



10 CFR 51.45  
10 CFR 52.77

June 20, 2012  
NRC3-12-0020

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

References: 1) Fermi 3  
Docket No. 52-033  
2) Letter from Bruce Olson (USNRC) to Peter W. Smith (Detroit Edison),  
"Request for Additional Information Letter No. 76 Related to the Need for  
Power for the Environmental Review of the Fermi, Unit 3 Combined License  
Application," dated June 1, 2012

Subject: Detroit Edison Company Response to NRC Request for Additional Information  
Letter No. 76

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In Reference 2, the NRC requested additional information to support the review of certain portions of the Fermi 3 Combined License Application (COLA). The response to the Request for Additional Information (RAI) in Reference 2 is provided as Attachment 1 of this letter.

If you have any questions, or need additional information, please contact me at (313) 235-3341.

I state under penalty of perjury that the foregoing is true and correct. Executed on the 20<sup>th</sup> day of June 2012.

Sincerely,

A handwritten signature in black ink, appearing to read "PWS", with a long horizontal flourish extending to the right.

Peter W. Smith, Director  
Nuclear Development – Licensing and Engineering  
Detroit Edison Company

Attachment: 1) Response to RAI Letter No. 76 (Question No. EIS 8.0)

cc: Jerry Hale, NRC Fermi 3 Project Manager (w/o attachment)  
Adrian Muniz, NRC Fermi 3 Project Manager (w/o attachment)  
Michael Eudy, NRC Fermi 3 Project Manager (w/o attachment)  
Bruce Olson, NRC Fermi 3 Environmental Project Manager  
Fermi 2 Resident Inspector (w/o attachment)  
NRC Region III Regional Administrator (w/o attachment)  
NRC Region II Regional Administrator (w/o attachment)  
Supervisor, Electric Operators, Michigan Public Service Commission (w/o attachment)  
Michigan Department of Natural Resources and Environment  
Radiological Protection Section (w/o attachment)

**Attachment 1**

**NRC3-12-0020**

**Response to RAI Letter No. 76**

**RAI Question No. EIS 8.0  
(eRAI Tracking No. 6468)**

(7 pages)

**NRC RAI EIS 8.0 (6468)**

*Background*

*While the SAR, which is developed by the applicant, is the safety document of record for a combined license (COL) application, the environmental document of record is the staff's environmental impact statement (EIS), not the applicant's environmental report (ER). The staff's development of an EIS is mandated by the National Environmental Policy Act of 1969 (NEPA) because the licensing action is a major Federal action.*

*The U.S. Nuclear Regulatory Commission's regulations, as defined in Title 10 of the Code of Federal Regulations, (CFR) Part 51, states the applicant's role in developing the information necessary to aid the staff in accumulating, assessing, and presenting relevant data for its EIS:*

*§ 51.41 Requirement to Submit Environmental Information.*

*The Commission may require an applicant for a permit, license, or other form of permission, or amendment to or renewal of a permit, license or other form of permission, or a petitioner for rulemaking to submit such information to the Commission as may be useful in aiding the Commission in complying with section 102(2) of NEPA. The Commission will independently evaluate and be responsible for the reliability of any information which it uses. [emphasis added]*

*In other words, the staff relies heavily upon the ER from the applicant in its early site permit or COL application. The staff's guidance, NUREG 1555, "Standard Review Plans for Environmental Reviews for Nuclear Plants," sets aside Chapter 8 of an EIS for an assessment of the need for power. That assessment is based upon four assertions from the applicant in its ER, each of which is necessary but not sufficient for the interrelated assessment of the need for power, alternative generating technologies, alternative sites, and benefit-cost balancing. The four assertions are:*

- 1) What kind of power does the applicant propose? Is the power baseload, intermediate, or peaking power? Or does the applicant anticipate the new generating capacity to be "replacement power" for other generating units that will be shut down?*
  - a. forms the foundation for the staff's alternative generating technologies discussion in chapter 9 of the EIS*
  - b. defines the inventory of available capacity for the need for power analysis*
- 2) When does the applicant proposed making that power commercially available?*
  - a. establishes the outer limit of the staff's extrapolation of data into the future to determine whether or not there will be sufficient excess demand to warrant approval of the proposed project*

- 3) *Where does the applicant anticipate making that power available? Is the power to be sold exclusively in a service area or other well-defined geographic area (e.g., Reliability First Corporation (RFC) boundaries), or will some or all of the power be sold on the grid?*
  - a. *establishes the relevant area for which demand and supply estimations should be made in the need for power assessment*
  - b. *defines the relevant area within which alternative sites should be identified for Chapter 9*
- 4) *How much power does the applicant expect to generate from the proposed project (in MWe), and with what expected capacity factor?*
  - a. *identifies the size of the excess demand "gap" between future supply and demand for electricity in the relevant service area at the time when the proposed project goes on line*

*While the staff may ask an applicant for additional information to improve its NEPA assessment, it is sensitive to the Commission's cautionary language that: ". . . while a discussion of need for power is required, the Commission is not looking for burdensome attempts by the applicant to precisely identify future market conditions . . . to establish with certainty that the construction and operation of a nuclear power plant is the most economical alternative for generation of power." (Emphasis added. See 68 Fed. Reg. at 55,910 (citing LES CLI-98-3, 47 NRC at 88, 94)). In other words, the staff must only determine a reasonable need for the specific amount of power in the location identified, at the date when commercial operations are expected to commence, and therefore any information requested by the staff must be reasonable and well founded.*

*The need for power component of an EIS was defined by the Commission in SECY-02-0175, Denial of Petition for Rulemaking to Eliminate Review of Alternative Sites, Alternative Energy Sources and Need for Power in Nuclear Power Reactor Siting and Licensing Reviews (PRM-52-2):*

*"Although NEPA does not explicitly mention cost-benefit balancing, it is well established through judicial interpretations of the statute that an EIS for a proposed major action must include some kind of cost-benefit analysis. The principal benefit of constructing and operating a power reactor is the electric power. Hence, absent some 'need for power,' justification for building a facility is problematical" (Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 405 (1976))."*

*In other words, the principal benefit derived from the operation of a nuclear power plant is not the tax revenue or economic stimulation of an area's economy; the benefit resides with the power itself. Without a demonstrated need for power, the staff must conclude that there are not sufficient benefits from the proposed action to fully offset its environmental and social costs.*

*The staff published its draft EIS in October 2011, and held a public meeting in Monroe, Michigan, in December 2011. During the public comment period following the publication of the*

*draft EIS for the Fermi, Unit 3 COL, the staff received a number of comments making the following assertion:*

*“ . . . there is no substantial evidence that the aggressive growth forecast in the 21st Century Plan and adopted in the Draft EIS will materialize in the near future. In fact, testimony by Detroit Edison, other Michigan and Midwest utility information, and independent demand forecasts show that the Draft EIS’ demand forecast of 1.2 percent yearly growth is a significant overestimation. To date, the Draft EIS demand forecast adopted from the 21st Century Plan has proven to be seriously overstated.” (see FERM-COL3-DR-00036-1)*

*The staff’s regulations in 10 CFR 51 state that:*

*§ 51.91 Final environmental impact statement - contents*

- (a)(1) The final environmental impact statement will include responses to any comments on the draft environmental impact statement or on any supplement to the draft environmental impact statement. Responses to comments may include:*
- (i) Modification of alternatives, including the proposed action;*
  - (ii) Development and evaluation of alternatives not previously given serious consideration;*
  - (iii) Supplementation or modification of analyses;*
  - (iv) Factual corrections;*
  - (v) Explanation of why comments do not warrant further response, citing sources, authorities or reasons which support this conclusion.*

*The staff determined comments similar to that above have a substantive nature and, therefore, the staff has to supplement the need for power discussion in the EIS prior to issuance of the final EIS. Consequently, the staff seeks additional information from DTE Energy Company (DTE) to complete the Need for Power determination of the final EIS.*

*Need For Power—Information Needs*

*Based on its own best judgment, when does DTE expect operation of Fermi 3 to begin? Revision 2 of the ER for the COL application provided by DTE has the following purpose statement in Section 1.1 the following:*

*“The purpose of the project is fourfold:*

- 1. Generate at least 1535 ± 50 megawatts (MW) of electricity for sale that will reliably aid in satisfying the forecasted energy and capacity needs of Detroit Edison customers located in the Detroit Edison Service Territory;*
- 2. Provide new baseload electric generation capacity as early as 2021 to compensate for the expected retirement of existing, aging baseload generating units and diminishing availability of the Midwest Independent Service Operator regions baseload generation capacity;*
- 3. Provide price stability by minimizing reliance on imported power into the Detroit Edison service territory; and*

4. *Utilize an electric generation technology that is less subject to price fluctuations resulting from either fuel or regulatory drivers, provides fuel diversity, and reduces reliance on fossil fuel and their attendant environmental impacts.” (emphasis added)*

*The purpose statement addresses three of the four assertions listed above as necessary for the staff to make a need for power determination. Purpose number one addresses how much—the specific amount of power to be provided—and identifies where the relevant service area is located. The second listed purpose identifies what kind of power DTE proposes as a combination of baseload and replacement power. However, the purpose statement does not address when DTE proposes the commencement of commercial operations (see bolded text). For the staff’s purposes, an exact date is not necessary, but a specific year (or narrow range of years), when the applicant expects to begin commercial operations must be provided to achieve a demonstrated need for power.*

*Section 1.1.7 of the ER identifies a commercial operation date June 2020. This is the same as the date described in Section 8.1.1, but it is in direct conflict with the purpose defined in section 1.1, which claims a start date of “as early as 2021.” Furthermore, in discussions with DTE about the starting date for operations, DTE stated the time from initial decision to construct to the commencement of commercial operations was about ten years, indicating that operations could begin “no sooner than 2022.” The staff needs this contradictory series of statements resolved before a need for power determination can be made.*

*Where does DTE expect to supply the 1600 MW of electricity from Fermi 3? Chapter 1 of the ER identifies the relevant service area for the proposed project as DTE’s customer base, which is roughly analogous to the ITC jurisdiction. The purpose statement does not identify any other market within which DTE plans to sell its power from Fermi 3. Therefore, the staff must use the DTE service area as its basis for determining need for power. The staff needs a clear accounting for as much of the 1600 MW capacity from Fermi 3 as possible within and outside that service area, including projected increases in demand, any aging baseload units planned for retirement (including where those units are located, whether they service the DTE customer base or not, and when those retirements will take place), and any other consumptive uses of that power.*

*RAI: The staff requests two specific items related to the need for power:*

1. *Please provide a date, which in DTE’s best estimate, resolves the contradictions found in the ER and defines when DTE expects commercial operation of Fermi 3 to begin.*
2. *Please account for the planned allocation of the Fermi 3 1600 MW of electricity. Identify how much power is planned for DTE service area growth, replacement power for retired units and purchase agreements, any sales of electricity to MISO, and any other uses that can contribute to the need for power.*

## **Response**

Responses to the two RAI questions are presented below.

1. *Please provide a date, which in DTE's best estimate, resolves the contradictions found in the ER and defines when DTE expects commercial operation of Fermi 3 to begin.*

Detroit Edison has not committed to build the Fermi 3 Power Plant; however, in order to satisfy our obligation to serve our customers, Detroit Edison has the responsibility to plan for long lead base load generation capacity far in advance of an anticipated need. Detroit Edison relied on the Michigan 21<sup>st</sup> Century Electric Energy Plan to demonstrate the Need for Power in ER Chapter 8 submitted with the September 2008 Fermi 3 COLA. The Plan meets NUREG-1555 requirements of being (1) systematic; (2) comprehensive; (3) subject to confirmation; and (4) responsive to forecast uncertainty. The Fermi 3 COL application preserves nuclear as an option to meet future base load needs.

The ER Chapter 8 Need for Power analysis, as discussed in the response to question 2 below, indicates a potential need for additional base load generation capacity in the region of interest in the 2020 - 2021 timeframe, the dates identified in the ER. Detroit Edison conservatively estimated a ten year schedule for Fermi 3 implementation, following a decision to proceed. With regards to the staff's projection of a 2022 date in the RAI, it is not appropriate to use a construction schedule estimate to generate a commercial operation date. The referenced schedule assumes extended times for various project activities with ample contingency, providing opportunity to optimize the schedule to accommodate future priorities. As such, a new nuclear power plant remains an option for base load power in a time frame compatible with the Need for Power analysis.

2. *Please account for the planned allocation of the Fermi 3 1600 MW of electricity. Identify how much power is planned for DTE service area growth, replacement power for retired units and purchase agreements, any sales of electricity to MISO, and any other uses that can contribute to the need for power.*

#### Detroit Edison Service Area Growth

The RAI references short term market changes experienced over a short period. The Fermi 3 ER Need for Power analysis addresses anticipated future market conditions, considering scenarios that reasonably bound long term (i.e. through 2025) uncertainties in the projections. Short term variations are considered within the reasonably bounding uncertainties incorporated in the analysis.

Forecasts of future electric power demands inherently involve substantial uncertainty, including changing economic conditions, as identified and anticipated in the Need for Power analysis. As stated in ER Section 8.2.1.2, economic, population, and weather variances are typical factors in electricity demand projections, and are accounted for in the Low Growth and High Growth scenarios. The Low Growth and High Growth scenarios are derived from the base case by applying progressively larger annual percentage changes to account for uncertainties. For example, the Low Growth scenario is derived from the base case by assuming 2 percent lower growth in the first projection year, 3 percent lower in the second year, 4 percent lower in the fourth year, and so on through 2015 where projections are then held to a constant 10 percent lower growth from the base case for years 2015 through 2025.

As shown in the Low Growth projections (see “Southeast Michigan” ER Table 8.2.5, “Annual Sales Forecast – Low Growth Scenario”), yearly projections were expected to decline for the first few years before stabilizing and eventually increasing slightly throughout the study period. This is consistent with the general observations of the past few years discussed in the DEIS comments referenced in the RAI. The Low Growth projections of peak demand are also forecasted (see “Southeast Michigan” region data, ER Table 8.2-8, “Peak Demand Forecast - Low Growth Scenario”). The low growth peak demand projection of approximately 13,000 MW by 2020 (13,200 MW by 2021, and 14,000 MW by 2025) indicate a demand increase of approximately 900 MW by 2020 (1100 MW by 2021 and 1950 MW by 2025) for Detroit Edison’s service area (analogous to Southeast Michigan Area). These Low Growth demand projections are consistent with new base load requirements as early as the 2020 – 2021 timeframe, and base load requirements in excess of the potential Fermi 3 capacity by 2025. The analysis indicates a need for new base load generation facilities to address future demands within the Detroit Edison service territory even if low growth trends continue throughout the foreseeable future.

#### Replacement Power for Retired Units

As discussed in the ER, the purpose of the proposed Fermi 3 plant is to generate new base load electricity to compensate for the future retirement of existing, aging base load generating units and future electricity demand forecasts, as well as to provide price stability by minimizing the importation of power into the Detroit Edison service area. Even assuming no growth in future electricity demands, the analysis presented in ER Chapter 8 indicates that new base load generation will be needed to replace expected retirements of aging power plants. Michigan’s base load generating plants are now an average of more than 50 years old. The last new base load plant in the State of Michigan began commercial operation more than 20 years ago. The Need for Power demonstration in ER Section 8.3 indicates that expected base load unit retirements may reduce generating capacity in the Southeast Michigan service area by up to 1070 MW by 2020 (1310 MW by 2021 and 1840 MW by 2023, see ER Table 8.3-11 “Modeled Unit Retirement Schedule”). Expected generating fleet retirements in the Southeast Michigan area alone indicate a need for new base load capacity as early as the 2020 – 2021 timeframe, with base load requirements in excess of the potential Fermi 3 capacity by 2023.

#### Conclusion

Detroit Edison is pursuing a Fermi 3 COL license to preserve the option for a nuclear power plant to potentially meet future base load demands. The Need for Power analysis presented in ER Chapter 8 addresses the potential future needs for base load power, appropriately accounting for uncertainties. The Low Growth demand forecasts and the Modeled Unit Retirement Schedule presented in the Fermi 3 COLA, ER, Chapter 8, identify potential future base load generating capacity needs in excess of the anticipated Fermi 3 generating capacity in the 2020 – 2021 timeframe. The Fermi 3 COL preserves the nuclear power plant option to satisfy this need.

#### Proposed COLA Revision

None