Nuclear Energy in Michigan

DTE Energy®

Anthony F. Earley, Jr.
Executive Chair of the Board
June 28, 2011

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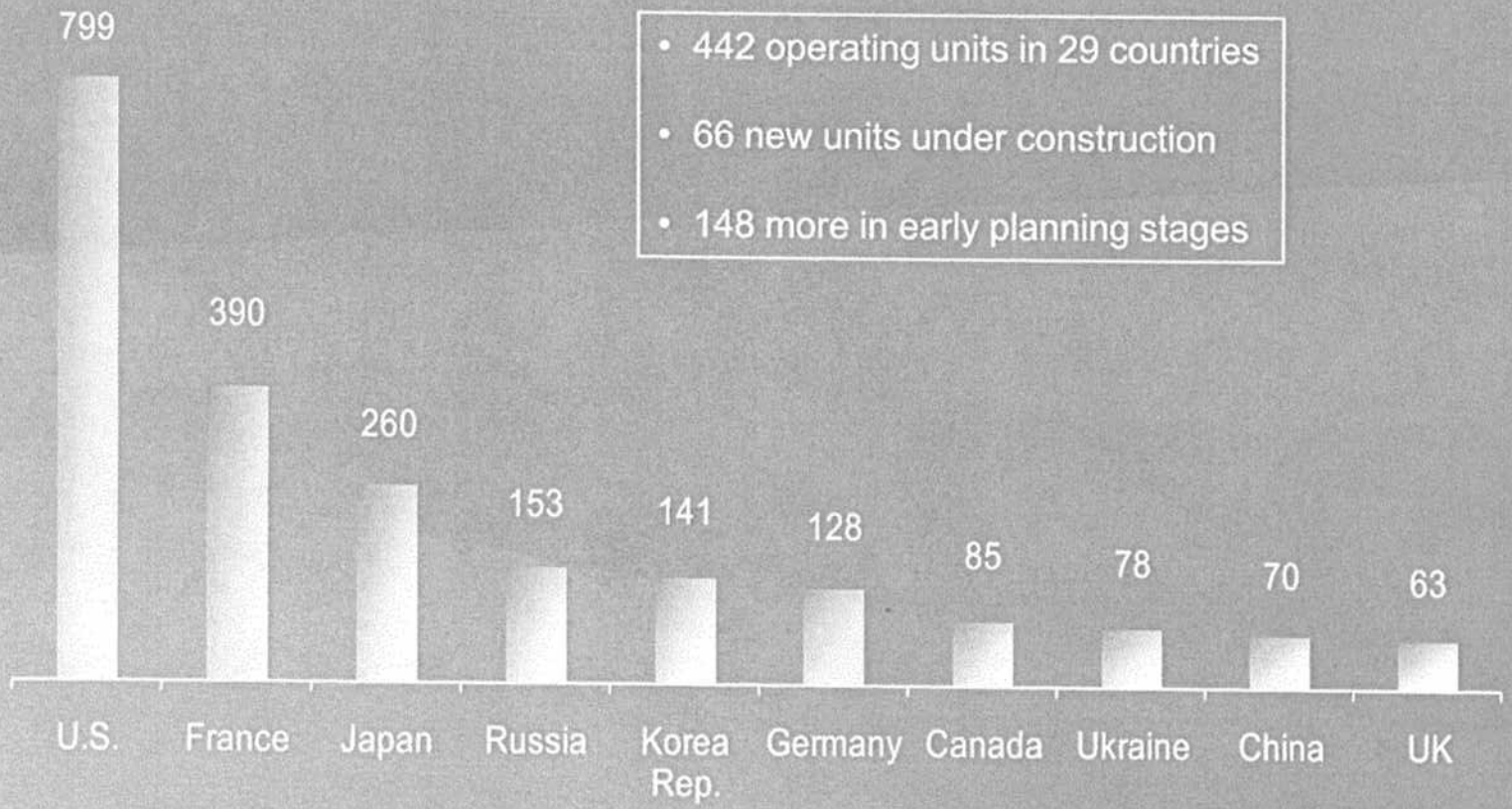
Top 10 Nuclear Generating Countries

Billion kilowatt-hours in 2009



- 442 operating units in 29 countries
- 66 new units under construction
- 148 more in early planning stages

Source: International Atomic Energy Agency, U.S. is from Energy Information Administration

Updated: 5/10

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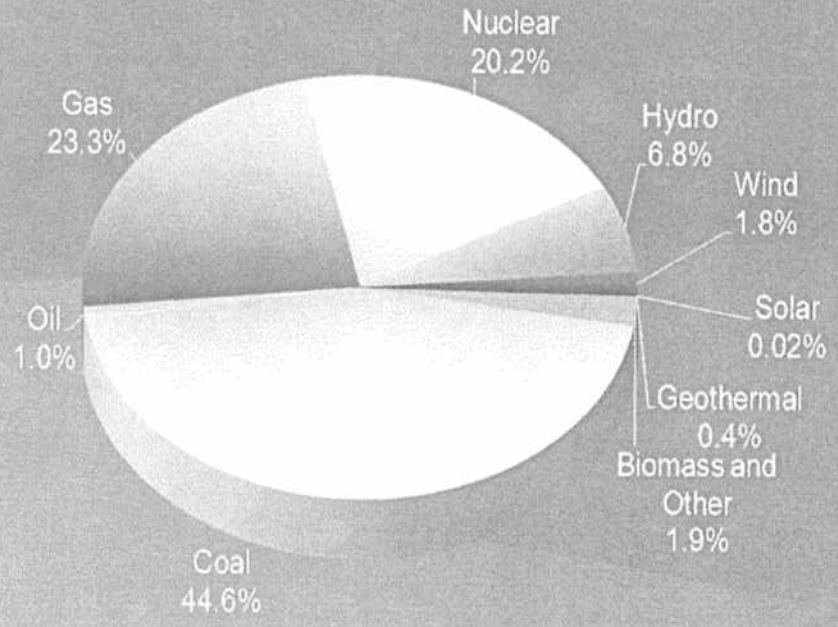
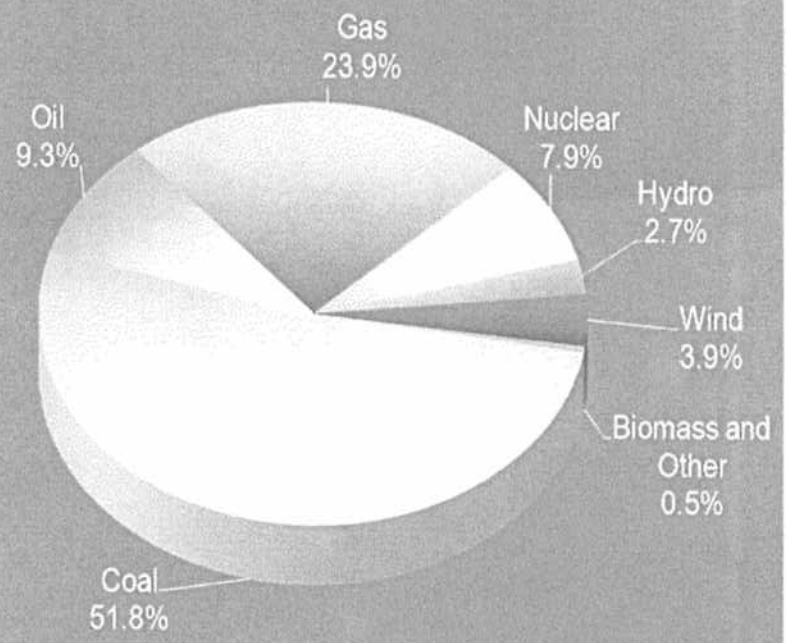
U.S. & MISO Electric Generation Capacity

% By Fuel Source



United States



MISO

Source: Energy Information Administration, MISO Summer Assessment

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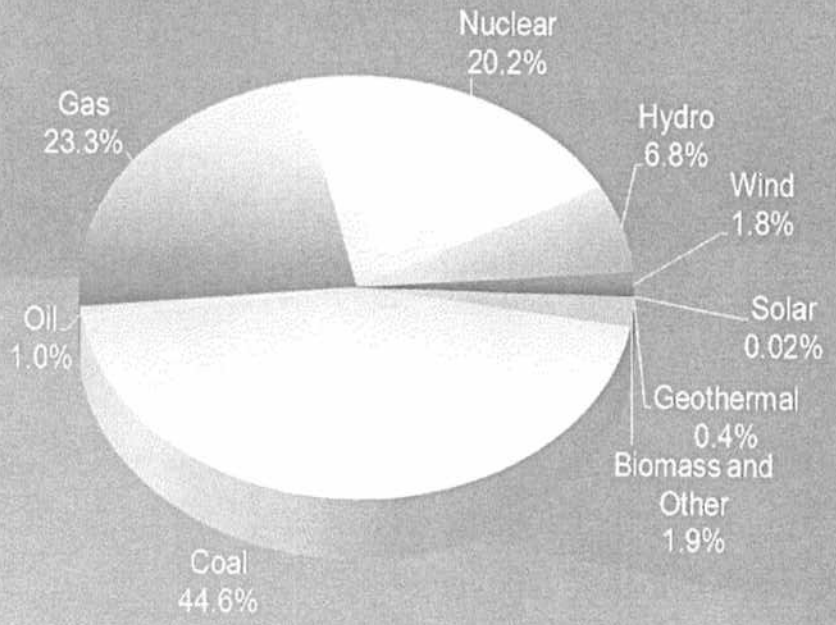
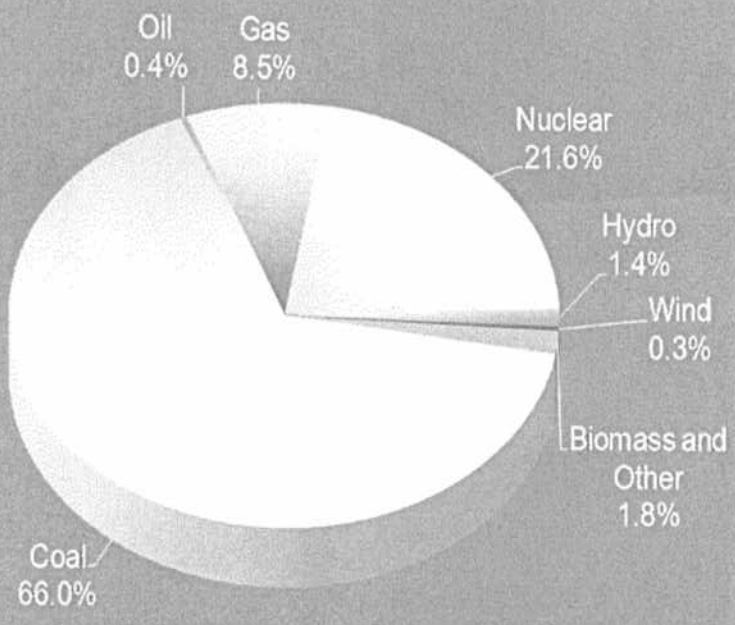
U.S. & Michigan Electric Generation Capacity

% By Fuel Source



United States



Michigan

Source: Energy Information Administration

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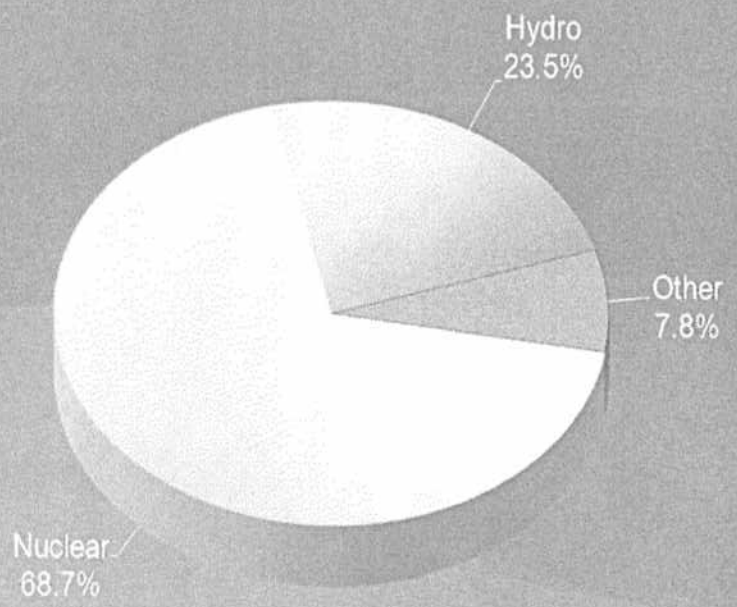
Clean "Emission Free" Electricity Sources

% By Fuel Source



United States

- In Michigan the percentage of clean energy generated by nuclear is even higher at 93%
- This is primarily due to the relative lack of hydro resources when compared to other regions of the country

Source: Energy Information Administration

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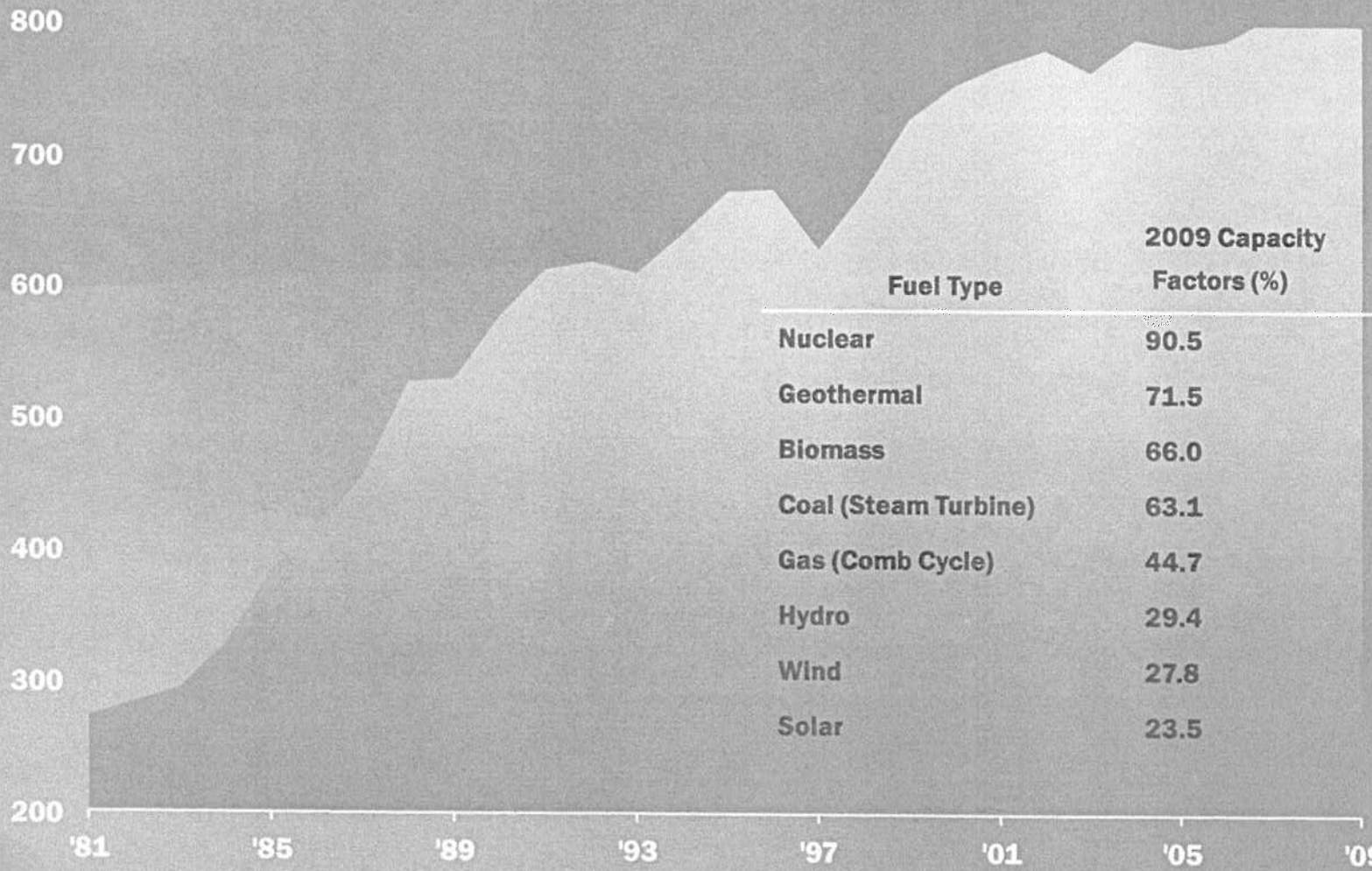
Nuclear Generation Reliability

Billion kilowatt-hours



Fuel Type	2009 Capacity Factors (%)
Nuclear	90.5
Geothermal	71.5
Biomass	66.0
Coal (Steam Turbine)	63.1
Gas (Comb Cycle)	44.7
Hydro	29.4
Wind	27.8
Solar	23.5

Source: Energy Information Administration

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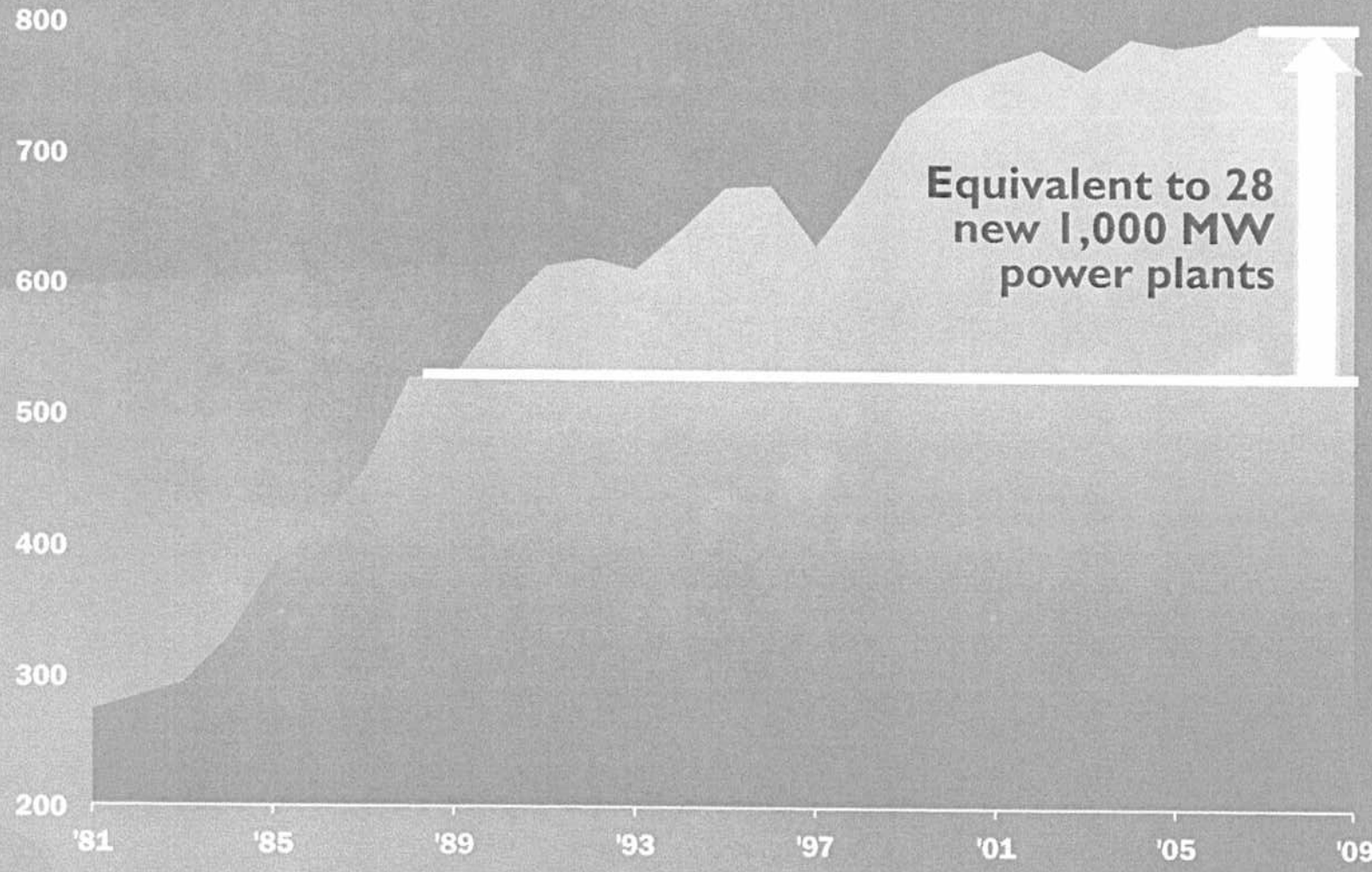
Nuclear Generation Reliability

Billion kilowatt-hours



Source: Energy Information Administration

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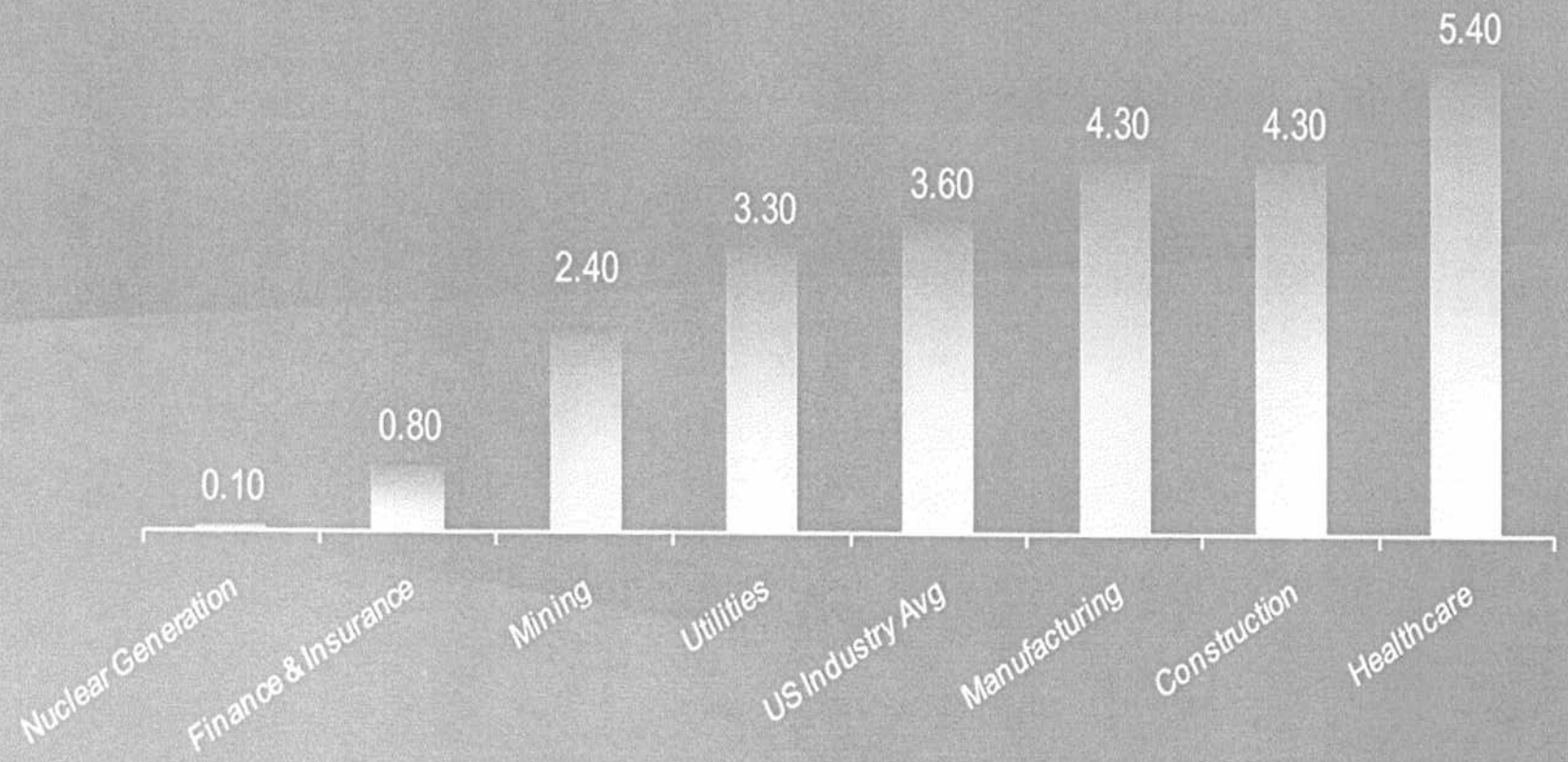
Nuclear Generation Safety

2009 OSHA Recordable Injury Rate



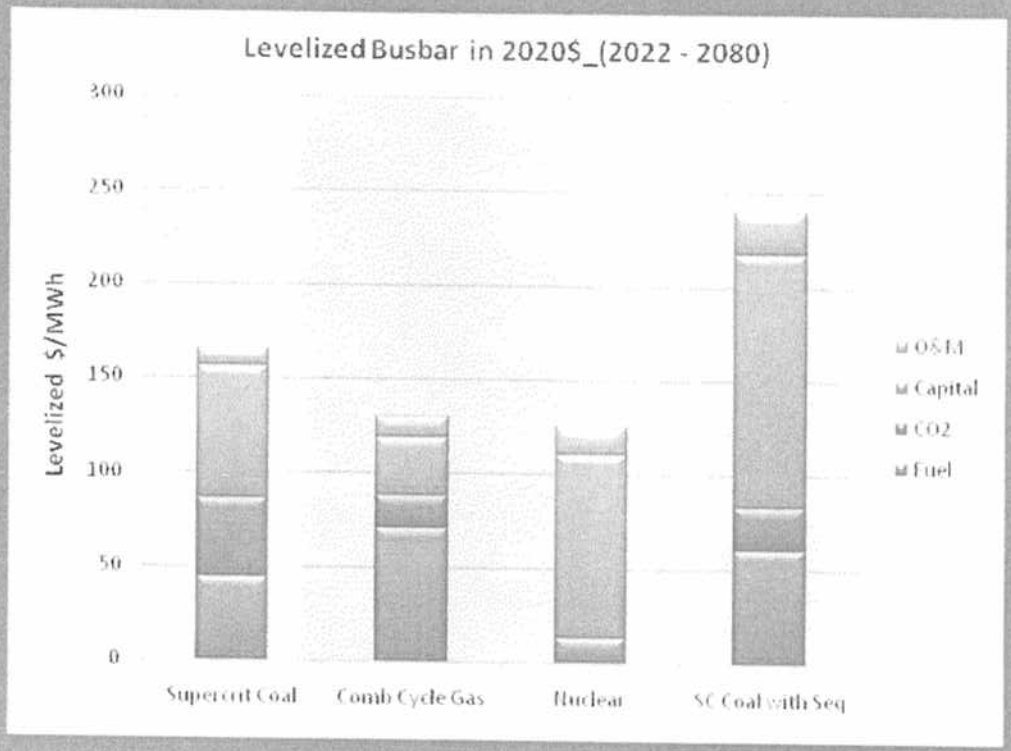
ISAR = Number of accidents resulting in lost work, restricted work, or fatalities per 200,000 worker hours.

Sources: Nuclear (World Association of Nuclear Operators), 2009 data for all others (U.S. Bureau of Labor Statistics).
Updated: 6/10

Baseload Cost Comparison

- **Recent analysis of projected levelized busbar costs for new baseload generation shows nuclear remains viable option vs. natural gas and coal**

- **Additional environmental regulations on fossil generation anticipated over the next decade will further advantage new nuclear**



Key Assumptions:
- Analysis runs from 2022-2080 and costs are NPV in 2020 $
- $6.30/mmbtu natural gas and $20/ton carbon by 2020

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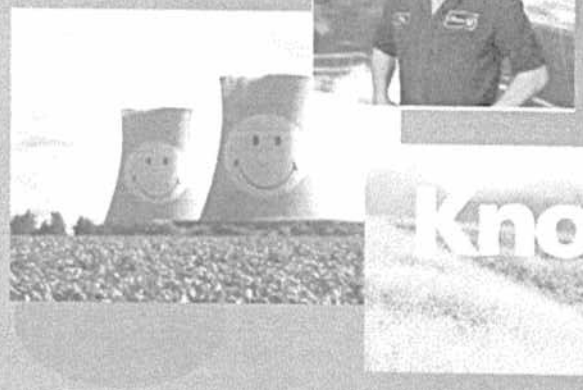
Economic Benefits of Nuclear Power



The Nuclear Energy Institute (NEI) estimates that a new nuclear power plant will create up to 2,400 construction jobs and 400 to 700 permanent high tech jobs.

This is in addition to another 400 to 700 local non-plant jobs related to goods and services.

NEI also estimates that the average U.S. nuclear plant generates approximately $430 million in sales of goods and services in the local community and nearly $40 million in total labor income each year.

The majority of all Americans now favor the use of nuclear energy, even after recent events in Japan. Favorability is higher for those living in close proximity to a nuclear plant .

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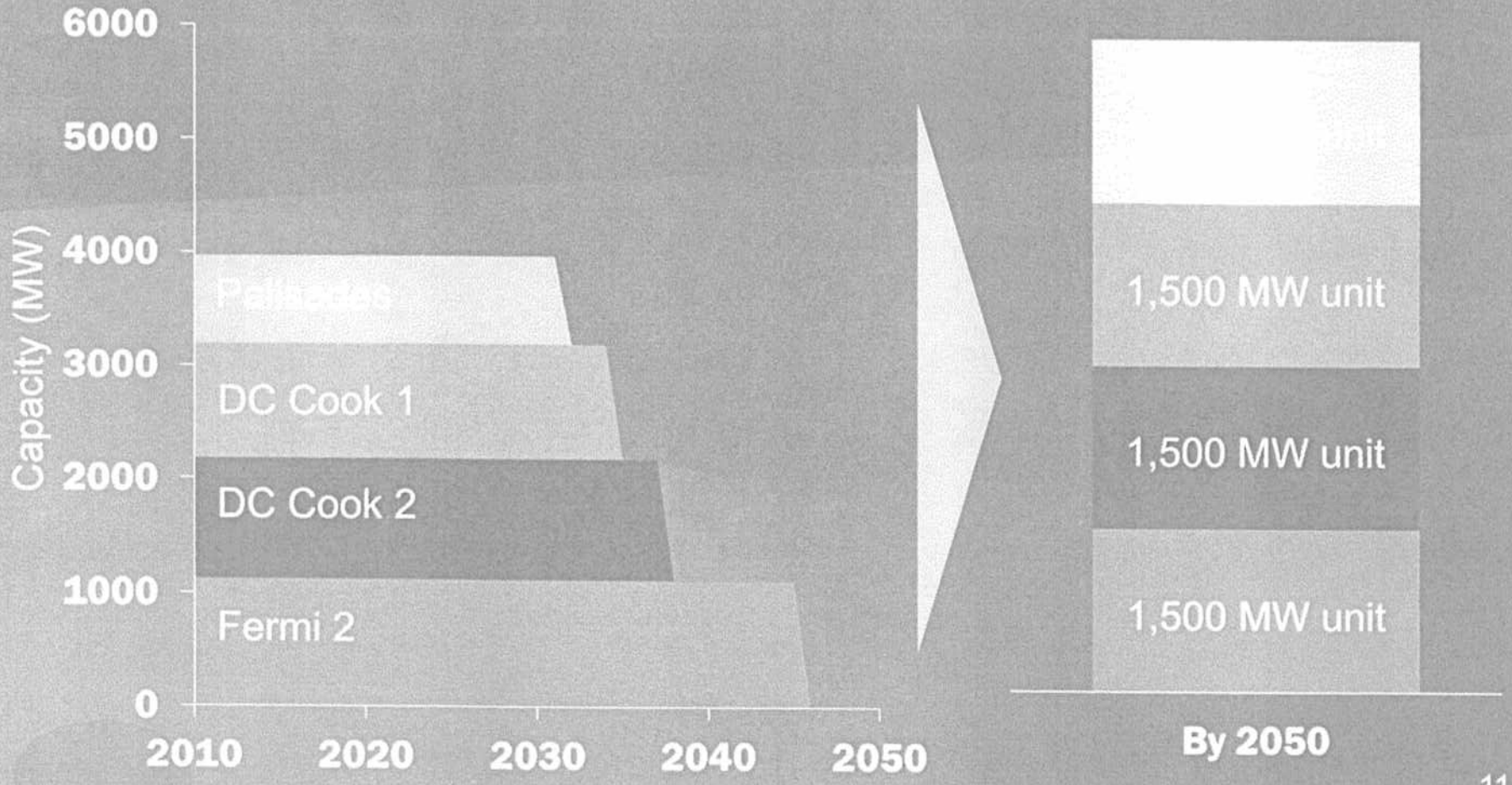
Planning for the Future

Nuclear as 20% of Michigan's Fuel Mix



Sources: U.S. Energy Information Administration Annual Energy Outlook, Michigan Public Service Commission, DTE Team Analysis

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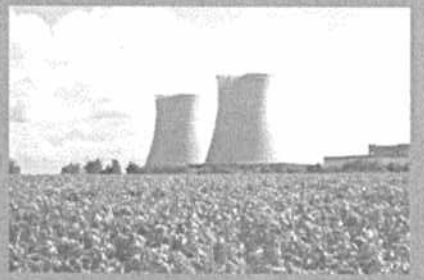
Current Activities

- We are filing our Letter of Intent to file for a 20 year extension of our Fermi 2 license, which will take the useful life of the plant out to 2045.
- In February 2007, DTE Energy announced its intention to begin preparing a Combined License Application (COLA) for a new nuclear unit at the Fermi site.
- This was based on analysis of current and future supply, demand, and underlying input cost assumptions, as well as environmental and other economic considerations
- As our modeling inputs continue to be updated to reflect new information, nuclear remains a viable and cost effective option for our customers.
- We have not decided when to build the new unit. However, we are pursuing the license now so that we are prepared to do so when it best meets the needs of our customers.



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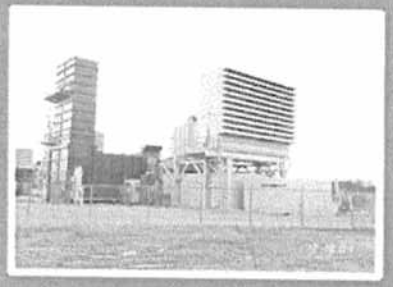
What Is Needed

- In order to build a new nuclear unit in Michigan, a number of things are required
- DTE Energy must complete the NRC licensing process for Fermi 3 – expected in 2012
- Find partners to help us bear the initial costs of construction
- Keep the 2008 Energy Legislation in place in order to
  - Maintain revenue certainty required for new build financing
  - Receive a Certificate of Necessity approving costs and timeline
- Allow for "pay as you build" financing plans similar to other States pursuing new builds