

# Resource Adequacy, Rolling Blackouts and Wildfires

**Mark O'Malley**

Chief Scientist, Energy Systems Integration Group

Chair Research Agenda Group, G-PST

Professor of Electrical Engineering, UCD



# Opening Remarks

## Content

- 38 days of .....
- Wildfires



## House Keeping

- Charlie's instructions
- Audience participation
- Q & A at the end – Slido – ESIG8

# The Panel, Plan & You

Phil Pettingill, ISO Director, Regional Integration, CAISO



Ben Jones, Supply Adequacy Stream Lead, Australian Energy Market Operator (AEMO)



Audience Participation



David Bones, Executive Manager Risk, Assurance and Regulation, GHD Advisory



Erik Ela, Senior Technical Leader, EPRI



Arne Olson, Senior Partner, E3



# How we got to where we are and where are we

IEEE TRANSACTIONS ON POWER SYSTEMS, VOL. 26, NO. 2, MAY 2011

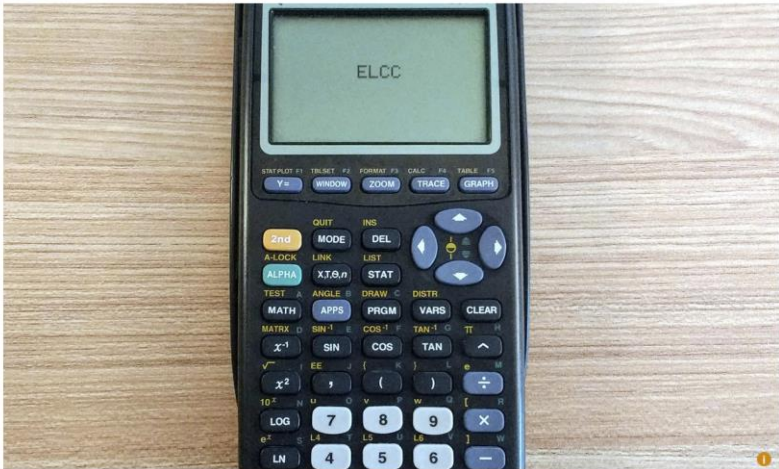
## Capacity Value of Wind Power

Task Force on the Capacity Value of Wind Power, IEEE Power and Energy Society

**Union of Concerned Scientists**  
Science for a healthy planet and safer world

[ BLOG ] UNION OF CONCERNED SCIENTISTS

SEARCH




**ELCC Explained: the Critical Renewable Energy Concept You've Never Heard Of**

MARK SPECHT, ENERGY ANALYST | OCTOBER 12, 2020, 5:25 PM EDT

Support Our Work

[DONATE](#)

Stay Informed via email from UCS



MARK SPECHT is an energy analyst for the Climate & Energy program at the Union of Concerned Scientists.

[READ MARK'S POSTS >](#)  
[MEET OUR OTHER BLOGGERS >](#)

TOPICS 1

# Challenges of the Quantitative Assessment of Gas-Electric Interactions

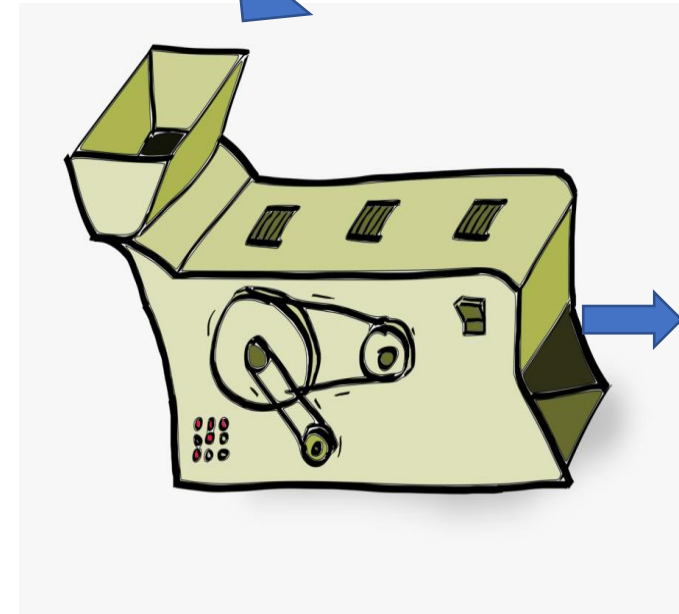
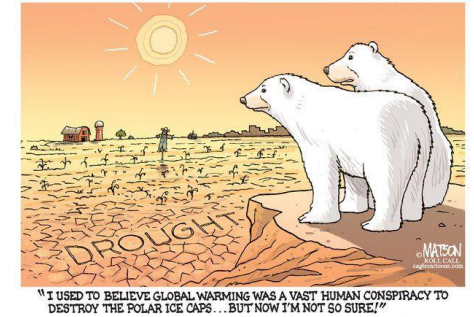
- Operational models of natural gas pipelines
- Resource adequacy electric models that capture transmission details
- Gas-electric coordination models
- Incorporating weather into analysis
- Data availability challenges

**Gas and Electric Coordination and  
Co-Optimization**  
*Aleksandr Rudkevich*

**ESIG 2021 Spring Technical Workshop  
Session 11  
Co-optimization Techniques and Results  
April 6, 2021**

# There is a lot more going on and it is all happening together

- Wind and solar PV – increasing penetrations
  - lack of data and operational experience
  - it is about net load not peak load
- Storage and demand side
  - how they are operated impacts on resource adequacy
- Flexible demand is changing the meaning about ability to meet the demand
- Electrification of heat and transport
  - increases the dimension of the problem space
- The underlying statistics are all changing – metrics may not capture - is there a metric for resilience ?
- All models are approximations – as things change need to revisit from time to time (**daily !**) to make sure the approximation is still good
- And what about the Politicians & Climate Change



Resource Adequacy

# Two important initiatives



<http://globalpst.org>

## Inaugural Research Agenda

### Redefining Resource Adequacy for Modern Power Systems

an ESIG System Planning Working Group Task Force

**PROJECT OBJECTIVE**

Evaluate novel resource adequacy methods and metrics necessary for system planning and reliability with a changing energy mix, new technologies, and decarbonization goals.

**RESEARCH QUESTIONS**

- What methods and metrics are required to identify long term scarcity of capability to maintain reliability?
- What additional probabilistic planning methods and tools are necessary for planning a power system with a high share of renewables, storage, and flexible load?

*adopted from Global Power System Transformation Consortium Research Agenda & Action Plan*

**PROJECT TEAM**

**Core Project Team:** Derek Stenclik (Telos Energy), Aaron Bloom (NextEra), Wesley Cole (NREL), Gord Stephen (University of Washington), Armando Figueroa Acevedo (B&V), Aidan Tuohy (EPRI)

**Target ISO Participation:** AEMO, CAISO, ERCOT, MISO, NYISO, and others

**Working Group Affiliates:** Michael Milligan, Rob Gramlich (Grid Strategies), Chris Dent (University of Edinburgh), Nick Schlag (E3)

**PROJECT TIMELINE & DELIVERABLES**

**FIND OUT MORE**

**ESIG Blog:** [Five Principles of Resource Adequacy for Modern Power Systems](#)  
**ESIG Webinar:** [Redefining Resource Adequacy for Modern Power Systems](#)  
**Contact Derek Stenclik:** [derek.stenclik@telos.energy](mailto:derek.stenclik@telos.energy)