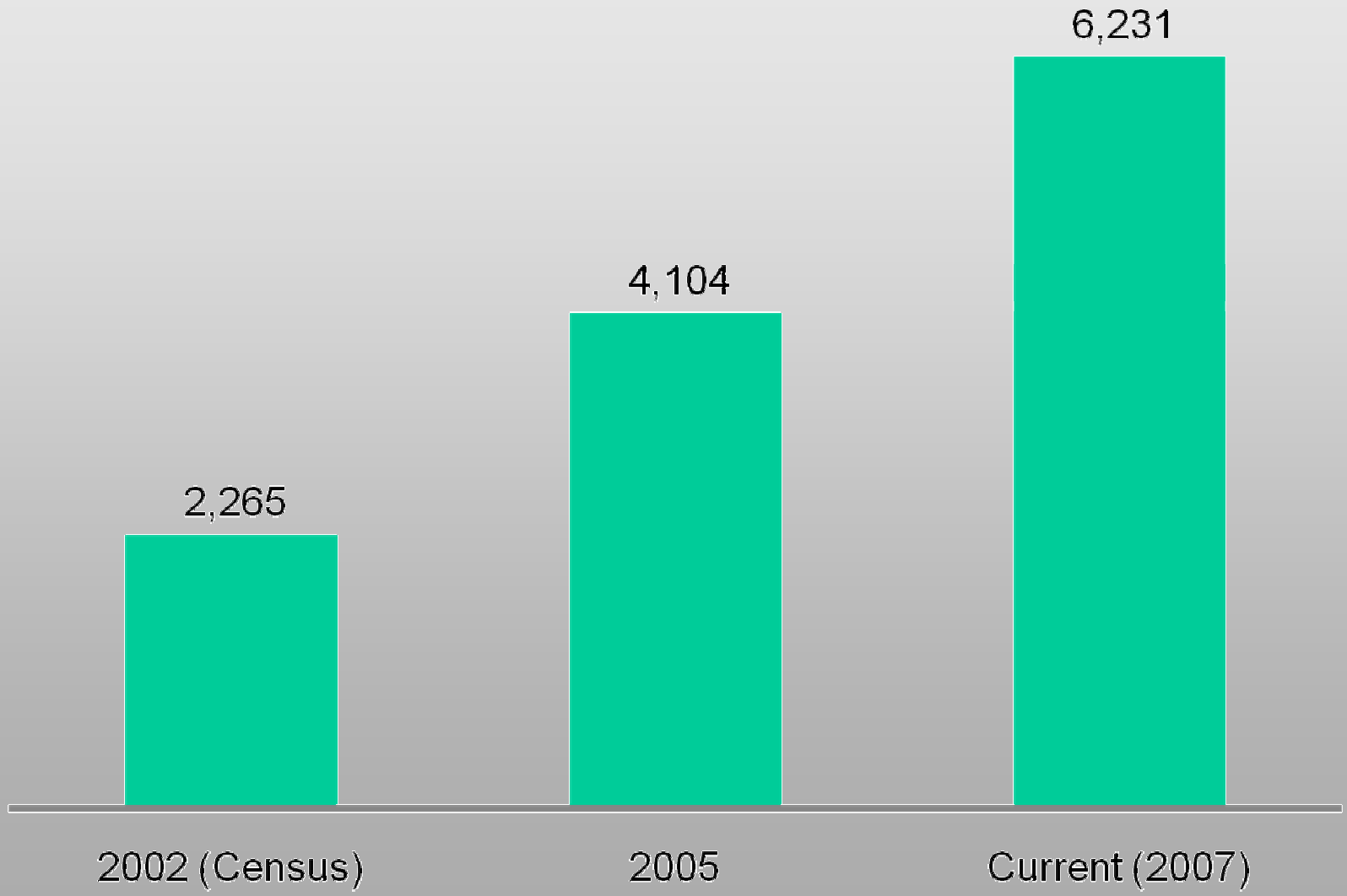
Upper Bounds are Knowable

- 2 billion bu corn X 2.8 gallons per bushel = 5.6 BGY
- Average plant size is 90 MGY operating at 110% of capacity = 99 MGY per plant
- 5.6 BGY / 99 MGY = 57 plants
- If 47 jobs per plant
- 57 X 47 = 2,679 jobs
- Times an appropriate multiplier ≈ 10,500 jobs

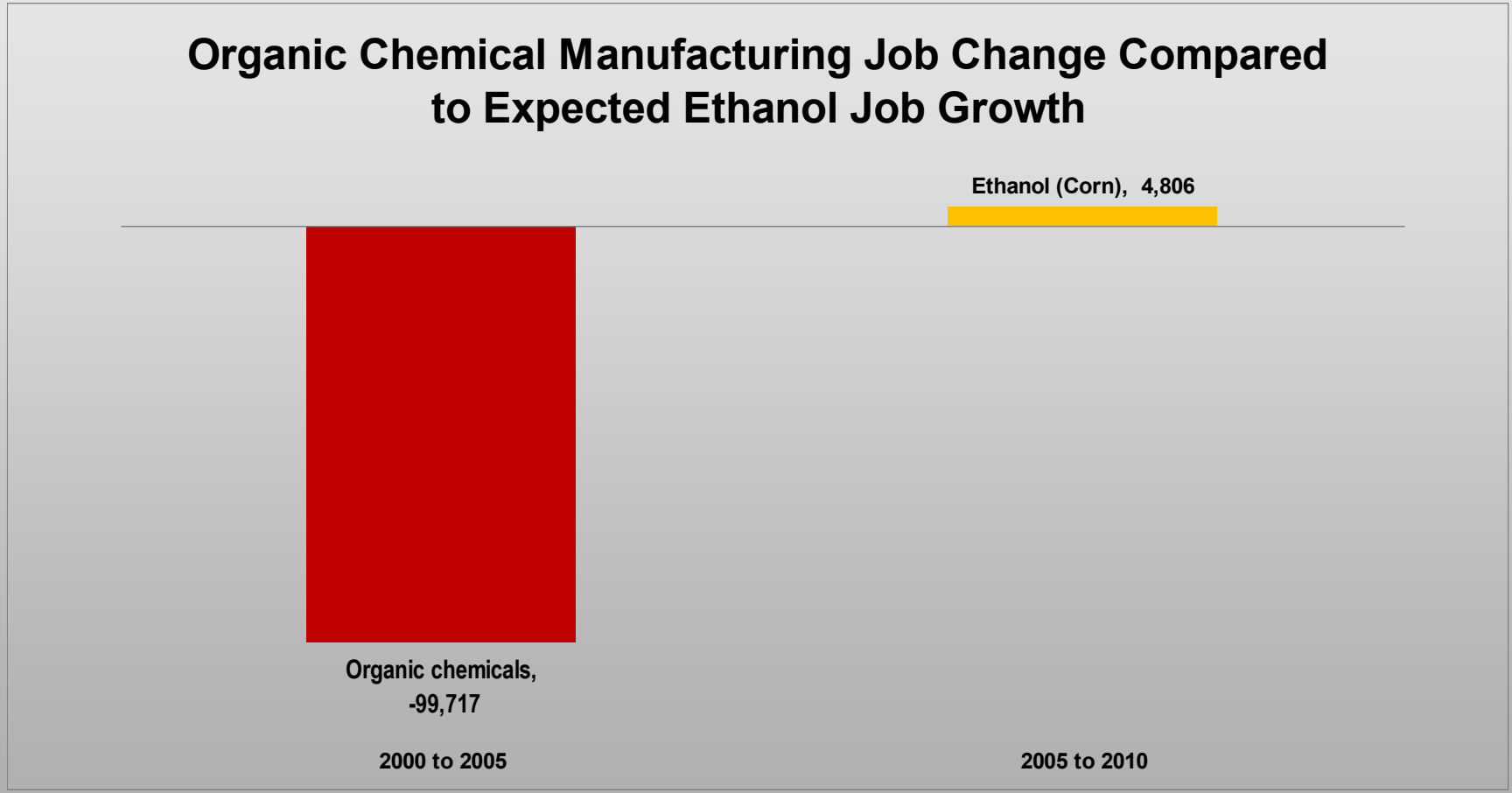
Iowa Biofuels Jobs Economic Impacts: 2006



Direct U.S. Ethyl Alcohol Production Jobs



Direct job growth



Moving Forward

Mustn't confuse sets of economic outcomes with benefits

All costs must be acknowledged because there are substantial amounts of public funds involved

Economy-wide outcomes must be considered in light of local or regional gains

USDA: Consumers to pay for rising crop prices

By PHILIP BRASHER • Register Washington Bureau • February 21, 2008

Noneconomic consequences should be quantified and described as part of the policy making processes

My observation

The poorer the prospect, the shakier the position, the more questionable the merits of an enterprise, the more likely it is that proponents and politicians will use "economic impact" arguments to make their case in seeking public funds