

Clean Reliability: What does California need to ensure grid reliability while reducing fossil fuels?

Senate Energy Utilities and Communications Committee
Subcommittee on Clean Energy Future

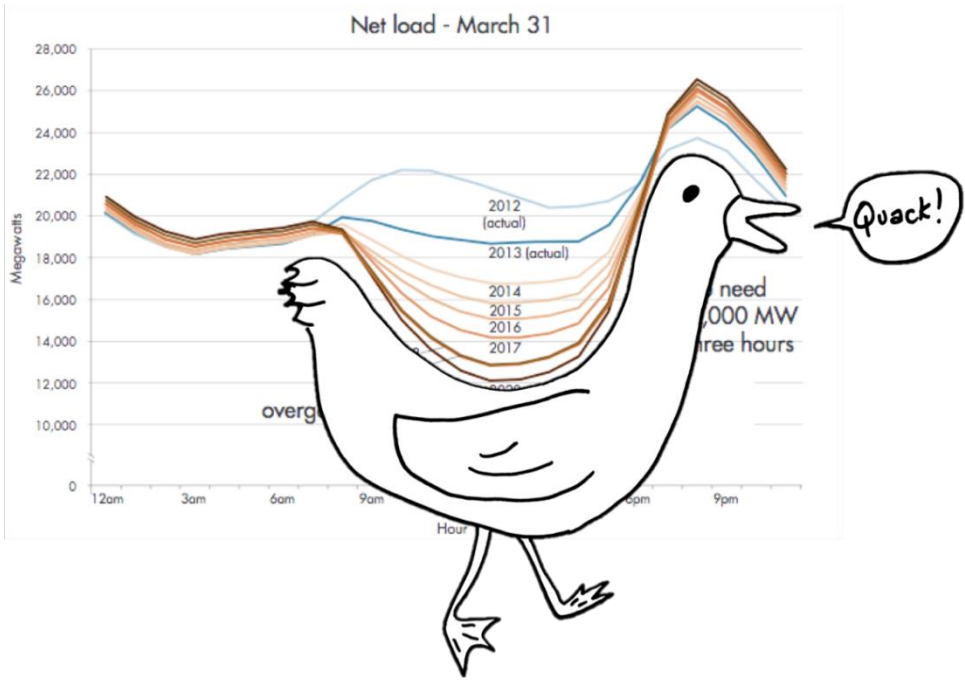
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What are the causes and consequences?

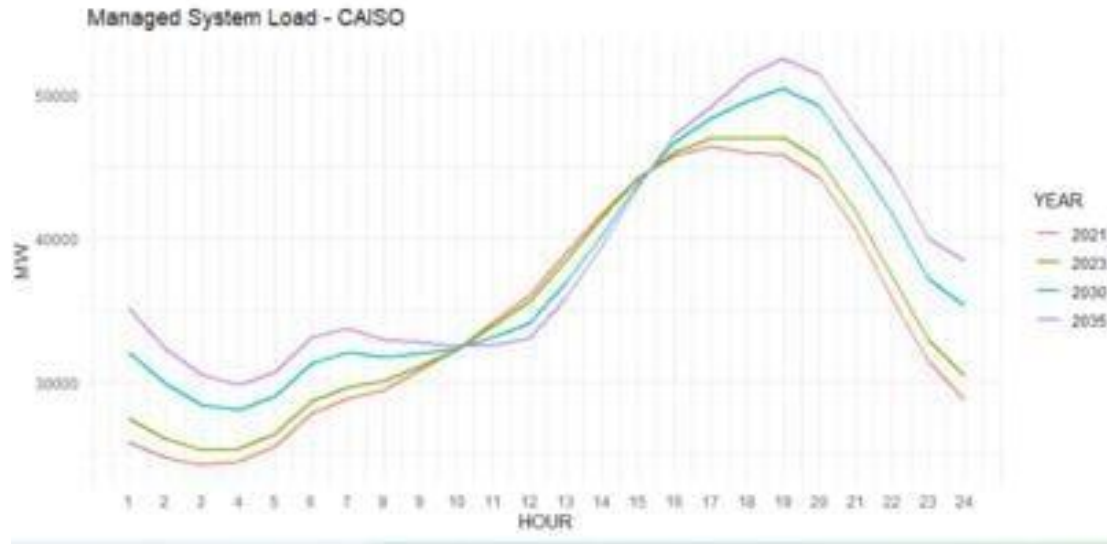


- Reliability concerns occur when there is insufficient power available
 - Proper planning and forecasting is key!
- It is not just about total power, it's about certain locations and certain times of day.
 - We need the electricity to be available in congested areas at certain times
 - Note: because of covid and unusual weather patterns, energy demand and usage patterns are not "normal"



Climate change is changing things

CAISO peak hour shifts from hour 17 (PST) to hour 19 by 2023



Why fossil?



- CCGTs can run when we ask for as long as we ask
 - We need the gas to be able to get there, which is harder
 - We need the wires to get from the generator to the load pockets
- In addition to GHG, there are local impacts – both air quality and coastal impacts
- There are both affordability impacts and other externalities that need to be mitigated

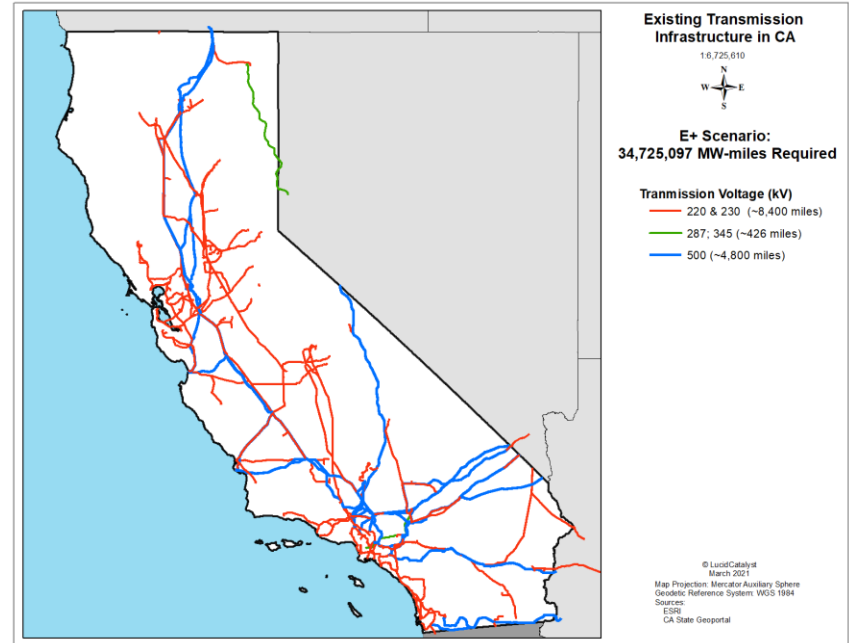
Non-fossil strategies are viable – short term

- Customer owned investments (DERs)
 - Clean investments make sense – compensate customers accordingly
- More import/exports – going from near term trades to a day ahead (EIM => EDAM)
- Short duration storage
- Customer price signals



Non-fossil strategies are viable – longer term

- More reliance on a western wide grid
- More transmission
- More long duration storage
- More clean firm power



Thank you!

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