April 27, 2015

Via Hand Delivery

Ms. Lora W. Johnson, CMC
Clerk of Council
Room 1E09, City Hall
1300 Perdido Street
New Orleans, LA 70112

Re: Integrated Resource Planning for Entergy New Orleans, Inc. (Docket No. UD-08-02)

Dear Ms. Johnson:

Enclosed please find an original and three copies of the Alliance for Affordable Energy's comments on ENO's Draft IRP 2015 related to Milestone 3 of the Integrated Resource Plan proceeding in the above referenced docket.

Thank you for your time and attention.

Sincerely,

Casey DeMoss
Alliance for Affordable Energy

Before the New Orleans City Council

The Alliance for Affordable Energy (here after "the Alliance") is submitting these comments on ENO's draft Integrated Resource Plan for 2015 in docket #: UD-08-02. Overall, the Alliance is disappointed with the quality of the draft report. It is our hope that ENO will address the issues outlined in these comments and create a final report that will safeguard New Orleans' ratepayers and citizens from high bills and unnecessary pollution. We seek a positive policy outcome that is a win-win for customers, the public, businesses, and ENO in New Orleans.

The Alliance's comments are structured as follows:

I. IRP Process
II. Flaws in the Draft Report
III. Suggested Changes
IV. Protecting Consumers
V. Conclusions

I. IRP Process

A. Public Participation

The Alliance recognizes and appreciates the measures Entergy New Orleans has taken to be more transparent during this process, including increased public engagement. Including the public in decision-making that affects them will create valuable goodwill and trust for ENO. Based on the feedback we have received we would like for ENO to give more advance notice of meetings that are open to the public, especially if these meetings take place during normal business hours. We understand scheduling constraints of a business and its employees and while we cannot be sure that moving the meeting times to evenings or weekends would increase public engagement, we do think that more advance notice would allow interested participants the opportunity to plan to attend. We also believe that a publicly accessible conference call number for some public meetings is appropriate in order to allow those who are interested in participating but cannot attend in person. We have seen improvements in the public's understanding of these complex issues and we look forward to continued and increased involvement of the public. It is clear there is ardent public interest in New Orleans' energy future, and how ENO is planning that future. We will continue to encourage outreach, education and engagement of our local community.

II. Flaws in the Draft Report

A. Natural Gas

1. Natural Gas Price in the Reference Case is too low.

The price projections appear skewed to the low end in two out of four scenarios. EIA published natural gas projections this year that reflect a higher reference case than ENO used in the IR and DD scenarios[1]. Below are the gas prices included in ENO's filing compared with EIA data. Please explain why the reference case is lower for ENO than for EIA.

	Industrial Renaissance $/MMBtu	**Distributed Disruption** $/MMBtu
ENO's Henry Hub Natural Gas prices[2]	$4.87	$4.87
EIA's Henry Hub natural gas price forecast (2013 – 2040)[3]	$5.59	$5.59

2. *Natural Gas Prices in the Business Boom scenario are not logical.*

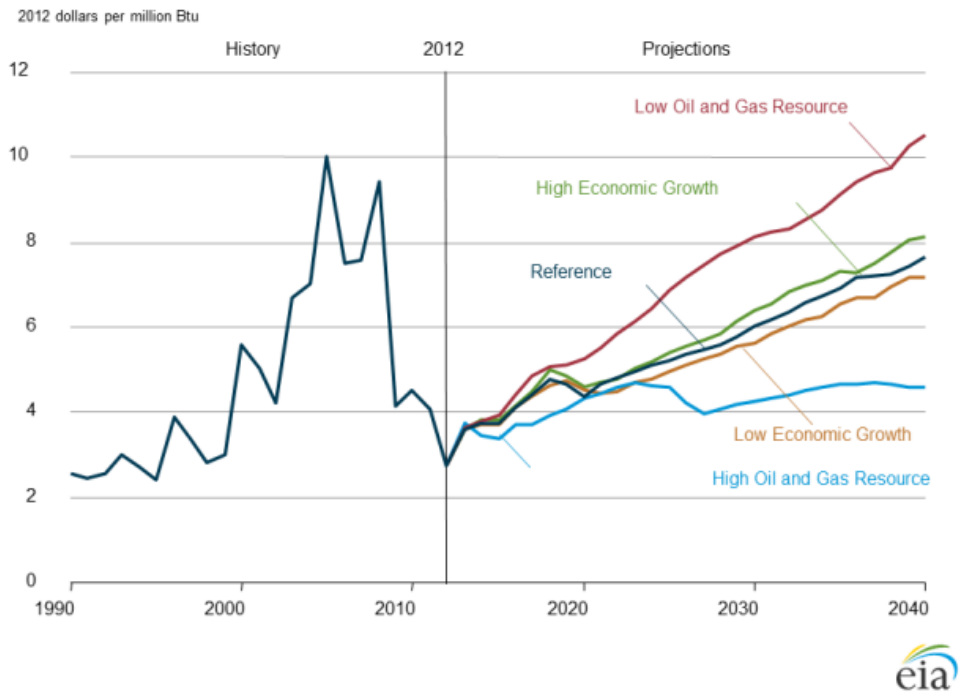
[1] U.S. Energy Information Administration, *Annual Energy Outlook 2015*. Accessed at http://www.eia.gov/forecasts/aeo/pdf/appa.pdf

[2] ENO Filing October 30, 2014. *Portfolio Design Analytics (Scenarios and Sensitivities) Aurora Documentation.* 2015 ENO Integrated Resource Plan. Slide 6, 20 Year Market Model Inputs (2015-2034).

[3] History: U.S. Energy Information Administration, *Natural Gas Annual 2013*, DOE/EIA-0131(2013) (Washington, DC, October 2014). Projections: AEO2015 National Energy Modeling System, runs REF2015.D021915A, LOWPRICE.D021915A, HIGHPRICE.D021915A, and HIGHRESOURCE.D021915B.

In EIA's graph below, strong economic growth, like that predicted in the BB scenario, increase natural gas prices. The BB scenario is trying to "have its cake and eat it too". Strong economic growth comes with higher gas prices. It would be more logical to use the high economic growth curve for BB. The well-respected financial analysts at Forbes support this position. As the Business Boom scenario reflects a return of manufacturing to the US, a trend documented by Forbes, they predict that natural gas demand growth will outpace supply growth[4] which will rebound U.S. natural gas prices sooner rather than later[5].

Figure MT-41. Annual average Henry Hub spot prices for natural gas in five cases, 1990-2040



B. CO2 Assumptions

The CO2 assumptions are not science-based and do not mitigate risk for customers or shareholders. We agree that it is difficult to predict when Politicians will break from misinformation campaigns sponsored by the fossil fuel industry. But as responsible adults who live, work, and own property in one of the most vulnerable places on earth, we must address the issue. We will not be acting alone. The President released a climate action plan that makes it very clear that the US is going to honor international agreements and global carbon reduction targets[6].

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[4] According to Forbes, the number of natural gas drilling rigs has declined by 83%, peaking at 1,606 in September 2008 and dropping to just 268 rigs as of March 6, 2016.

[5] To, Henry (2015) *A Bottom for U.S. Natural Gas Producers Is In Sight.* Forbes. March 10, 2015. Accessed at: http://www.forbes.com/sites/greatspeculations/2015/03/10/a-bottom-for-u-s-natural-gas-producers-is-in-sight/

[6] The President's Climate Action Plan released June 2013. Accessed at https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf

The Alliance recognizes that the company is worried about "self-taxing". The Alliance does not believe that Entergy only follows congress for business planning but rather decides what is in the best interest of their stockholders. Smart companies, like ExxonMobil have already started including carbon costs in their business models to reduce risk to shareholders. ExxonMobil predicts $60/ton by 2030[7]. Smart investors have committed to divesting from fossil fuels because market analysts agree that divesting from carbon intensive industries is the best way to mitigate the looming carbon bubble[8] and retain significant wealth in more resilient stock investments. It would be prudent for ENO to continue to lead Entergy towards a more robust business model.

Including a cost of carbon also mitigates liability with their current and future shareholders as well as future generations suffering from the consequences of unlimited carbon pollution. Companies will NOT be able to say, "We didn't know". The Alliance predicts that lawsuits over climate damage will increase. It is important for the company to start thinking about this. To say "whether national CO2 legislation will eventually be enacted" is to deny established science. Junk science and billions of secret campaign contributions will not be able to hide reality for much longer. The Alliance finds it disturbing and dishonest for Entergy to cite possible uncertainty on regulations when Entergy lobbyists are currently working in Baton Rouge to pass legislation against the EPA's Clean Power Plan. The great uncertainty being created by Entergy and other companies is *increasing* risk. The Alliance believes Entergy should reign in their Lobbyists so that the Entergy's values and priorities are in line with those of their customers and shareholders now and in the long-term.

Entergy should include a cost of carbon in all scenarios. This is just fundamental. ENO will be on the wrong side of history if business planning continues to ignore climate change and associated costs. It is essential that the City Council not allow this in order to protect ratepayers from much higher costs later. Please use data collected by the well-respected firm CDP to follow a fact-based approach in setting the right carbon price[9].
Energy grid hardening and resilience is currently absent. Entergy companies presented to the LPSC after Hurricane Isaac and showed that the 5 most destructive and expensive hurricanes have hit Louisiana since 2005. This is a trend that is completely ignored in the resource planning.

C. Coal Plants

The environmental costs of the coal plant assets were not included in the reports. Coal plants will be impacted by upcoming EPA rules including:

- Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR)
- Mercury and Air Toxics Standard (MATS) Rule
- Coal Combustion Residuals (CCR) Rule

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[7] Major companies plan for U.S. carbon emissions fee, report says (2013) Accessed at: http://www.reuters.com/article/2013/12/05/usa-energy-carbon-idUSL2N0JK0V220131205

[8] Divest From Fossil Fuels (2015) *List of those Committed to Divesting: Universities and Colleges, Cities, Counties, Churches and other Organizations* http://gofossilfree.org/commitments/

[9] Climate change strategies and risk management - the perspective of companies and investors. (2015) Accessible at: https://www.cdp.net/CDPResults/CDP-CEE-100-Climate-Change-Report-2014.pdf

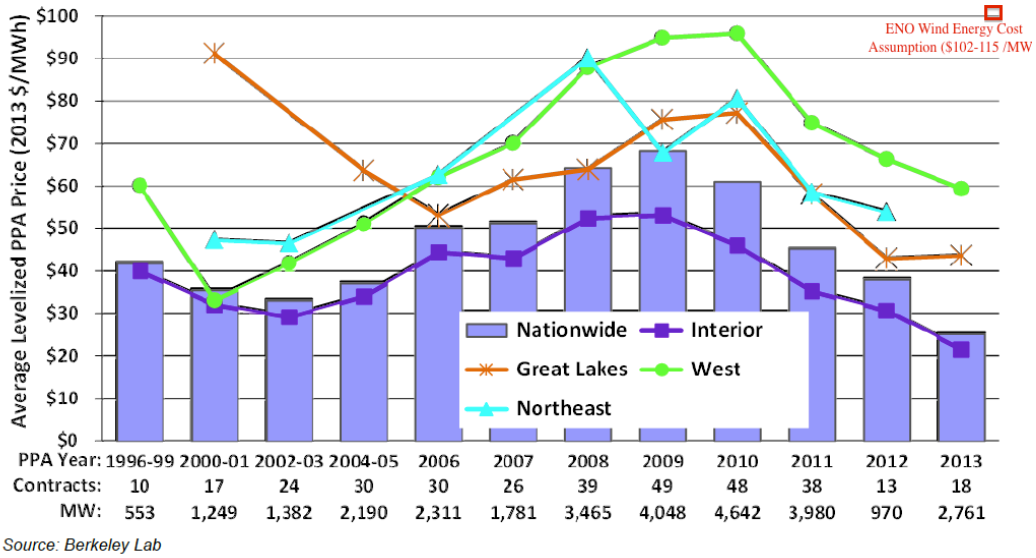
- Clean Water Act "316(b)" Rule
- Effluent Limitation Guidelines and Standards (ELG)
- National Ambient Air Quality Standards (NAAQS)
- Carbon and GHG Regulations
- Regional Haze Rule

Please explain how the coal plants will be impacted by these new rules and how this will impact ratepayers.

D. Wind Energy

The Alliance is concerned that the modeling for ENO's IRP has not appropriately priced or included wind resources. According to an Entergy-generated chart used to compare levelized costs of energy for various generation options, wind is priced between $115-102 p/MWh, depending on the existence of a production tax credit. According to Lawrence Berkley National Laboratories' Annual Wind Technologies Market Report,[10] no region over the past 20 years has average power purchase agreement prices over $100/MWh. LBNL figures report contractually and legally binding prices, while figures given by Entergy are offered with no explanation or citation. Current market analysis shows that wind energy resources may be made available for between $20-$65 per MWh, depending on resource location, production tax credit, availability, and other factors[11].

Figure 1. Generation-weighted Average Levelized Wind Power Purchase Agreement Prices by Execution Date and Region[12]



[10] 2013 Wind Technologies Market Report, Lawrence Berkeley National Laboratory. [emp.lbl.gov/sites/all/files/lbnl-6809e.pdf]

[11] The Southern Wind Energy Association (SWEA), April 1, 2015, Re: LPSC Docket: I-33014, Data Assumptions dated May 5, 2014.

[12] Ryan Wiser and Mark Bolinger (August 2014). 2013 Wind Technologies Market Report, Lawrence Berkeley National Laboratory. [emp.lbl.gov/sites/all/files/lbnl-6809e.pdf]

When this up-to-date and real-market data is compared to all other technologies shown in Entergy's chart, wind is the least cost resource. In fact, other utilities in Louisiana are including wind in their integrated resource planning, as a result of lower costs as compared to CCGT or CT resources. Swepco includes a need of 1,700 MW of wind energy capacity over their study horizon.

1. Unnecessary Fees

We see mention of a "match-up" fee in the aforementioned Entergy chart. This fee is not an industry standard method of cost calculation and should not be included in the draft IRP. Utilities experienced with wind energy do not add this "match-up" fee, and according to SWEA (Southern Wind Energy Association) research, no other utilities in the region employing wind in their IRP include such a fee. It should be noted that neither Cleco nor Swepco's Draft IRP uses a match-up fee. The Alliance recommends this fee, which artificially increases the cost of wind, should be removed from future cost calculations.

2. Feasibility

In March 2015, the Department of Energy published *Wind Vision: A New Era for Wind Power in the United States*[13]. The report found that Louisiana could economically develop approximately 1,000 MW of in-state wind power by 2030 and at least 5,000 MW by 2050. Based on National Renewable Energy Lab-published data, Louisiana contains 110,000 MW of wind energy potential with 110-meter hub height wind turbines (current technology).[14] As the company is aware, several wind farm development firms are scouting projects in Louisiana. Wind from Louisiana is an option, and is a cost-effective option.

Purchasing out-of-region wind energy is now common for utilities in the Southeast. Some existing out-of-region wind energy purchases include Arkansas Electric Coop (201 MW), Alabama Power (404 MW), Georgia Power (250 MW), Southern Power (299 MW), Swepco (469 MW), and the Tennessee Valley Authority (1,542 MW). Gulf Power's (Florida) purchase of 180 MW of wind energy from Oklahoma[15] highlights the feasibility of bringing low-cost energy into Louisiana from the mid-west.

3. PPAs and Fuel

The Alliance recognizes that Entergy New Orleans' IRP presentations thus-far show fewer and fewer PPAs over the course of the study horizon. While this may be more appealing to the companies, as the opportunity to build new generation is attractive, the majority of generation

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[13] United States Department of Energy (March 2015). Wind Vision: A New Era for Wind Power in the United States. [http://energy.gov/eere/wind/wind-vision]

[14] National Renewable Energy Laboratory (December 2014). Estimates of Land Area and Wind Energy Potential, by State, for areas >= 35% Capacity Factor at 80, 110, and 140m. http://apps2.eere.energy.gov/wind/windexchange/docs/wind_potential_80m_110m_140m_35percent.xlsx

[15] Pensacola News Journal (February 15, 2015). Gulf Power to add wind power from Oklahoma. http://www.pnj.com/story/news/2015/02/11/gulf-power-add-wind-power-oklahoma/23239883/

options modeled include fuel costs that the consumer will be required to bear. We have noted that the company's planning includes a bearish outlook of natural gas prices over the coming 20 years, but history has shown much more volatile fuel costs. Because wind energy provides a fixed cost energy resource, it provides a hedge against natural gas price fluctuations that consumers would pay through the FAC. It is always in the consumer's best interest to reduce the use of fuels that carry both economically and environmentally impactful price tags, and when Power Purchase Agreement Prices for wind energy are markedly lower than the costs of a new gas plant built and operated by the company, the cost impact to the consumer is magnified.

E. Volatility IS Risk, Reference Case has No Fuel Diversity

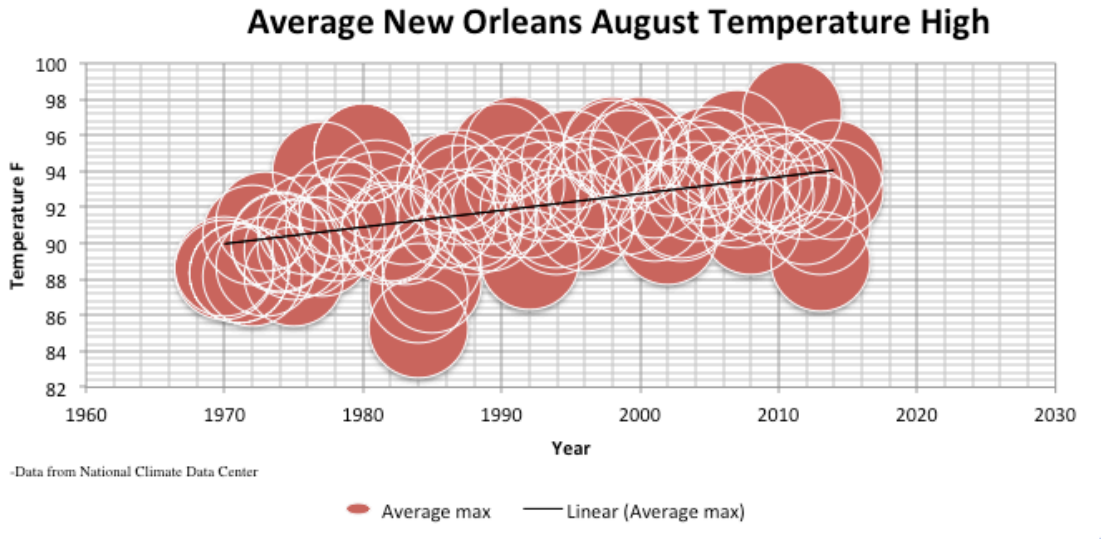
The Alliance strongly recommends that Entergy hedge against future cost spikes on natural gas, which dominates Entergy's current fleet and future plans. When Natural Gas prices spike, which they will based on historical patterns, then customers will get gouged. The natural gas assumptions in the model are just a good guess. A high of $8 is the planned cost but this is not certain. Fuel diversity is critically important to protect the likely spike in fossil fuels. We strongly suggest that Entergy add more non-fuel dependent resources to the final planning document.

III. Suggested changes

A. Weather Normalization

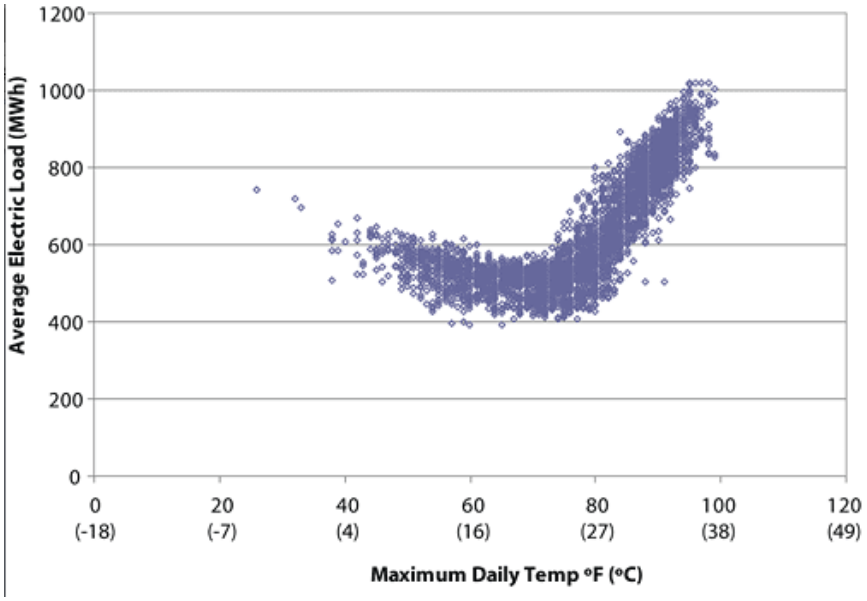
The Alliance is concerned that modeling results, which have historically been based on the most recent 10-year weather normalization data is increasingly inappropriate. As climate data shows consistent warming trends since the 1970s, assumptions based on historic data is becoming less reliable, as increases in temperature are likely to alter the timing and levels of energy demand. New Orleans, situated in a humid subtropical climate, has a disproportionately large number of cooling degree-days. As warming continues, the intensity of these cooling degree-days increases.

Figure 1.



The EPA states that demand for cooling increases 1.5-2.0 % for every 1F increase in air temperatures, starting from 68-77F. In the chart below, from historic New Orleans data, the load increase is evident as the temperature increases, especially between 77-100 F.

Figure 2. Sample Electric Load Data for New Orleans.[16]



According to research on modeling and forecasting by George Washington University[17], the continued warming of our summers due to climate shift will affect not only our average load demand, but an even greater impact on peak demand. We encourage the company to consider modeling that reflects impacts of these warming trends. Not including the impacts of these warming trends could negatively affect both the company and consumers. If not enough energy is available during peak loads due to poor planning the company may have difficulty meeting the demand, forcing expensive purchases on the open market. In terms of ratemaking, if sales are many percentage points higher than expected due to increasing temperatures, the company has an opportunity to over-earn during the hot summer months.

B. Peaking Alternatives and Interruptible Loads

Peaking generating resources are critical during our hot summers. These peaks are predictable and only occur for a few hours each year. The rest of the time, we are paying for an asset that is not being used. When we do need them, we pay very high-energy costs. Rather than build another peaking unit, the Alliance supports utilizing peaking alternatives measures. SWEPCO is looking at combustion turbines to provide backup capacity and some have the ability to provide emergency

[16] Sailor, D. J. 2002. Urban Heat Islands, Opportunities and Challenges for Mitigation and Adaptation. Sample Electric Load Data for New Orleans, LA (NOPSI, 1995). North American Urban Heat Island Summit. Toronto, Canada. 1–4 May 2002. Data courtesy Entergy Corporation.

[17] Crowly, C, 2005, Weather Effects on Electricity Loads: Modeling and Forecasting, [http://www.ce.jhu.edu/epastar2000/epawebsrc/joutz/Final%20Report%20EPA%20Weather%20Effects%20on%20Electricity%20Loads.pdf]

(Black Start) capability to the grid. Also, we have interruptible customers on the grid, ENO should analyze the effect on peak when those customers are turned off.

C. Supplement or Replace Aurora

Aurora is biased toward capacity growth, which is why DSM, solar and wind do not perform as well in the modeling. The Alliance believes it would be fruitful to try a different modeling program for the next round to replace or enhance Aurora's results. There have been numerous improvements in modeling efforts to include non-traditional but expanding energy resources like energy efficiency, high-tech transmission, distributed solar, demand response, and other 21st century technologies and policies.[18],[19]

SWEPCO used Plexos® which "seeks to minimize the aggregate of the following capital and production-related (energy) costs of the portfolio of resources:

- Fixed costs of capacity additions, i.e., carrying charges on incremental capacity additions (based on a SWEPCO-specific, weighted average cost of capital), and
- fixed O&M;
- Fixed costs of any capacity purchases;
- Program costs of (incremental) DSM alternatives;
- Variable costs associated with generating units. This includes fuel, start-up, consumables, market replacement cost of emission allowances, and/or carbon 'tax,' and variable O&M costs;
- Distributed, or customer-domiciled resources were effectively value at the equivalent of a full-retail "net metering" credit to those customers (i.e., a "utility" perspective); and
- A 'netting' of the production revenue made into the SPP power market from generation resource sales and the cost of energy – based on unique load shapes from SPP purchases necessary to meet load obligation."

IV. Protecting Customers

A. Energy Efficiency

Energy Smart is performing well. However, to overcome participant barriers to the program we suggest including or growing the following elements:

- Consumer education
- Technical training in newly state-adopted building codes
- Energy audits must be HERS or BPI

1. Demand Reduction

Smart Grid Technologies are expanding across Louisiana as cooperative utilities are trying to manage costs. If Cooperative Utilities are calculating a net-benefit of smart meters, we believe it is time to re-evaluate the cost of implementing smart meters across the territory. This would enable residential demand response, time of use pricing, more meaningful behavioral programs, and possibly, a pre-pay option with certain precautions.

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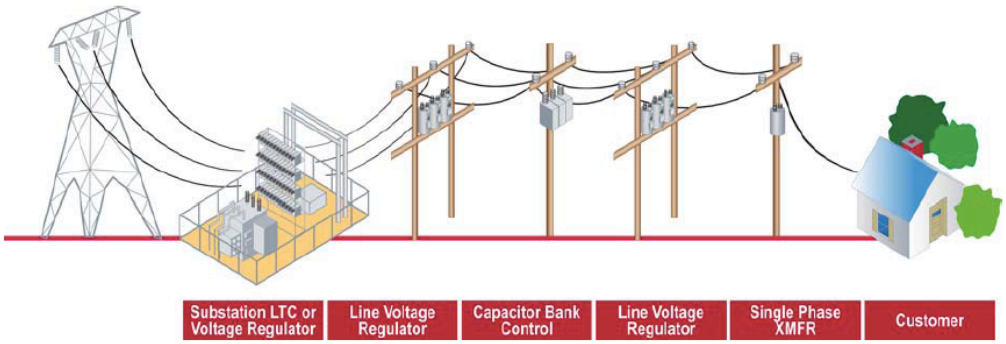
[18] Treatment of Solar Generation in Electric Utility Resource Planning (2013) http://www.nrel.gov/docs/fy14osti/60047.pdf

[19] Energy Efficiency as a T&D Resource: Lessons from Recent U.S. Efforts to Use Geographically Targeted Efficiency Programs to Defer T&D Investments (2015) Available at: http://www.neep.org/sites/default/files/products/EMV-Forum-Geo-Targeting_Final_2015-01-20.pdf

2. Energy Efficiency Upstream - Volt VAR Optimization (VVO)

VVO is a form of voltage control that allows the grid to operate more efficiently. VVO's sensors and controllers monitor load flow characteristics to optimize power factor and voltage levels. The power factor optimization reduces line losses on the system. VVO also enables conservation voltage reduction (CVR). CVR allows the utility to systematically reduce voltages in its distribution network, resulting in a load reduction. While voltage optimization allows a reduction of system voltage, it still maintains minimum levels needed by customers. Customers use less without even knowing. SWEPCO states that early results from AEP operating companies indicate a range of 0.7% to 1.2% of energy demand reduction for a 1% voltage reduction is possible.

Figure 3-4: Voltage/VAR Optimization



B. Distributed Generation

Solar is power that is added to the grid at no cost to ratepayers for the construction cost, debt financing, interest, taxes, fuel charges, or operating and maintenance. This is a resource that should be planned *for* not against, as suggested by the title of Scenario 3 "Distributed Disruption". Currently, solar pv is treated as a load reduction but could be seen as a planned additions of new renewable energy.

From ENO's graph below, it is clear that solar could offset 25 MWs of new generation from the reference case by 2034. This is small but significant.

2015 Update Total Peak Forecast (MWs)	2015	2020	2025	2030	2034
Industrial Renaissance	1,029	1,070	1,105	1,143	1,176
Business Boom	1,052	1,101	1,137	1,178	1,212
Distributed Disruption	1,029	1,068	1,099	1,127	1,151
Generation Shift	1,027	1,067	1,104	1,141	1,173

IV. Conclusion

In conclusion, the Alliance is hopeful that these comments will benefit the process and direct the company in a helpful direction for the written draft. We look forward to reviewing the Portfolio Plan and Action Plan in June 2015.