

Combined Heat and Power and the Optimal Portfolio for Nevada

Carl Linvill, PhD
Director, Nevada State Office of Energy

Disclaimer: Views are my own and are not intended to comment on any ongoing regulatory proceedings in Nevada

Nevada in Perspective

■ Nevada

- Population and Energy Demand Growing Rapidly
- Highly Dependent upon Imported Natural Gas and Electricity
- Significant Renewable Energy, Energy Efficiency and Distributed Energy Potential
- One Electric Utility Serves 94% of Customers in NV
- Southwest Gas and Sierra Pacific serve most gas customers

Fundamentals of Nevada and the Southwest

- Environment is Replete with Risk and Uncertainty
 - Demand Growth
 - Fuel & Energy Price Volatility
 - Regional Interdependence
 - Technological Change
 - Cost of Generation Alternatives
 - Federal Regulatory Issues

Planning is Needed in the Southwest

- A 20 Year Plan for electric and gas utilities should address the resource mix and infrastructure targets 10, 15 and 20 years out.
- A 3- 5 Year Plan should identify the resources and infrastructure that need to be deployed within 5 years to attain the longer term targets.
- A 1-2 Year Plan should address fuel, energy and capacity procurement and any associated hedging practices.

Components of a Plan

- A Plan Should Address Resource Mix Issues
 - Fuel Mix
 - Renewable Targets
 - Remote Centralized Generation and Distributed Generation
 - Energy Efficiency, Demand Reduction and Demand Response Programs

More Components

- A Plan Should Address Infrastructure Needs Created by:
 - Gas and Electric Distribution System Growth
 - Electric Control Area Information Needs
 - Customer Information Management Needs
 - Generation Interconnection Requests
 - Large Gas Service Requests
 - Regional Market Access Needs for Electricity and Gas

Where Do CHP and DG fit into Plan Evaluation

- CHP and DG roll-out affects:
 - Retail Price Outcomes
 - Retail Price Risk Outcomes
 - System Reliability Outcomes
 - Environmental Outcomes
 - System Flexibility Outcomes

What can CHP and DG do

- Cost effective CHP and DG will assist stakeholders by:
 - Helping customers balance retail price level and retail price risk
 - Helping Electric Utilities to meet reliability targets
 - Helping Utilities to address Capital Constraints
 - Helping the Southwest make progress toward achieving the longer term resource mix and infrastructure goals

Why Long Term Planning is Important for Everyone

- **The Ability To Manage Price and Risk In The Short Term Is Relatively Limited So Long Term Planning Is Critical Now**
 - For Customers: Management of Price and Risk is Limited to Conservation, Efficiency, On-site Generation and TOU Tariffs
 - For the Utility: Management of Price and Risk is Limited to Fuel Switching, Procurement and Hedging Practices
 - The Bottom Line is that the Ability to Manage Price and Risk is Critically Dependent upon the Resource Mix and Infrastructure Legacy of the Utility

Why Building the Infrastructure to Accommodate DG/CHP is Vital

- **Building an Information and Physical Infrastructure to Accommodate DG/CHP will Determine the Ability of DG, CHP, Renewable Resources and Dispatchable Demand to Contribute to Southwest Goals**
 - Information and Control Technologies will Enhance the Desirability of Decentralized and Intermittent Resources from the Utility's perspective
 - T & D Infrastructure that Gets Built in the Mean Time affects Cost of New Resources
 - Cost of Fuels is Uncertain and Volatile and a Flexible Infrastructure will allow a flexible response to price movements

Commitment AND Flexibility are Essential

- **Commitment and Flexibility are Sometimes Complementary, Sometimes in Conflict but BOTH are Essential**
 - Committing to Building the Infrastructure of the Future is Important Now.
 - Committing to an Infrastructure that Supports One Fuel or One Technology is Risky.
 - Committing to an Information Infrastructure that can Accommodate Demand Response, Distributed Generation, and Intermittent Resources will Enhance the Ability to Manage Price and Price Risk.