

US 2020 Energy Market Value

Reference Case

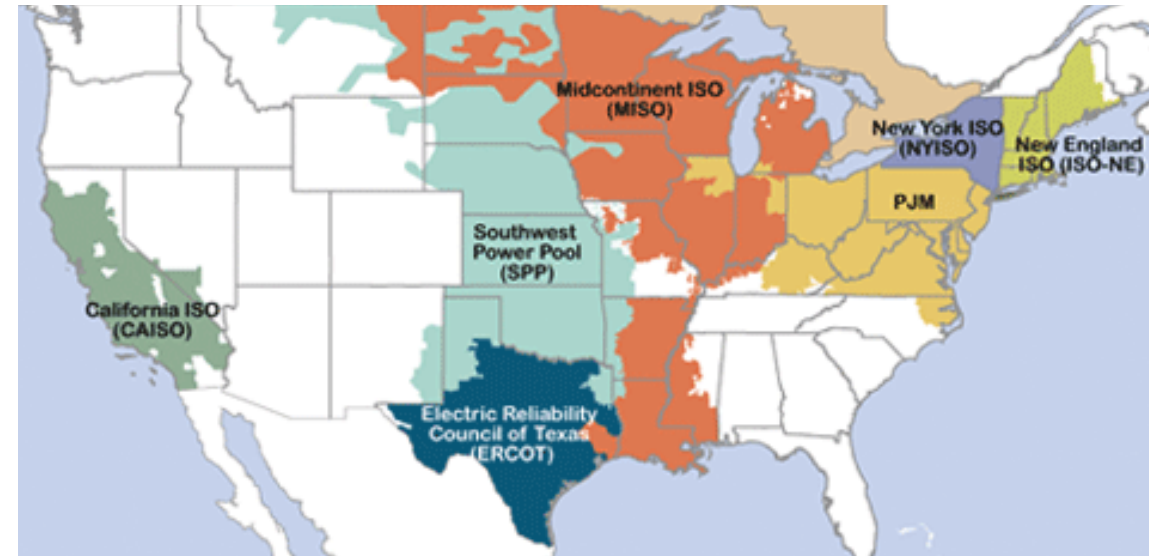
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Case Description

Value of Energy Shifting

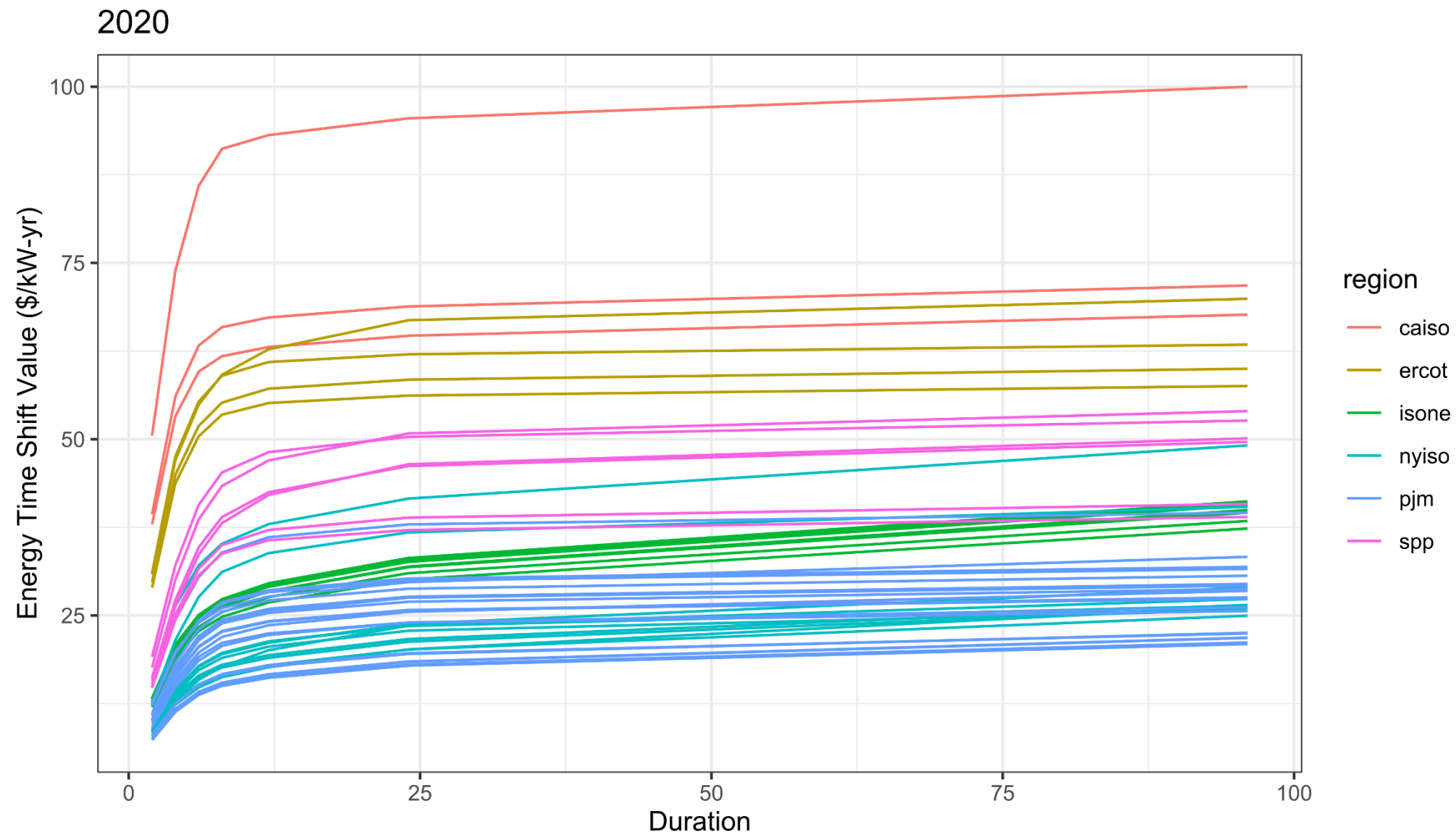
- Hub-level across United States ISO/RTO regions
- Energy time shifting only
- Very simple storage model
 - 85% roundtrip efficiency
 - Variable duration (2-96 hours)
 - No auxiliary load, self discharge, minimum power, etc.



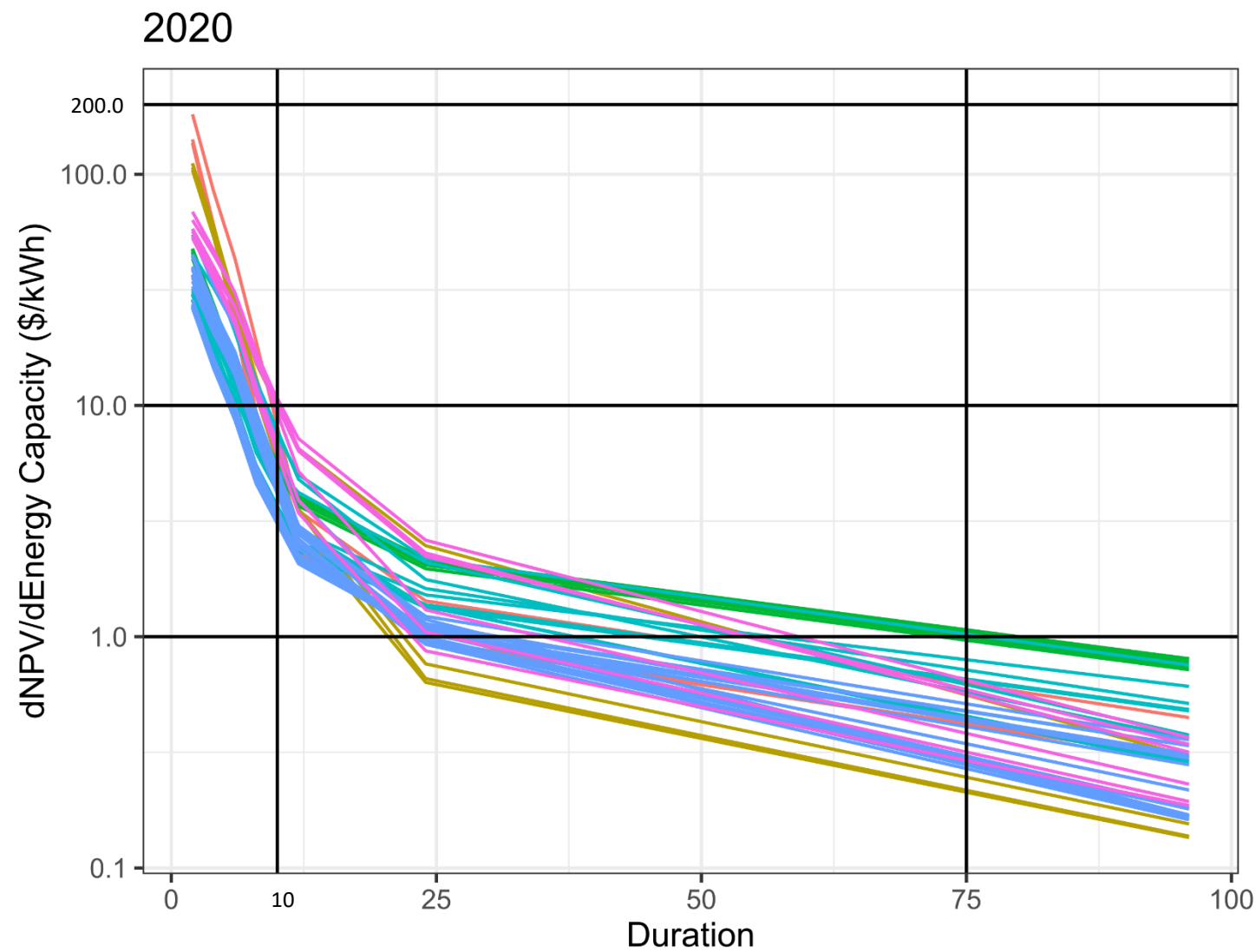
Setup

- Install command line version of DER-VET and StorageVET as a sub-module
- Download Reference Case .zip file and extract contents
- Move model parameters files to dervet folder
- Move run_all.bat to dervet folder
- Move timeseries data files to dervet\storagevet\data\Timeseries Files
- Move other data files to dervet\storagevet\data
- Run all cases at once with run_all.bat file on Windows
 - Open anaconda prompt
 - cd to dervet directory
 - Activate DER-VET virtual environment
 - Type “run_all.bat” and hit enter

Results



Results



Assuming 10yr life
and 7% discount rate

Conclusion

- No capacity value or other services (note, ERCOT is included)
 - Future work could add in capacity value, where applicable
- Only looked at one historical year of data (2020)
 - Future work could bring in projections
- Only highly simplified Li-ion reference specs were used
 - Longer lived, lower efficiency technology options would be interesting, especially for the longer durations.
 - More detailed technology specs could improve results

A blue-tinted photograph of four people, two men and two women, standing in a row. They are all wearing white lab coats with the EPRI logo on the left chest. The man on the far left has curly hair and glasses. The man next to him has short dark hair and glasses. The woman next to him is wearing a white hard hat and has short dark hair. The man on the far right has a beard and glasses. They are all smiling and looking towards the camera. The background is a solid blue color.

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