Asset Lifetimes for the ORTP Calculation: A Proposed Amendment

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Background: How We Got Here

- ISO proposes a standard 20 year asset life in their ORTP model for all generation technologies.

	ISO	RENEW	Links
MC August 11-13	Presented their financial assumptions regarding the ORTP recalculation process, including an assumption of 20 years for all technologies. Stated that they were aware of NYISO's decision to use a 17-year life for their net CONE recalculation process.	Presented memo with publicly available data supporting longer lifetimes for renewable energy technologies (25 yrs for wind, 30 yrs for solar), suggesting that this issue should be addressed in this ORTP recalculation process and should not be delayed to the next recalculation.	August 11-13 CEA Materials RENEW Memo

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Summary of RENEW's Concerns and Proposed Amendment

- ISO has used a 20-year asset life for all generation technologies in their ORTP calculations
  - Individual offer floor price reviews are also limited to assuming 20 years
- RENEW believes prevailing economic lifetime expectations for wind and solar have lengthened beyond 20 years since the last ORTP recalculation
- Limiting all technologies to 20 years in the financial model leaves out a significant share of expected revenues for some, leading to increased capacity payments required to make the generator whole
  - This leads to higher ORTP values, unnecessary review, and potential mitigation simply because ISO is not recognizing the full life expectancy of these technologies
- RENEW is proposing to eliminate the standard 20-year modeling requirement and add language such that the model should capture cash flows over the expected lifetimes for each technology

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Expected Lifetimes of Renewable Energy Technologies Have Increased

- As wind and solar technologies continue to mature, the expected lifetimes of these technologies continue to increase
- Lawrence Berkley National Lab recently published two reports detailing project lifetime expectations of solar and onshore wind industry professionals
  - Solar project lifetimes are expected to be 30 years or longer, with an average lifetime expectation of 32.5 years[1]
  - Onshore Wind project lifetimes are expected to be 25 years or longer, with an average lifetime expectation of 29.6 years[2]
- These expectations have increased over time
  - In 2016, an expected lifetime of 20 years may have been appropriate for onshore wind
  - In 2020 and in subsequent ORTP recalculations, an expected lifetime of 20 years is not and will not be appropriate for wind or solar

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1. https://eta-publications.lbl.gov/sites/default/files/solar_life_and_opex_report.pdf
2. https://eta-publications.lbl.gov/sites/default/files/wind_useful_life_report.pdf

Implications of Discounting a Technology's Lifetime in the ORTP Calculation

- Neglects revenues and expenses beyond 20 years
  - Does not recognize the full cash flow expectations of a generating facility which could lead to market discrimination
- As a result, certain technologies would need greater capacity revenues to make the generator whole in the discounted cash-flow model used by ISO to calculate the ORTP
  - This additional capacity revenue is unnecessary because these generators will still have positive cash-flows beyond year 20
- If certain technologies' expected revenues beyond 20 years are being neglected in the MOPR implementation, the capacity auction could clear at prices higher than equilibrium
  - This problem needs to be addressed, and RENEW believes it should be addresses as soon as possible

History of ORTP Asset Life Assumption

- Setting Offer Review Trigger Prices by modeling the expected asset life of the project is already done for New Demand Capacity Resources, both EE and non-EE (III.A.21.1.2(d))
- The reasoning behind the 20-year standard generator asset life, dating to the original MOPR compliance filing (ER12-953), was not discussed in detail by NEPOOL.
  - It was explained in one line of the Montalvo/Naughton testimony: "experience has shown that if nothing else, technological change (largely the efficiency advantage of new resources over old) erodes the margins available to existing units through time."
- Certain resources, particularly those without fuel costs, have inherent characteristics that allow them to remain economic for a longer period of time than what was considered when the MOPR was first developed.
  - With their engineering design life growing longer in recent years, these resources are now planned based on an asset life of more than 20 years.

RENEW's Proposed Amendment: Tariff Changes

RENEW's Proposed Changes for New Generators:

- Eliminate the requirement for the financial model to be fixed at 20-years
- Add language such that the model reflects the expected revenues and expenses over an asset's typical economic life, appropriately discounted
  - Tariff language would not specify project lifetimes to be used, as this may continue to change over time
  - Language allows project lifetimes to vary by technology
  - Similar to the dozens of other technology-specific assumptions that are developed and used in the ORTP calculation process

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RENEW's Proposed Amendment: Redlines

III.A.21.1.2 Calculation of Offer Review Trigger Prices.

(b) For New Generating Capacity Resources, the methodology used to recalculate the Offer Review Trigger Price pursuant to subsection (a) above is as follows. Capital costs, expected non-capacity revenues and operating costs, assumptions regarding depreciation, taxes and discount rate are input into a capital budgeting model which is used to calculate the break-even contribution required from the Forward Capacity Market to yield a discounted cash flow with a net present value of zero for the project. The Offer Review Trigger Price is set equal to the year-one capacity price output from the model. The model looks at ~~20 years of~~ real-dollar cash flows over the expected useful life of the project, discounted at a rate (Weighted Average Cost of Capital) consistent with that expected of a project whose output is under contract (i.e., a contract negotiated at arm's length between two unrelated parties).

Questions?

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