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Interstate Renewable Energy Council, Inc.

Shaping our future with clean energy

Cost of Service Studies vs. Cost/Benefit Analyses

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Shaping our future with clean energy

- 501(c)(3) non-profit working to improve consumer access to renewable energy since 1982
- Funded by government and private foundations, no renewable energy industry funding
- Representative work
  - Model Net metering, Interconnection, Shared Solar Rules
  - Freeing the Grid
  - Reports on Best Practice Development
  - Participate in state proceedings to increase consumer access to renewable energy
- www.irecusa.org

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IREC in MidAmerican (BHE) States:

- Previous work in Utah:
  - Net Metering (2008-09, Docket 08-035-78)
  - Interconnection (2010, Docket 10-035-44)
  - Third-party Arrangements (2009, Docket 09-999-12)
- Cost/Benefit in Oregon currently
- NEM and interconnection in Iowa
- Cost/Benefit *and* Cost of Service in Nevada

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Nevada Cost/Benefit Analysis

- Nevada PUC Docket No. 13-07010
- Selected technical advisory committee including NV Energy, consumer advocate, solar industry, and IREC
- Advisory committee vote on independent consultant for study – E3 selected
- July, 2014 Study results show slight net benefit under Ratepayer Impact Measure (impact on “non-participants”)
- NV Energy then called for Cost of Service study, which is currently underway by the utility (IREC recommended that the study be done by an independent consultant)

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Basic Cost/Benefit vs. COS Differences

- Cost/Benefit *should be* based on exported energy (but often looks at all energy generated), while COS *should be* based on imported energy (but often there's interest in looking at imports and exports)
- Cost/Benefit based on 20-25 years of anticipated costs and benefits, while COS based on one year energy and at most five year capacity costs
- COS applied to net energy metering (NEM) does not consider benefits resulting from customer's switch to NEM, just the cost of service, at the hour or 15 minute levels for the entire year

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Long-term vs. Short-term

- Long term analysis used for Integrated Resource Planning, resource procurement, and Cost/Benefit analyses
- Short term analysis used for comparison of costs to serve classes, in order to spread utility revenue requirement over classes in a general rate case (with multiplier)
- Customer-sited renewable energy is a long-term resource, making it appropriate to analyze through an IRP lens
- Class rates are based on COS, making use of COS to set NEM customer rates seem appropriate for the sake of consistency

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Fitting NEM Customers into COS

- If NEM customer viewed as low-use customer, use low use customer COS basis for rate design
- For residential, utilities typically don't have low use customer COS, just a generalized COS – so use that
- If NEM customers viewed as a separate class, consider benefits of NEM
- Consider all customer classes with NEM customers – no special ratemaking for just residential, without considering commercial
- If Cost/Benefit study fairly neutral, expect COS to be similar for NEM and non-NEM in the same class

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COS Study Methodology

- Marginal cost estimates to provide:
  - The next kWh of energy (fuel and purchased power)
  - Next unit of generation, transmission and distribution demand
  - The facilities to hook up the next customer
  - The cost to provide billing and customer service
- Add up for all hours of the year for a class, sum all classes, apply multiplier to reach revenue requirement

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COS – the Next kWh of Energy

- "Avoidable" – NV Energy says 29% of residential COS is avoidable, but 91% of residential charges are "variable"
- Looks at marginal energy cost for each hour and residential usage by hour
- Assumes non-fuel costs should not be divided among customers based on usage

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COS – Generation Marginal Demand

- Generation, cost causation based on “Loss of Load Probability” cost responsibility factor
- Determine hours with loads likely to exceed available generation capacity
- Classes coincident with peaks assigned more costs
- Based on peaker cost
- Based on three year forecast – limited need for more generation

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COS – T&D Marginal Demand

- T&D cost causation based on “Probability of Peak” cost responsibility factor
- Determine hours with loads greater than 90% of annual peak.

- Classes coincident with peaks assigned more T&D costs
- Based on three year forecast – limited need for more T&D

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COS – Facilities and Billing for Customer

- Facilities include wire to customer, meter, and dedicated transformer, but utilities may seek to include more
- Billing includes marginal cost to bill customer – stamp, printing, service to that customer, but utilities may seek division of billing system costs
- Multiplier applied to these costs to reach revenue requirement, as with other costs, though higher multiplier could be applied to other costs and set these charges at actual costs
- Often charges in rate cases set below cost of service to reflect customer aversion to fixed charges, and customer interest in bill control through EE and RE

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Summary: Cost-Benefit Analysis

- Evaluates the change in utility costs associated with the change in usage due to the installation of customer-sited distributed generation (DG)
- If customer NEM bill savings is greater than the reduction in utility costs, NEM will create a cost shift to non-participating customers (under RIM test)
- If the reductions in customer bill savings is less than the reduction in utility costs, non-participating customers experience a net benefit (under RIM test)
- This approach does not address or reflect any pre-existing cost shift onto NEM customers prior to their installation of customer generation.

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Summary: Cost of Service Analysis

- Evaluates the total cost to serve the remaining energy usage after accounting for the change in usage due to the installation of DG
- Compares the actual bills that NEM customers pay to the utility costs (including fixed costs) needed to serve the customer.
- Determines whether customers who install NEM systems pay more or less than the cost of providing them electricity service before and after they install the system.

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Thank you!
For more information

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