Renewable Energy

Michigan House of Representatives
Energy and Technology Committee

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DTE Energy

DTE Energy
Renewable Energy Expertise

DTE Energy

- DTE's Biomass Energy is one of the largest U.S. landfill gas companies
- DTE has extensive experience with distributed energy systems, including combined heat and power (CHP, or CoGen)
- DTE built and operates the Hydrogen Power Park in Southfield, which uses solar photovoltaic (PV) panels to generate renewable electricity and hydrogen for vehicle refueling
- DTE built and operated several commercial-scale solar electricity systems in southern California, and was first in the nation to connect PV to transmission
- Detroit Edison's SolarCurrents pilot program provided schools in Michigan an opportunity to learn about solar energy and provided customers an opportunity to partner with schools and purchase energy from the project.

Detroit Edison
Customer Perspective

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- Detroit Edison customers want renewable energy
  - GreenCurrents is a voluntary renewable energy program to be offered to all Detroit Edison customers to purchase power created from renewable sources like wind, sun, water and biomass. The MPSC approved the program earlier this month, and we launched it this past week.
  - Over 500 customers have signed-up for the program in the first week alone.
- Detroit Edison has a commitment to safety
  - Detroit Edison engineers authored the IEEE Interconnection Standards. These nationally recognized standards:
    - Protect the public
    - Protect utility workers
    - Protect customer and utility equipment

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Renewable Energy Positions

DTE Energy

- DTE Energy supports renewable energy in Michigan
- DTE Energy supports a mandated renewable portfolio standard (RPS) as part of a State Energy Plan.
  - Load certainty is needed to ensure cost recovery, and availability of financing
  - Load certainty is needed to know how much renewable capacity to build
  - Detroit Edison cannot commit to long term power purchase agreements or to building new capacity (renewable or otherwise) without greater certainty about our load
  - PA141 reform is needed to provide load certainty and clarity on investment recovery

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RPS Design Considerations

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- A rapid phase-in of an RPS could be problematic, even if the 2015 goal of 10% is attainable
  - One proposal calls for 4% by 2008, which is about 2000 GWH for Detroit Edison
  - There is no technology we are aware of that can be permitted, sourced and constructed at that scale in time (for example, wind has a two year lead time for key components)
  - Competition for renewable resources is intensifying, resulting in cost escalation in the near term. Mandating a rapid build could cause ratepayers to experience much higher rate impacts than is necessary
- It makes sense to include credit for renewable fuels used in our existing powerplants and our customers industrial applications – for example if Detroit Edison uses biodiesel instead of coal.
- An RPS should be flexible enough to allow for new ideas and technologies

Renewable Technologies at RPS Scale

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- Wind
  - Plentiful in winter when supply is least needed and electricity prices are lowest
  - Weak in summer when needed most and when prices are highest
  - Requires reserve capacity (eg., natural gas peaker) to become "firm"
  - Environmental: visual, noise, bird and bat kills
- Biomass
  - Very high capacity factor, available "firm" and dispatchable
  - Limited landfills available for development in Michigan
  - Incineration creates its own environmental issues
  - Anaerobic Digestion is challenging to manage, depends largely on consistent quality of inputs
  - Likely that most cellulosic biomass will be used for transportation fuels (biodiesel and ethanol)
- Solar
  - Although not "firm", correlates very well with peak electricity demand
  - Relatively expensive in Michigan due to weather
  - Requires large land or rooftop areas for RPS-scale implementation

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RPS Implementation Issues

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- If Detroit Edison met a 10% RPS with wind power alone…
  - Approximately 700 wind towers would be constructed at a typical hub height of 60-80 meters (~200 feet) and with rotors 80 meters in diameter.
  - Each wind turbine requires 40 acres spacing, so the total land use for this wind farm would be about 28,000 acres, or almost 44 square miles.
- Multiple parties are involved in interconnection of renewable energy sources
  - ITC, METC and others own the transmission system in MI
  - MISO operates the transmission system.
  - Interconnection requests are processed by MISO and can take up to two years
  - Detroit Edison, Consumers and others own and operate the distribution systems
  - FERC regulates ITC (interstate commerce)
  - MPSC regulates Detroit Edison and Consumers Energy (intrastate commerce)
- Who pays for system upgrades?
  - Existing distribution and transmission network typically can't accommodate new wind
  - Network upgrades can cost between $500k and $1M per mile (more if underground or over water)
  - The project developer typically pays a significant share (sometimes 100%) of upgrade costs

Voluntary Renewables: What is GreenCurrents?

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- GreenCurrents is a voluntary renewable energy program, offered to all Detroit Edison customers, to purchase power created from sources like wind, sun, water and biomass.

- The GreenCurrents proposal has been under development for more than a year and is part of a long history of environmental initiatives and support for renewable and alternative energy programs from DTE Energy.

- Participation in GreenCurrents is 100% voluntary and is designed to work alone or with a mandatory Renewable Portfolio Standard (RPS) and will not prevent an RPS in Michigan.
  - No extra cost to customers who choose not to participate.

- DTE Energy recently received MPSC approval to implement the program, and launched it last week.

GreenCurrents Benefits Michigan

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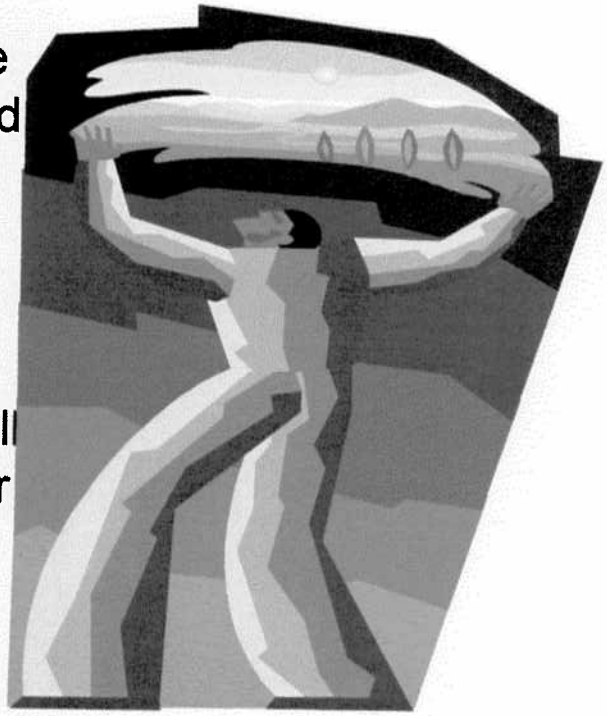
- GreenCurrents supports the development of renewable energy projects in Michigan, helping create a diverse energy portfolio to meet the growing demand for electricity in the state.
  - Renewable energy created in Michigan
  - No dependence on out-of-state fossil fuels



- For a low monthly cost, GreenCurrents participants will preserve natural resources and help create a healthier environment for Michigan.

- GreenCurrents will aid in Michigan's economic development.
  - Construction jobs
  - Material jobs
  - Operating jobs

GreenCurrents Supply

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- We issued an RFP to get competitive costs for renewable energy
  - Requested prices for both Renewable Energy Certificates (RECs) and RECs with energy
  - Strongly favored new, Michigan renewable sources
- MI REC-only prices, or the cost of the renewable component alone, ranged from $11.22 to $42.00 per MWH
  - Represents a premium of 23% to 89% over current MISO energy cost
- RFP results demonstrate that renewable energy carries a premium
  - Rate impacts could be significant if RPS minimums force load serving entities to purchase at the top of the market

DTE Energy Supports Renewable Energy

DTE Energy

- We have a long history with renewables including biomass and solar, and recently with hydrogen

- Our new voluntary renewables program, GreenCurrents, has been launched
  - RFP results demonstrate that renewable energy carries a premium

- DTE Energy and Detroit Edison support a Michigan RPS as part of a State Energy Plan
  - There are trade-offs with each technology
  - Good RPS design efforts will lead to a more robust result for Michigan
  - Land use, zoning, transmission and interconnection are areas that may constrain or slow us down
  - PA-141 reform is needed to provide customer and load certainty and to support investment at this scale