

# **Low Carbon Grid Study**

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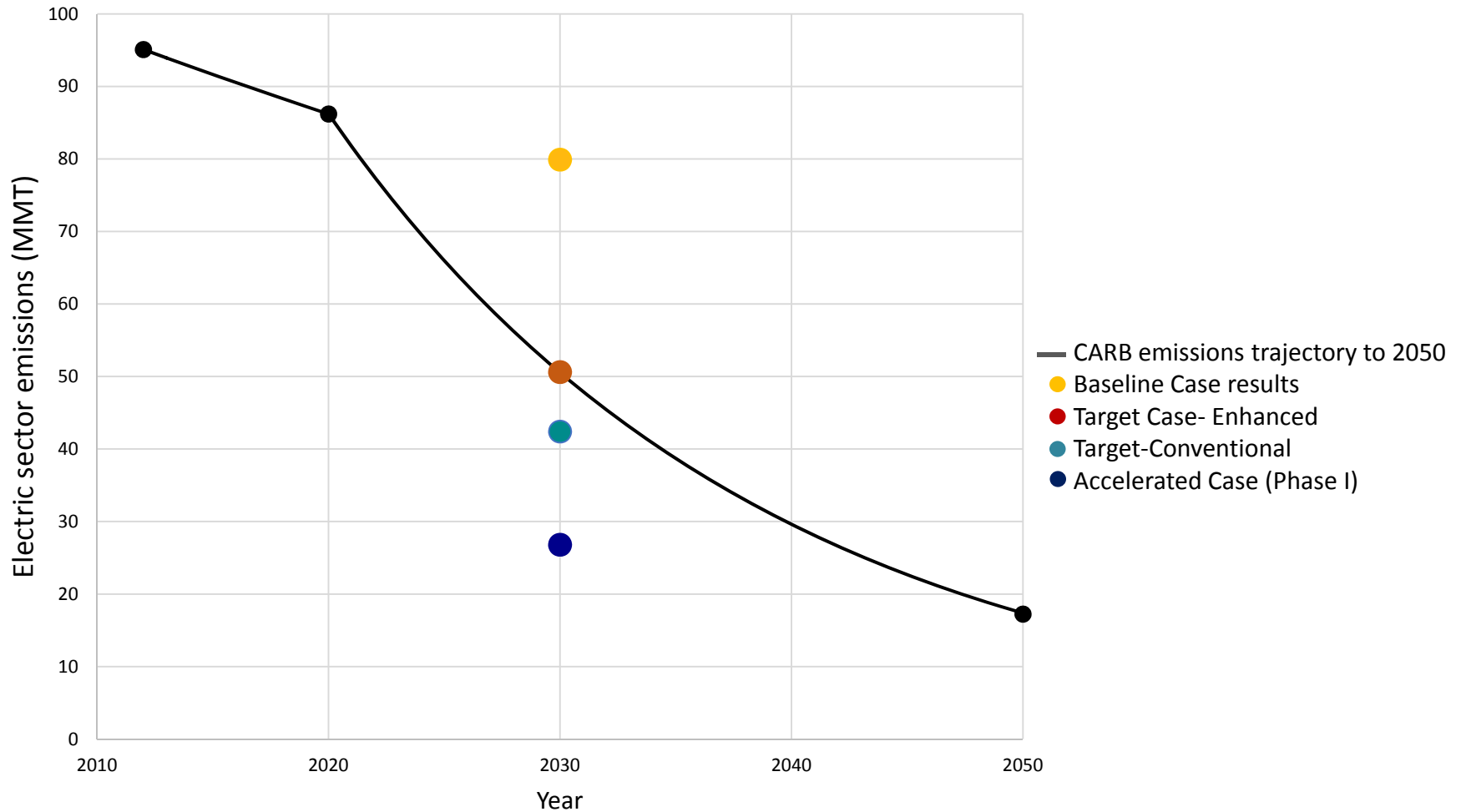
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# Low Carbon Grid Study

## Carbon Emission Trajectories



# Low Carbon Grid Study

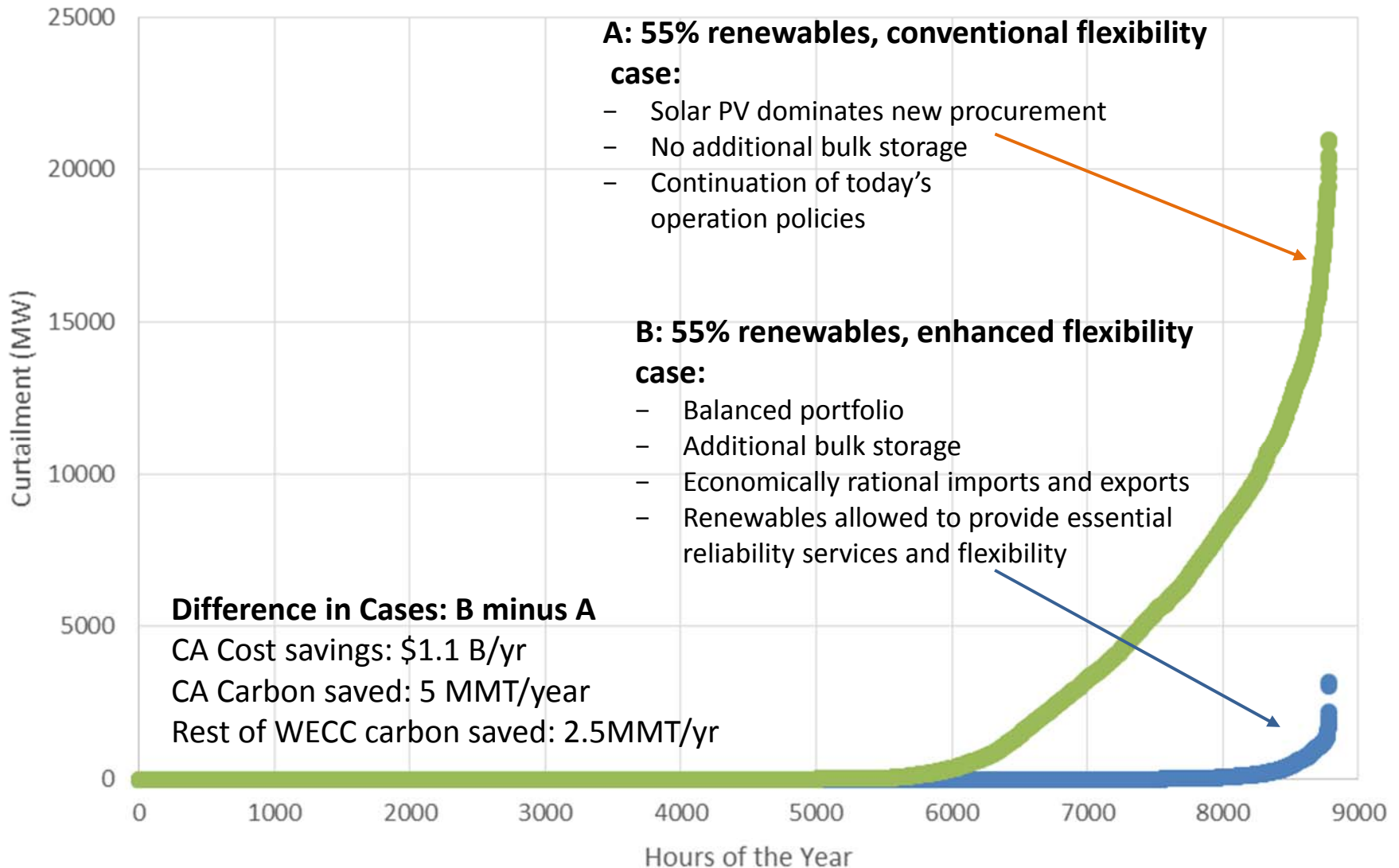
## Curtailment of Renewable Energy

### A: 55% renewables, conventional flexibility case:

- Solar PV dominates new procurement
- No additional bulk storage
- Continuation of today's operation policies

### B: 55% renewables, enhanced flexibility case:

- Balanced portfolio
- Additional bulk storage
- Economically rational imports and exports
- Renewables allowed to provide essential reliability services and flexibility



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## Value of a Diverse Portfolio

- **Conducted additional modeling to isolate the importance of a diverse portfolio at 50+% RPS:**
  - Removed 10 twh (1250 MW) of Salton Sea geothermal and replaced it with 10 twh (3800 MW) of CA utility scale solar PV.
  - Removed 19.5 twh (4475 MW) of Wyoming and New Mexico wind and replaced it with 19.5 twh (7625 MW) of CA utility scale solar PV.
- **Results:**
  - Salton Sea geothermal is more valuable than solar PV at the margin by as much as \$75/MWH if the grid is not made more flexible (Case A), and \$40/MWH, after adjusting for the cost of new storage, if the inherent flexibility in the grid is fully utilized (Case B).
  - The first large increment of Wyoming and New Mexico wind is net, net about \$60/MWH more valuable than the last large increment of solar PV.

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Thank you!

[www.lowcarbongrid2030.org](http://www.lowcarbongrid2030.org)