



Energy+Environmental Economics

Nevada NEM Analysis

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Presentation to the Committee
on Energy

Snuller Price, Partner
Katie Pickrell, Senior Associate

EXHIBIT G – ENERGY
Document consists of 10 pages.
Entire Exhibit provided.
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Energy + Environmental Economics (E3)

- + E3 has operated at the nexus of energy, environment, and economics since it was founded in 1989**
- + The firm advises utilities, regulators, government agencies, power producers, energy technology companies, and investors on a wide range of critical issues in the electricity and natural gas industries**
- + Offices in San Francisco, CA and Vancouver, B.C.**
- + 28 professional staff in economics, engineering & policy**





+ Project Scope Review

+ Review of Key Methodology Elements

- Cost-test overview
- Cost-test components
- Other analysis items
 - Jobs analysis
 - Demographic analysis



Project Scope

1. Collect necessary data and information

- Data collection from public sources and data requests through the PUCN to NV Energy

2. Develop methodology

- Stakeholder process to vet approach managed by PUCN with range of represented interests (utility, solar industry, ratepayers, DOE)

3. Perform analysis

- Calculate all Standard Practice Manual (SPM) cost tests
- Cost-benefit analysis conducted for two time scales:
 - 1. All systems installed through 2013, analyzed over system life
 - 2. All systems installed through 2016, analyzed over system life

4. Provide written report – due July 1



Cost Test Overview

- + **Cost tests are derived from Standard Practice Manual**
- + **Industry standard tools for measuring cost-effectiveness of energy efficiency and renewable energy programs/policies**
- + **Widely used throughout the US**

Cost Test	Cost Test Perspective	Central Question
PCT (Participant Cost Test)	NEM Participant	What is the financial proposition to the NEM participants?
RIM (Ratepayer Impact Measure)	Non-participant Ratepayer	Will rates need to increase because of NEM?
PACT (Program Administrator Cost Test)	Utility	Will customer bills need to increase because of NEM?
TRC (Total Resource Cost Test)	State of Nevada	Do NEM generators provide a lower cost generation resource to Nevada?
SCT (Societal Cost Test)	State of Nevada	Do NEM generators provide a lower cost generation resource to Nevada when externalities are considered?



Cost Test Definitions

- + Analysis includes all Standard Practice Manual cost tests
- + Cost test components are discussed on the following slides

	PCT	RIM	TRC	PACT / Utility	Societal
NEM Generation System costs	Cost		Cost		Cost
Utility avoided cost		Benefit	Benefit	Benefit	Benefit
Utility integration cost		Cost	Cost		Cost
Customer bill savings (Utility revenue loss)	Benefit	Cost			
Utility incentives	Benefit	Cost		Cost	
Tax credits	Benefit (federal and state)		Benefit (federal)		Benefit (federal)
Utility administration cost		Cost	Cost	Cost	Cost
Health benefits					Benefit



Cost Test Components

+ Each cost test component is sourced as follows:

Avoided Cost Component	Data source
NEM Generation System costs	Historical system costs from RenewableGenerations database, forecast costs from WECC renewable energy capital cost report
Utility avoided costs	See following slide for detailed avoided cost component information
Utility integration cost	Literature review of PV integration costs in the Southwest; final value of \$3/MWh
Customer bill savings (Utility revenue loss)	Existing and projected rate structures from NV Energy
Utility incentives	RenewableGenerations program
Tax credits	ITC, PTC
Health benefits (avoided criteria pollutants)	Health benefits of avoided NOx, SOx, PM 2.5, and Hg from NV Energy IRP



Cost Test Components: Utility Avoided Costs

+ Hourly avoided costs developed for NPC and SPPC; components sourced as follows:

Avoided Cost Component	Data source
Energy	NV Energy production simulation runs
System Capacity	NV Energy general rate case
Ancillary Services (avoided reserves purchases)	NV Energy historical spending on reserves, as proportion of total energy spending
Transmission Capacity	NV Energy general rate case
Distribution Capacity	NV Energy general rate case
Avoided RPS (distributed generation reduces utility's purchase requirements to meet RPS)	Estimate of utility renewable purchase cost (\$/MWh)



Cost Test Components: Customer Bill Savings

- + E3 is modeling rate sensitivities requested by the PUC**
 - 1. Base case, rates as they exist today
 - 2. Rule 9 facilities revenue requirement (RRQ) moved from volumetric charge to basic service charge
 - 3. Rule 9 facilities *and* primary distribution RRQ collected in basic service charge
 - 4. Rule 9 facilities, primary distribution, and high voltage transmission RRQ collected in basic service charge
- + Performing both the PCT and the RIM for each rate sensitivity will show how small rate modifications can reduce impact to non-participating ratepayers while maintaining cost-effectiveness for NEM participants**



Additional Analyses

+ **Jobs Analysis Based on Literature Review:**

- Positive effects: Direct jobs for installation of NEM generation, along with multiplier on economy for increased spending
- Negative effects: Indirect job loss due to increase in utility rates from NEM
- Net impact is likely small overall

+ **Demographic Analysis:**

- Compare average estimated income of NEM participants to statewide average income
- Compare population density of areas with many NEM participants to statewide population densities