

1 **REFERENCE: Undertaking #143, Transcript page 10,215**

2 **QUESTION:**

3 a) MIPUG panel to update Plan 14 and Plan 6 based upon the updated numbers in
4 ten (10) year increments, going out to fifty (50) years.

5 **ANSWER:**

6 **(a)**

7 The Waterfall graphs compare the incremental benefits and costs between different
8 development plans. As individual bars increase on the y-axis it is adding benefit to
9 Hydro's financial forecasts, which may ultimately contribute to ratepayer benefits. In
10 contrast as bars on the graph step back downward on the y-axis, it represents
11 deductions from the financial forecast that erodes from the benefits ultimately available
12 to ratepayers.

13 Waterfall graphs are provided for the Reference Scenario and Main Submission Rate
14 Methodology, similar to Figure 1 to Figure 12 in MIPUG-9-2 Appendix C from the Pre-
15 filed Testimony of P. Bowman. The waterfall graphs were run in ten years increments
16 (i.e. 10, 20, 30, 40 and 50 years) to help show the timing of benefits to ratepayers (if
17 benefits are seen) or the "cross-over" point.

18 As can be seen below the graphs are split into different cost categories and three
19 different colours as follows:

20 • The green bars show the incremental gross benefits of the larger Plans, in the
21 form of additional export revenues or avoided fuel and purchased power costs as
22 between the two plans being compared;

23 • The yellow bars show the incremental added costs of interest, depreciation,
24 O&M, government charges (including debt guarantee fees, water rental fees and
25 taxes), additional reserve requirements and payments to First Nation government
26 partners; and

27 • The final bar shows the residual difference between the green and yellow bars –
28 the remaining amount that is a benefit to ratepayers (shown in blue when

1 positive). This can also show up as a negative value on the y-axis which is a net
2 cost to ratepayers for pursuing the modelled Plan (increased NPV of domestic
3 revenues) (where values are negative to ratepayers, this bar is shown in red).

4 Waterfall graphs using the updated financial analysis are provided in ten year
5 increments for the following:

6 1) Plan 14 (PDP) as compared to Plan 1 (All Gas) under the REF-REF-REF
7 scenario for DSM Level 2 (Figure 1 to Figure 5);

8 2) Plan 6 (K19/Gas/750MW) as compared to Plan 1 (All Gas) under the REF-REF-
9 REF scenario for DSM Level 2 (Figure 6 to Figure 10);

10 3) Plan 14 (PDP) with Pipeline Load as compared to Plan 1 (All Gas) with Pipeline
11 Load under the REF-REF-REF scenario for DSM Level 2 (Figure 11 to Figure
12 15); and

13 4) Plan 5 (K19/Gas/750MW) with Pipeline Load as compared to Plan 1 (All Gas)
14 with Pipeline Load under the REF-REF-REF scenario for DSM Level 2 (Figure 16
15 to Figure 20)¹.

16 As a comparison, the waterfall graphs for the original financial analysis² for the same
17 time increments are provided as follows:

18 5) Plan 14 (PDP) as compared to Plan 1 (All Gas) under the REF-REF-REF
19 scenario from original financial analysis (Figure 21 to Figure 25); and

20 6) Plan 6 (K19/Gas/750MW) as compared to Plan 1 (All Gas) under the REF-REF-
21 REF scenario from original financial analysis (Figure 26 to Figure 30).

¹ Note that Plan 6 with Pipeline Load was not provided at the time of this filing by Manitoba Hydro, Plan 5 is used as a proxy to the requested Plan 6 information.

² Calculated from the Appendix 11.4 Pro Forma Financial Statements from the August 16, 2013 filing and per MIPUG-9-2 Appendix C dated February 28, 2014.

1 Data was used from Manitoba Hydro sources Manitoba Hydro provided updated pro
2 forma financial statements in MH-104-12-3 and MH-104-12-7 as follows:

3 • Updated pro forma financial statements from MH-104-12-3 for four DSM
4 scenarios (Base, Level 1, Level 2 and Level 3) for Plan 1, 5 and 14 under the
5 REF-REF-REF scenario;

6 • Updated pro forma financial statements from MH-104-12-7 for provided DSM
7 Level 2 for Plan 2, 4, 6 and 12 under the REF-REF-REF scenario;

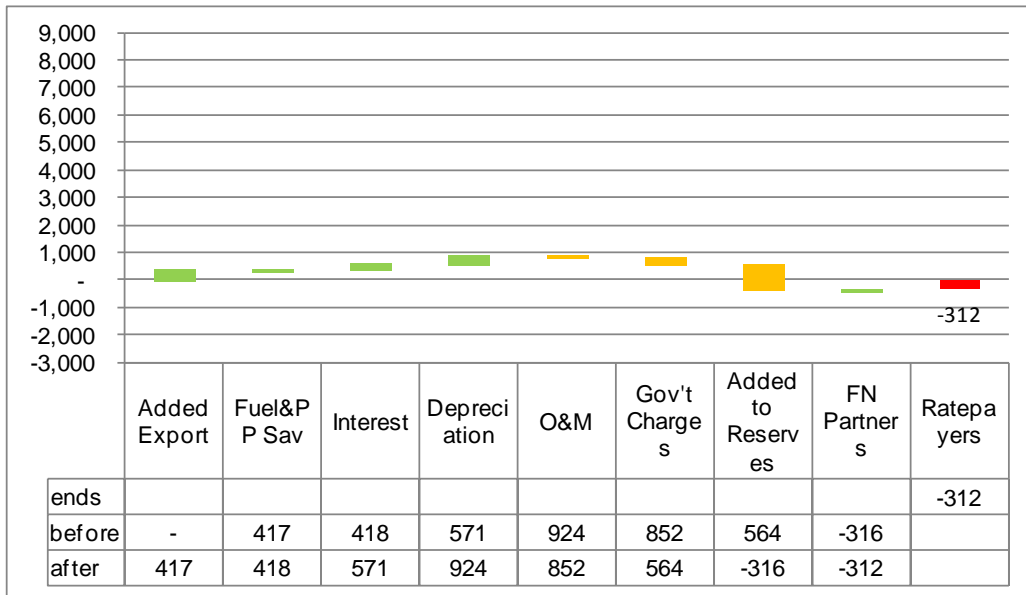
8 • Also from MH-104-12-7 Updated pro forma financial statements were provided
9 for DSM Level 2 for Plan 1, 5 and 14 under REF-REF-REF for the with Pipeline
10 Load scenario; and

11 • Debt guarantee fees for the updated financial analysis were not explicitly
12 provided, therefore as an estimate the original fees per year as provided in
13 Attachment 1 to PUB/MH I-073a were used.

14 The present value of costs and revenues were discounted using a nominal discount rate
15 of 7.151%; a 5.05% real discount rate as used in the original analysis (for comparative
16 purposes even though Manitoba Hydro has updated the WACC to 5.40% for the 2013
17 analysis) with 2% inflation rate to be consistent with IFF13³.

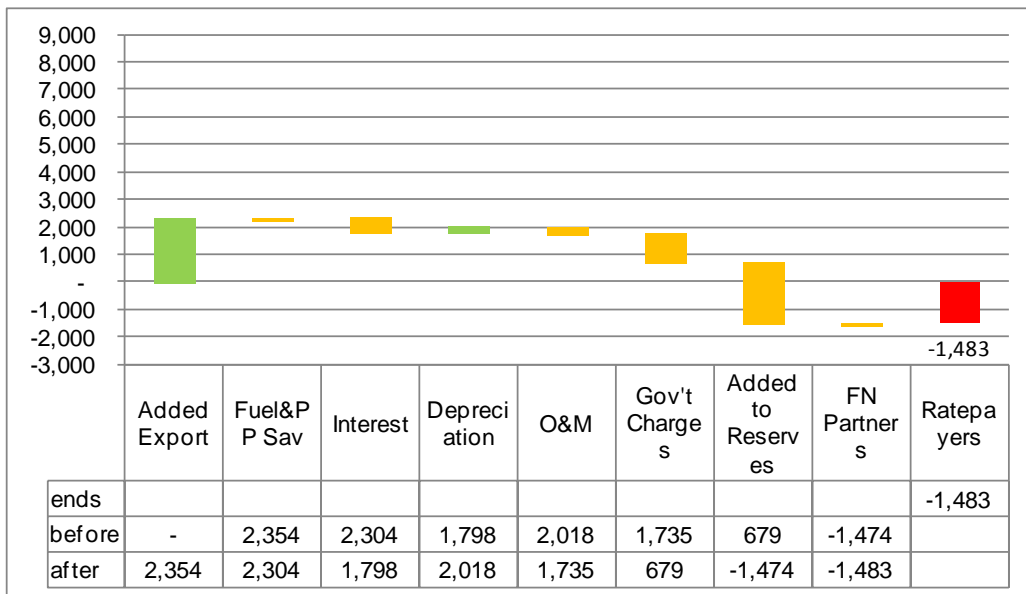
³ MH-97, page 3, Manitoba Consumer Price Index for year 2022/23.

1 **Figure 1: Year 10 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for**
 2 **DSM Level 2 at 5.05% Real Discount Rate**



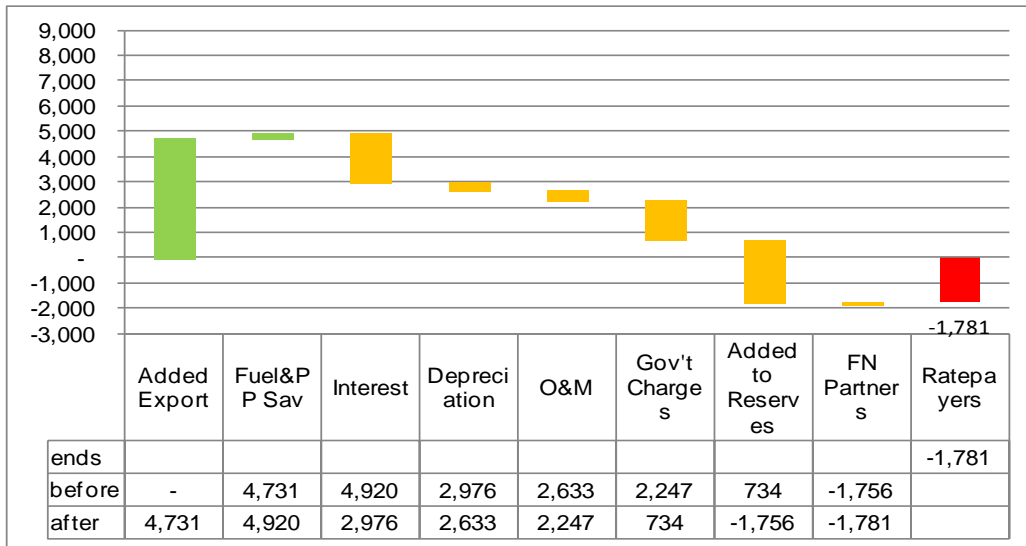
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4 **Figure 2: Year 20 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for**
 5 **DSM Level 2 at 5.05% Real Discount Rate**



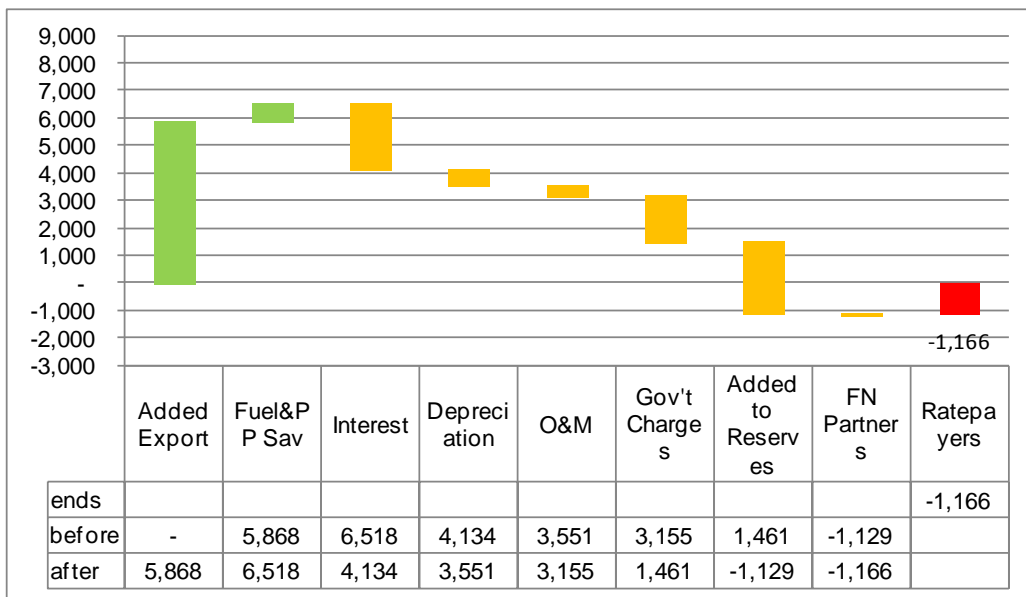
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1 **Figure 3: Year 30 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 2 **Level 2 at 5.05% Real Discount Rate**



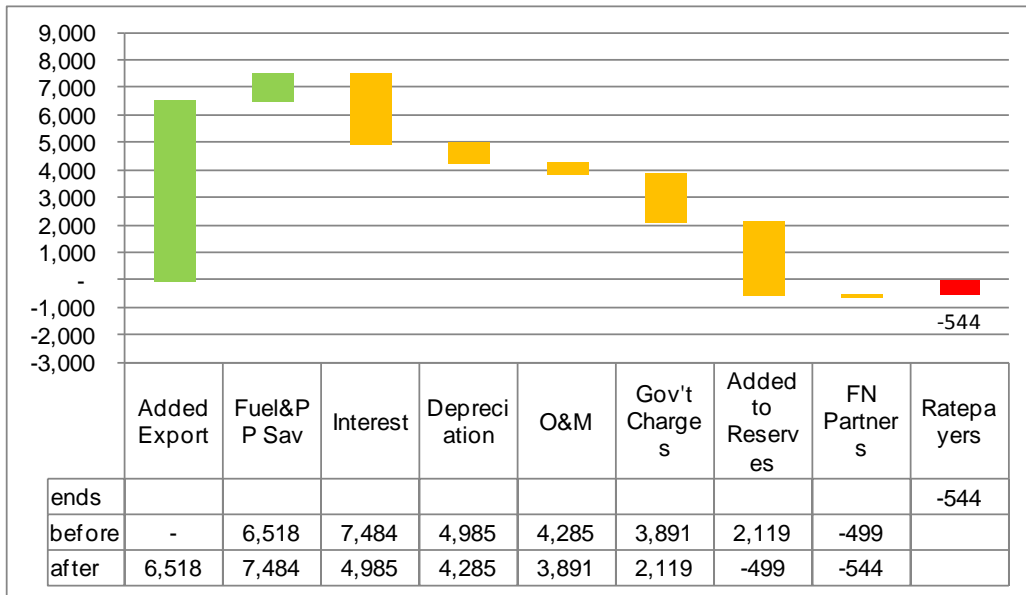
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4 **Figure 4: Year 40 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 5 **Level 2 at 5.05% Real Discount Rate**



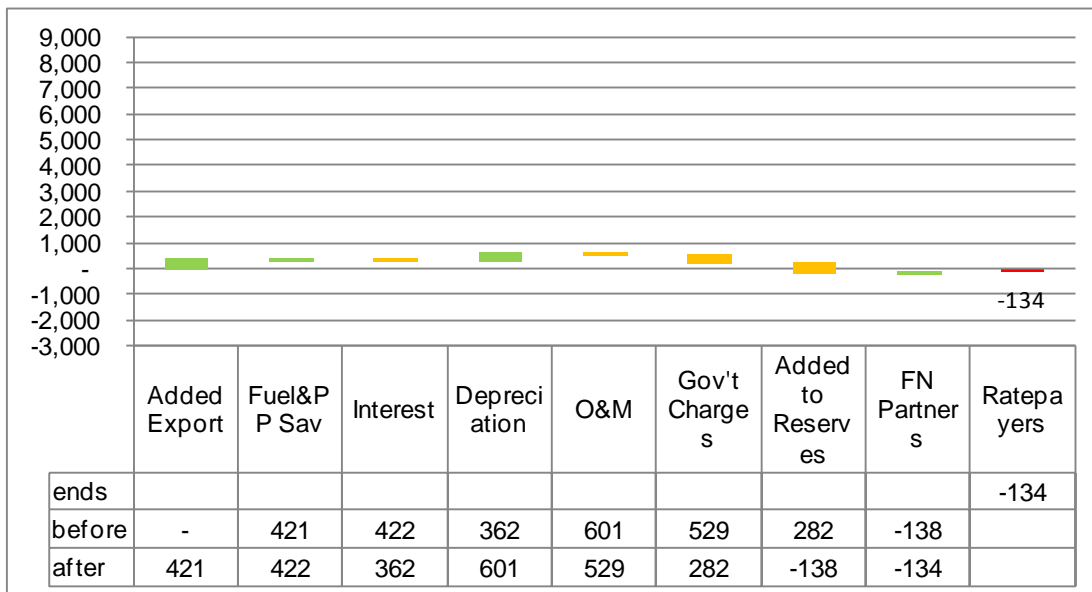
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1 **Figure 5: Year 50 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 2 **Level 2 at 5.05% Real Discount Rate**



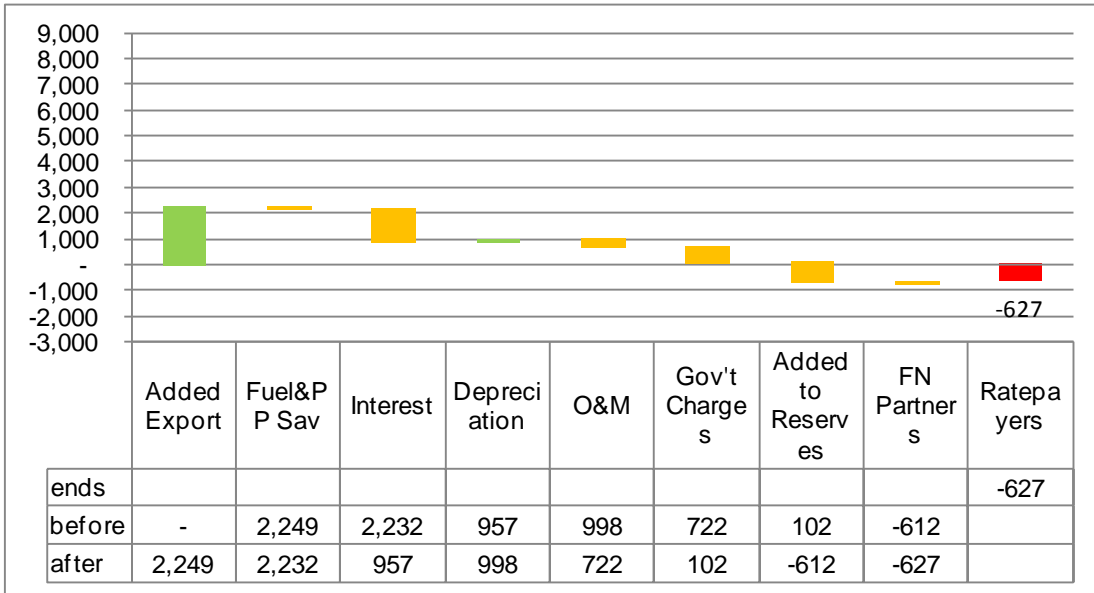
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4 **Figure 6: Year 10 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) for DSM**
 5 **Level 2 at 5.05% Real Discount Rate**



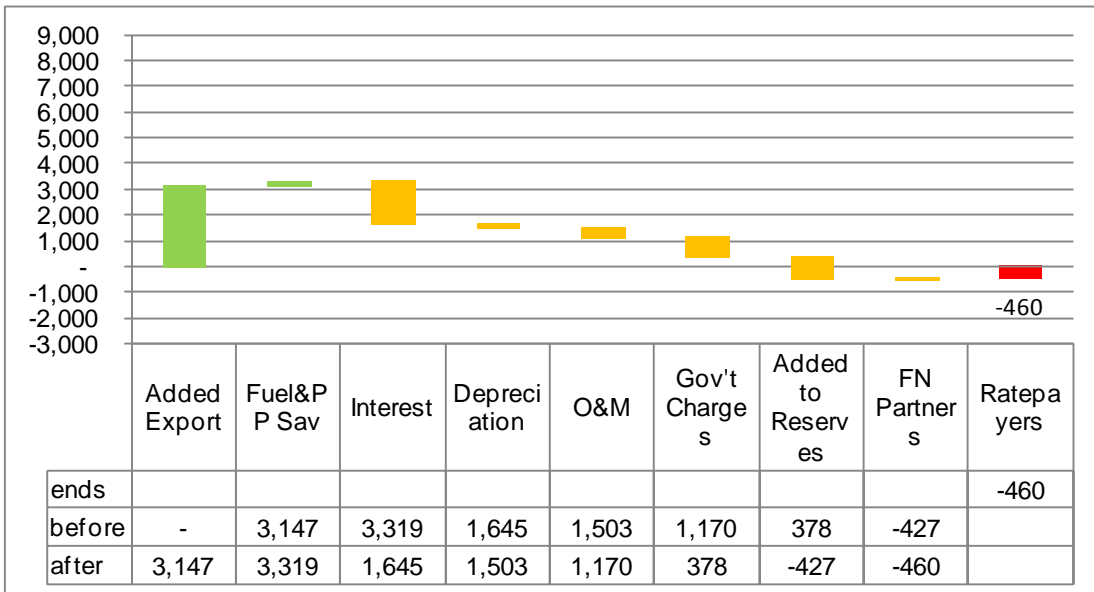
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1 **Figure 7: Year 20 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) for DSM**
 2 **Level 2 at 5.05% Real Discount Rate**



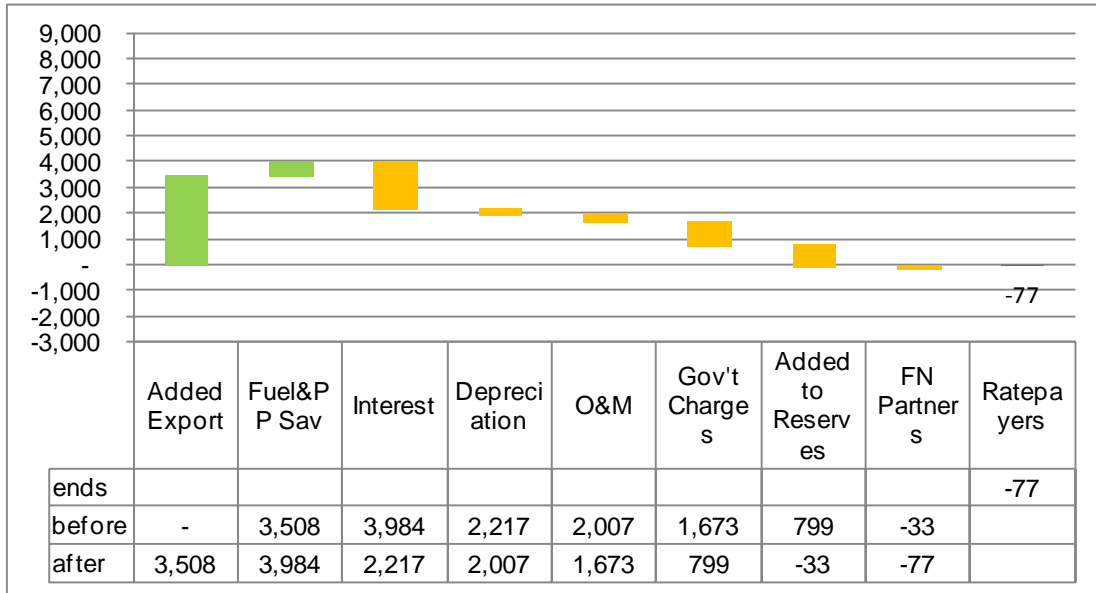
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4 **Figure 8: Year 30 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) for DSM**
 5 **Level 2 at 5.05% Real Discount Rate**



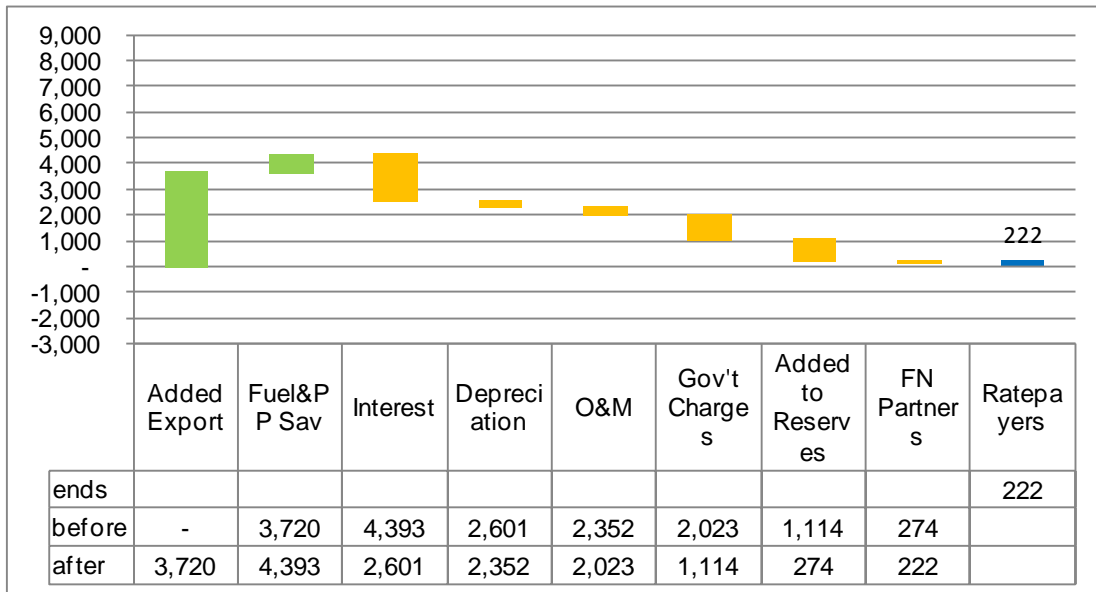
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1 **Figure 9: Year 40 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) for DSM**
 2 **Level 2 at 5.05% Real Discount Rate**



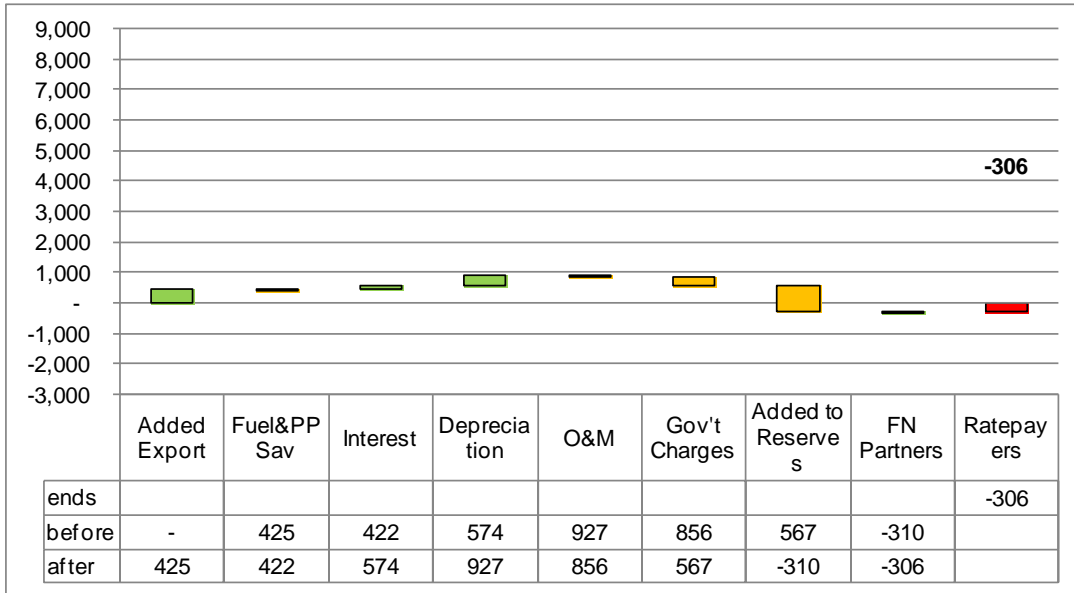
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4 **Figure 10: Year 50 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) for DSM**
 5 **Level 2 at 5.05% Real Discount Rate**



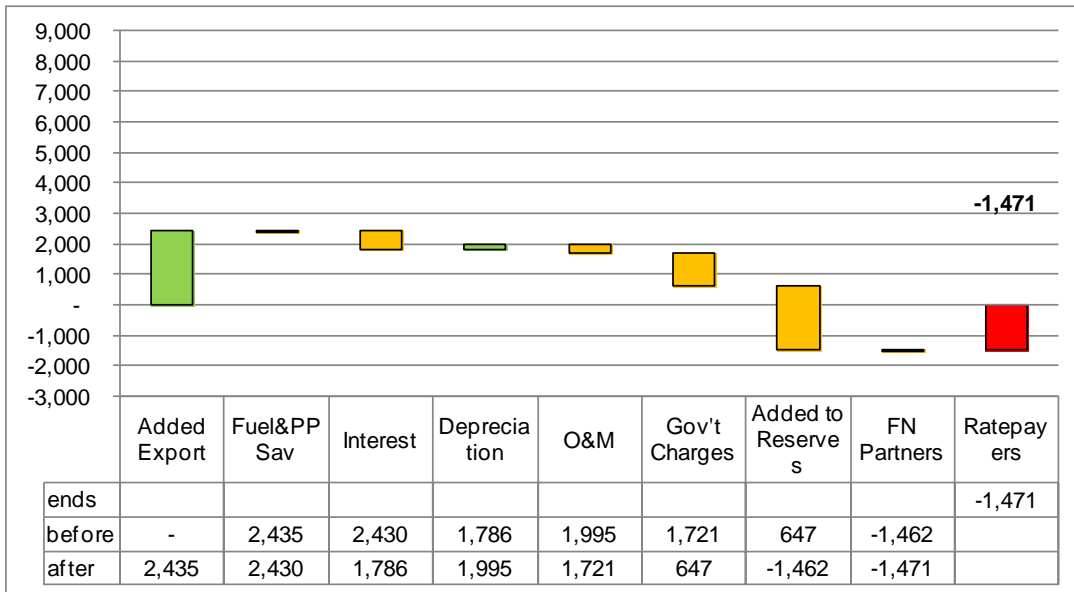
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1 **Figure 11: Year 10 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 2 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



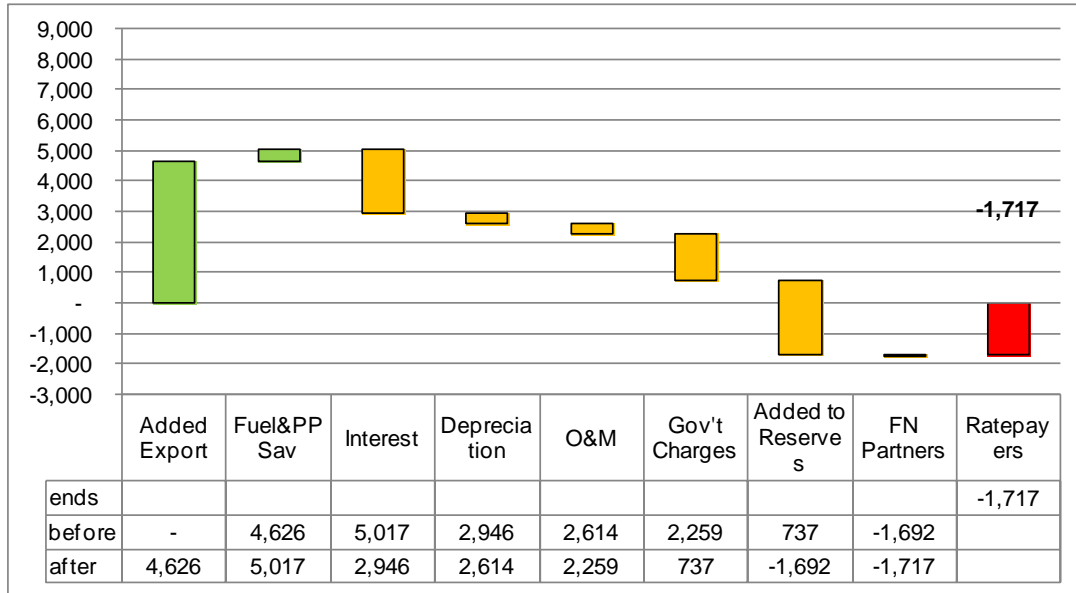
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4 **Figure 12: Year 20 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 5 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



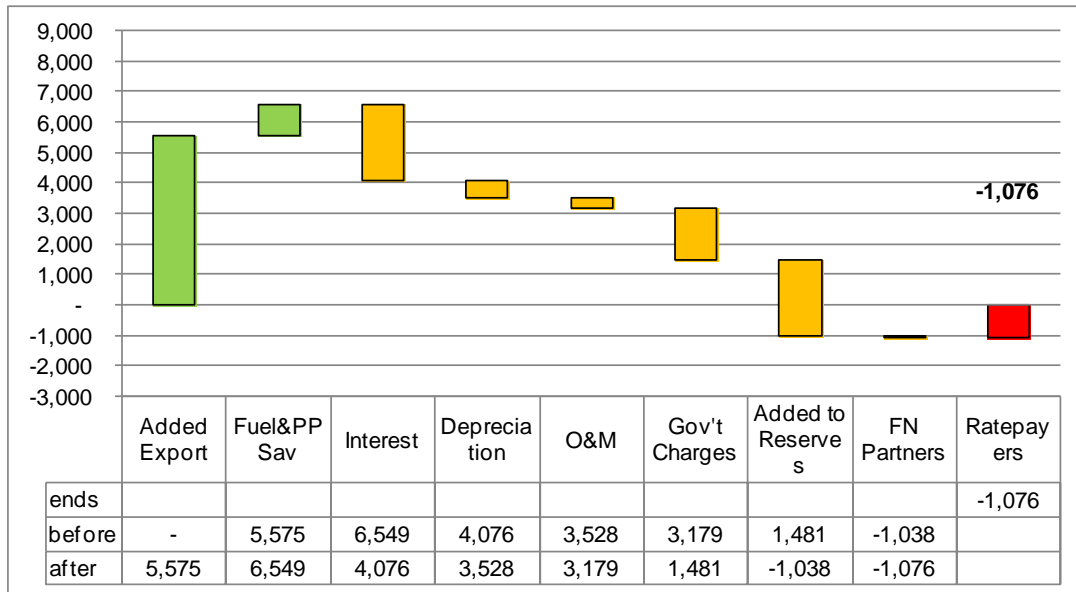
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1 **Figure 13: Year 30 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 2 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



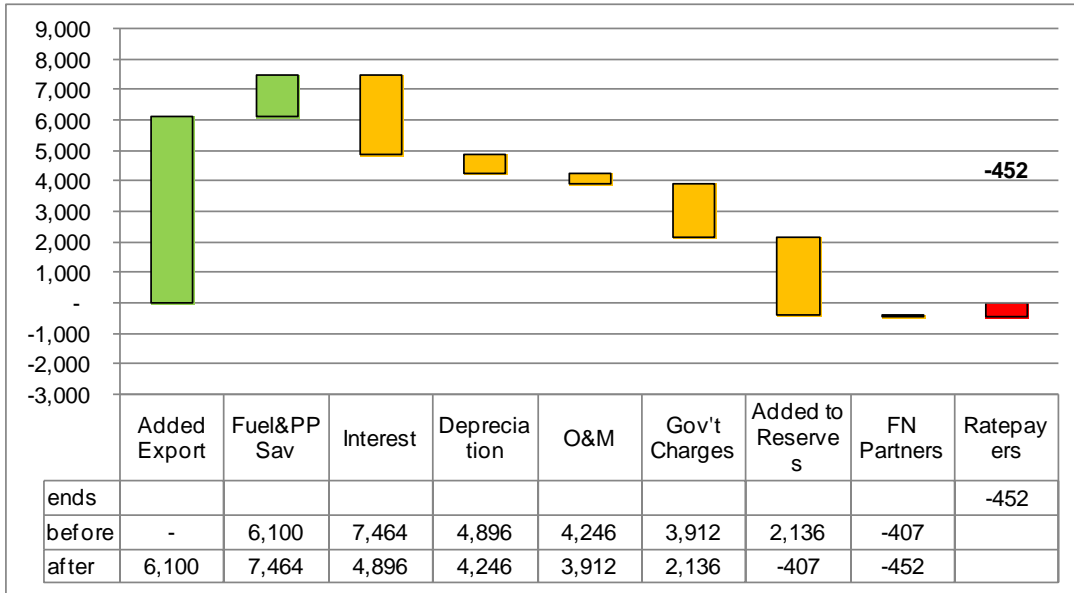
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4 **Figure 14: Year 40 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 5 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



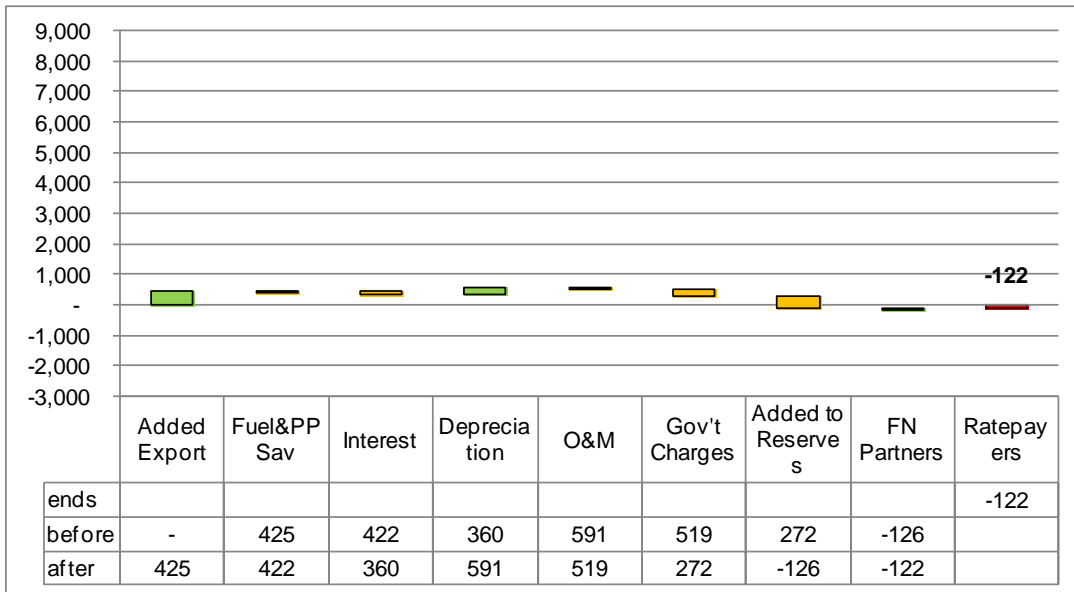
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1 **Figure 15: Year 50 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) for DSM**
 2 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



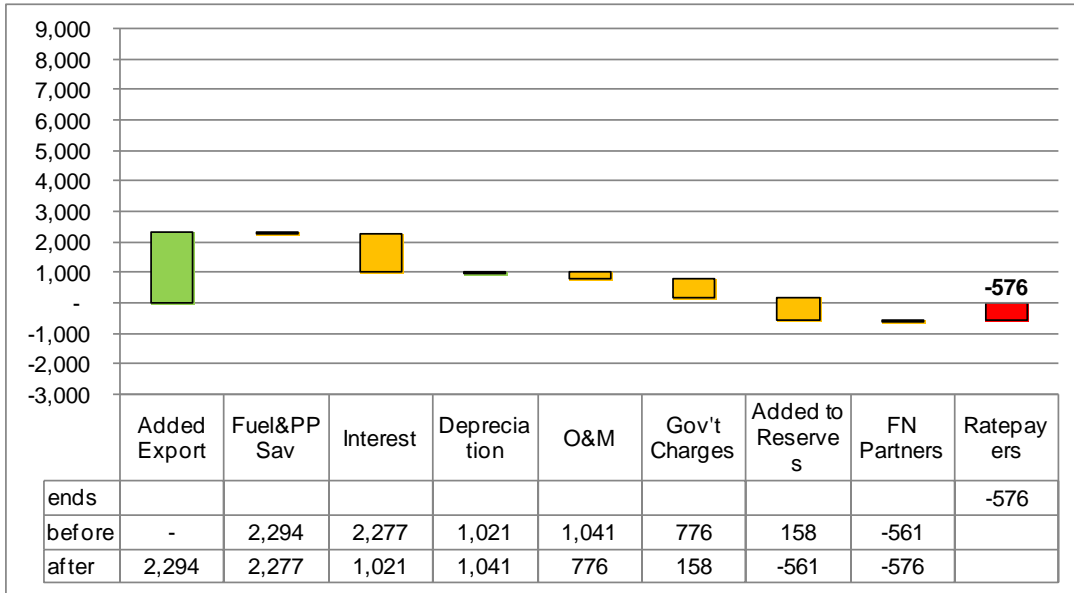
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4 **Figure 16: Year 10 – REF-REF-REF Plan 1 vs. Plan 5 (NPV \$ Millions) for DSM**
 5 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



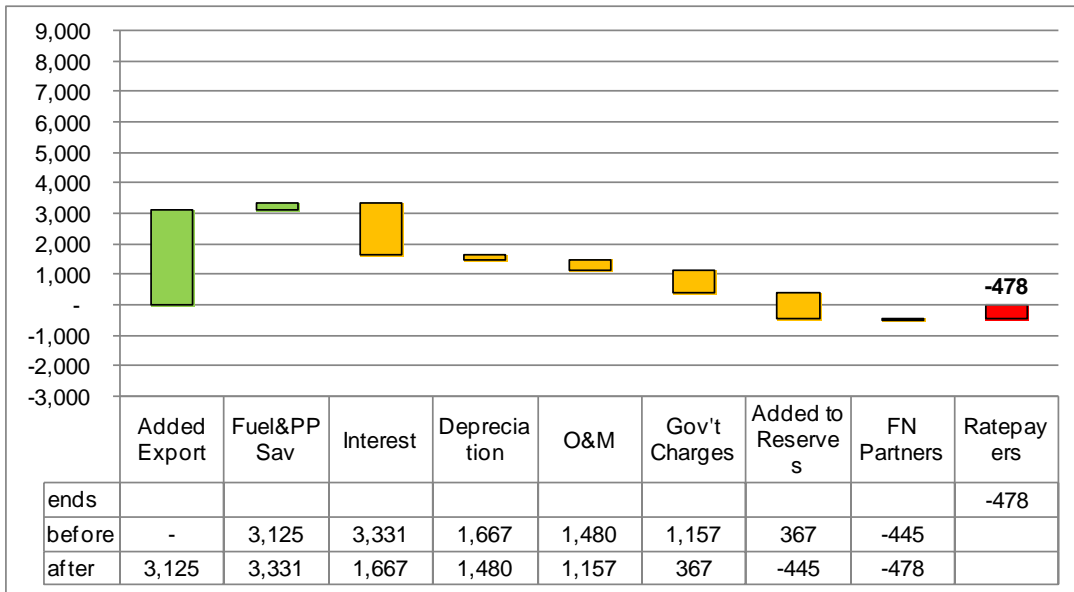
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1 **Figure 17: Year 20 – REF-REF-REF Plan 1 vs. Plan (NPV \$ Millions) for DSM**
 2 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



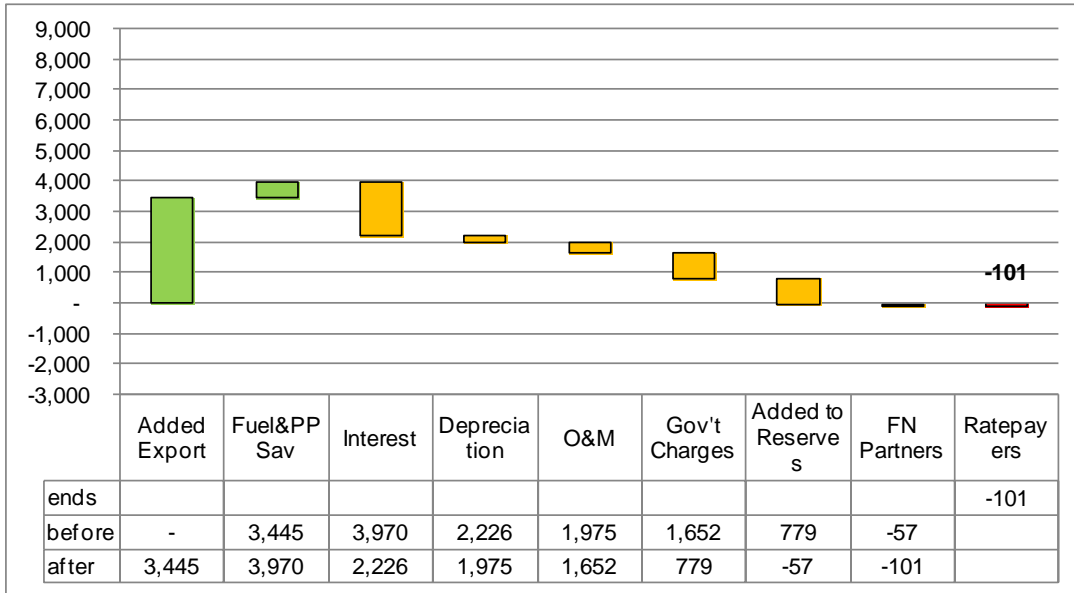
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4 **Figure 18: Year 30 – REF-REF-REF Plan 1 vs. Plan (NPV \$ Millions) for DSM**
 5 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



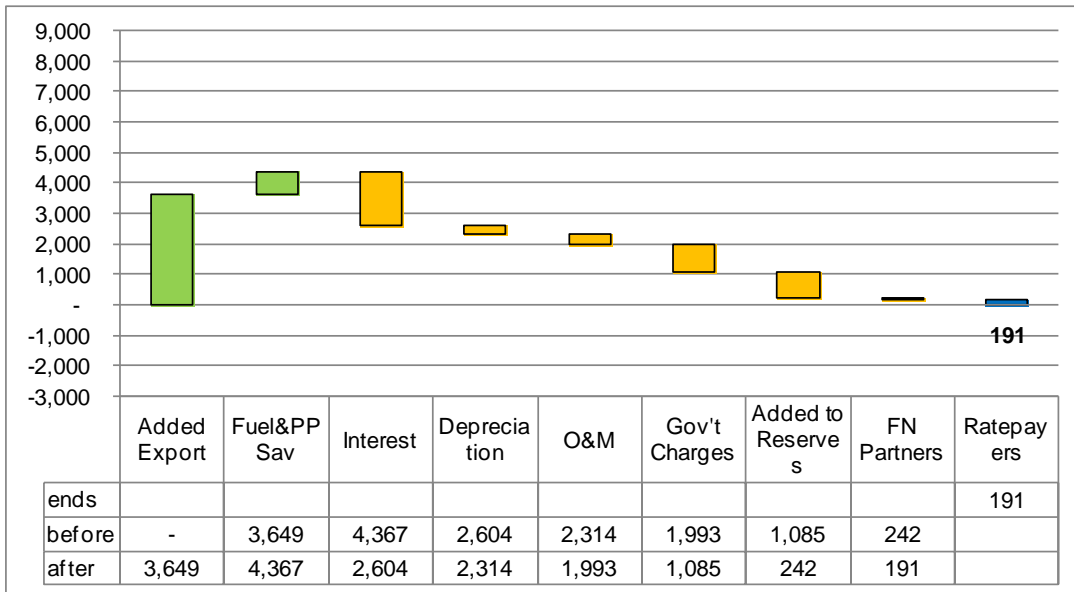
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1 **Figure 19: Year 40 – REF-REF-REF Plan 1 vs. Plan 5 (NPV \$ Millions) for DSM**
 2 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



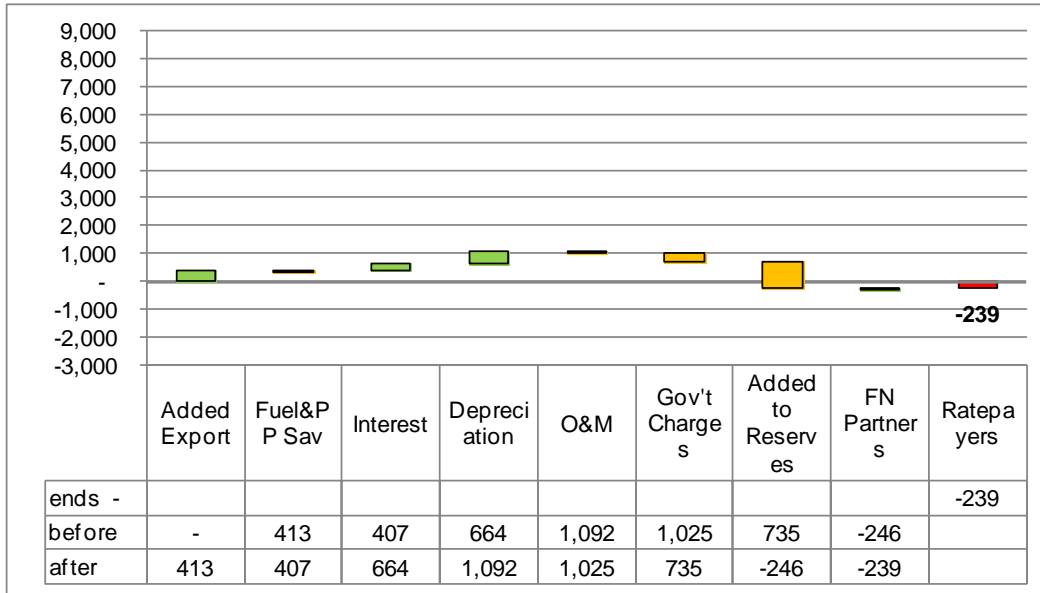
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4 **Figure 20: Year 50 – REF-REF-REF Plan 1 vs. Plan 5 (NPV \$ Millions) for DSM**
 5 **Level 2 under With Pipeline Load at 5.05% Real Discount Rate**



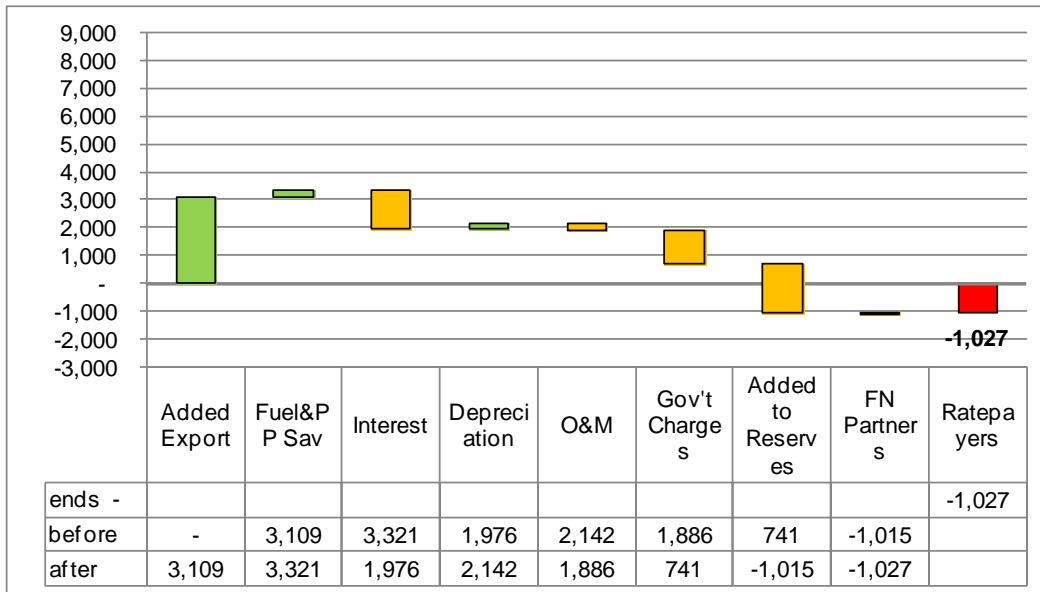
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1 **Figure 21: Year 10 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) from**
 2 **Original Financial Analysis at 5.05% Real Discount Rate**



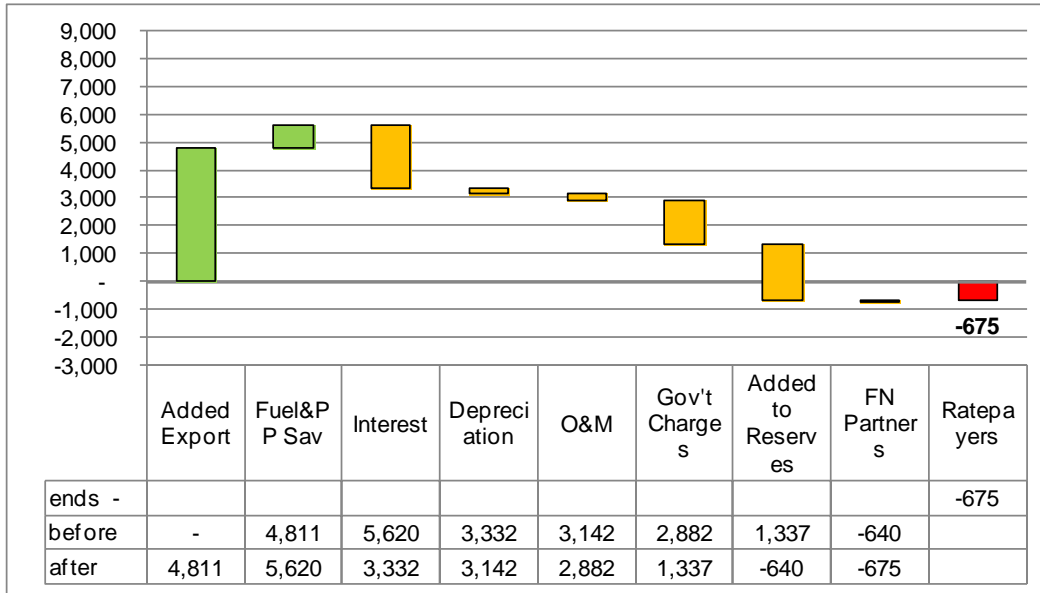
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4 **Figure 22: Year 20 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) from**
 5 **Original Financial Analysis at 5.05% Real Discount Rate**



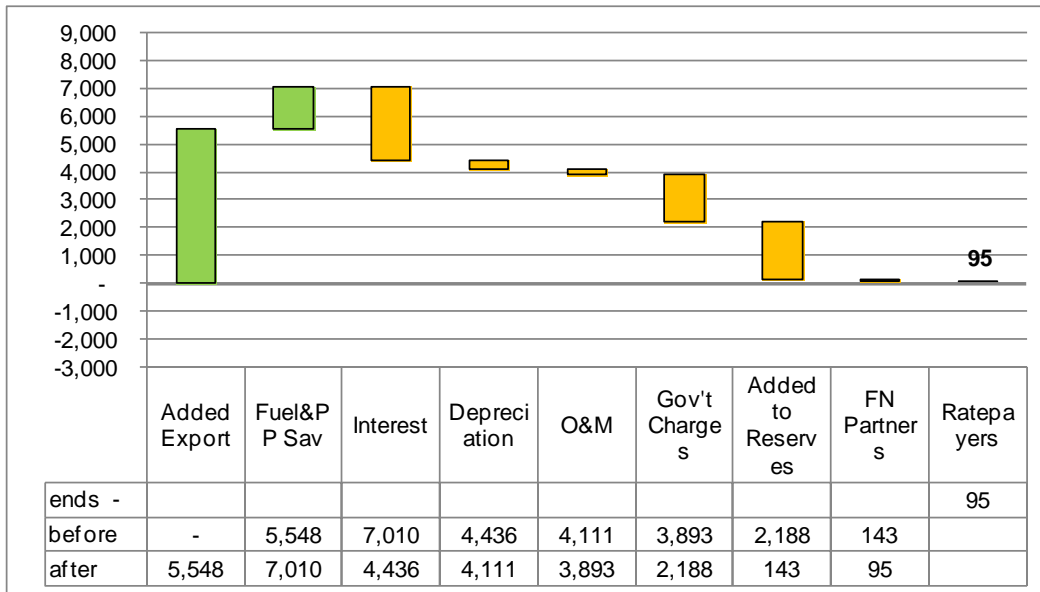
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1 **Figure 23: Year 30 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) from**
 2 **Original Financial Analysis at 5.05% Real Discount Rate**



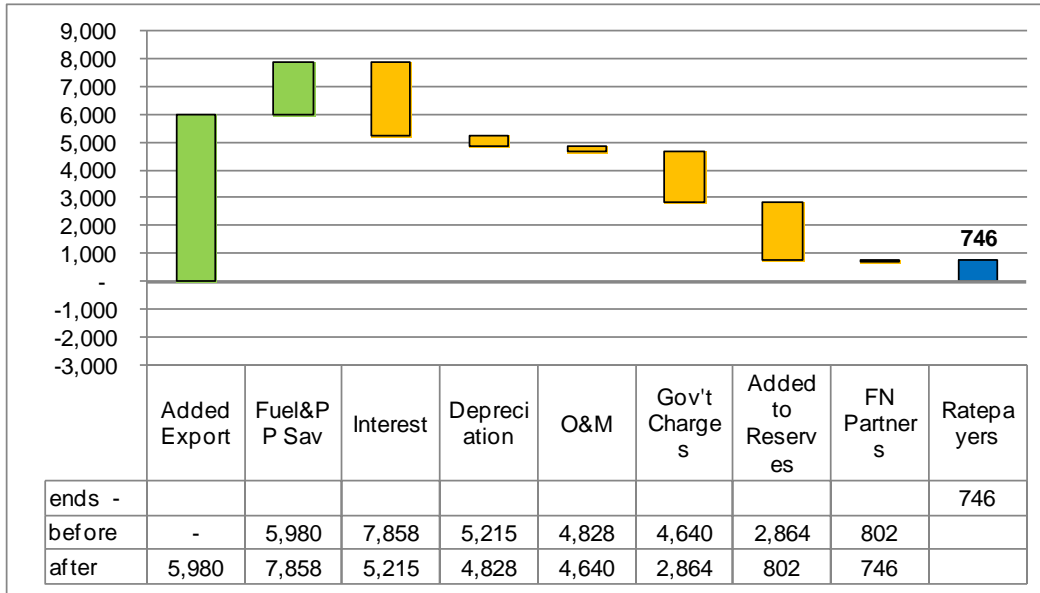
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4 **Figure 24: Year 40 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) from**
 5 **Original Financial Analysis at 5.05% Real Discount Rate**



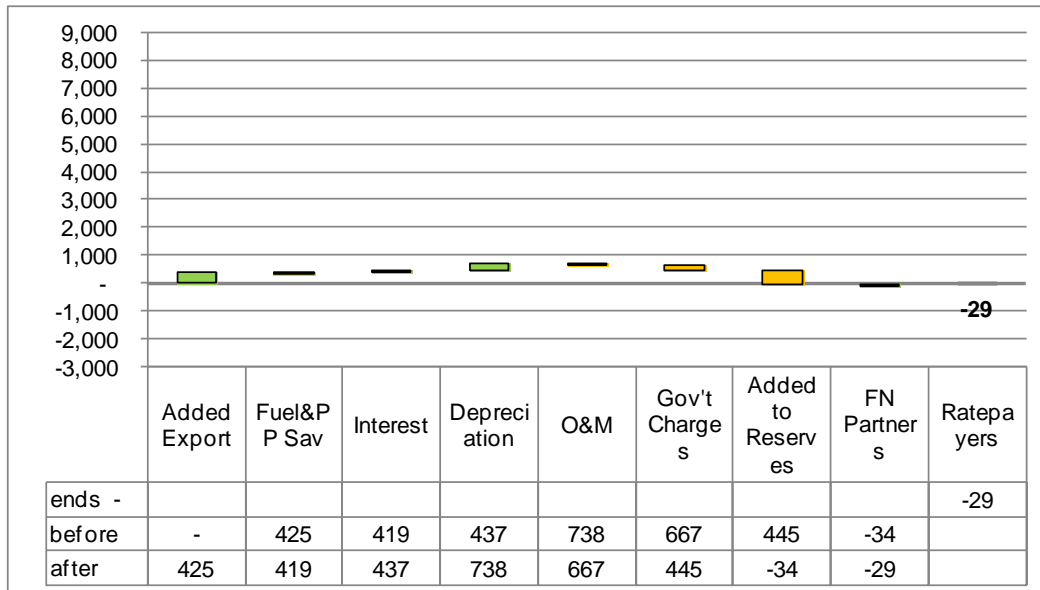
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1 **Figure 25: Year 50 – REF-REF-REF Plan 1 vs. Plan 14 (NPV \$ Millions) from**
 2 **Original Financial Analysis at 5.05% Real Discount Rate**



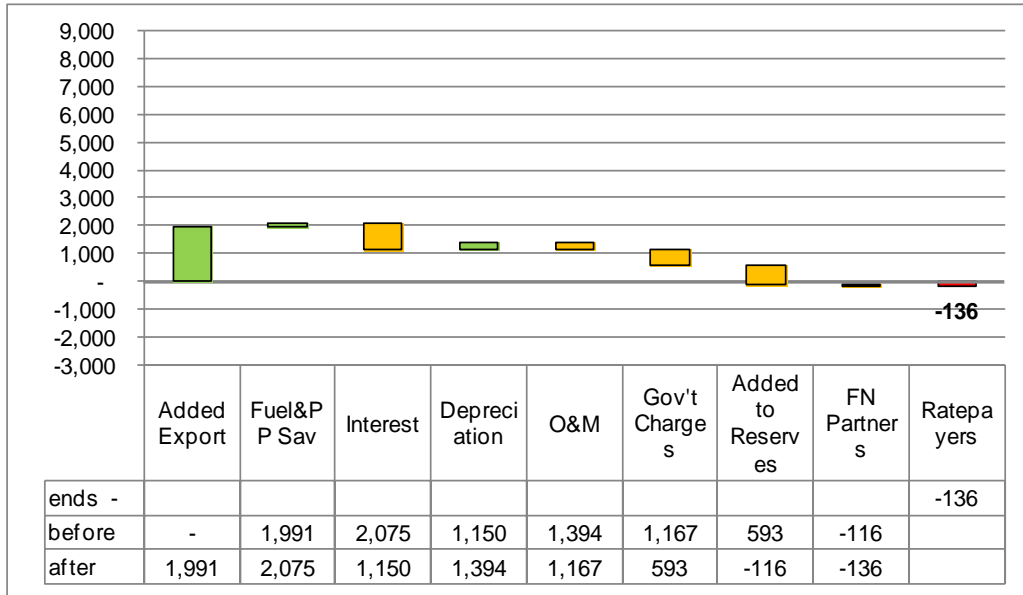
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4 **Figure 26: Year 10 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) from**
 5 **Original Financial Analysis at 5.05% Real Discount Rate**

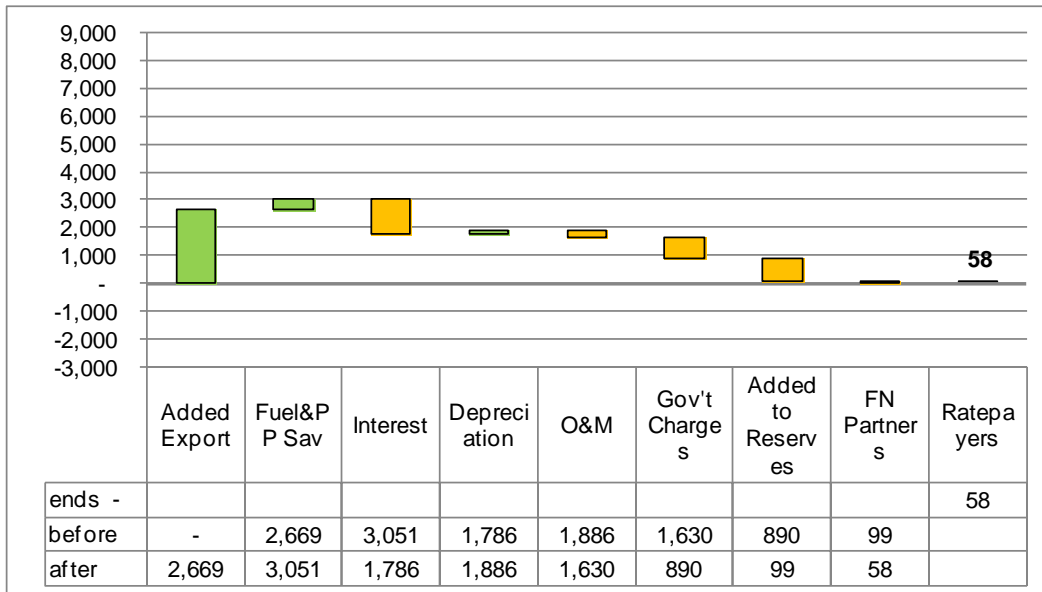


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1 **Figure 27: Year 20 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) from**
 2 **Original Financial Analysis at 5.05% Real Discount Rate**

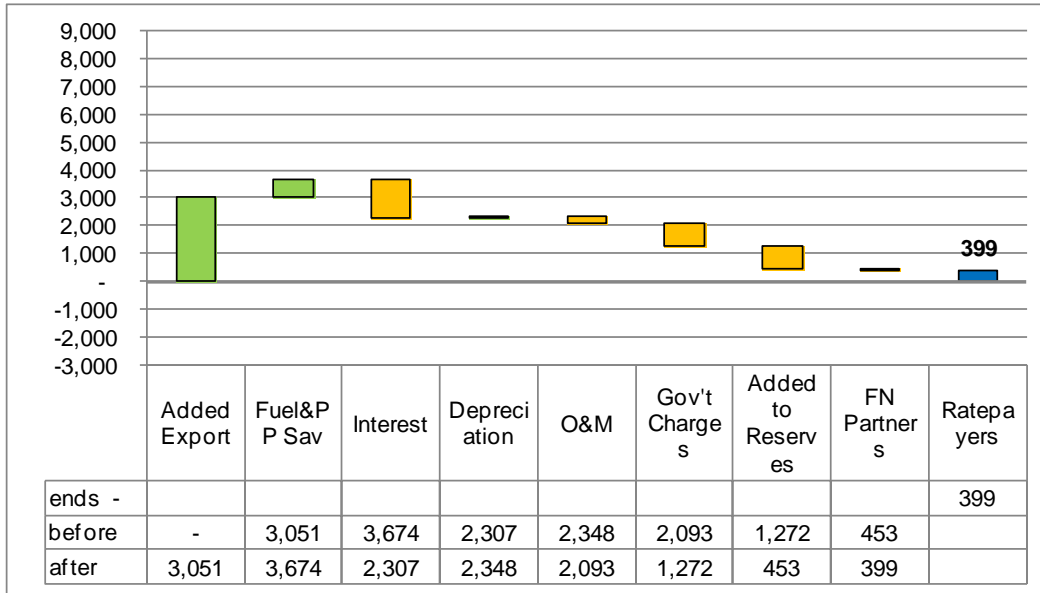


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 4 **Figure 28: Year 30 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) from**
 5 **Original Financial Analysis at 5.05% Real Discount Rate**

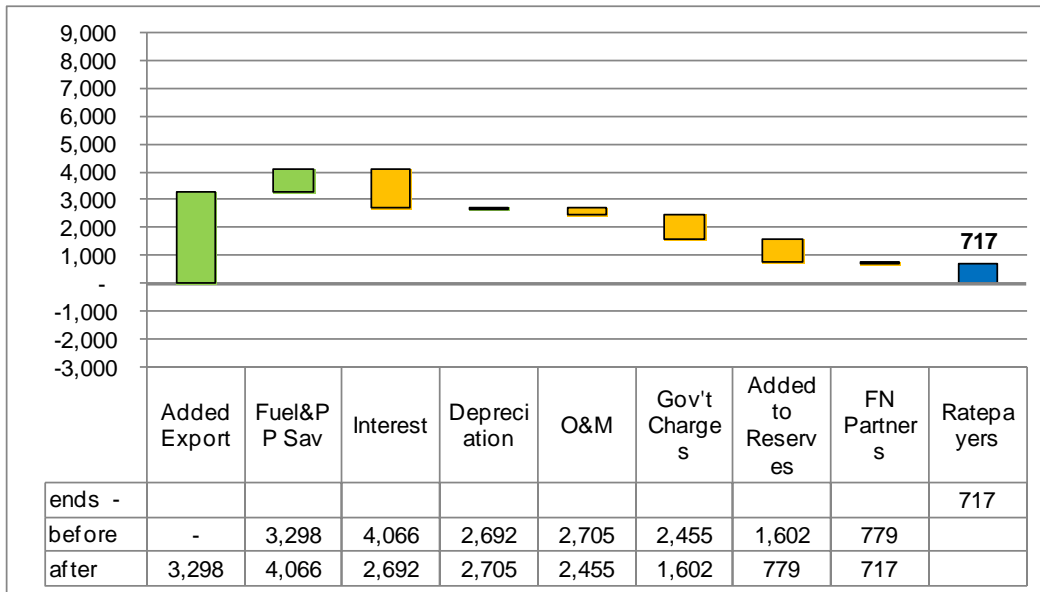


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1 **Figure 29: Year 40 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) from**
 2 **Original Financial Analysis at 5.05% Real Discount Rate**



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 4 **Figure 30: Year 50 – REF-REF-REF Plan 1 vs. Plan 6 (NPV \$ Millions) from**
 5 **Original Financial Analysis at 5.05% Real Discount Rate**



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