



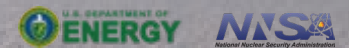
Sandia
National
Laboratories

Sandia PUC Policy and Outreach, and Energy Storage and Decarbonization Modeling with PUCs



DOE OE Energy Storage Program Annual
Meeting and Peer Review

Howard Passell



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SNL Policy and Outreach Program



Sandia is funded by the Energy Storage (ES) Programs Office in the DOE Office of Electricity to provide policy analysis and outreach for regulatory commissions around the U.S.

Washington DC DOEE, Oct./Nov. 2022

Illinois Commerce Commission, Dec. 2021/Jan. 2022

FEMA & ISU Microgrids & ES Webinar Series, June/July 2021

Wisconsin PSC Webinar Series, April-July, 2021

NECPUC ES Webinar Series, Mar.-June 2021

New Jersey BPU ES Webinar Series, Jan.-Mar. 2021

Iowa State Univ./MISO ES Webinar Series, July-Oct. 2020

Utah Governor's Office of Energy Development Webinar Series, July-Aug. 2020

Maryland PSC Webinar Series, Mar.-Apr. 2020

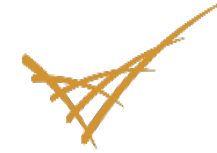
Nevada PUC Workshop, Jan. 2020

Southeast Energy Storage Symposium & PUC Workshop (with Southern Research)

New Mexico PRC workshops/webinars, 2019 & 2020 and ongoing

California Energy Commission (CEC), June 14, 2019, Sacramento: Energy Storage Academy

Hawaii PUC, Dec. 7, 2018, Honolulu: ES Introductory Workshop



Pacific Northwest
NATIONAL LABORATORY



Kentucky Public Service Commission



New England Conference of Public Utilities Commissioners
necpuc



Since Covid, most webinars are ~2 hours/session, 4-6 sessions over 4-8 weeks, with experts from across the national labs, academia, industry, and NGOs

- ES Systems Overview
- Chemistries and Technologies
- Policy and Regulatory Perspectives
- Applications & Value Streams
- Using Analytics to Improve the Value Proposition
- System Design & Installation
- Commissioning & Interconnection
- ES Project Case Studies & Financing
- Safety
- Grid Resilience
- ES as a Non-Wires Alternative for New Generation, Transmission, & Distribution





Publications led by Will McNamara

Issue Briefs, White Papers & Policy Analysis

- Energy Storage & Resource Adequacy
- Energy Storage as a Transmission Asset
- State Level Incentives for Energy Storage
- Energy Storage to Replace Peaker Plants
- Long-Duration Energy Storage Policy Issues
- Seeking Energy Equity Through Energy Storage
- FERC Order 841 Compliance
- FERC Order 2222 Impacts
- TOU Rates & BTM Energy Storage
- Rate Design for BTM Energy Storage
- State Policy Analyses: CA, IL, MA, MD, NM, NY, NJ, OR, TX, WA

Energy Storage and Decarbonization Modeling for Regulators in NM and Illinois

Engages NM PRC, EMNRD, and PNM in NM, and ICC in Illinois

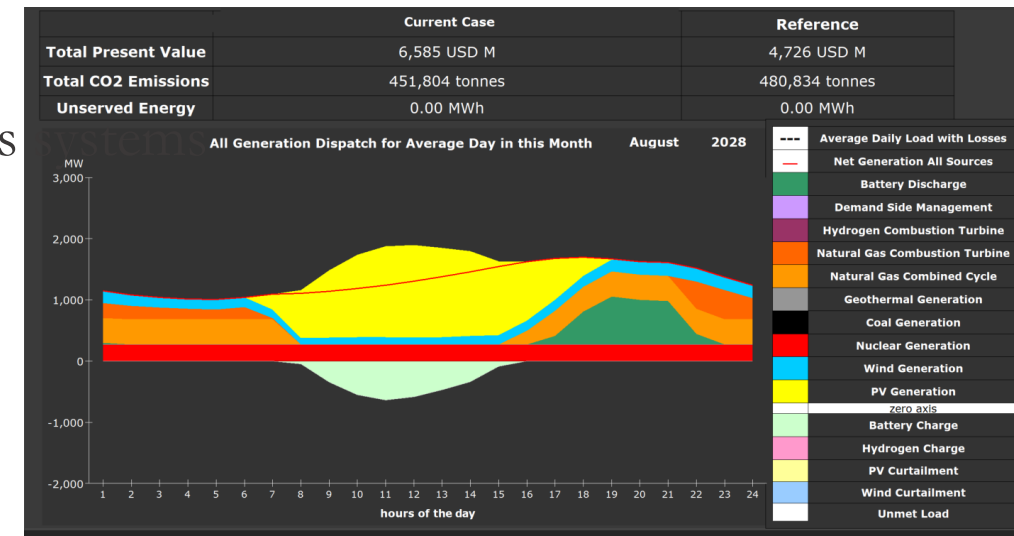
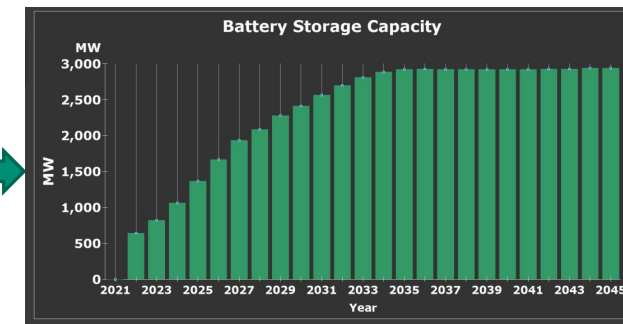
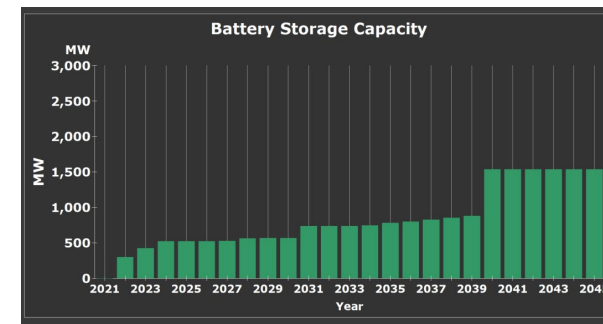
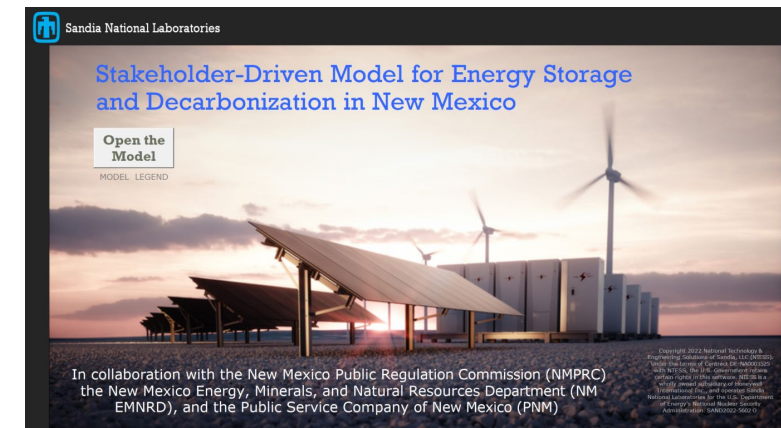
Allows policy makers to experiment with different strategies for meeting NM's ETA requirement for carbon-free electricity

Stakeholder-driven process assures that:

- stakeholders understand abilities and limitations of the model
- modelers understand the system and have all the right data and info
- model will be used by policy makers and other stakeholders

System dynamics (SD) modeling environment, accommodates thinking, including interconnections, interdependencies, non-linearities, time lags, and unintended consequences

User-friendly, graphical, real time modeling provides tool for exploration, education, and consensus building



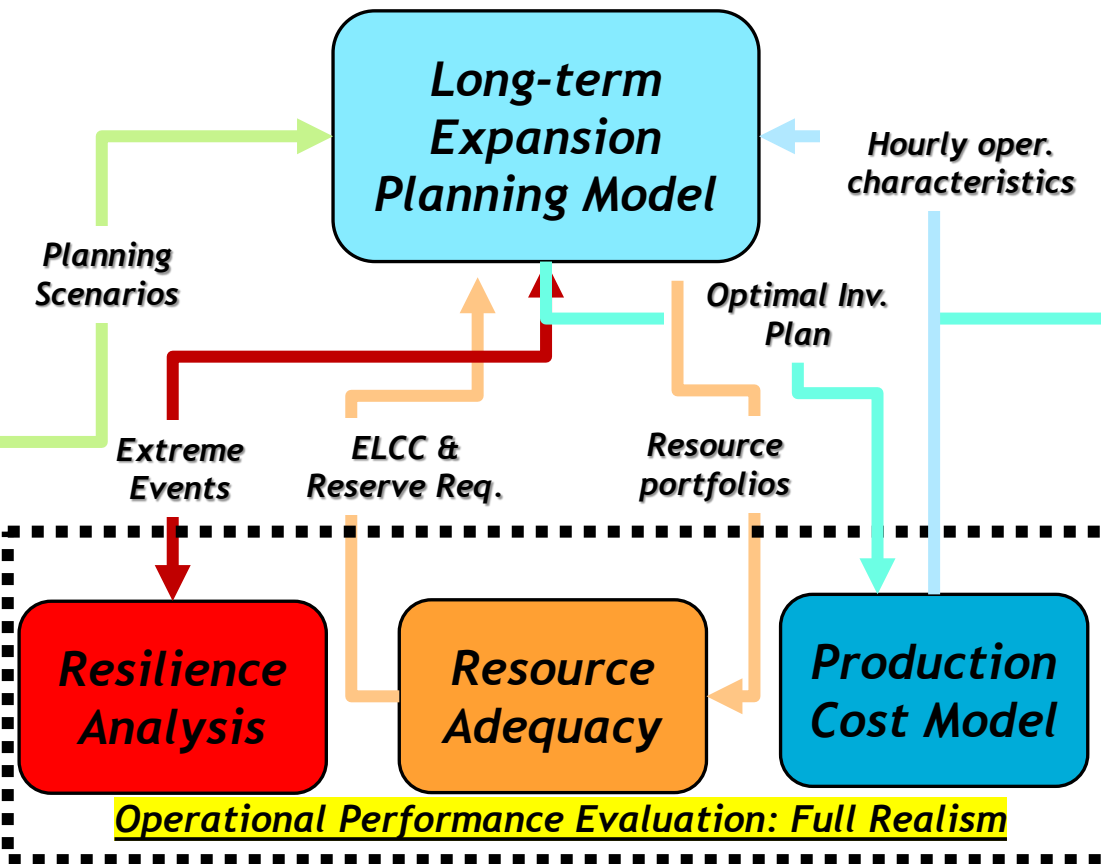


Model Inputs

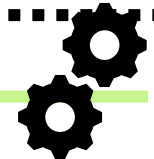
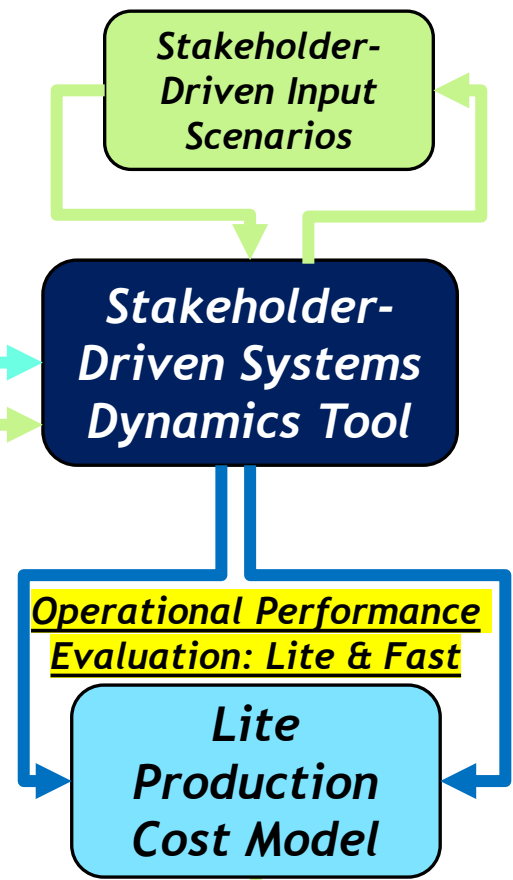
Planning Scenarios

- Load Forecasts
- Renewable Profiles
- Economic Data
- Power System Data
- Policies/Retirements

Planning Tools & Analysis



Stakeholder Evaluation & Testing



Stakeholder driven scenarios

Many thanks . . .



Staff

- Jim Ellison
- Mercy DeMenno
- Jake Jacobson
- Gina Fresquez
- Len Malczynski
- Will McNamara
- Marisa Montes
- Dylan Poindexter
- Sharon Ruiz
- David Sokoloff
- And all the staff from the Energy Storage Program from across all the labs who present in workshops - notably Patrick Balducci, Ray Byrne, Dan Borneo, Matt Paiss, Mike Robb, Jeremy Twitchell, Charlie Vartanian, who have all made repeated appearances . . .

Sandia management

- Ray Byrne
- Babu Chalamala
- Charlie Hanley

DOE OE ES Program Manager

- Dr. Imre Gyuk