Rethinking Energy Efficiency Avoided Costs

A "Goldilocks" approach to calculating energy efficiency benefits.

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QUICK ROAD MAP

About CEE & UCS
Purpose of Analysis
Analysis Methods
Results and Conclusions
Recommendations
Questions

About UCS

Union of Concerned Scientists

- Founded 50 years ago by scientists and students.
- Seeks to use the power of science to address global problems and improve people's lives.
- Nearly 250 scientists, analysts, policy, and communication experts dedicated to that purpose.

About CEE

CEE'S APPROACH

Data Driven

Community Based

Consumer Focused

cee
Center for Energy and Environment

Purpose

Why do we need to rethink how MN calculates avoided costs?

Minnesota Efficiency Process

- Minnesota's history of energy efficiency

- Minnesota's Conservation Improvement Program (CIP)

- Evolving efficiency with our evolving electric system
  - Current methodology is shows efficiency to offset renewables
  - Current methodology and results are not accessible or transparent
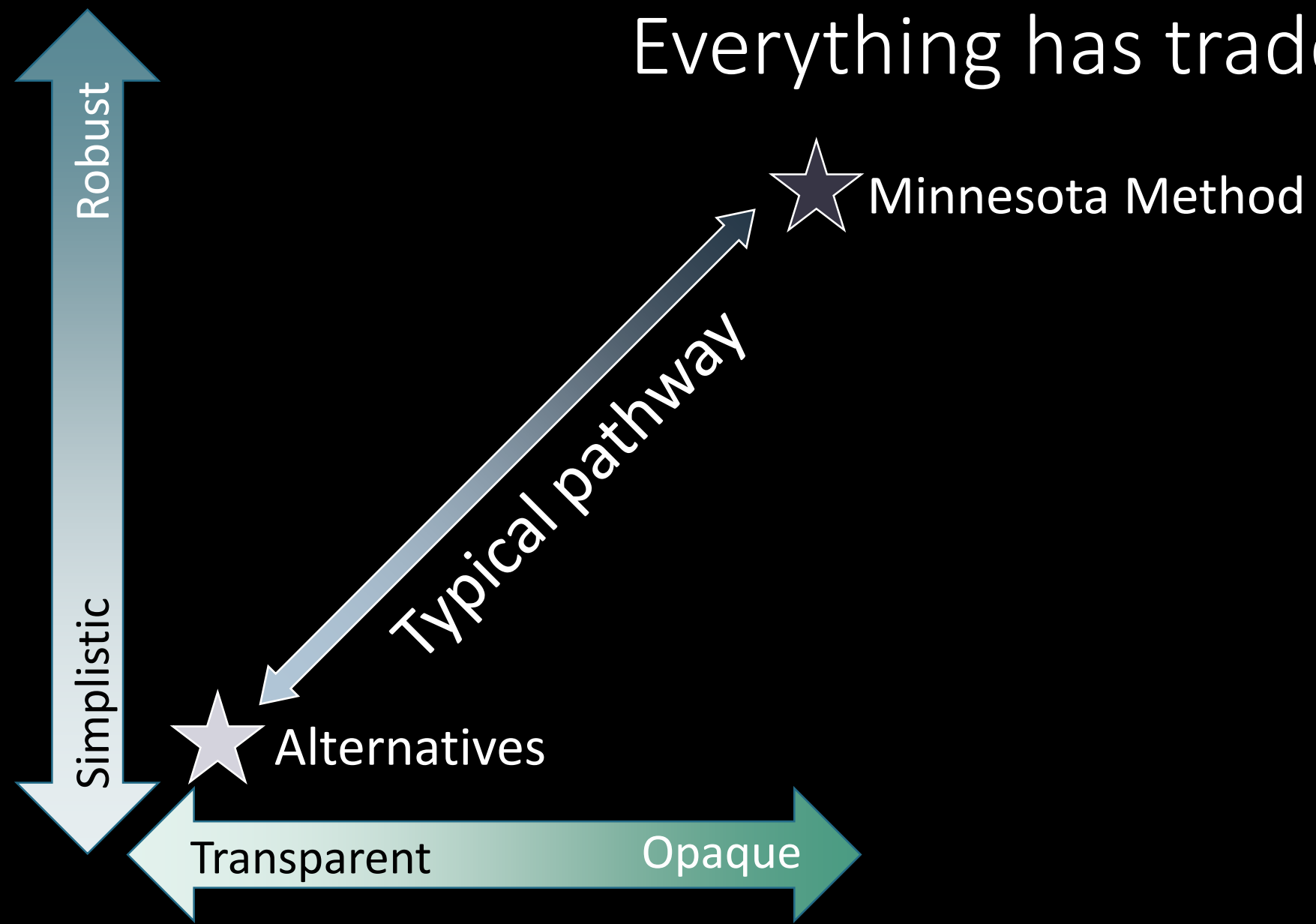
Robust and complex isn't always optimal

#1: Renewables are not the marginal resource

Everything has tradeoffs, but..

Robust

Simplistic

Typical pathway

★ Minnesota Method

★ Alternatives

Transparent   Opaque

Analytical Methods

What is the Minnesota Method and how does it differ from other options?

Methodological options

Proxy Unit
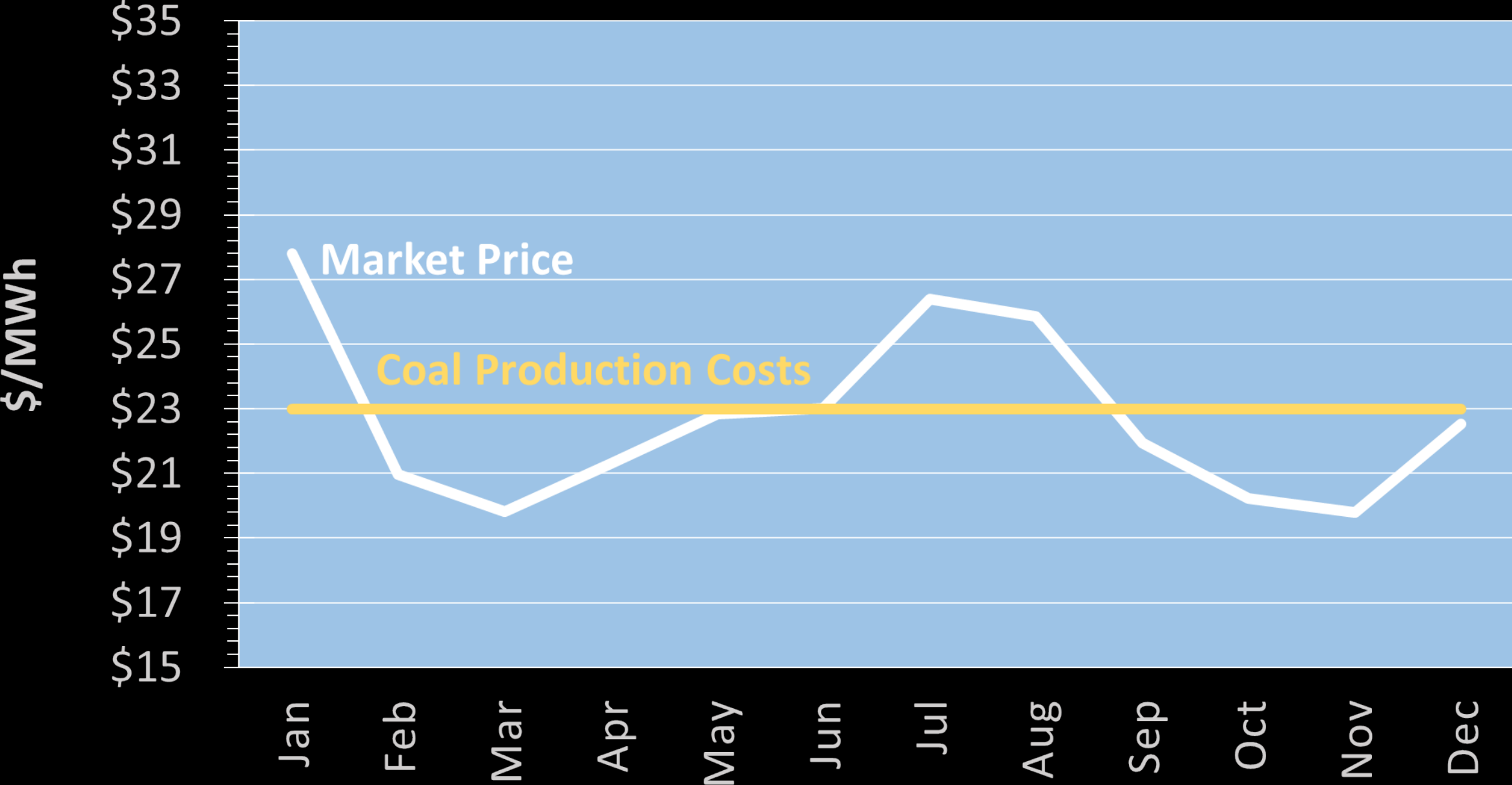Assumes a specific unit is displaced by EE, the costs of the unit are the "proxy" benefits of EE. Peaker method is subset.

Market Calculation
Either historical LMP or use of optimization modeling software to run 2 scenarios (w/ and w/o EE). Can model different EE profiles.

AVERT Blended
Uses statistical software to select a portion of multiple units on system are displaced based on historical operation patterns.
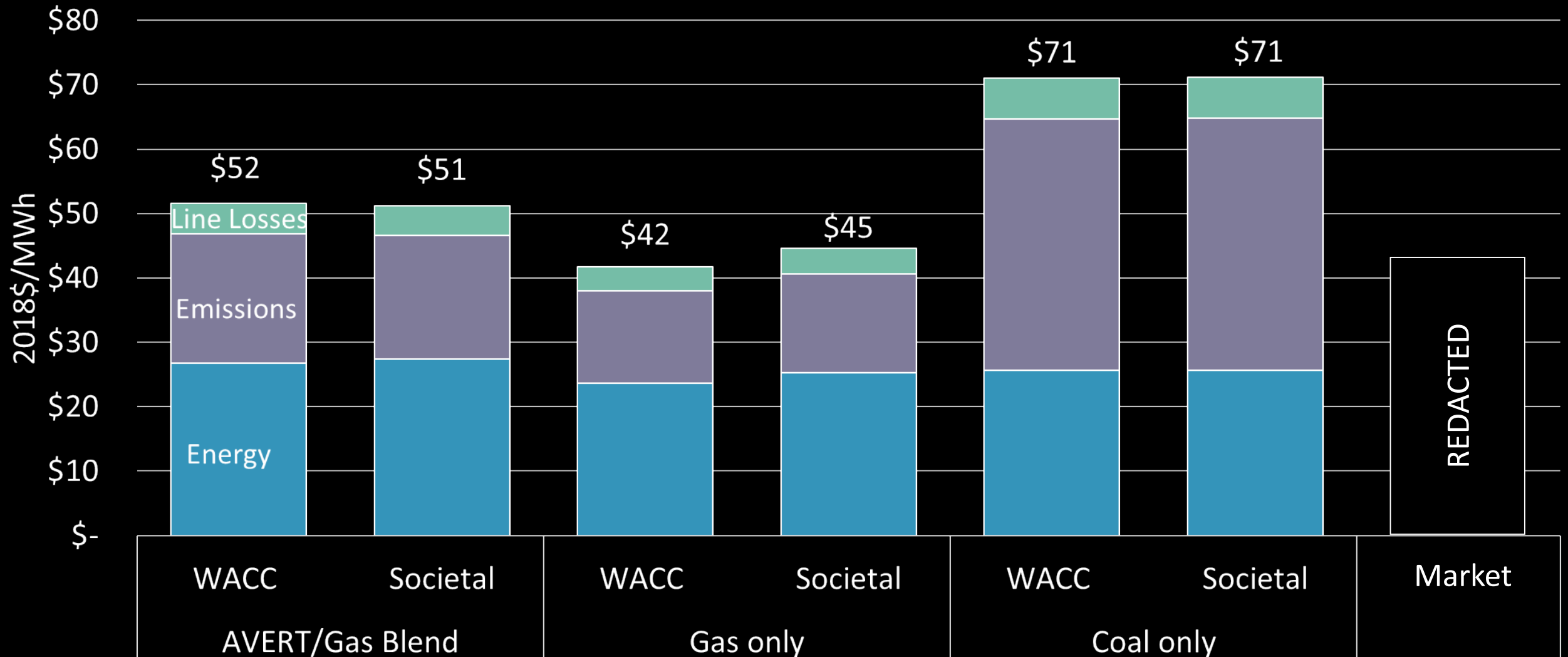
MISO Market Prices

Everything has tradeoffs, but..

Robust

Simplistic

AVERT/Blend

Market Calculations

Typical pathway

Peaker/Proxy Plant

Transparent

Opaque

Results & Conclusions

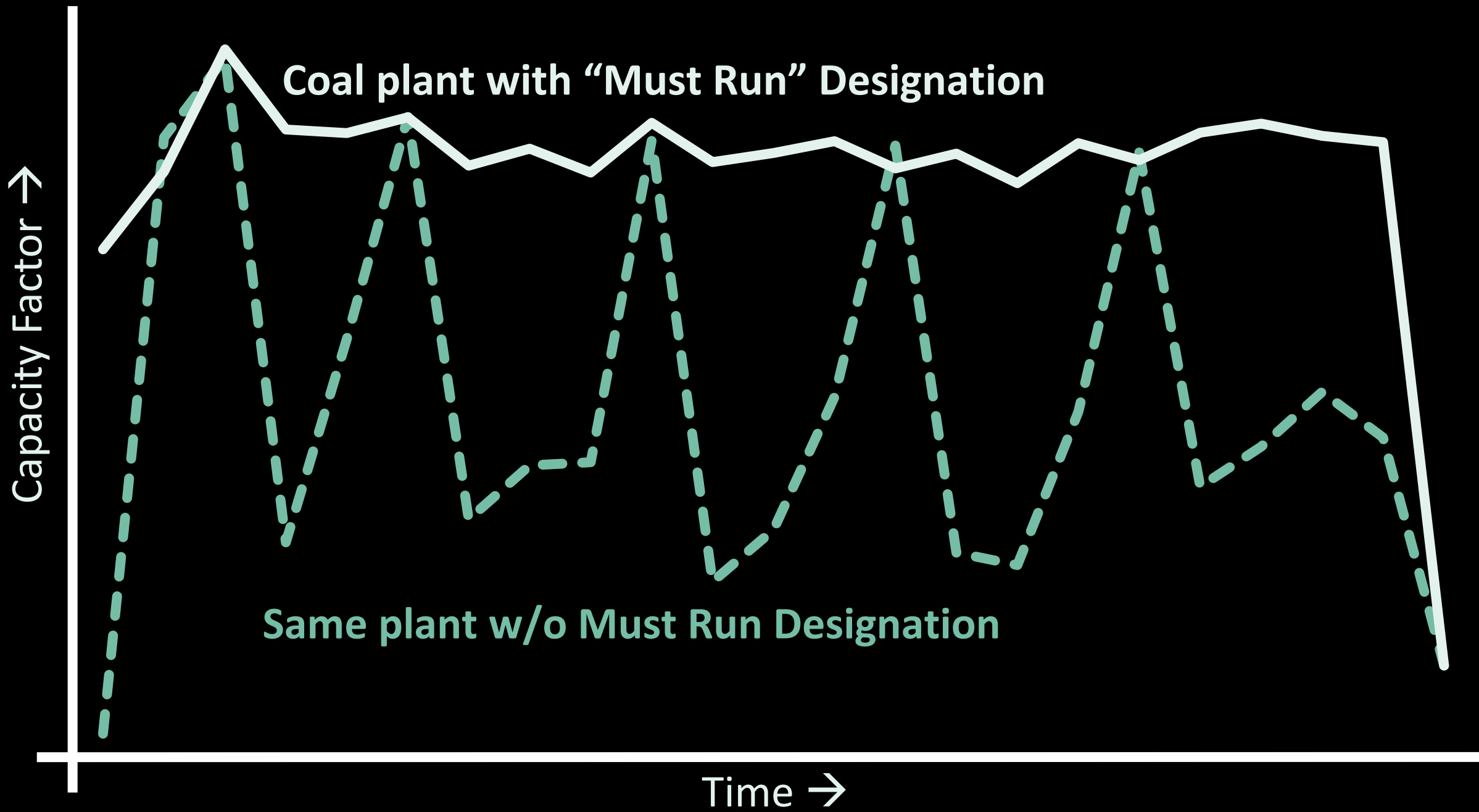Comparative Results for Avoided Energy and Emissions

Recommendations

Recommendations

- Efficiency should displace the highest cost, highest emitting generation resources.

- Avoided cost methodologies should be transparent, accessible, and auditable.

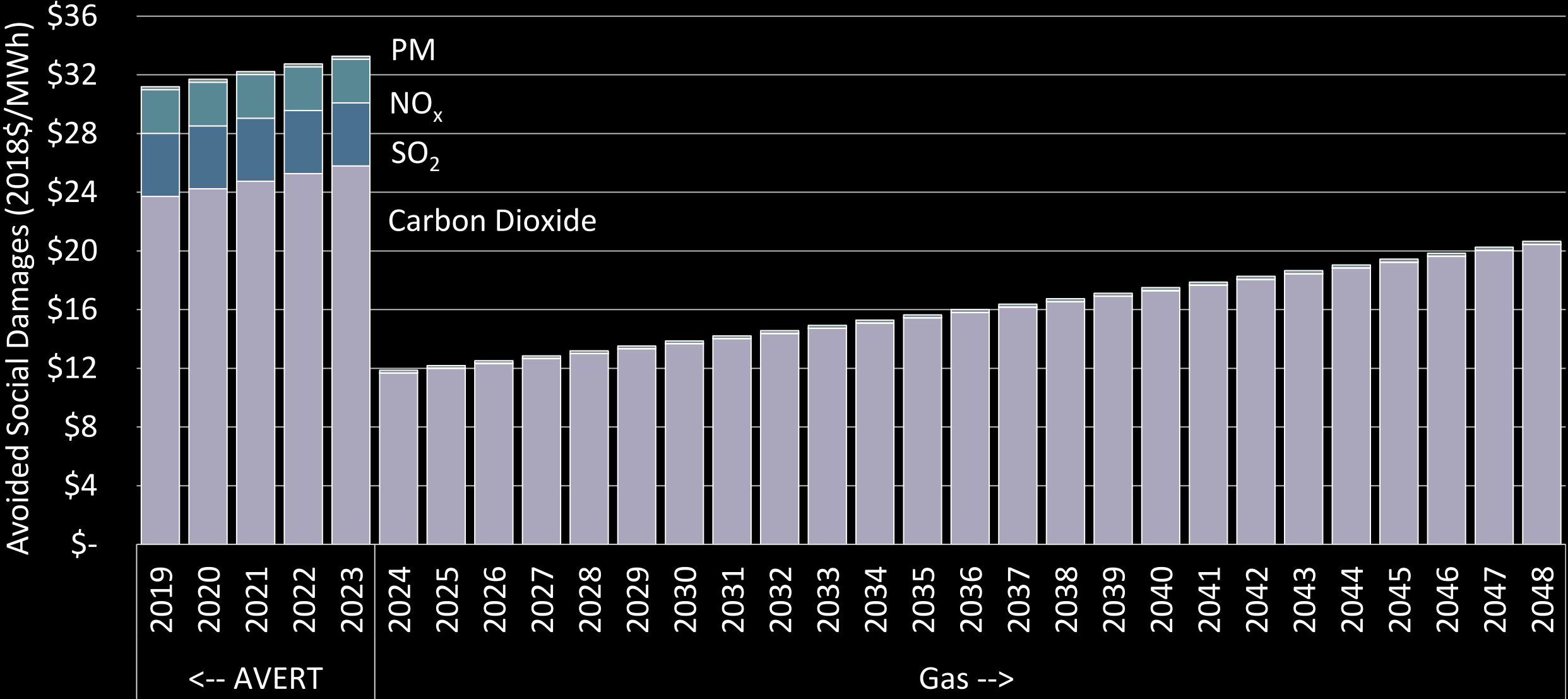- If a dispatch model is used, constraints like "must run" designations should be removed.

Questions?

Appendix

Coal plant with "Must Run" Designation

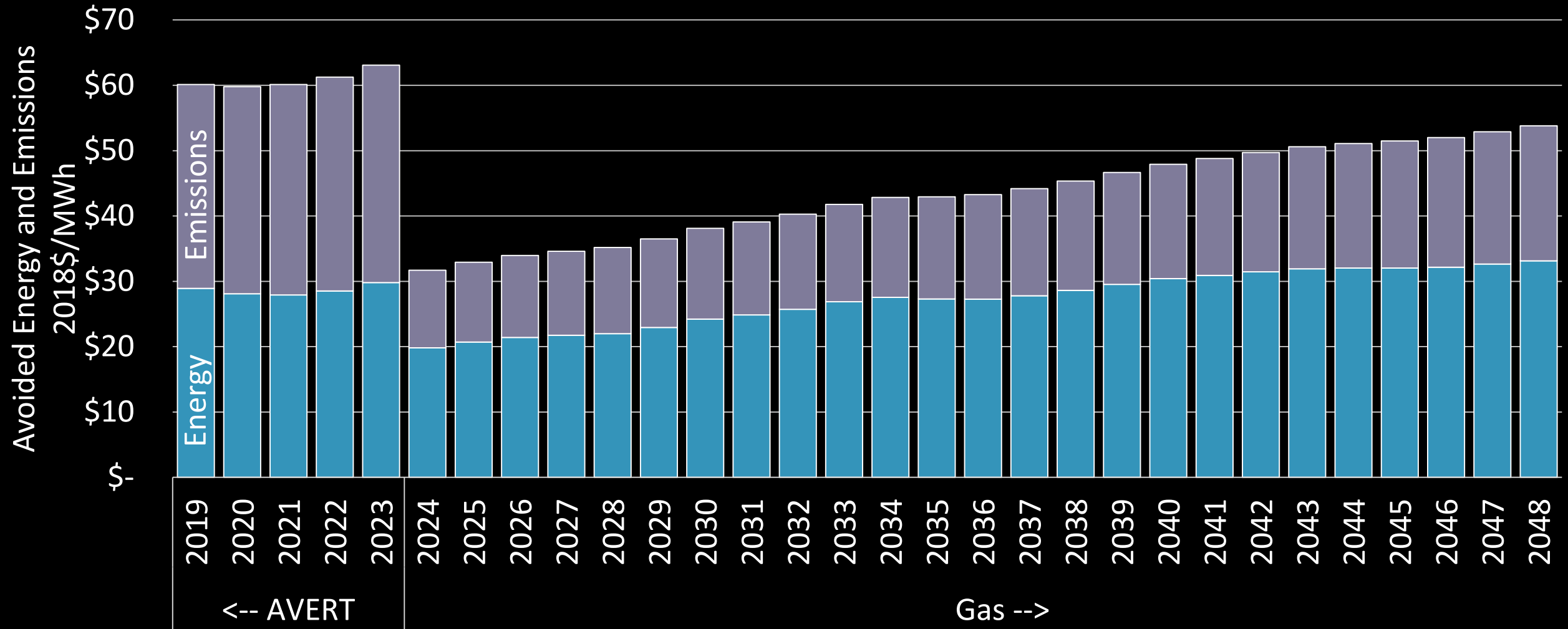**Same plant w/o Must Run Designation**
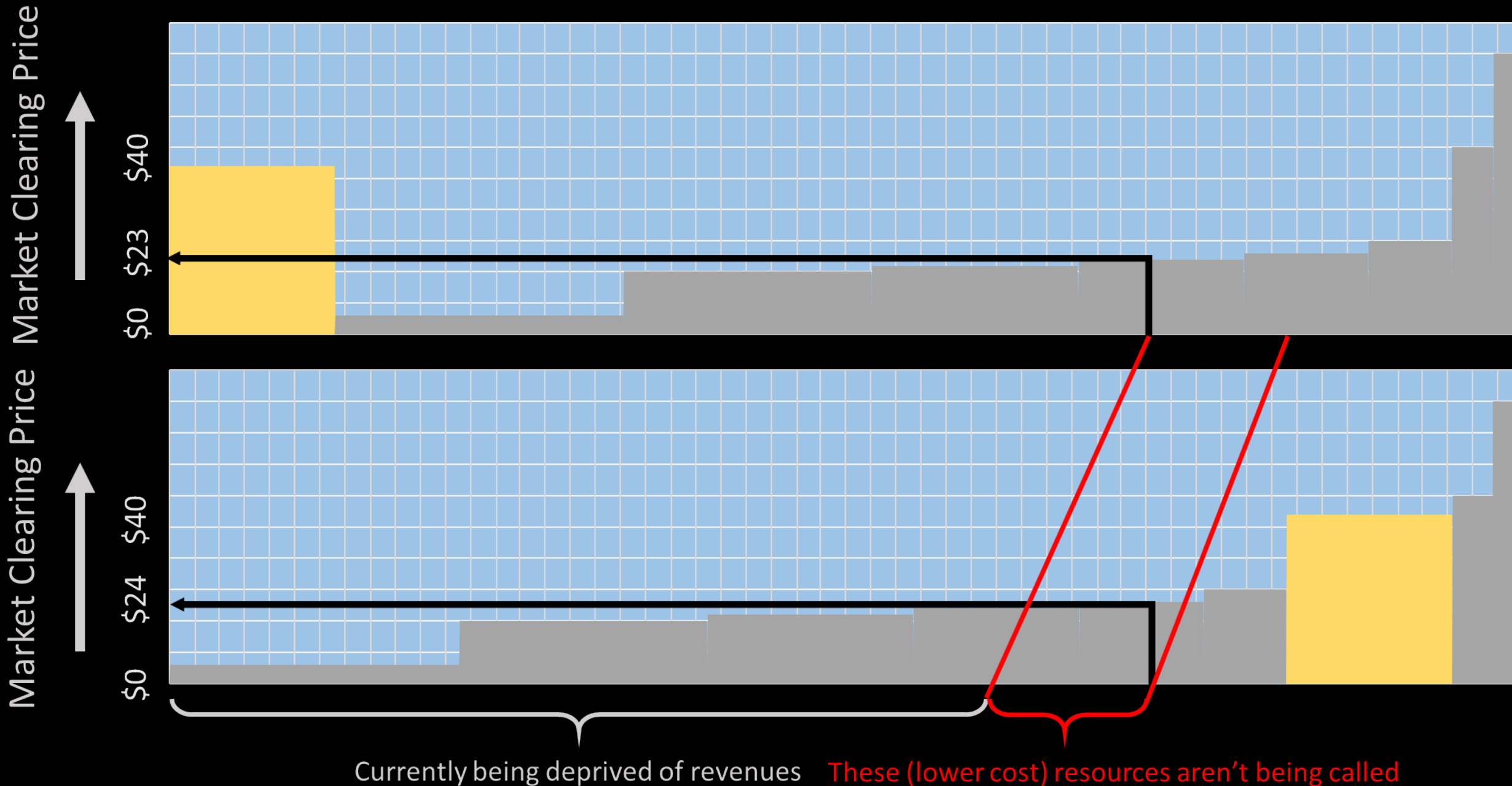
Capacity Factor →

Time →

Monetary Value of Avoided Emissions

Projection of Avoided Energy and Emissions

Out-of-merit Generation - Visualized

If Current Coal Operations Are Uneconomic, Change Operations