The Business Case for A Low-Carbon Energy Policy

Indiana Coalition for Renewable Energy and Economic Development (ICREED)

About ICREED

- Multi-stakeholder coalition, founded in Jan 2006
- Represented and funded by several interests:
  - Business
  - Environmental
  - Labor
  - Consumer

What does "low carbon policy" mean?

State legislation that promotes electricity resources that emit little to no carbon dioxide, this includes:

- Wind
- Biomass
- Energy Efficiency
- Coal with "carbon capture and storage" technology (when commercially established)

Why Should We Care About Promoting Low-Carbon Policy?

Answer:
Imminent Federal Carbon Dioxide Regulations

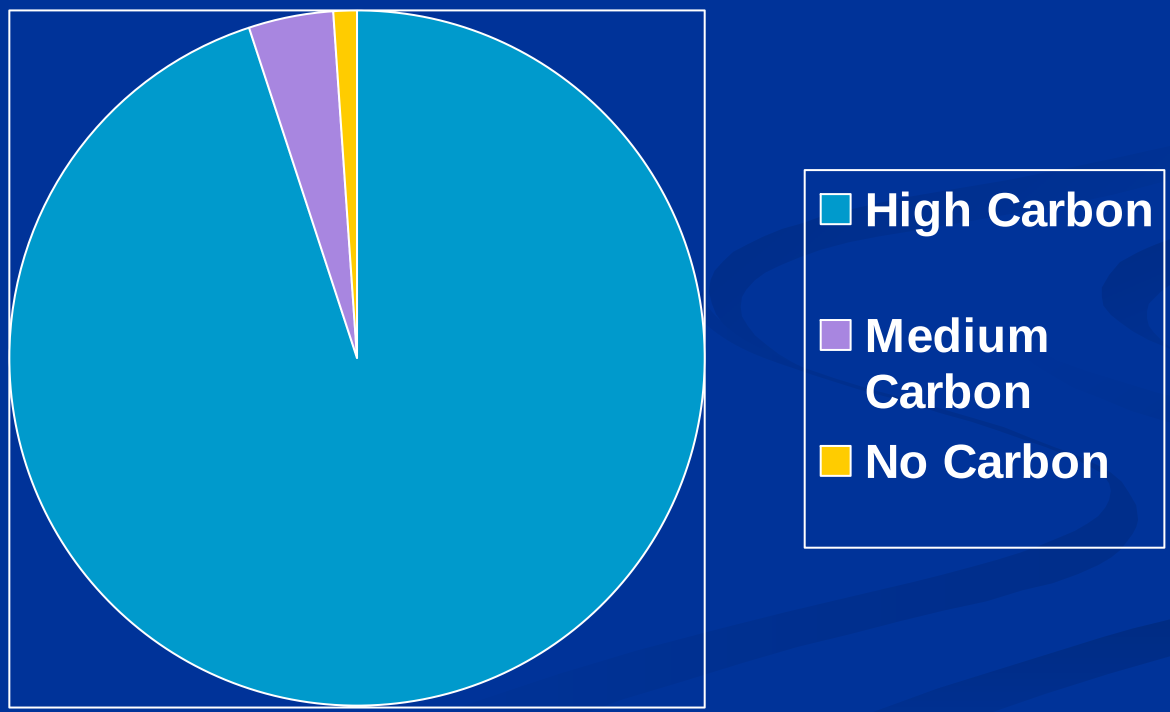
- Congress to introduce bi-partisan legislation to strongly regulate carbon dioxide in September:
  - 70% cut in carbon emissions by 2050

    John Warner (R-VA), Joe Lieberman (D-CT)
- Major investor-owned utilities support mandatory carbon cap
  - Duke : "establish a national, economy-wide greenhouse gas mandatory program as soon as possible" (April 2006)

Why should Indiana especially care about future federal carbon regulations?

Answer: Heavily-Reliant on Resources that Emit Carbon Dioxide

95% of Indiana's electricity comes from very high carbon fuels



With

1. Future federal carbon regulations

2. High carbon dependence in Indiana

what is the Indiana business impact?

If we don’t aggressively pursue commercially-established low-carbon technologies then:

<u>Electricity rates could go up significantly.</u>

Why might rates significantly increase?

#1: There is no History of Capturing Carbon in Coal Electric Production

- No coal-electric unit has "carbon capture" ability in the world
- An extraordinary technical challenge of scale:
  - 1,600 tons of nitrous oxide emitted/coal plant
  - 4,100,000 tons of carbon dioxide/coal plant

#2: Utilities, Academics Agree: Cost Increases Will Likely be Dramatic

- MIT study (2005) predicts 75% increase in plant levelized cost for a conventional coal plant to install carbon-capture and storage technology.
- Duke testimony (2006) suggests a 68% increase in cost of electricity in retrofitting a conventional coal plant

Won't new coal technologies, like Edwardport's IGCC make carbon compliance cheaper?

1. EIA (2006) predicts that retrofitting an IGCC plant will have about a 30% higher capital cost.
2. Also – IGCC has itself undergone dramatic cost increases:

- Indiana – 60% increase from original estimate
- North Carolina – 80% cost increase from original estimate

Question:
What Can We Do to Avoid Significant Increases in Electricity Rates?

Promote strong low-carbon policy:

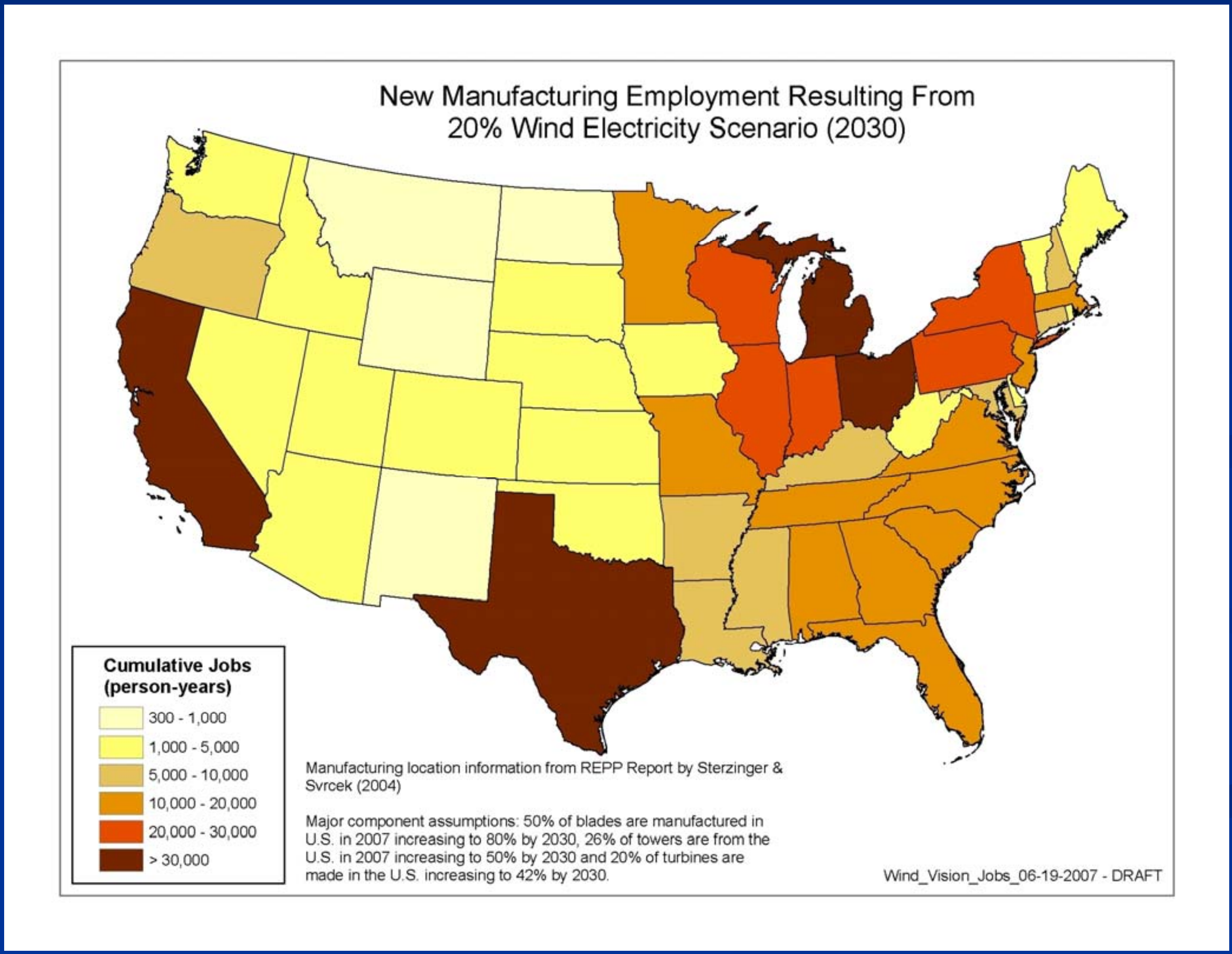
What are the key, "off-the-shelf" low-carbon opportunities?

Wind: The Opportunity

- 40,000 Megawatts of wind in the state (Jan 2006 U.S. Dept. of Energy study)
- Each wind turbine constructed in Indiana creates:
  - Good paying operations, maintenance and construction jobs
  - Greater tax revenues to support struggling county budgets
  - Income ($4,000-$9,000 per turbine per year)

Wind Power Development in the Midwest			
Illinois	Indiana	Minnesota	Wisconsin
5,468 MW	330 MW	748 MW	1327 MW

Wind Manufacturing Potential: The Opportunity (DOE 2007)



Biomass: The Opportunity

- Transforming "waste" into economically valuable products
  - Landfill gas
  - Cow and pig manure
  - Crop, forest residues
- Available throughout the state
- Potential could generate hundreds of millions of kilowatt-hours of electricity per year

Biomass Development in the Midwest (Installed)			
Illinois	Indiana	Minnesota	Wisconsin
58 MW	6 MW	267 MW	207 MW

Solar: The Opportunity

- Photovoltaic Systems would be especially good for Southern Indiana, providing a way for the region to profit, in the long-run, from renewable energy development
- PV electrical generation correlates highly with peak demand

Solar Development in the Midwest (Installed)			
Illinois	Indiana	Minnesota	Wisconsin
2,000 KW	22 KW	900 KW	600 KW

Why is Indiana behind on renewables?: Lack of Strong Policy

- Midwest states with renewable market drivers, so-called RES:
  - Illinois (25% by 2025)
  - Wisconsin (10% by 2015)
  - Minnesota (25% by 2025)
  - **Indiana – Nothing**

Efficiency: The Opportunity

- Reducing energy demand by promoting energy-efficient:
  - Appliances
  - Commercial, residential buildings
  - Industrial processes
- "In some states, well-designed energy efficiency programs are saving energy at an average cost of about one-half of the typical cost of new power sources and about one-third of the cost of natural gas supply (EIA, 2006)"

Efficiency: The Opportunity

- If pushed for a 1.5% per year decrease in demand
  - 800 net jobs per year
  - $1.4 billion a year in savings, after 15 years
- Indiana, with its good manufacturing base, could be a *national hub for energy efficient technologies*

Why is Indiana behind on efficiency: Lack of Strong Policy

- Indiana has one of the lowest scores in the nation on energy efficiency policy, 5 out of 44 points (ACEEE, 2007)
- Why 41st in the U.S.?
  - Relatively low utility industry spending on consumer rebates and loans
  - Relatively weak energy-efficient building codes
  - No state appliance efficiency standards

What policies to pursue?: Thoughts from Indiana Businesses

1. Gary West, ITAMCO
2. Gina Sheets, Clinton County Economic Development Corporation
3. Bill Keith, SunRise Solar
4. Bill Brown, LEED
5. John Doster, Invenergy

The Business Case for A Low-Carbon Energy Policy: Concluding Remarks

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Central point:

A low-carbon policy must be pursued to advance the long-term interests of Indiana business.

Private sector efforts are happening…

- Utilities involved in efforts like the National Action Plan on Energy Efficiency and several have energy efficient programs with increasing funding.
- Utilities purchasing wind (and making limited biomass, solar investments):
  - Duke – 100 Megawatts
  - AEP – 200 Megawatts
  - Vectren – 30 Megawatt

BUT
The evidence of a strong low-carbon policy not there

- Indiana ranks:
  - **41st lowest** in the U.S. in energy efficiency policy commitment (ACEEE 2007)
  - Indiana has **no renewable energy market driver**, contrasting with nearby states, Illinois, Minnesota, Wisconsin (Black and Veatch 2007)

This issue cannot be taken lightly nor viewed as a real hypothetical..

This is an issue of

- Billions of dollars of future investment, and
- Billions of future energy costs.

1. The Good News: Strong low-carbon policy leads to innovation, entrepreneurship, rural economic development.

	Illinois	Indiana	Minnesota	Wisconsin
Wind	5,468 MW	330 MW	748 MW	1327 MW
Biomass	58 MW	6 MW	267 MW	207 MW
Solar	2,000 KW	22 KW	900 KW	600 KW

2. The Good News: Strong low-carbon policy could save significant dollar amounts

- The Northwest Power and Conservation Council (2005)
  - Analysis by utility planners, not independent analysts
  - Identified 25 different conservation and renewable options that cost *less* than the cheapest coal plant.

2. Strong low-carbon policy will save billions of dollars to ratepayers

- <u>Big Stone II in South Dakota (2006)</u>
  - “Under the most likely mid-range carbon dioxide price forecast, Big Stone II [a new coal plant] cost 27-71 percent more than the high wind scenarios, across the range of assumptions

Learn More.

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