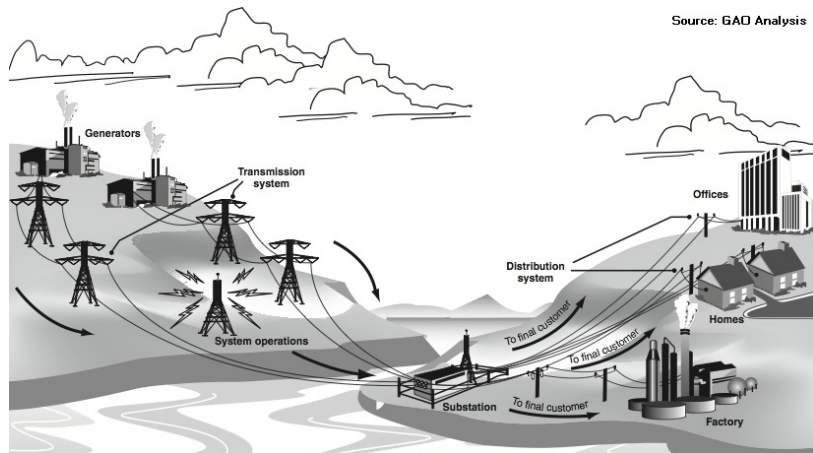


Keeping The Lights On: Michael C. Ferris

Source: GAO Analysis



Determine generators' output to reliably meet the load

New Zealand's prime minister wants
fully renewable by 2035

Share Tweet

After defying all odds and becoming New Zealand's leader at only 37, Jacinda Arden wants the country's electrical grid to be powered fully by renewable energy.



DEEP DIVE

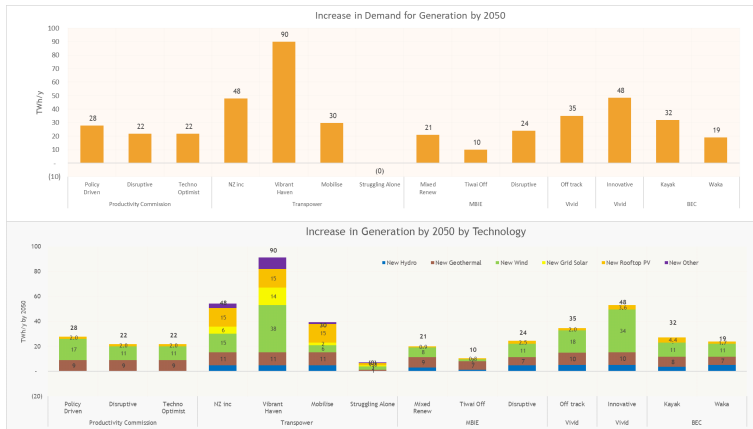
California strives to nix its natural gas habit without letting the lights go out

Switzerland votes to phase out nuclear energy and switch to renewables

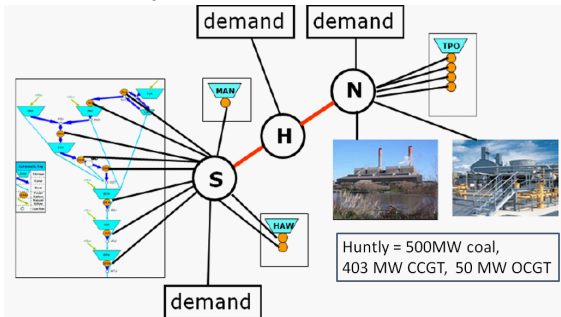


What does fully renewable mean?

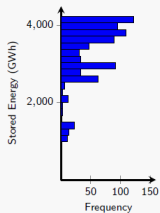
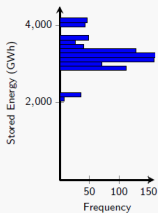
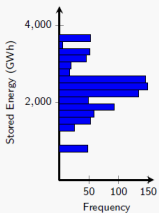
- Permanently shutdown all thermal plants?
- Control GHG emissions from electricity generation?



It works, but its complicated...

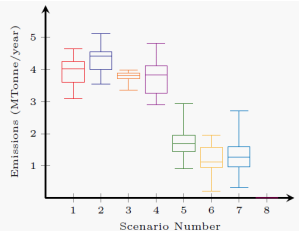


Water as a battery, but

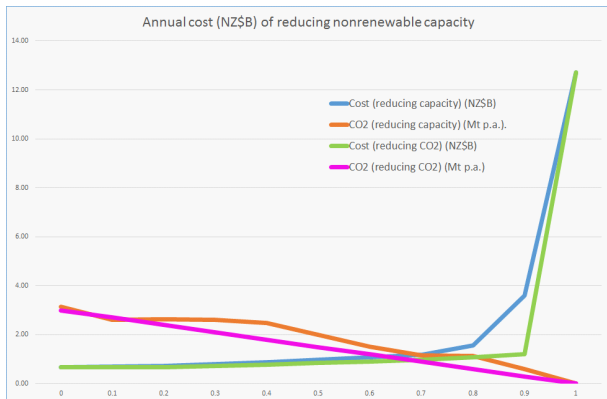


Scenario 1: Full Huntly Scenario 2: Gas Only Scenario 3: No Huntly
 Ferris (WID and CompSci) Keeping The Lights On

carbon emissions???



What does it cost?



sweet spot: 85-90% ↑

Data driven mathematical models:

- Uncover interconnection effects
- Enhance economic efficiency
- Improve operational reliability
- Inform political debate