OLSON, BZDOK & HOWARD

February 2, 2018

Ms. Kavita Kale
Michigan Public Service Commission
7109 W. Saginaw Hwy.
P. O. Box 30221
Lansing, MI 48909

Via E-filing

RE: MPSC Case No. U-18419

Dear Ms. Kale:

The following is attached for paperless electronic filing:

Rebuttal Testimony of Robert Fagan on behalf of the Michigan Environmental Council, the Natural Resources Defense Council and Sierra Club

Exhibits MEC-114, 115 and 116

Proof of Service

Sincerely,

Digitally signed by Christopher M. Bzdok
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Date: 2018.02.02 09:38:05 -05'00'

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cc: Parties to Case No. U-18419
James Clift, MEC
Ariana Gonzalez and Rachael Fakhry, NRDC
Elena Saxonhouse, Sierra Club
Shannon Fisk, Jill Tauber and Cassandra McCrae, Earthjustice

State of Michigan
Before the Michigan Public Service Commission

In the matter of the Application of DTE ELECTRIC COMPANY for approval of Certificates of Necessity pursuant to MCL 460.6s, as amended, in connection with the addition of a natural gas combined cycle generating facility to its generation fleet and for related accounting and ratemaking authorizations.	U-18419

REBUTTAL TESTIMONY OF ROBERT FAGAN

ON BEHALF OF MICHIGAN ENVIRONMENTAL COUNCIL, NATURAL RESOURCES DEFENSE COUNCIL AND SIERRA CLUB

FEBRUARY 2, 2018

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1. <u>INTRODUCTION AND PURPOSE OF TESTIMONY</u>

Q Please state your name and occupation.

A My name is Robert M. Fagan and I am a Principal Associate at Synapse Energy Economics.

Q Are you the same Robert M. Fagan who filed direct testimony in this case?

A Yes.

Q On whose behalf are you testifying in this case?

A I am testifying on behalf of Michigan Environmental Council, Natural Resources Defense Council, and Sierra Club.

Q What is the purpose of your rebuttal testimony?

A The purpose of my rebuttal testimony is to respond to certain comments and suggestions made by Association of Businesses Advocating Tariff Equity (ABATE) witness Nicholas L. Phillips in his direct testimony. At a high level, I agree with Mr. Phillips that the Commission should reject DTE's application for certificates of necessity (CON) to construct a new 1,100 MW natural gas combined cycle plant. I also agree with Mr. Phillips that the Commission should set forth a more standardized process for DTE to follow when performing integrated resource plans (IRPs), and that the Commission should ensure that there is a clear understanding of what information and models must be supplied along with CON applications. Finally, I agree with Mr. Phillips that DTE should conduct a revised retirement analysis using updated assumptions to determine optimal retirement dates for each of its coal units (including possible earlier retirement dates).

The point on which I disagree with Mr. Phillips is his implication that the proposal of DTE Electric Company (DTE) to retire its Tier 2 coal units (St. Clair units 1-4, 6, and 7; River Rouge 3; and Trenton Channel 9) prior to 2024 may not be in the public interest.[1] In this rebuttal testimony, I will show that multiple lines of evidence indicate that these units are uneconomic and should be retired as soon as is feasible. In particular, I demonstrate that:

- DTE's latest modeling indicates that these units will remain uneconomic relative to the market even in the absence of any costs of complying with federal Effluent Limitation Guidelines (ELG) or the Clean Power Plan (CPP); and

- Key input assumptions regarding future load and commodity prices have become even less favorable to the coal units in the time since DTE conducted its coal plant retirement analysis.

I also respond to Mr. Phillips' claim that a near-term increase in depreciation expenses associated with the Tier 2 units should be viewed as an increase in net present value (NPV) costs associated with earlier retirement dates.[2]

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring the following exhibits:

Exhibit MEC-114	ABATE's Response to MECNRDCSC No. 7 Request
Exhibits MEC-115	ABATE's Response to MECNRDCSC No. 9 Request
Exhibit MEC-116	U-18419 ABDE-3.4h

2. DTE's Tier 2 Coal Units Will Likely Remain Uneconomic Even Without ELG or CPP Compliance Costs

Q What does Mr. Phillips claim with respect to the impact of ELG and CPP compliance costs on DTE's decision to retire the Tier 2 coal units?

A Mr. Phillips states that the costs of complying with the ELG and CPP regulations are "the driving factor behind DTE's proposal to retire" the Tier 2 units.[3] Mr.

[1] Direct Testimony of Nicholas L. Phillips, p. 2 at 20-21; p. 3 at 4-5; p. 10 at 10-11.
[2] *Id* at 10.

Phillips further suggests that accounting for recent changes and uncertainties related to the ELG and CPP regulations may lead to the conclusion that these coal units should continue to operate.

Q Did DTE's testimony in this case state that ELG and CPP compliance costs were the "driving factor" behind DTE's proposal to retire the Tier 2 units?

A No. Mr. Phillips supported his claim that environmental compliance costs were the driving factor behind DTE's coal retirement proposals by referring to page 9 of the direct testimony of DTE witness Irene Dimitry and page 22 of the direct testimony of Kevin Chreston.[4] However, the cited testimony sections list environmental regulations as only one of several factors underlying DTE's retirement decisions, and they do not single out environmental regulations as the decisive factor. Ms. Dimitry mentioned "age" and "the Company's commitment toward building a cleaner, sustainable generation fleet" as important considerations in DTE's retirement decisions.[5] Mr. Chreston stated that the Company's retirement decisions were based on an evaluation of the coal units' "market value" and "the ongoing O&M and capital expenditures to operate and maintain the aging units," in addition to environmental compliance costs.[6]

Q Has there been any change to the final deadline for ELG compliance since the ELG rule was first finalized?

A No. As Mr. Phillips has confirmed in discovery, current law continues to require final compliance with the ELG regulations no later than December 31, 2023.[7]

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[3] *Id* at 12.

[4] Exhibit MEC-114, ABATE response to MEC-NRDC-SC Discovery Request No. 7.

[5] Direct Testimony of Irene M. Dimitry, p. 9.

[6] Direct Testimony of Kevin J. Chreston, p. 22.

[7] Exhibit MEC-115, ABATE response to MEC-NRDC-SC Discovery Request No. 9. See also United States Environmental Protection Agency Steam Electric Power Generating Effluent Guidelines – 2015 Final Rule. https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule.

Q **Under DTE's latest modeling assumptions, would the Tier 2 coal units be economic resources in the absence of ELG and CPP regulations?**

A No. As I showed in my direct testimony in this case, each of DTE's Tier 2 coal units is likely to lose money relative to the market between now and its proposed retirement date.[8] I found that under DTE's 2017 Reference Case, each Tier 2 unit other than St. Clair 7 incurs net losses on behalf of DTE's customers in every year of its remaining life. St. Clair 7 breaks even in only 4 years and incurs net NPV losses of $10 million over its remaining life.[9] Importantly, under this scenario none of the Tier 2 units incur any costs associated with ELG or CPP compliance. Each unit avoids ELG compliance costs by retiring prior to the December 31, 2023 compliance deadline. Since the 2017 Reference case assumes that the CPP does not begin until 2027, these units also avoid any CPP compliance costs.[10] Yet they remain uneconomic.

These findings under DTE's latest modeling assumptions are in line with the results of DTE's retirement analysis, which also showed that each of the Tier 2 units is uneconomic in the absence of CPP or ELG compliance costs. The Company's retirement analysis base case evaluated the economic viability of continuing to operate the Tier 2 units through 2028.[11] For each unit, DTE found that the net losses associated with continued operation exceeded the capital costs of ELG compliance.[12] This base retirement scenario did not include any price on carbon dioxide emissions.[13] The scenario results therefore indicate that the Tier 2 units are uneconomic even without ELG and greenhouse gas regulations.

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[8] Direct Testimony of Robert M. Fagan, pp. 34-35.
[9] *Id.*
[10] Revised Exhibit A-4 to Direct Testimony of Kevin J. Chreston, p. 220.
[11] Direct Testimony of Kevin J. Chreston, p. 24.
[12] Direct Testimony of Kevin J. Chreston, p. 25; DTE Response to Discovery Request No. STDE-2.7b.
[13] DTE Response to Discovery Request No. ABDE-3.1.

3. <u>UPDATED ASSUMPTIONS REGARDING FUTURE LOADS AND COMMODITY PRICES ARE LESS FAVORABLE TO THE TIER 2 COAL UNITS THAN THOSE USED IN DTE'S COAL RETIREMENT ANALYSIS</u>

Q Other than assumptions related to federal policy developments, what critical assumptions from the coal retirement analysis did Mr. Phillips identify as outdated?

A Mr. Phillips stated that, in addition to failing to account for recent policy changes, DTE's coal plant retirement analysis used "electric demand and commodity pricing data" that "is now approaching two years old."[14]

Q In general, how would using updated electric demand and commodity price assumptions affect an economic assessment of the Tier 2 coal units?

A Using updated electric demand and commodity price assumptions would likely show the Tier 2 coal units to be even less economically viable than they appear under DTE's retirement analysis. As I show in this section, updated assumptions would include lower electric demand and lower energy and capacity prices than were used in the retirement analysis. Each of these updates would negatively affect the economic status of the Tier 2 units. The impact of updated coal price assumptions is directionally unclear.

Q How have electric demand forecasts for the MISO region changed since the time of DTE's coal retirement analysis?

A Since the retirement analysis was conducted in spring of 2016, projections for MISO peak load have declined substantially. As I show in my direct testimony, MISO's peak load projections for 2018 declined by more than 5 GW between the 2015 projection that was current at the time of the retirement analysis and the

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[14] Direct Testimony of Nicholas L. Phillips, p. 8.

most recent projections. Similarly, MISO's peak load forecast for 2023 declined by more than 6 GW between the vintage 2015 and vintage 2017 forecasts.[15]

Q What is the impact of MISO electric demand forecasts on the projected economics of the Tier 2 coal units?

A Lower MISO load projections decrease the prospective economics of the Tier 2 units. As DTE has noted, the Tier 2 units are dispatched into the MISO region and are therefore more affected by MISO-wide demand levels than DTE-specific demand.[16] Under relatively lower MISO demand levels, there is less need for the energy and capacity provided by the Tier 2 units. Thus, using updated electric demand assumptions would likely make the Tier 2 units appear *less* economic than they did under DTE's 2016 retirement analysis.

Q What commodity price assumptions are most relevant to an economic analysis of the Tier 2 coal units?

A Commodity price assumptions most relevant to the Tier 2 units include assumptions for the future price of energy, capacity, and delivered coal. Future energy and capacity prices determine the expected revenues (or avoided costs) provided by these units. Future coal prices have a substantial impact on the costs of these units.

Q How have DTE's energy price forecasts changed since the retirement analysis?

A DTE's updated energy price forecasts – as used within DTE's 2017 Reference Scenario – are generally lower than the assumptions used in DTE's retirement analysis. Figure 1 displays the energy price forecasts used in these two analyses.[17] The 2017 Reference scenario prices are higher than the retirement analysis

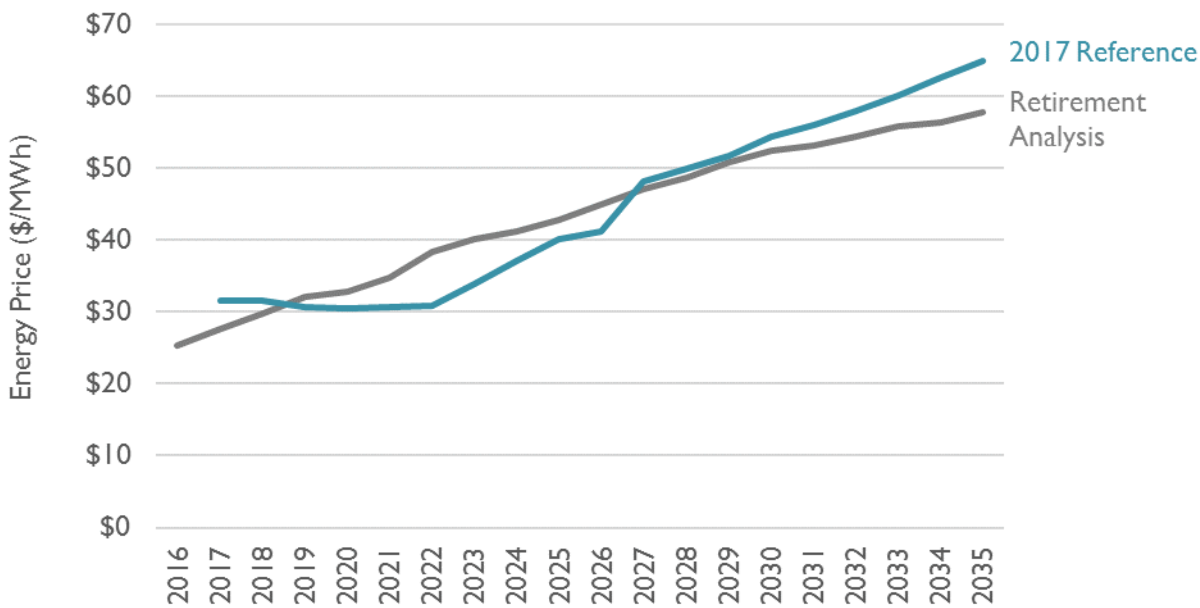
[15] Direct Testimony of Robert M. Fagan, pp. 24-25 (citing North American Electric Reliability Corporation Long-Term Resource Assessments).

[16] Exhibit MEC-116, DTE Response to ABATE Discovery Request No. 3.4h.

[17] Workpaper KJC-472, tab "Energy Prices – Nominal"; Attachment "ABDE- 1.16 Attachment - Energy and Capacity Prices.xlsx" to DTE Response to Discovery Request No. ABDE-1.16.

assumptions in 2018 and 2019 but are between 4 and 20 percent lower than the retirement scenario values in each year from 2019 through 2026. From 2027 onwards the 2017 Reference scenario prices are higher than the retirement analysis prices, but the differences are not as large as the medium-term differentials. On an average basis, the 2017 Reference scenario prices are lower than the retirement analysis prices. On a net present value basis, the 2017 Reference prices are even lower relative to the retirement analysis prices.

Figure 1. DTE Energy Price Assumptions, Retirement Analysis and 2017 Reference Scenario



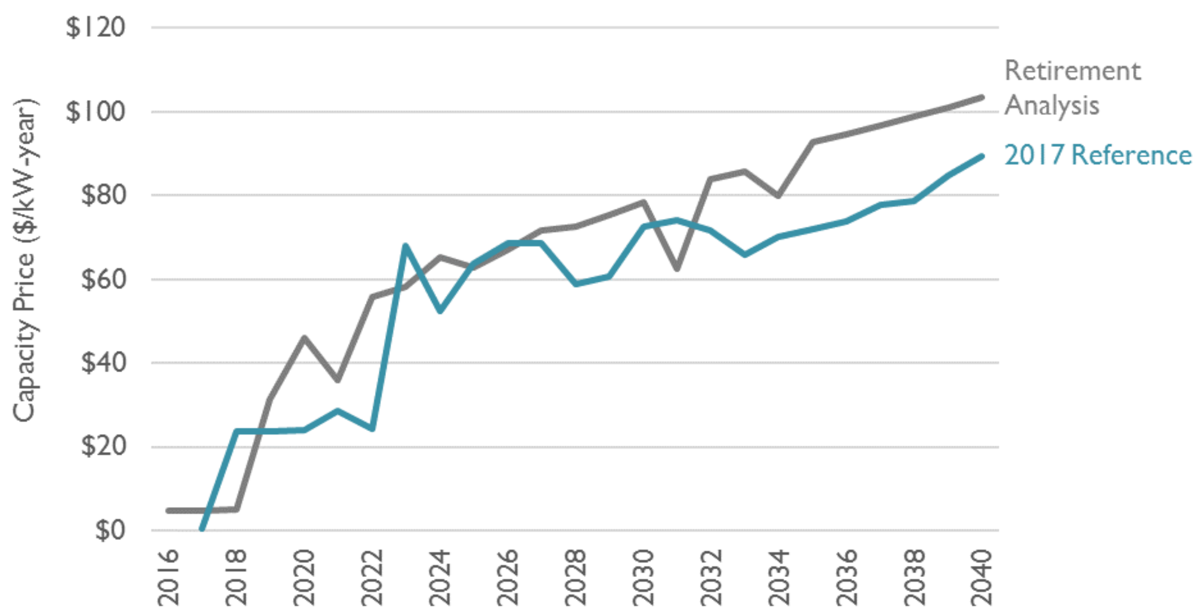
Q How have DTE's capacity price forecasts changed since the retirement analysis?

A DTE's updated capacity price forecasts – as used within DTE's 2017 Reference Scenario – are generally lower than the forecasts used in DTE's retirement analysis. Figure 2 displays the capacity price forecasts used in these two analyses.[18] The 2017 Reference scenario prices are lower than the retirement

[18] Workpaper KJC-472, tab to Discovery Request No. ABDE-1.16.

analysis assumptions in 19 of the 24 years covered by both forecasts. The 2017 Reference scenario prices are lower on both an average and an NPV basis.

Figure 2. DTE Capacity Price Assumptions, Retirement Analysis and 2017 Reference Scenario



Q How have DTE's forecasts of delivered coal prices changed since the retirement analysis?

Generally, DTE's latest delivered coal price forecasts are higher for eastern coal relative to retirement analysis assumptions. For western coal, DTE's updated assumptions are lower over the short term and higher over the long term. Figure 3 and Figure 4 show delivered coal price assumptions for the St. Clair plant under the retirement analysis and 2017 Reference scenario.[19] Price assumptions for other Tier 2 coal plants follow similar patterns.

[19] Workpaper KJC-458, tab "Coal Price Forecast"; Workpaper KJC-350, tab "Coal price for IRP report."

Figure 3. DTE St. Clair Delivered Price Assumptions for Eastern Coal, Retirement Analysis and 2017 Reference Case

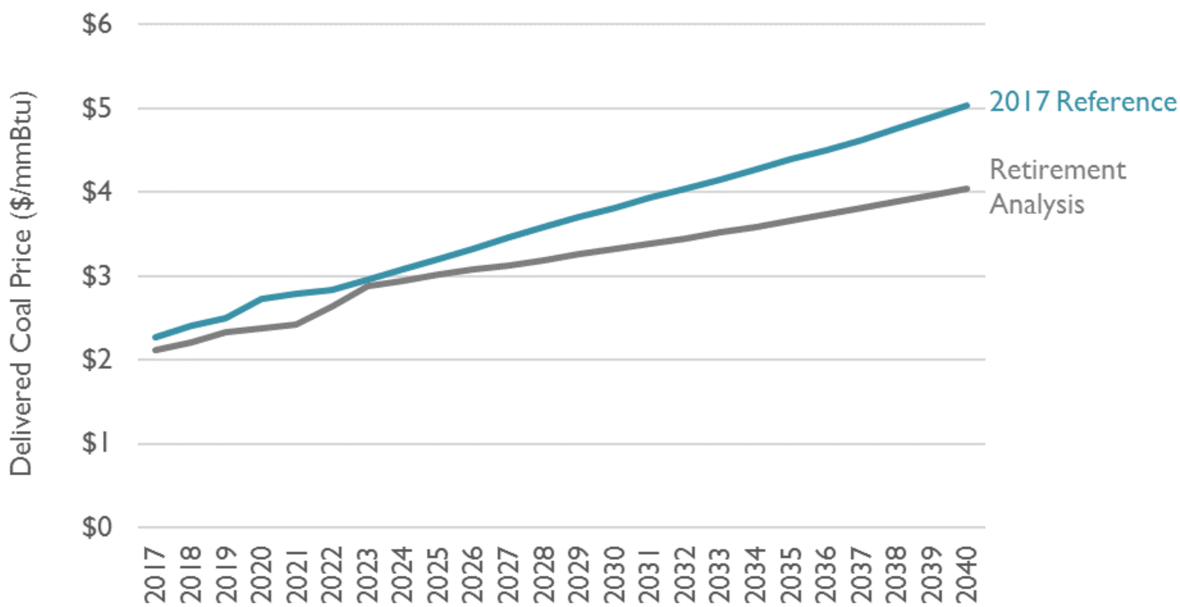
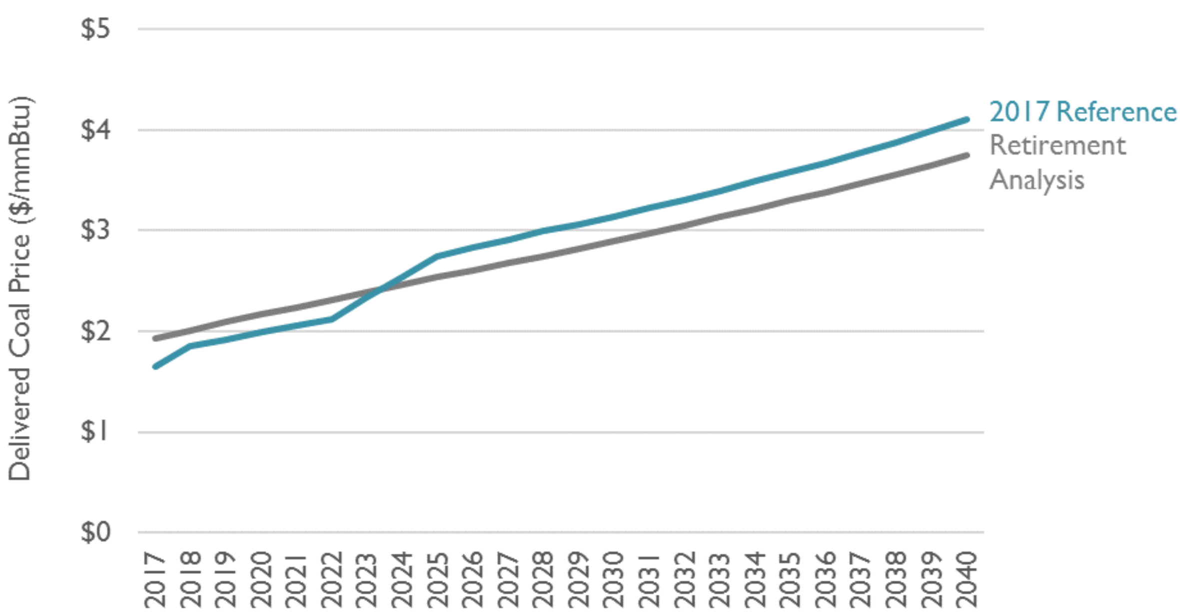


Figure 4. DTE St. Clair Delivered Price Assumptions for Western Coal, Retirement Analysis and 2017 Reference Case



4. Mr. Phillips's Emphasis on Near-Term Depreciation Expense Increases Associated with Earlier Retirements Is Misplaced

Q Summarize Mr. Phillips's complaint with respect to DTE's treatment of depreciation expenses in its retirement analysis.

A Mr. Phillips takes issues with DTE's decision to not treat depreciation expenses as a customer cost in its retirement analysis. Mr. Phillips argues that accounting for the earlier capital recovery associated with earlier unit retirement dates "would have impacted the economics of the analysis and increased the cost of compliance on an NPV basis."[20] In support of this claim, Mr. Phillips cites DTE's recent request to increase its 2016 annual depreciation expense for its steam production plants by $149 million.[21]

Q Do you agree with Mr. Phillips's argument that DTE's retirement analysis should have accounted for changes in depreciation expenses associated with earlier recovery of previously incurred expenses?

A No. When conducting economic analyses, it is common practice to treat previously incurred capital expenditures as "sunk costs" that should not be included in the analysis. Since none of DTE's resource planning actions can affect costs incurred in the past, those costs do not belong in a resource planning analysis. The decision regarding how to recover those previously incurred costs is properly treated in other proceedings, such as depreciation dockets. Options for recovery of capital costs on retiring units could include treating the retiring units as regulatory assets and maintaining the same depreciation schedule. They could also include securitizing the remaining plant balance, thereby reducing future revenue requirements relative to a non-retirement scenario.

[20] Direct Testimony of Nicholas L. Phillips, p. 9 at 6-9.
[21] Direct Testimony of Nicholas L. Phillips, p. 9 at 10-12.

Q **Is DTE's request for increased depreciation expenses evidence that accelerated capital recovery necessarily increases NPV costs?**

A No. As Mr. Phillips has acknowledged in discovery, accelerating capital recovery increases near-term revenue requirements but decreases long-term revenue requirements.[22] Similarly, accelerated capital recovery increases NPV depreciation expenses but decreases NPV revenue requirements associated with a utility's rate of return on its capital balance. The net impact of these two effects requires detailed analysis, but in general the two effects can roughly cancel out. Therefore, an observed increase in near-term depreciation expenses in no way proves Mr. Phillips's claim that accelerated capital recovery increases NPV costs to customers.

Q **Does this complete your testimony?**

A Yes.

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[22] ABATE Response to MEC-NRDC-SC Discovery Request No. 3b.

ASSOCIATION OF BUSINESSES ADVOCATING TARIFF EQUITY
RESPONSE TO MEC, NRDC, AND SIERRA CLUB'S FIRST
DISCOVERY REQUEST TO ABATE

MPSC Case No.:	U-18419
Respondent:	Nicholas L. Phillips
Requestor:	MEC, NRDC, SIERRA CLUB

Discovery Request No. 7:

Refer to Direct Testimony of Nicholas L. Phillips, page 12 at 16-18. Explain the basis for ABATE's assertion that environmental policies are "the driving factor behind DTE's proposal to retire the coal assets."

Response:

See the Direct testimony of DTE Witnesses Dimitry at page 9 and Chreston at page 22.

ASSOCIATION OF BUSINESSES ADVOCATING TARIFF EQUITY
RESPONSE TO MEC, NRDC, AND SIERRA CLUB'S FIRST
DISCOVERY REQUEST TO ABATE

MPSC Case No.:	U-18419
Respondent:	Nicholas L. Phillips
Requestor:	MEC, NRDC, SIERRA CLUB

Discovery Request No. 9:

Refer to Direct Testimony of Nicholas L. Phillips, page 13 line 21 through page 14 line 4.

a. Confirm that under current law, DTE is required to comply with the "current ELG regulations" no later than December 31, 2023. If not confirmed, explain why not.

b. Confirm that EPA has lifted the "stay of the ELG regulations" referenced in Mr. Phillips' testimony. If not confirmed, explain why not.

Response:

a. Confirmed

b. It is unclear what is meant by lifted the stay. It is Mr. Phillips' understanding the interim compliance deadlines have been pushed back to 2020 but the final compliance deadline currently remains in 2023. However, the current administration has placed much uncertainty around environmental regulations and it is important to fully understand the cost of compliance for each potential regulation, individually, as well as costs/plans to preserve all options.

MPSC Case No.:	U-18419
Respondent:	K. J. Chreston
Requestor:	ABATE
Question No.:	ABDE-3.4h
Page:	1 of 1

Question: Please provide further detail on the assumptions used in the Retirement Analysis discussed in Section IV of Mr. Chreston's direct testimony.

h. Please explain if any sensitivity analyses were performed with respect to the assumptions provided above. If no sensitivity analyses were performed, please provide a detailed explanation why these sensitivity analyses were not performed.

Answer: Yes, sensitivity analyses were performed on CO2 price, capacity price and the cost of the coal unit retrofits to comply with the environmental regulations. Since the units are dispatched in MISO, some of the other assumptions listed above that impact DTE load such as DTE load forecast, choice and energy efficiency would have minimal impact on the value of the units. In addition, the Company considered its integrated resource planning principles, which include reliability, affordability, clean, flexible and balance, compliance and reasonable risk when making its proposed retirement decisions.

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the Application of **DTE ELECTRIC COMPANY** for approval of Certificates of Necessity pursuant to MCL 460.6s, as amended, in connection with the addition of a natural gas combined cycle generating facility to it generation fleet and for related accounting and ratemaking authorizations	U-18419 ALJ Suzanne D. Sonneborn

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PROOF OF SERVICE

On the date below, an electronic copy of **Rebuttal Testimony of Robert Fagan on behalf of the Michigan Environmental Council, the Natural Resources Defense Council and Sierra Club with Exhibits MEC-114 thru MEC-116** was served on the following:

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The statements above are true to the best of my knowledge, information and belief.

OLSON, BZDOK & HOWARD, P.C.
Counsel for MEC-NRDC-Sierra Club

Date: February 2, 2018

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