



DTE Energy[®]

Fermi 3 Combined License Mandatory Hearing Introduction & Overview



Presentation Overview



- Background and DTE Strategy
- DCWG Approach
- ESBWR Design

A New Nuclear Unit Is Potentially Viable For Meeting Anticipated Michigan Electricity Needs



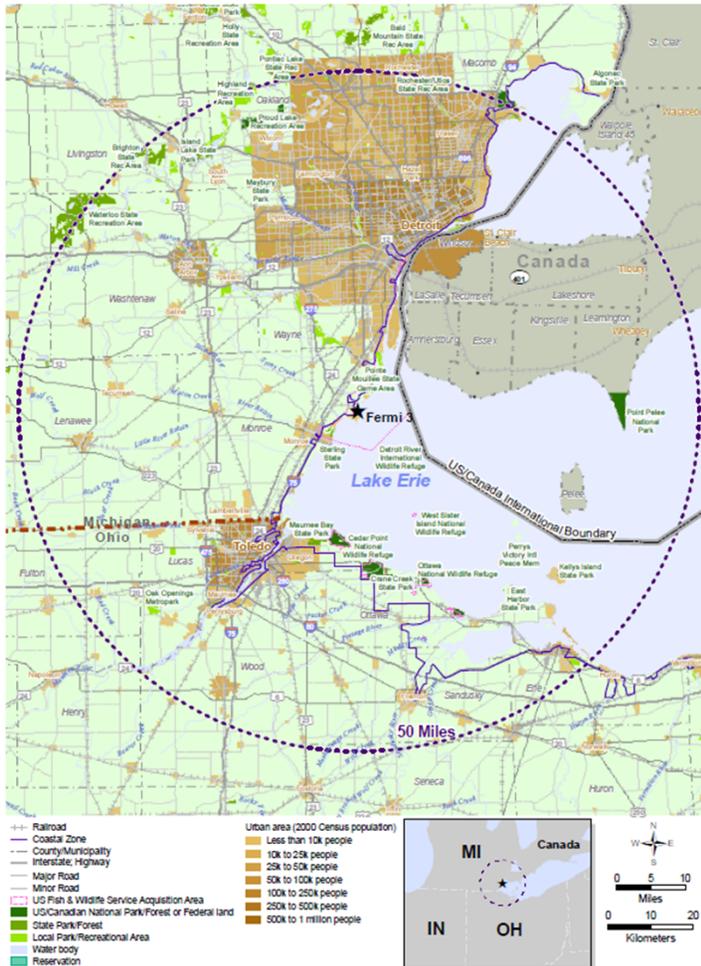
- In 2006, DTE was considering options to meet Michigan's future electricity needs. Studies at the time indicated that Michigan potentially needed as much as 3800 MW of new baseload capacity by 2020
- In the regulatory climate at the time (e.g., NP 2010, Part 52 licensing process), DTE concluded that a new nuclear generating capacity could potentially contribute to satisfying the anticipated demand
- Despite the 2008 economic downturn, DTE considers the option for a new nuclear unit to be important for a diverse generation portfolio, uncertainty in long term natural gas prices, retirements of aging fossil units, CO₂ and other environmental regulations

DTE Strategy Embraces Standardization That Promotes Project Efficiency



- A strategy for licensing and constructing a new nuclear plant was developed
 - Employ the COL approach under Part 52 to fully license the plant before proceeding
 - Utilize the DCWG approach as an S-COLA
 - Fully embrace standardization with a high governance threshold for deviations from the DCD and R-COLA
 - Use DTE Project Management Organization to lead the project and build future capabilities
 - Conduct the project independent of the operating plant organization to minimize distractions
- Existing Fermi site selected for new plant.
 - Site had space for an additional plant.
 - Environmental and seismic siting issues would be minimized
- Detailed vendor evaluation process led to selection of the GE-Hitachi ESBWR technology.

Fermi 3 Would Be Co-Located With Fermi 2



- Located in Monroe County near Newport, MI on western shore of Lake Erie
- Approximately 25 miles northeast of Toledo, OH
- Approximately 30 miles southwest of Detroit, MI
- Approximately 7 miles from US/Canadian International Boundary
- Site is part of the Lagoon Beach Unit of the Detroit River International Wildlife Refuge
- Partnership with US Fish & Wildlife Service to Manage Approximately 650 acres of the Refuge located at the Fermi site

Fermi 3 Would Be Co-Located With Fermi 2

- Fermi site is 1260 acres
 - Fermi 1: Liquid Metal Fast Breeder Reactor; shutdown in 1972; currently in SAFESTOR
 - Fermi 2: 1200 MWe GE BWR
- Fermi 3 located southwest Fermi 2
- Remaining Fermi Unit 1 structures to be removed prior to Fermi 3 construction
- Key attributes
 - Site is suitable for additional nuclear unit
 - Readily accessible by major roadways, rail lines, and Lake Erie
 - Much of necessary infrastructure is already in place



Closely Following the DCRA/DCWG Approach Was Central to Fermi 3 Strategy



- Regulatory Issue Summary 2006-06
 - Describes the NRC Design-Centered Review Approach (DCRA)
 - Encourages standardization of COLA content and RAI responses
 - Applicants participate in Design Centered Working Group (DCWG)
- DTE informed NRC of ESBWR selection in November 2007 and subsequently joined NuStart and ESBWR DCWG in December 2007
- The ESBWR DCWG identified a Reference COLA (R-COLA) and several subsequent COLAs (S-COLAs)
- Fermi 3 COLA was initially submitted as an ESBWR S-COLA in 2008
- Fermi 3 application became the ESBWR R-COLA in 2010
- Fermi 3 would be the first ESBWR COL Holder

DTE's Strategy and Adherence to DCRA/DCWG Approach Simplified NRC Review of the COLA



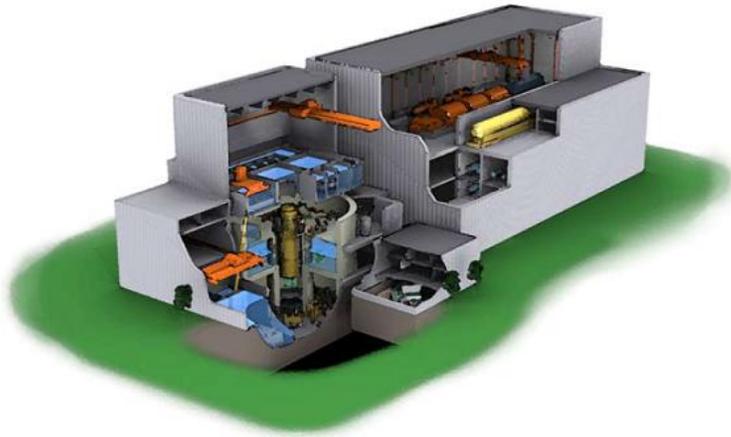
- 10 CFR Part 52, Appendix E, and ESBWR DCD Revision 10 incorporated by reference in COLA
 - Supplements added where DCD required additional information to address site-specific considerations
- One departure from DCD
 - To increase solid waste storage capacity in RadWaste Building
- One exemption
 - From 10 C.F.R. Part 74 requirements for Special Nuclear Material Control and Accountability requirements
 - Requested that programs licensed under 10 CFR Part 52 be treated identically to those licensed under 10 CFR Part 50.

Key Features of the ESBWR Simplified COLA Development and Review



ESBWR Certified Design

Final rule in 10 CFR Part 52, Appendix E, published in November 2014



ESBWR Evolutionary Design Features

- Passive Safety Design – Safety systems require no AC power to actuate or operate for at least 72 hours
- Natural Circulation Core and Containment Cooling Systems
- Robust Seismic Design Envelope
- No site-specific Seismic Category I safety-related structures
- Simplicity – Significantly fewer systems and components than previous designs promotes ease of operation and maintenance
- Safety – Low Core Damage Frequency (CDF)
- Security – Main Control Room and Spent Fuel Pool are located below grade.