Exploring DWP Carbon Reduction

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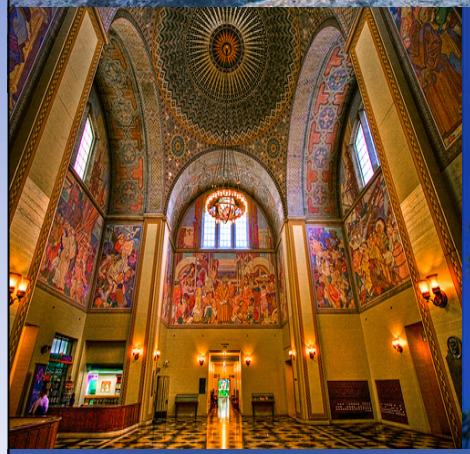


Realistic Evaluation of Cost vs Carbon for DWP Long-Term Plans

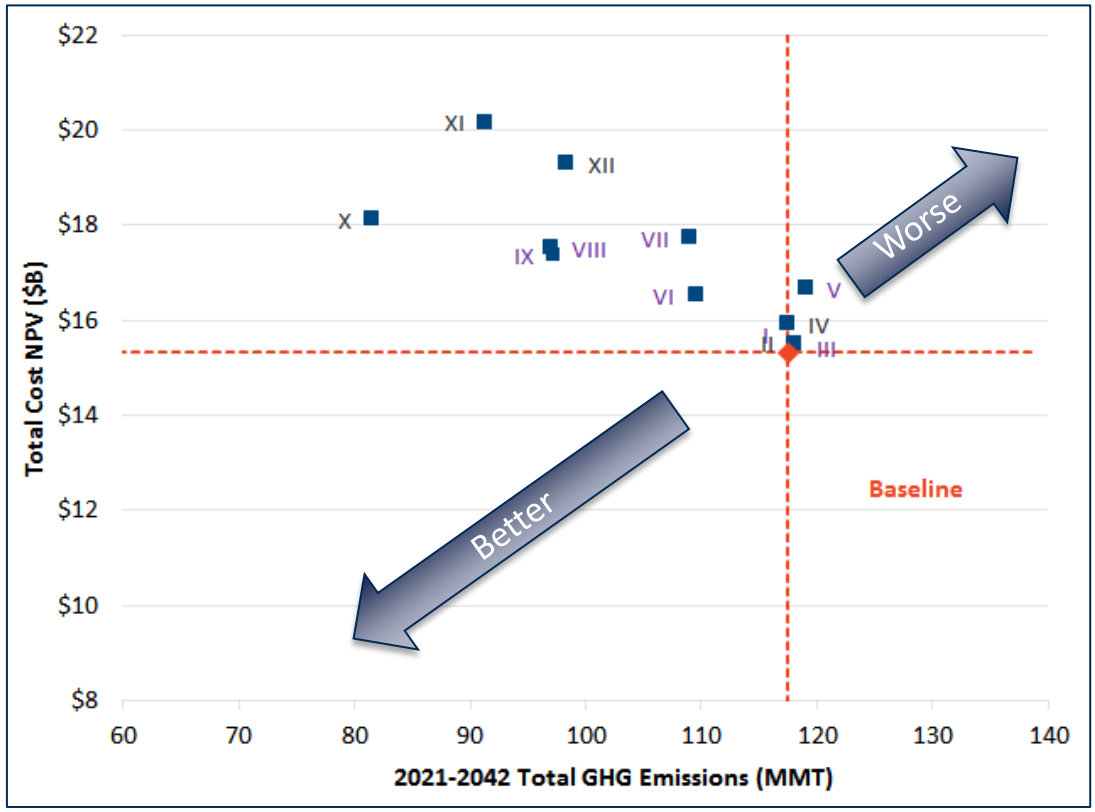
- Before looking far forward, let's look far back.
- Do we have enough detail in the right places?
  - Transmission and generation nodes? DWP or WECC?
  - Time scales from operation to new investment?
    - Thermal and *renewables*?
    - *Hydro, seasonal and multi-year?*
    - *Potential storage assets? New DER?*
  - Contingencies?
    - *Failures of assets – accidents, earthquakes, volcanic activity?*
    - *Speed of climate change? Or innovation?*
- The challenges of communicating this complexity…

Case Comparison – Cost and Emissions

Cost

Higher

Lower



Lower ⟷ Higher

GHG Emissions

Preliminary
Report to OPA
(March 2019)

Combined Cost Sensitivities – All Years

Combined (Higher/Lower Range + Discount Rate) Sensitivity

- Navy marks show NPVs for 5.3% DR Case with Higher Range assumptions.
- Teal marks show NPVs for 5.3%/10% DR Case with Lower Range assumptions.
  - Includes Baseline Case.

Current LADWP-wide emission is assumed to be around 181 MMT.
(based on 2022 ProMod simulation results)

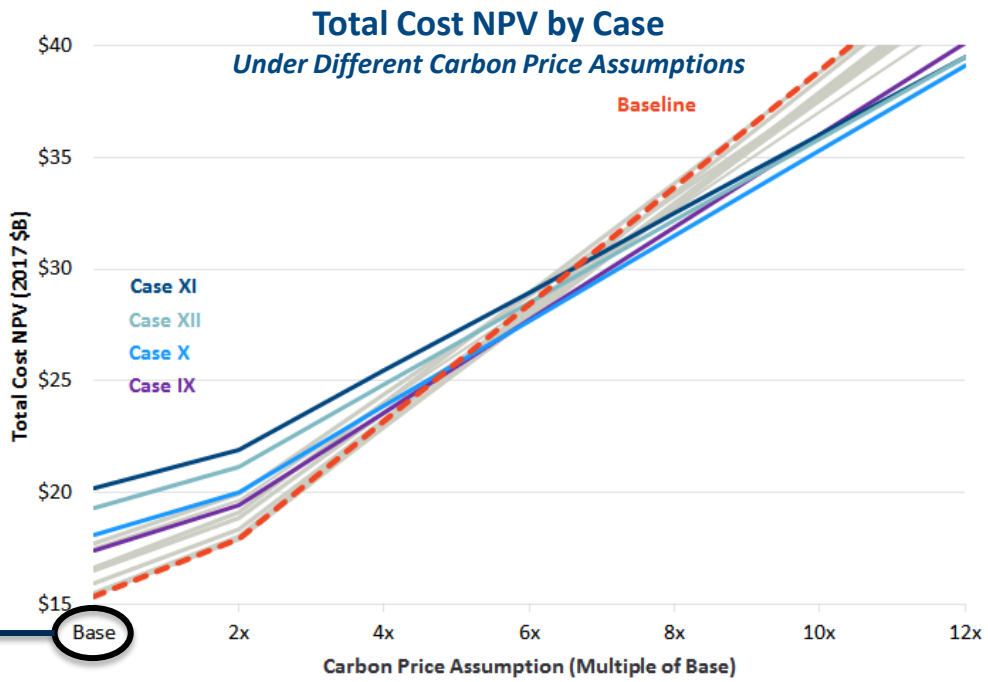
- Combined effect eliminates NPV difference among the various Cases, favoring higher number Cases (with less OTC repowering).

Carbon Cost Analysis – 2/2

As carbon price assumptions increase, the **total cost NPVs** increase for all Cases, but at different rates.

Base Carbon Price Assumption
Used for OTC Study

Year	Base Carbon Price *$/metric ton*
2022	$18.66
2027	$23.79
2036	$36.90



Observations:

- The Baseline NPV is the lowest cost option under Base carbon price assumptions, but becomes the highest cost option when carbon prices increase.
- Cases that involve less or no OTC repowering (IX, X, XI, XII) have comparatively low costs when carbon prices increase.