

Analysis of the Acadian Report

*“Estimating the Impact of Net Metering on
LPSC Jurisdictional Ratepayers”*

Prepared for: The Alliance for Solar Choice

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I. Executive Summary

Gabel Associates has been retained by The Alliance for Solar Choice (TASC) to provide an independent analysis (Analysis) of Acadian Consulting Group's Report, "Estimating the Impact of Net Metering on LPSC Jurisdictional Ratepayers" (Report) dated September 23, 2015.

The Acadian Consulting Group (Acadian) was retained by the Louisiana Public Service Commission (LPSC or Commission) to quantify the impacts and implications of the Net Energy Metering ("NEM") policies currently being utilized by the LPSC for smaller scale residential and commercial solar energy installations.

Cost benefit studies in jurisdictions throughout the country seeking to quantify impacts of Net Metering Policies, as Acadian endeavors to accomplish in its Report, suffer from a lack of standardization. Conclusions reached in cost benefit studies will vary according to the methodology used, data available and the particular features of the energy markets in the jurisdiction being studied.

Gabel Associates reviewed the methodologies and key assumptions employed by Acadian to determine if they were reflective of market realities. This Analysis concludes that with just a few reasonable adjustments to the assumptions and methodologies used in the Acadian Report, its conclusions change significantly from a conclusion that costs exceed benefits, to a conclusion that NEM provides net benefits to Louisiana.

This change in net benefits are summarized in the following table which indicate a change from net benefits of negative \$125.55 million in the Acadian Report to net benefits of positive \$77.75 million in the adjusted Analysis. Net metering provides net benefits, rather than net costs, as the Acadian Report concludes.

Total Cost-Benefit Summary Comparison of Report Values vs. Adjusted Values

	Acadian Report	Adjusted Values
Net Rate Making Benefit	-67.46	95.10
Net Benefit - Other	-58.09	-17.35
Total Net Benefit	-125.55	77.75

This Analysis is not intended to be a comprehensive cost-benefit study. However, it demonstrates that the Acadian Report is highly sensitive to basic input assumptions and that correcting some key assumptions yields significantly different conclusions. This result, in turn, suggests that the State continue on its policy path in support of customer-sided solar energy.

Specifically, the Commission should consider adjusting the following assumptions and methodologies embedded in the Acadian Report:

- Include savings from solar NEM customer's electric purchases as a program benefit;
- Use avoided energy cost assumptions that reflect realistic natural gas prices and marginal generation resource mix consistent with Louisiana's utilities (and not the lower cost assumptions used in the Report);
- Use accurate and verifiable utility NEM administration costs;
- Use accurate and verifiable cost of utility lost revenues and identify which portions of lost revenue apply to future rate increases;
- Include reasonable avoided CO2 costs in the base case analysis, adding 'No-CO2' cost and 'High-CO2' cost analysis as scenarios;
- Clearly identify the magnitude of the rate impact in \$/year for Louisiana customer classes;
- Recognize that the Report's calculated residential rate impact of less than \$1.00 per year will have a significantly smaller economic impact to the State than that estimated in the Report;
- Specify a standard framework for the study; and
- Require full transparency for all data assumptions and sources used.

These adjustments will give the Commission a more accurate reflection of the positive value that net metering provides to Louisiana and its ratepayers.

Finally, a review of net metering should not to be viewed in a vacuum. In Louisiana, several outcomes are enumerated in the statute that authorizes net metering - economic development, job creation, the use of indigenous and natural energy sources, and easing of customer access to emerging technologies. Realizing these benefits should be part of the Commission's consideration in this proceeding. As such, net metering should be reviewed in the context of positioning Louisiana to realize net benefits as well as achieve the State's other public policy goals.

2. Introduction and Background

Gabel Associates has been retained by The Alliance for Solar Choice's (TASC) to provide an independent analysis (Analysis) of Acadian Consulting Group's Report, "Estimating the Impact of Net Metering on LPSC Jurisdictional Ratepayers" (the Report) dated September 23, 2015.

The Acadian Consulting Group (Acadian) was retained by the Louisiana Public Service Commission (LPSC or Commission) to quantify the impacts and implications of the Net Energy Metering ("NEM") policies currently being utilized by the LPSC for smaller scale residential and commercial solar energy installations.

Gabel Associates, Inc. is an energy, environmental and public utility consulting firm that has provided quality energy consulting services and strategic insight to its clients for over twenty years. The firm provides its expertise to a wide variety of clients involved in virtually every sector of the energy industry. Our client list includes public and federal agencies, individual commercial and industrial end users, aggregated groups of customers, public utility commissions, power plant owners and operators, wholesale suppliers and utilities. We have undertaken extensive policy and ratemaking analysis relative to renewable energy and energy industry issues and successfully assisted public and private sector clients in implementing more than 200 renewable energy projects.

Organization of this Analysis:

This Analysis is organized to provide a review of several key issues underlying the conclusions of the Report:

- A review of the California Standard Practice Manual (SPM), used by many state agencies and stakeholders to evaluate the cost effectiveness of solar NEM and other utility programs. This provides context for reviewing the methodologies and assumptions employed by the Acadian Report.

- An analysis of the methodologies and assumptions used in the Report. This demonstrates how adjusting some key assumptions to be more realistic and in line with standard practice significantly change the results of the Report.
- An analysis of Acadian's Literature Review.

This Analysis is intended to provide perspective to the Commission and its Staff with respect to the estimated economic impacts provided by the Report. This Analysis does not provide a comparative comprehensive cost-benefit, cost of service or economic analysis.

3. Review of the assumptions and methodology used in Report

a. Overview of cost-benefit methodologies

The Report should be reviewed in the context of events and changes occurring nationally and in individual states. The energy industry is in transition. The Report arrives at a time when states are considering and implementing regulatory changes that promote efficiency, deeper penetration of renewable energy resources such as wind and solar, wider deployment of distributed energy resources (DERs) such as micro grids, on-site power supplies and storage, and increased resiliency. The promotion of these advanced energy management products are intended to enhance efficiencies, reduce energy costs and promote economic development.

Advances in technology, weather patterns, security concerns and aging grid infrastructure have prompted such initiatives throughout the country.

Given that the energy industry is in transition, a review of net metering should not to be done in a vacuum. Changes in technology provide opportunities for increased customer benefit and greater economic activity. Act 653, which authorizes net metering, references promoting economic development, job creation, the use of indigenous and natural energy resources, and

easing of customer access to these emerging technologies. Net metering should be reviewed in the context of positioning Louisiana to realize these substantial benefits.

Cost benefit study methodologies have varied widely over the last several years.

A widely used resource that helps provide context for the methodology used in the Acadian Report is the California Standard Practice Manual for Economic Analysis of Demand-Side Programs and Projects (SPM). The SPM provides a standardized framework for the cost-benefit analysis of various utility programs including fuel switching, load shifting, energy efficiency, distributed generation net metering, and others. SPM includes four separate tests and is frequently used by state agencies and stakeholders to evaluate the cost effectiveness of solar NEM and other utility programs such as other distributed generation technologies, energy efficiency, demand reduction and related issues.

Examples of SPM's widespread use include:

- Set as a rule in Mississippi's Public Utilities Rules of Practice and Procedure that the SPM is the required methodology for conducting cost-benefit studies;
- Used by the Energy Center of Wisconsin for screening cost-effectiveness of various programs;
- Used by the National Action Plan for Energy Efficiency;
- Used in Synapse Mississippi Net Metering Study;
- Used in Southern California Edison Residential Energy Efficiency Incentive Program cost-benefit study;
- Used in Puget Sound Energy Commercial/Industrial Retrofit Program cost-benefit study;
- Used in Avista Regular Income Portfolio cost-benefit study; and
- Used in National Grid MassSAVE Residential cost-benefit study.

The SPM tests are intended to provide a cost effectiveness measure from four distinct perspectives: Participant, Ratepayer Impact Measure, Program Administrator Costs, and Total

Resource Cost. The Total Resource Cost test can be conducted both with and without societal benefits such as job creation and economic activity.

To evaluate the reasonableness of the results and conclusions presented in the Report, the methodology and assumptions of the Report were compared to the approaches used in the California Standard Practice Manual for Economic Analysis of Demand-Side Programs and Projects (SPM). Specifically, Acadian's approach and assumptions for three key tests – cost benefit to participating customers; rate impact to non-participating customers; and the total resource impacts – are reviewed.

The following errors and omissions in the Acadian Report were identified:

- The Report understates the value of avoided energy benefits.
- The Report understates the value of avoided capacity benefits.
- The Report overstates the value of solar NEM administrative costs.
- The Report excludes the value of solar NEM customer savings.
- The Report does not present a Participant test, nor does it contain the necessary information to fully conduct such a test.
- The Report does not present a discrete Ratepayer Impact Measure (RIM) test, but it does include all of the required elements to conduct such a test. Further, some of the key assumptions used in the Report appear inaccurate and serve to unreasonably reduce benefits and increase costs.
- The Acadian Report does not include a Total Resource Cost (TRC) analysis, and is missing some elements that should be included in such an analysis to accurately reflect the societal costs or benefits of NEM.

These deficiencies are detailed below.

b. Avoided energy costs are understated

The analysis in the Report assumes that a modern, advanced gas turbine generator is representative of the energy source displaced by solar generation. However, solar PV generates 70% of its electricity during on-peak hours and most of that during the summer months. Summer, on-peak marginal generation resources include a mix of older and less efficient units. A review of generation resources in Louisiana shows many units that are 50% more expensive to operate than the modern gas turbine examples used in the Report. By excluding these more expensive generators from the marginal energy savings analysis, the Report significantly understates the value of the avoided energy costs, based on the operating costs and heat rate differentials between a modern new gas turbine and the average generation at the margin during daylight hours. **Accordingly, the Report understates the value of avoided energy cost by an estimated 20 percent.**

The Report also assumes that natural gas prices will remain constant at \$3.50/MMBtu (in \$2014), which is an unrealistic and unsupported assumption. The US Energy Information Administration Annual Energy Outlook 2015 forecasts that, through 2040, natural gas prices will escalate in real terms at a compound average growth rate of 3.1%, climbing to \$6.00/MMBtu (in \$2014) by 2031 and \$7.97/MMBtu by 2040. By assuming no escalation in natural gas costs, the Report significantly understates the value of avoided energy costs. Since fuel costs make up 80% of marginal energy costs, low, non-escalated natural gas costs understates the value of avoided energy costs by 28%. **Combined with the understated level of avoided resource cost (by using a new modern gas generator, as discussed above), the Report understates avoided energy costs by 53.8% or \$31.7 million NPV.**

c. Avoided capacity costs are understated

The Report assumes that avoided capacity costs will remain constant through 2039 (Report Figure 40, Page 117). While it is the case that there is currently excess capacity in the region that can be expected to depress capacity prices through the current decade, accepted economic theory is that, over time, the system will move toward equilibrium and not have

continuous surplus capacity over an entire long term study period. Lower capacity prices have the effect of reducing the construction of new capacity (or inducing plant retirements), which in turn leads to tightening of reserve margins and higher capacity prices. This dynamic is missing from the Report as it simply assumes flat (and low) prices throughout the term of the study period. The baseline analysis should be adjusted to provide for increasing capacity prices after the current capacity surplus declines over time (by or before 2020). **Compared to capacity prices more reflective of a tightening capacity market in 2020 and thereafter, the Acadian Report understates avoided capacity costs by 53% or \$7.5 million NPV.**

d. NEM administrative costs are overstated

The Report includes Acadian responses to comments submitted on the Draft Report. On page 50 of Appendix C, the Report includes the following statement:

TASC also noted that the Draft Report failed to account for the simulative benefit to the larger Louisiana economy from the utility's administration of NEM accounts. TASC's comments on this matter are in error. The benefits argued by TASC, even if they did exist, would likely be insignificant since it is difficult to identify, based upon current utility information, how much of these costs are truly "incremental" and therefore representative of new economic activity versus a reassignment or reallocation of existing utility administrative resources (which would already be embedded in retail rates and current economic activity).

This response makes it clear that Acadian has not determined the specific level of administrative costs and indicates that many of these "costs" may be a reallocation of existing resources. Accordingly, the Report substantially overstates incremental administrative costs. As a result, these costs should be fully substantiated as incremental costs as reported by the utilities and reviewed by the Commission.

e. An SPM Participant Test is not provided in the Report and PV customer benefits are not considered

The Participant test measures the quantifiable costs and benefits to participating customers, i.e. the savings realized by solar PV NEM customers. The primary goal for the Participant test is to calculate an NPV of the economic net benefit for all program participants, i.e. All Benefits minus All Costs. For a solar PV NEM customer, the benefits may include:

- Reduced utility purchases;
- Renewable Energy Certificates, and
- Tax benefits.

Participant costs could be those associated with direct ownership, including:

- Installation costs;
- Interconnection costs paid to the utility;
- Operating & maintenance costs; and
- Decommissioning.

Alternatively, a Participant's solar PV system may be owned by a third-party, in which case costs could include:

- Power purchase agreement (PPA) costs (if permitted in a jurisdiction); or
- Lease payment costs.

In addition to the program's aggregate net benefits, the Participant NPV can be presented as an average NPV per participant, a discounted payback period, or a benefit-to-cost ratio (BCR). Positive NPV, shorter payback periods and BCR greater than 1.0 all indicate that a project is beneficial to the Participant.

The Acadian Report does not present a Participant test, nor does it contain the necessary information to fully conduct such a test. Further, the Report does not consider the primary customer benefit of a NEM solar installation: reduced utility costs.

On pages 125 – 127, the Report discusses two solar costs: NEM credits and utility lost revenues. These “costs” are offset by the benefits that solar NEM customers receive; yet the Report does not identify these benefits and unreasonably excludes them from the cost-benefit analysis.

For example, if a solar NEM customer has a solar lease that provides him or her long term electricity cost savings, that customer receives a monetary benefit. Such a customer would have additional money to spend elsewhere in the Louisiana economy. Acadian includes a negative ripple effect in the economy caused by additional utility costs. Similarly, these savings would have a positive ripple effect, resulting in additional economic multiplier benefits. The Report excludes this benefit.

Direct experience with more than 200 solar projects is that a solar NEM customer typically saves 15% or more on their solar-generated electric purchases. However, for this analysis, 10% savings was utilized as a conservative assumption. Solar NEM customer savings represent a \$20.4 million benefit in the Participant test category of reduced utility purchases. This benefit was excluded from the Report.

f. The Ratepayer Impact Measure of the Report is incomplete and key assumptions are unreasonable

The Ratepayer Impact Measure (RIM) test measures the impact of NEM to customers who do not install PV, that is, the non-participating customers. RIM considers the net impact to non-participant (i.e. non-NEM) customer bills resulting from any program-induced changes to utility revenues and operating costs. It is intended to identify whether a cost shift exists between participants and non-participants. The SPM cautions that the RIM test results can have a higher degree of uncertainty than the other tests due to the difficulty in forecasting future marginal costs, rate components and rate structures. However, the SPM clearly indicates that the RIM test is not an evaluation of utility revenue recovery, but rather the net rate impact including total utility costs and benefits of the program on non-participating customers.

The primary goal for the RIM test is to calculate the direction and magnitude of the net bill impact for non-participants as well as the total NPV impact to the total customer base.

For a utility, the solar PV NEM program benefits may include:

- Avoided energy generation;
- Avoided capacity purchases;
- Avoided fuel purchases;
- Avoided operation and maintenance costs;
- Avoided transmission and distribution losses;
- Avoided or delayed transmission and distribution investments; and/or
- Avoided or delayed capacity expansion.

For a utility, the solar PV NEM program costs may include:

- Reduced energy revenue;
- Reduced T&D revenue;
- Program costs; and
- Administrative costs.

The Report does not include a discreet RIM test, nor does it include all of the required elements to conduct such a test. Further, some of the key assumptions used in the Report appear inaccurate and serve to unreasonably reduce the benefits and increase the costs. This is most notably demonstrated in the assumptions used in the Report for avoided energy and capacity costs as well as NEM administrative costs, as described in sections 3 b, c and d, above.

g. The Total Resource Costs calculations of the Report are inconsistent with the SPM and key benefits are not included or are underestimated

The Total Resource Cost (TRC) test measures the net impact of the program, including both the participants' and the utility's costs. Additionally, the TRC test has provisions for external or

societal cost and benefit. For example, solar NEM installations provide economic value in job creation, additional economic activity and increased tax revenues. Also, solar-generated electricity displaces fossil fuel generation and avoids the emissions caused by that generation, which provides health and environmental benefits.

The Acadian Report does not include an explicit TRC analysis, and is missing some elements that should be included in such an analysis. As discussed earlier, with respect to valuations that would be part of a TRC analysis, the Report also understates avoided energy and capacity costs, overstates NEM administration costs, excludes solar NEM customer savings and maintains this general bias against solar NEM throughout the analysis. Other problems in the Report's calculation of Total Resource Benefits are described below.

h. TRC – Environmental Societal Benefits

While the Report includes a scenario, which evaluates the value of avoided CO2 emissions, it excludes this value from its base case. Further, the Study does not consider the emissions avoided by displacing fossil fuel generation, namely SO2, NOx mercury, and particulate matter (PM10 and PM2.5). These emissions contribute to acid rain, smog, haze and other harmful impacts to the environment and to human health. **The health and economic benefits resulting from their reduction should be included in the cost benefit study.**

i. TRC – Economic and Jobs Societal Benefits

Economic benefits created by solar PV construction and operation represent a significant societal benefit that should be included in the TRC cost benefit analysis and are a part of the Acadian analysis. **However, the Report understates this value by \$40.7 million as discussed below.**

The Report discusses on pages 119 – 122 that it uses NREL's Jobs and Economic Development Impact (JEDI) solar PV impact model to calculate the economic benefits resulting from the installation and maintenance of solar PV systems in Louisiana. JEDI is an industry accepted input-output model used to evaluate the state-specific total economic impacts of solar project

development. However, the Report does not indicate which version of the model it uses nor provide the input assumptions used for the economic benefits analysis. A comparison of JEDI results using JEDI's default inputs as well as more conservative inputs indicates that the Report is using input assumptions which understate the economic benefits associated with solar construction in Louisiana.

A summary of this comparison is shown below.

Conservative Input Assumptions:

- Current JEDI version from NREL (Release Number: PV3.24.14)
- An average installation cost of \$3.50/watt for 2014 (in 2014 dollars)
- 0% of the solar equipment is manufactured in Louisiana (i.e. Louisiana has no manufacturing of panels, wiring, inverters, racking or any other hardware used in the installation or maintenance).

The Report's results are significantly less than the results based on either JEDI's default inputs or with Conservative Input Assumptions:

- The Report, using unknown input assumptions, reports total economic benefits (direct, indirect and induced) of \$81.4 million for 2014 alone;
- Using JEDI default data, which includes some outdated assumptions, produces total economic benefits of \$187.1 million for 2014;
- Using the Conservative Input Assumptions listed above produces total economic benefits of \$99.8 million for 2014.

Based on a comparison with the Conservative Input Assumptions, the Report is understating the economic benefits of solar installation activity in Louisiana from the JEDI model by 18.4% or \$40.7 million NPV for the Study period.

j. TRC – Economic and Jobs Societal Costs

The Report states on page 126 that “Increases in the cost of service, which are created by the excess solar NEM incentive payments, result in increased rates. Increased rates, in turn, will reduce household, business, and industrial expenditures, which ripples through the local economy in a negative fashion. These additional negative impacts are considered in the CBA as an offset to the positive impacts discussed earlier.” This logic is repeated in Rate Impacts: Lost Revenues (page 126).

The Study discusses general terms, but does not provide specific data assumptions as to how the rate increases are implemented or how they will impact consumer behavior. However, a review of the results in Appendix A-4 indicates that the Report concludes that in 2014 alone, the total economic impact of ‘lost revenue’ plus ‘NEM payments’ is about \$0.141/kWh (\$10.14 million cost for 71,780 MWh of solar generation). This is a dramatic over-estimate of the economic impact of utility lost revenues, based on the following factors:

- No work papers were provided and it is not clear what assumptions were used in this Report analysis. Although it is not stated in the Report, calculations used in the Report indicate the use of an inflated retail price as a basis for the net lost revenue in its economic multiplier calculations. If these additional costs are “...estimated as simply the difference between the base retail rate and the earlier-discussed estimated avoided energy cost,” (pages 125-126), then the Report indicates a \$0.15/kWh average retail rate for electricity in 2014 (based on annual cost and benefit data in Appendix 4). This is 54% higher than the \$0.0965/kWh average of residential and commercial customers in Louisiana as reported in EIA historical data. **This overstates the lost revenue and associated economic impacts by \$79 million NPV.**
- The Report does not include this economic multiplier effect from the benefits of avoided utility costs. Acadian’s theory that increased costs on utility bills results in reduced spending elsewhere in the economy. Logically, it follows that all savings and benefits from NEM installations would result in increased spending elsewhere in the economy. However, this benefit is not considered in the Report This results in understated benefits.

- With no work papers included, the economic multipliers used in the analysis of cost economic impacts are unknown. However the cost-side multipliers are higher than the benefits-side multipliers (contrary to what most models indicate), which results in understated net economic benefits.
- Although no work papers are included in the Report, the description of the analysis indicates that every dollar increase in retail utility rates is a dollar that leaves the Louisiana state economy. While an increase in retail rates of less than \$1.00/year per household does reduce that household's maximum spending by the same amount, there is no reason to expect that 100% of this leaves the Louisiana economy. Marginal propensity to save, marginal propensity to spend, out-of-state purchase patterns and other factors need to be considered before evaluating the broader economic impact. For example, if one household reduces their savings for that year to compensate for the rate increase, there is no reduction in economic spending. If another household buys a slightly cheaper cup of coffee one day per year, that might have an impact on the state economy. If another household reduces their out-of-state spending to compensate, there would be no impact to the state economy. The economic multipliers applied to lost revenue are inaccurate and should be adjusted to compensate for these issues.

The Report indicates an average rate impact of \$0.92/year for a typical residential customer or about 0.06% (6/100ths of one percent). Adjusting the Report's analysis to reflect accurate retail electric rates shows lost revenue of \$1.5 million for 2014 compared to the \$5.2 million estimated by Acadian. This would have an average rate impact of \$0.27/year for typical residential customer. This is based on the Report's NEM solar generation estimate of 71.8 million kWh, gross lost revenue of \$0.1003/kWh (per EIA), total avoided costs of \$0.079/kWh (per the Acadian Report) and 2.01 million residential customers (per EIA).

k. Summary of adjustments to costs and benefits

In short, the Report applies inconsistent metrics and analysis to costs and benefits throughout with a general bias toward inflating costs and reducing benefits. Comparing the methodology

used in the Report to the SPM standard, we have identified the following problems in the Report that result in an inaccurate cost-benefit analysis:

- The Report does not present a cost-benefit analysis consistent with the standardized test identified in the SPM;
- The Report does not include the economic value of health and environmental benefits associated with pollution reduction that solar PV provides, understating benefits;
- The Report does not include solar NEM customer net savings which is a primary driver for choosing to install solar and a key economic benefit, understating benefits; and
- The Report uses a number of unrealistic assumptions summarized below.

Because no detailed work papers were provided, and many of the modeling assumptions and calculations were also excluded from the Report, it is challenging to determine exactly how the Report reaches its conclusions. However, there appear to be a number of cases where cost assumptions were over-stated and benefit assumptions were reduced:

- Inaccurate marginal resource assumptions and \$3.50/MMBtu natural gas price assumptions result in avoided energy costs understated by 53.8%;
- Avoided capacity costs after 2020 are understated by 53%;
- By its own admission, Acadian has no substantiation for the NEM Administrative Costs, stating that “...it is difficult to identify, based upon current utility information, how much of these costs are truly ‘incremental’....,”
- By using unreasonable JEDI economic model inputs, the Report understates solar PV jobs and economic benefits by 18.4%;
- Retail rate assumptions used to calculate lost revenue in the Rate Impact analysis appear to be 54% higher than those reported in EIA historical data, which overstates the rate impact; and
- Net rate impact is overestimated at a level of about \$0.92/year per residential customer. The adjusted value is about \$0.27/year.

The tables on the following pages summarize the impact of these adjustments using the summaries of the Report’s base case analysis (Scenario 1). Scenario 1 assumes solar will be built to Louisiana’s current solar cap which is 0.5 percent of the highest monthly peak demand in a 12 month period for each utility.

In its response to comments on the Draft Report, Acadian defends the inclusion of Legislative Costs in the cost benefit analysis because it also included the economic benefits associated with solar installations. While this may be a valid point for investigating the statewide impact of a policy for a body like the Legislature, it is not typically included in studies of PSC-jurisdictional utilities and should be presented separately from the rate impacts analysis. As such, the tables on the following page separate ratemaking and non-ratemaking (general economic) costs and benefits.

Solar Benefit Comparison of Report Values to Adjusted Values

\$ Million NPV

	Acadian Report					Adjusted Values			
	Direct	Indirect	Induced	Total		Direct	Indirect	Induced	Total
Avoided Generation Energy	58.94	0	0	58.94		90.65	0	0	90.65
Avoided Generation Capacity	14.19	0	0	14.19		21.71	0	0	21.71
Solar NEM Customer Savings	0	0	0	0		10.43	0.21	9.81	20.45
Avoided T&D	0.2	0	0	0.2		0.2			0.2
Total Avoided Power Costs	73.33	0	0	73.33		122.99	0.21	9.81	133.01
Total Solar Installation Benefits	72.5	84.66	43.17	200.33		85.84	100.24	51.11	237.19
Total Solar O&M Benefits	8.62	8.63	3.8	21.05		10.21	10.22	4.5	24.93
Total Solar Benefits	81.12	93.29	46.97	221.38		96.05	110.46	55.61	262.12
Total Solar NEM Benefits	154.45	93.29	46.97	294.71		219.04	110.67	65.42	395.13

Solar Costs Comparison of Report Values to Adjusted Values

\$ Million NPV

	Acadian Report					Adjusted Values			
	Direct	Indirect	Induced	Total		Direct	Indirect	Induced	Total
Unrecovered Interconnection Costs	2.75	0	0	2.75		2.75	0	0	2.75
NEM Administrative Costs	11.9	0	0	11.9		0	0	0	0
Rate Impacts: NEM Payments	9	1.32	6.31	16.63		2.51	0.37	1.76	4.64
Rate Impacts: Lost Revenue	55.86	1.12	52.53	109.51		15.57	0.31	14.64	30.52
Total Ratemaking Costs	79.51	2.44	58.84	140.79		20.83	0.68	16.4	37.91
State Tax Incentive Costs	142.9	86.62	49.95	279.47		142.9	86.62	49.95	279.47
Total Legislative Costs	142.9	86.62	49.95	279.47		142.9	86.62	49.95	279.47
Total Solar NEM Costs	222.41	89.06	108.79	420.26		163.73	87.3	66.35	317.38

Rate Making Cost-Benefit Summary Comparison of the Report Values vs. Adjusted Values

\$ Million NPV

	Acadian Report					Adjusted Values			
	Direct	Indirect	Induced	Total		Direct	Indirect	Induced	Total
Total Avoided Power Costs	73.33			73.33		122.99	0.21	9.81	133.01
Total Ratemaking Costs	79.51	2.44	58.84	140.79		20.83	0.68	16.4	37.91
Net Benefit				-67.46					95.1

Non-Rate Making Cost-Benefit Summary Comparison of Report Values vs. Adjusted Values

\$ Million NPV

Non-Rate Making Costs	Acadian Report				Adjusted Values			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Total Solar Benefits	81.12	93.29	46.97	221.38	96.05	110.46	55.61	262.12
Total Legislative Costs	142.9	86.62	49.95	279.47	142.9	86.62	49.95	279.47
Net Benefit	61.78	6.67	-2.98	-58.09	46.85	23.84	5.66	-17.35

Total Cost-Benefit Summary Comparison of Report Values vs. Adjusted Values

\$ Million NPV

	Acadian Report	Adjusted Values
Net Rate Making Benefit	-67.46	95.1
Net Non-Rate Making Benefit	-58.09	-17.35
Total Net Benefit	-125.55	77.75

As shown in the tables above, the Report overstates costs and understates benefits resulting in a negative assessment of the net value of NEM. Although this Analysis is not intended to be a comprehensive cost-benefit study, it illustrates the Acadian Report’s significant sensitivity to changes in input assumptions and indicates that NEM is, in fact, beneficial to the State.

4. The Report’s literature review

In its Literature Review section, the Report cites a number of studies on the costs and benefits associated with net metering policies, terming the selection of these studies “representative” (Report page 68) and indicates a “growing consensus” emerging on net metering cost-benefit estimation methodologies.

In fact, there has been *significant variability* on methodologies and results across the country, with no standardization across jurisdictions. Notably, a study by the Rocky Mountain Institute in September 2013 is not referenced in the Report. This study assessed what is known and unknown about the categorization, methodological best practices and gaps around the benefits and costs of distributed solar resources. This study concluded that the reason for the range of values in various studies is driven primarily by three factors: differences in 1) local context (electricity system characteristics such as generation mix, demand projections, investment plans, market structures), 2) input assumptions (natural gas price forecasts, solar power production, power plant heat rates) and 3) methodologies (resolution of analysis and granularity of data, assumed cost and benefit categories, and approaches to calculating individual values). The results across a number of benefit categories will be different depending on what geographic area the study is addressing. In some cases, this can vary by state, region, and/or utility territory.

In addition, the Report fails to mention several recent prominent studies and proceedings that demonstrate net benefits:

Nevada's Net Energy Metering Impacts Evaluation, Energy and Environmental Economics released in July 2014, concluded that methodology matters with respect to outcomes of such studies. The Evaluation states that if distribution level benefits are taken into consideration, such as the deferment of a portion of distribution upgrades, net energy metering yields a net benefit to the State of Nevada.¹

Minnesota's proceeding determined the value of solar NEM based on a cost benefit analysis. As a result of this proceeding, a net benefit was determined based on: a) avoiding the purchase of energy from other polluting sources; b) avoiding the need to build additional power plant capacity to meet peak energy needs; c) providing energy for decades at a fixed price; and, d)

¹ (puc.nv.gov/uploadedFiles/pucnv.gov/Content/About/Media_Outreach/Announcements/Announcements/E3%20PUCN%20NEM%20Report%202014.pdf?pdf=Net-Metering-Study).

reducing the wear and tear on the electric grid, including power lines, substations and power plants.²

Based on the above, it is concluded that the Report does not appropriately recognize that, in fact, there has been *significant variability* on methodologies and results across the country, with no standardization or similarity of conclusion with respect to NEM across jurisdictions.

5. Conclusion

With just a few reasonable adjustments to the assumptions and methodologies used in the Acadian Report, its conclusions change significantly. Net metering provides net benefits, rather than net costs as the Acadian Report concludes.

Acadian was charged with quantifying the impacts and implications of the Net Energy Metering (“NEM”) policies currently being utilized by the LPSC for smaller scale residential and commercial solar energy installations. As demonstrated in this Analysis, given the sensitivity of the results by reasonable and well-substantiated changes in inputs and methodologies, the Report should not be the final word on the value of net metering to ratepayers. In fact, even without a full recalculation of the net benefit study, the Analysis clearly indicates that NEM provides significant net benefits to Louisiana.

Finally, given the public policy objectives explicitly stated in Act 653 that authorize net metering, the LPSC has a responsibility to steward the furthering of these objectives – promotion of economic development, job creation, the use of indigenous and natural energy sources and the easing of customer access to these emerging technologies. The Report does not speak directly to two of these objectives, the value of furthering the use of indigenous and natural energy resources nor the easing of customer access afforded by net metering. In sum,

² (<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPop&documentId={C3F507A6-C876-4BB8-A3FB-DB9152F7D9F6}&documentTitle=20145-99180-02>).

Louisiana should consider NEM in the context of allowing advancements in renewable energy technology to reduce costs, promote innovation and economic development, and realize net benefits.