DTE Energy

Michigan Electric Supply Adequacy and Reliability

House Energy and Technology Committee
May 11, 2005

Michael E. Champley
Senior Vice President
DTE Energy

Overview of Discussion

- Background Information
- Public Policy Changes to the "Traditional" Electric Industry
- The Midwest Independent System Operator
- Responsibility for Supply Adequacy and Reliability in Michigan has Fundamentally Changed
- Michigan has Growing Electric Supply Reliability Issues
- Can MISO Address Michigan's Supply Adequacy Requirements?
- Why Reliability in Michigan Today Requires State Oversight
- Michigan Must Adopt New Regulatory Policies for Reliability

Background Information:
Important Facts about Electricity

DTE Energy

- Electricity cannot be stored. It must be produced instantaneously. Supply must at all times be exactly equal to the demand.

- Electricity cannot be directed to flow across the transmission grid in a certain direction. It always follows the path of least resistance on the grid.

- Electricity moves at nearly the speed of light.

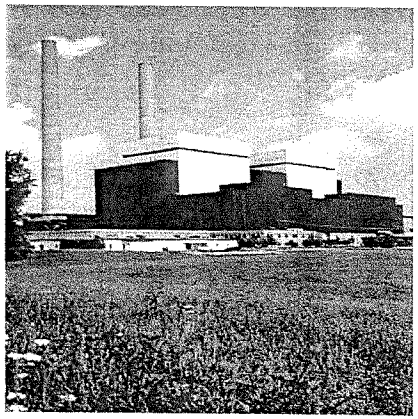
- If power line loadings are not controlled within safe limits, a failure of one line can lead to an operational phenomena called cascading, which give rise to area-wide failures known as blackouts.

- Since electricity cannot be stored, and because electric systems can fail, it is essential that sufficient and operable supply resources exist at all times to meet expected demand. Reserves provide important insurance for the supply portfolio to assure that supply can always equal demand.

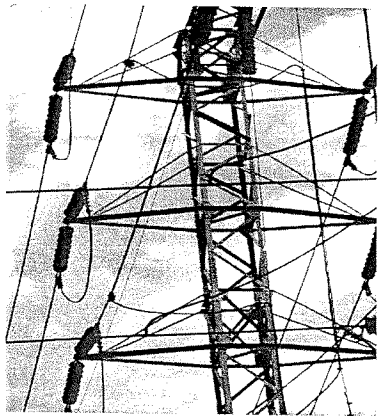
Background Information:
Traditional Regulatory Compact

DTE Energy

- Electric utilities were vertically integrated in that they owned and operated the generation, transmission, and distribution facilities necessary to provide service to the customer. The cost of these facilities were traditionally bundled or combined together in the regulated electric rate.
- Electric utilities have traditionally accepted an obligation to serve all customers in a safe and reliable manner in return for the opportunity to receive a fair rate of return on their investment to fulfill this obligation.
- In return, customers had a corresponding obligation to purchase electric supply from their local utility.



Generation



Transmission

Generation

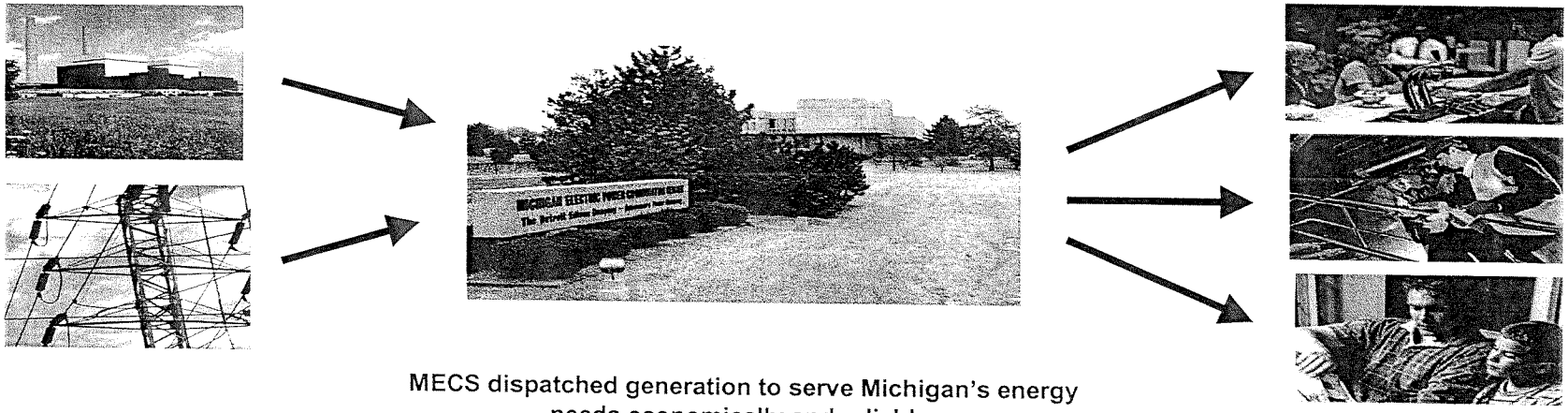
Background Information:
Supply Adequacy & Reliability under the Traditional Regulatory Compact

DTE Energy

- Working cooperatively with the MPSC, Detroit Edison and Consumers Energy ensured supply adequacy and reliability. Together, they determined:
  - Amount and mix of generation for Michigan
  - Transmission resources necessary to serve Michigan reliably
  - Level of planning reserves necessary to serve Michigan reliably
- Power supply additions were usually balanced geographically within the state relative to the anticipated local demand.
- To compensate for unforeseen contingencies, a planning reserve margin of 15% was typically added to customers' peak demand which:
  - Determined amount of generation to install in a utility's service territory
  - Reflected ability to call upon neighboring utilities in an emergency through transmission interconnections
  - Represented generation supply insurance, not excess capacity.

Background Information: Michigan Electric Coordination System

- To give Michigan the most reliable and economic power supply, Detroit Edison and Consumers Energy created the Michigan Electric Coordination System (MECS) in Ann Arbor in the 1960's.
- MECS' purpose:
  - Pool and jointly dispatch generation
  - Integrate and operate Detroit Edison and Consumers Energy transmission systems
  - Serve Michigan's electric needs economically and reliably
- MECS was the forerunner to the Midwest Independent System Operator (MISO). It focused solely on Michigan's electric supply.
- During more than 30 years of operation, Michigan experienced no supply disruptions.



MECS dispatched generation to serve Michigan's energy needs economically and reliably.

Background Information: Transmission Interconnections

DTE Energy

- Michigan utilities can import and export power from other generators inside and outside Michigan's borders through the transmission interconnections into and within our state.

- The interconnections are high-voltage transmission lines that connect one utility to another.

- Interconnections were primarily designed as a means of maintaining reliable power supply. Following Federal and State electric restructuring, they are now used to exchange electricity in interstate commerce.

- Due to Michigan's unique geography (peninsular state), our limited interconnections could severely impact reliability if we become too dependent on "extension cord" policy.

- Today, on hot summer days (peak power days), Michigan's interconnections can become congested and unable to import additional power.

Public Policy Changes to the "Traditional" Electric Industry

- In 1978, Congress passed the Public Utility Resource Policy Act (PURPA) in part to encourage development of non-utility sources of new generation.

- In 1991, the Federal Clean Air Act mandated costly environmental control technology on coal burning power plants. Natural gas became the fuel of choice for developers of new power plants in Michigan and across the nation as a result.

- In 1992, Congress passed the Energy Policy Act to further encourage non-utility generation development and to mandate non-discriminatory access to the transmission system.

- In 1992, the Michigan Public Service Commission began exploring the possibility of competitive retail generation service. They ordered a pilot program in 1996.

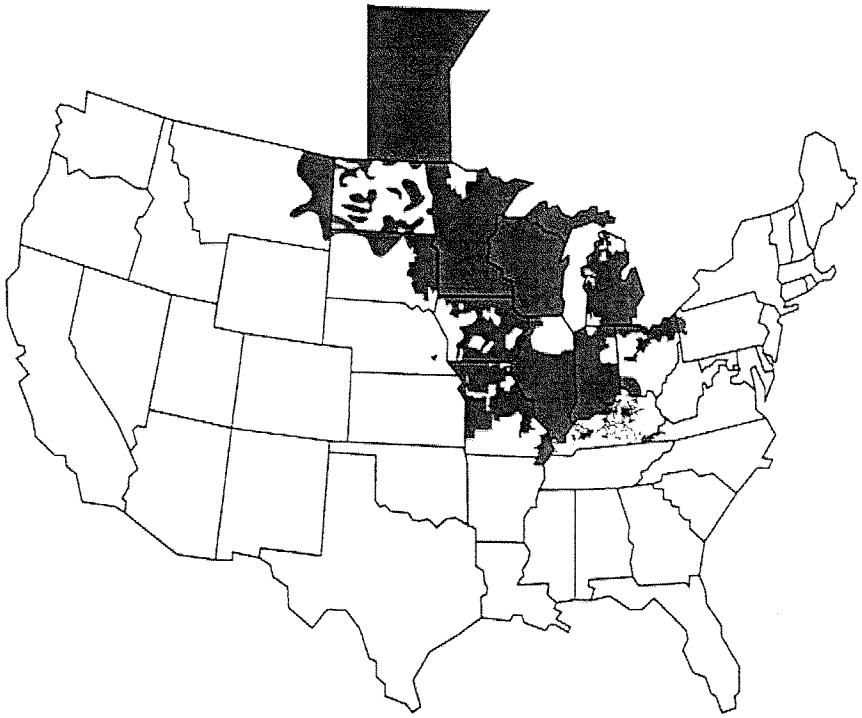
- In 1999, the Michigan Supreme Court ruled that the Michigan Public Service Commission did not have the statutory authority to mandate competitive retail supply.

Public Policy Changes to the "Traditional" Electric Industry

- In late1999, FERC ordered the development of Regional Transmission Operators (Order 2000) and gave deadlines to force utilities to join them.
- In June 2000, PA 141 became law and provided the Michigan Public Service Commission statutory authority to allow retail users to choose between unregulated supply from alternative electric suppliers and regulated supply from Michigan's utilities.
- Under PA 141, large Michigan utilities were required to relinquish control of their transmission systems by transferring control to an RTO or through divestiture.
- As a result of Federal and State, the MECS was disbanded. Both utilities sold their transmission services to non-affiliated independent owners as well.
- MISO was created in 1996. MISO has assumed responsibility for Michigan's reliability services. Detroit Edison joined and Consumers Energy joined MISO in 2001.

The Midwest Independent System Transmission Operator

- Established to manage a portion of the Midwest generation and transmission grid in order to facilitate the development of a competitive regional wholesale electric market .
- Assumed operating responsibility for generation dispatch and transmission operations for 36 operating control areas that are located in parts of 15 states and 1 Canadian province.
- Created worlds largest virtual generation and transmission utility. MISO has now assumed day-to-day responsibility for electric supply reliability.
- Monumental and expensive undertaking and is experiencing anticipated start-up problems.



Midwest ISO, Current Operations

Responsibility for Supply Adequacy and Reliability in Michigan has Fundamentally Changed

- Detroit Edison and Consumers Energy were required to relinquish control of their transmission systems, which they subsequently divested to independent owners.
- Introduction of customer choice in Michigan has fragmented responsibility for generation supply between incumbent utilities and alternative suppliers.
- MISO has assumed full control over the operation of Michigan's generation and transmission systems.

- Electric utilities no longer have sole responsibility for electric supply reliability in Michigan.
- Because of Michigan utilities diminished responsibility for electric supply, the MPSC's oversight role has also diminished.

Michigan has Growing Electric Supply Reliability Issues

- Limited transmission import capacity into Michigan
- Generation reserve margins are declining and are negative in Southeast Michigan.
- Majority of recent generation additions are gas fired and are located in Western Michigan.
- Transmission bottlenecks are emerging inside Michigan's electric transmission network.
- Increased reliance on imported power is inherently more risky.

Can MISO Address Michigan's Supply Adequacy Requirements?

- Current focus is to successfully implement Day 2 Market (energy market)
- Interim supply adequacy requirements result in a potpourri of reserve margin requirements across the MISO region – in order of priority:
  - Honor reserve requirements set by individual states
  - Honor reserve requirements set by regional reliability organizations that vary from 4% to in excess of 15 %.
  - Default MISO 12 % planning reserve requirement, if none of the above apply.
- Development of a fully operable capacity market is not expected for several years.
- Capital markets unlikely to finance new base load generation based solely on competitive energy and capacity markets.

Why Reliability in Michigan Requires State Oversight

- No single entity has sole responsibility or oversight for supply adequacy and reliability within Michigan

- MISO has assumed significant responsibility for supply reliability in the Midwest, including most of Michigan (excluding AEP in Southwest corner of the State).

- Michigan has emerging supply issues that must be addressed soon given the lead times necessary to develop new capacity.

- MISO intends to, but has not yet developed, long-term generation supply adequacy requirements for all suppliers. Even when they finally establish the requirements, there is no way for MISO to order developers to build new power plants within Michigan.

DTE Energy Recommends New Regulatory Policies to Ensure Michigan's Supply Adequacy and Reliability

- Authorize and mandate the Michigan Public Service Commission to establish planning reserve margin for all suppliers inside the state's borders.
- Authorize the MPSC to establish local generation requirements that assure that Michigan does not have to rely on extension cord policies.
- Mandate the Michigan Public Service Commission to report to the legislature annually on the supply adequacy and reliability needs of Michigan.
- Empower the Michigan Public Service Commission to provide oversight of MISO to ensure that Michigan's unique supply reliability needs are addressed.