Concerning IRP Assumptions

... and Better MicroGrid Scenarios

Mike Barker
BSc Elec Eng LEED AP
ASHRAE CIBSE IBPSA IEEE SAIEE

www.BuildingPhysics.co.za
Energy Wars

Episode VII

THE FORCE AWAKENS

Good vs Evil

Really?
All Good?
Many sides to the Story
What if there was a Win – Win?
Remember ... all the Dinosaurs died
What came next was smaller & better
#BaseLoadist (bēsˈləudˈist), n, a person who :-
- can’t conceive of any electric delivery system beyond massive centralised plants (eg. fossil fuel, nuclear, & even renewable plants).
- is unaware of the #SmartGrid and the value of contributing #SmartLoads.
- will not accept that PV & Storage will become ubiquitous, something that will simply happen in any infrastructure.
Every Building can be both Power Station and Petrol Station
#EnergyDemocracy - only for the Rich?

[Fully autonomous! I left the grid a year ago.

I am in a different situation. The grid just left me.

I haven't been able to pay the electricity bills for more than a year now.

Image of solar panels and other equipment.]
Duck Curves
& what keeps Mr Koko awake at night

California Independent System Operator Duck Curve

Net load - March 31

Ramp need
~13,000 MW in three hours

Overgeneration risk

Megawatts

12am 3am 6am 9am 12pm 3pm 6pm 9pm
Shape-Shifting Building Loads

![Graph showing electric load over the day for Office Building A and Office Building B. The graph illustrates the morning ramp-up, morning catchup, evening setback, and evening shoulder phases.](image-url)
Shape-Shifting Building Loads

Optimal Dispatch for Electricity Technologies (July-week)
“We shape our buildings, and afterwards our buildings shape us”

Winston Churchill
We shape our buildings,
and afterwards,
our buildings shape ESKOM’s peak demand