

EIPC Cost Savings Metric

The NEEM-Transmission subteam has discussed the possibility of using economic metrics from the CRA modeling results to inform the SSC's decision on expanded transfer limits.¹ The objective is to utilize the present value of the production and capital costs for the Eastern Interconnection in combination with the suggested transfer limit expansions from the hardening methodologies to inform stakeholders as they consider whether the Baseline Infrastructure, OL25, or OL75-derived pipe sizes should be selected.²

Metric Description and Data Source

The Cost Savings metric is the sum of the costs listed below, expressed in present value terms for the model years 2015-2040, for the all NEEM regions in the Eastern Interconnection.³ The metric was originally developed in Stan Hadley's NEEM Output Reporter spreadsheet, which computes costs for the base future run, the OL75 transmission sensitivity, and the OL25 transmission sensitivity for Future 2, the National Carbon Future.⁴ The NEEM Output Reporter spreadsheet computes the difference in present values of cost savings between: (1) the OL75 and the base future run and (2) the OL25 and the base future run. The costs listed below are the source of the Cost Savings metric and are aggregated in the CRA modeling results as "Total Costs."⁵

1. Fuel Cost (M\$)
2. Emission Cost (M\$)
 - SO₂ - Title IV CAIR
 - NO_x – CAIR Seasonal
 - Hg – CAMR
 - NO_x – CAIR Annual
 - CO₂
 - RGGI (CO₂)
3. Base Variable O&M (M\$)
4. Retrofit Variable O&M (M\$)
5. Base Fixed O&M (M\$)
6. Retrofit Fixed O&M (M\$)
7. Levelized Capital Cost (M\$)
8. Levelized Retrofit Capital Cost (M\$)

Notably, wheeling costs, among others, have not been included in the Cost Savings metric. However, the NEEM-Transmission subteam members have discussed tabulating them to understand the present value wheeling cost impacts of the energy flows in the base run, OL25, and OL75 sensitivities.

¹ The modeling results and transfer limit analyses are available at:
http://www.eipconline.com/Modeling_Results.html.

² The Cost Savings metric has been included in the June 6 presentation to the SSC, which is available at the link in footnote 1.

³ For more information on CRA's MRN-NEEM model see:
http://www.eipconline.com/uploads/MRN-NEEM_Assumptions_Document_Draft_12-22-10.pdf.

⁴ The NEEM Output Reporter spreadsheets are available at the link in footnote 1.

⁵ For more information on the MRN-NEEM Output Reports see:
http://www.eipconline.com/uploads/EIPC_MRN-NEEM_Output_Reports_Framework_3-25-11.pdf.

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Present Value Assumptions

This present value calculation discounts the “Total Costs” that were forecasted by the NEEM model at a 5% discount rate for model years 2015, 2020, 2025, 2030, 2035, and 2040. CRA also used a 5% discount rate in the Fixed Charge Rate calculation that was an assumption to the input of the NEEM simulations.⁶

In addition, the present value calculation in the NEEM Output Reporter also interpolates costs between NEEM model years and discounts those costs back to 2015 dollars with the 5% discount rate. Costs of "between" years i.e. 2021, 2022 ... 2026 ... are interpolated from the model years that the "between" years fall within (i.e., 2020 and 2025 costs are used to determine 2021 costs).

In response to an inquiry whether the above present value discount method is compatible with NEEM’s optimization method, CRA has opined that, “*The stakeholder NPV calculation using each model year’s costs is similar to that used in the NEEM model.*”⁷

Metric Caveats and Limited Application

The Cost Savings metric may not accurately capture costs and savings for regions with unbundled ownership of generation and competitive markets. In vertically-integrated regions, utility commissions would ensure that generator profits from increased exports would be passed through to ratepayers. Accordingly, the production costs developed by CRA may be a reasonable proxy of the increased costs and savings the ratepayers in those regions would experience. However, in de-regulated regions, utility commissions do not regulate generation and the profits from the single-clearing price energy market construct would not be passed through to ratepayers. Therefore, the production and capital costs from CRA’s MRN-NEEM model may not accurately reflect increased costs and savings that ratepayers in these regions would experience. Thus, the generator production and capital cost savings for the entire interconnection is a valuable metric in limited applications and should not be interpreted as proxy for customer costs uniformly across the interconnection. In addition, not all costs and savings are accounted for in the NEEM analysis. For example, it does not account for the difference in transmission costs between the National and Regional/State Implementation futures both between and within the regions/bubbles.

The Cost Savings metric has been provided as an additional piece of information to consider when deciding whether to select the capacity expansions resulting from the hardening of the OL75 or OL25 transmission sensitivities. Use of this metric for other purposes may not be appropriate.

⁶ Working Draft of MRN-NEEM Modeling Assumptions and Data Sources for EIPC Capacity Expansion Modeling at P 27, available at the link in footnote 3.

⁷ Email correspondence from Ralph Luciani to John Buechler and David Whiteley on May 31st, 2011, RE: Responses to Questions.