

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Analysis of IOUs' Hedging Practices

Docket No. 170057

Filed: March 6, 2017

**SIERRA CLUB COMMENTS ON STAFF AND IOU PROPOSED NATURAL GAS
HEDGING STRATEGIES**

The Sierra Club appreciates the opportunity to comment as the Commission considers new mechanisms to limit the risk exposure to Florida customers from volatile natural gas markets. As was discussed during the February 21 workshop, the goal of this docket is to design a system that will limit ratepayers' risk from exposure to volatile natural gas markets. So far, neither the Independently Owned Utilities (IOUs) nor the Public Service Commission Staff (Staff) have offered proposals that would sufficiently address this issue.

The IOUs' proposal for the purchase of out-of-the-money call options would commit ratepayers to significant annual expenditures and may ultimately prove unavailable during periods of high volatility and upside price movement. Staff's risk-responsive hedging program, while more disciplined than the preceding targeted volume strategy, suffers from many of the same flaws. And neither take any steps towards addressing the environmental risks placed on ratepayers from the continued use of fossil fuels. Instead, the Commission should require that the IOUs implement measures to mitigate the gross risk faced by their customers from an outsized reliance on natural gas. Decreasing the total amount of natural gas required by harnessing Florida's potential for renewable electricity and investing in energy efficiency would strike at the heart of the issue.

I. Florida’s natural gas overbuild exposes its citizens to the whims of a volatile fuel market.

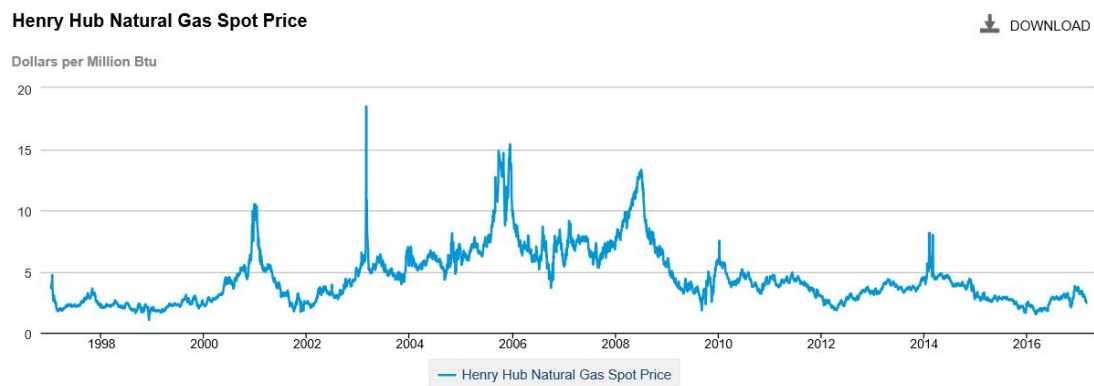
Over the past fifteen years, Florida quickly became the posterchild for the nationwide buildup of natural gas. By 2016 natural gas represented over 70% of the generating capacity for both Duke Energy Florida, LLC (“Duke”) and Florida Power and Light (“FPL”) And both Gulf Power Company (“Gulf”) and the Tampa Electric Company (“TECO”) have made significant investments in new natural gas facilities.¹ This homogenous investment in natural gas ignores the state’s significant potential for renewable electricity and other alternatives like energy efficiency, all to the detriment of Florida’s ratepayers.²

An overreliance on natural gas by Florida’s utilities exposes customers to untenable levels of risk, both economic and environmental. Natural gas is inherently volatile in both supply and demand, and prices are therefore prone to wild swings. The unpredictability of the gas market was demonstrated by price spikes in 2001, 2006, and 2008, with less extreme periods of volatility in 2010 and 2014.

¹ See, e.g., Florida Power and Light, Ten-Year Power Plant Site Plan 2016-2025 (Apr. 2016), available at <http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2016/Florida%20Power%20and%20Light.pdf>; Duke Energy Florida, LLC, Ten-Year Site Plan: 2016-2025 (Apr. 2016), available at <http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2016/Duke%20Energy%20Florida.pdf>; Gulf Power Company, Ten Year Site Plan For Electric Generating Facilities and Associated Transmission Lines: 2016-2025 (Apr. 2016), available at <http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2016/Gulf%20Power.pdf>; Tampa Electric Company, Ten-Year Site Plan For Electric Generating Facilities and Associated Transmission Lines: January 2016 to December 2025 (Apr. 2016), available at <http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2016/Tampa%20Electric%20Company.pdf>.

² For a discussion of how this overreliance impacts ratepayers and the environment see generally, e.g., Union of Concerned Scientists, *Rating the States on Their Risk of Natural Gas Overreliance*, Analysis Document (Oct. 2015), available at <http://www.ucsusa.org/sites/default/files/attach/2015/12/natural-gas-overreliance-analysis-document.pdf> (characterizing Florida’s reliance on natural gas as the most severe for each of seven metrics); Doreen Hemlock, *Florida called too reliant on natural gas for electricity*, Sun Sentinel, Mar. 11, 2015, available at <http://www.sun-sentinel.com/business/consumer/fl-natural-gas-reliance-20150311-story.html> (same).

Figure 1: Henry Hub Gas Prices, 1997-Present³



To insulate from these price shocks, the Commission authorized Florida’s utilities to hedge natural gas prices by purchasing futures contracts for the delivery of fixed quantities of fuel.⁴ Such contracts mortgage the utility’s ability to benefit from declining prices in exchange for greater predictability of fuel costs and more stable energy bills. When the spot price rises above the strike price specified in the hedge customers benefit by avoiding the extra increase in fuel cost. However, if spot prices drop below the hedged price, customers are forced to pay more than the market rate for the chosen commodity. Unfortunately, Florida’s experience has tended towards the latter scenario.

From 2002-2016 Duke, TECO, Gulf, and FPL entered a series of damaging fixed volume hedges that repeatedly locked their customers into paying more than the market rate for natural gas. Over this period, Florida ratepayers paid \$6 billion more than the market rate for natural gas.⁵ The losses were most extreme for customers of the utilities with the greatest reliance on natural gas. FPL customers lost over \$4.5 billion and Duke customers lost \$1.4 billion while

³ U.S. Energy Information Agency, *Henry Hub Natural Gas Spot Price*, <https://www.eia.gov/dnav/ng/hist/rngwhhdD.htm> (last visited Mar. 6, 2017).

⁴ In re: Review of investor-owned electric utilities’ risk management policies and procedures, Order No. PSC-02-1484-FOF-EI (Oct. 30, 2002).

⁵ Jerome R. Stockfish, Tampa Bay Times, *Utilities Put Hedging on Hold*, (Nov. 3, 2016), available at <http://www.tampabay.com/news/business/energy/duke-tampa-electric-co-agree-to-halt-fuel-price-hedging-which-has-cost/2301251>.

TECO spent an extra \$421 million and Gulf \$170 million above market prices.⁶ The gross exposure to hedging's negative effects was a function of each utility's reliance on natural gas.

In response, the Commission in its Order No. PSC-16-0547-FOF-EI on December 5, 2016 halted hedging for 2017 until the practice could be reevaluated and alternatives considered.

The Commission should draw two lessons from customers' experience in overpaying \$6 billion for energy. First, an overreliance on natural gas increases customers' exposure to the risk of price shocks and poorly managed utility efforts to limit that exposure. It is a matter of simple arithmetic that a customer who accesses an electric grid fueled 70% by natural gas will risk a much higher exposure to price volatility in the natural gas market than a customer whose electric provider has a more balanced portfolio.

Second, advanced procurement practices by utilities deserve greater scrutiny than previously provided. From 2002-2016 hedging procedures were submitted to the Commission as part of each utility's Risk Management Plan. Any changes or alterations affecting the final annual fuel cost were subsequently squared away in the fuel adjustment factor true up. From 2002-2016 this practice went unchecked. During that span, over \$6 billion was vacuumed from the pockets of Florida's ratepayers without a single action to limit the damage.

II. Both the IOUs and Staff propose programs that would continue to rely on financial mechanisms to insulate customers from market volatility instead of addressing the root cause of the issue.

In late 2015, the Commission began reevaluating the fuel hedging practices of its largest utilities. The Commission ordered the present docket to consider whether hedging should be

⁶ Robert Walton, *Florida regulators hit pause on utility natural gas hedging programs*, Utility Dive, Nov. 4, 2016, available at <http://www.utilitydive.com/news/florida-regulators-hit-pause-on-utility-natural-gas-hedging-programs/429758/>.

continued at all, and if so then under what framework to protect customers from the losses seen over the prior fifteen years.⁷

*Staff's Proposed Hedging Framework:*⁸

Staff's initial recommendation includes scrapping the fixed volume hedges that led to the \$6 billion loss for a strategy built upon tiered hedges. Staff anticipates that such a system will be more risk responsive and better tailored to the ratepayers' appetites for risk.⁹ Staff's proposed framework has three primary components, none of which offer a fundamental solution to market risk exposure.

First, the IOUs would enter a series of programmatic baseline hedges. In a similar fashion to the prior system these investments would cover a targeted volume of natural gas.¹⁰ Second, the IOU would set a series of defensive hedges above the current spot price to protect against upward price movement. In theory, these defensive hedges would be triggered whenever the spot price advanced a specified amount, effectively slowing the fuel's approach towards a customer tolerance threshold.¹¹ And finally, the IOU would assemble a set of contingent hedge protocols: analytically derived measures to suspend new hedges, unwind existing hedges, and constrain loss potential in response to the threat of intolerable hedge losses.¹² These mechanisms aim to balance customer appetite for hedge losses with their tolerance for price shocks.¹³

⁷ See In re: Fuel and purchased power cost recovery clause with generating performance incentive factor, Order No. PSC-16-0547-FOF-EI (Dec. 5, 2016).

⁸ Staff's proposed risk management structure was described in testimony by Michael A. Gettings, see Commission Staff Direct Testimony of Michael A. Gettings, Dkt. No. 160001-EI, Sep. 23, 2016 (hereinafter "Testimony of Michael A. Gettings").

⁹ Testimony of Michael A. Gettings at 3-4.

¹⁰ *Id.* at 16 ("Programmatic hedges are executed based on the calendar regardless of prevailing risk conditions").

¹¹ *Id.* at 17-19 (describing defensive hedge strategy in greater detail).

¹² *Id.* at 19-21 (describing contingent hedge protocols).

¹³ *Id.* at 15.

The structure of a risk-responsive strategy will reflect an IOU's customers' tolerance for both cost and hedge losses. Staff's expert Michael A. Gettings proposes that defensive hedges should be purchased to insure that the fuel cost passed on to ratepayers will not exceed their upper tolerance limit.¹⁴ Mr. Gettings' testimony also makes clear that a risk-responsive protocol should focus on short and mid-term hedges and that daily or weekly risk evaluations signal when defensive and contingent hedge protocols should be triggered.¹⁵

As Mr. Gettings stated, "the purpose of hedging is to minimize customer pain associated with energy-price (or customer-cost) increases."¹⁶ But the risk-responsive model merely fills a pothole instead of repaving the road. Instead of addressing the underlying cause of this exposure, a natural gas overbuild by Florida's IOUs, Staff's proposal would rely on the utilities' ability to evaluate its customers' tolerances and accurately forecast movement in the natural gas market. Past experience instructs that we should have little faith in the utilities' ability to do so.

*The IOUs' Proposed Risk Management Approach:*¹⁷

In the February 21, 2017 hedging workshop, the IOUs proposed a risk management program based upon procuring out-of-the money call options rather than a portfolio of hedges.¹⁸ This proposal departs from Staff's recommended structure. The main difference from a hedging strategy is that call options do not require the utility to purchase gas at a set price. Rather, they provide the option of purchasing gas at the agreed price if market conditions develop in a specified manner.

¹⁴ *Id.*

¹⁵ *Id.* at 17.

¹⁶ *Id.* at 4.

¹⁷ The IOUs presented an alternative risk management at the February 21, 2017 workshop *see Joint IOU Presentation on Natural Gas Hedging: Out-of-the-Money (OTM) Call Options as an Alternative Form of Risk-Responsive Hedging*, Dkt. No. 170057, available at <http://www.psc.state.fl.us/library/filings/17/02730-17/02730-17.pdf> (hereinafter "Joint IOU Presentation").

¹⁸ *See generally* Joint IOU Presentation.

The purchaser of an out-of-the-money call option is essentially placing a deposit on a potential future sale.¹⁹ The cost of reserving that option is nonrefundable, regardless of whether market prices rise to the strike price, the level at which the option is acted upon. When market prices rise above the strike price, the option is triggered and the holder can purchase the contracted volume of gas at the specified price.²⁰ This can help limit the level of customer exposure to price spikes. Conversely, if market values remain below the call option strike price, the option holder is free to continue to purchase gas on the open market, and its customers may benefit from favorable market conditions.²¹ However, customers will still foot the bill for the purchase premium of those untriggered option contracts.²²

The IOUs argue that this structure would benefit customers by allowing participation in downside price movement. But the proposal is seriously flawed in several other respects. First, while their upside risk is partially limited by these calls, customers are still required to reimburse the companies for the purchase premium of any options.²³ Costs, while potentially less than that under the previous hedging system, are still expected to be significant. FPL estimates that using out of the money calls for 60% of its gas consumption would have cost ratepayers over \$84 million per year from 2011-2016.²⁴ Similarly, DEF estimates an average cost of \$39.2 million/year from 2013-2016,²⁵ and TECO projects that such a program will cost from \$10-18 million for 2018.²⁶ These are significant sums that must be renewed on an annual basis unless action is taken to reduce Florida's reliance on natural gas.

¹⁹ *Id.* at 5

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *See Id.* at 11.

²⁵ *Id.* at 12.

²⁶ *Id.* at 8

The IOUs should also clarify whether they will limit their call options to only 60% of their natural gas demand, and if so, how they arrived at that number. This leaves 40% of the natural gas used entirely exposed to market changes, and if 100% coverage is required the annual costs described in the presentation will be much greater. Again, this spending will only benefit customers in the case that market prices for natural gas rises to a level warranting the call option's exercise, but customers end up paying the premium price either way.²⁷

Second, out-of-the-money call options become scarce during periods of high market volatility and climbing prices, exactly when customers need the most protection. As market trends point towards price increases, the cost of out-of-the-money call options will also increase. At the same time, fewer parties will offer options out of a fear of misreading a highly volatile market. Together these forces conspire to make call options more expensive and less available.

Shortcomings common to both proposals:

Both strategies levy a moral hazard on Florida's electricity providers. By limiting short term exposure to market volatility the IOUs are able to ignore the long-term impacts of exposure to a volatile fuel market. Either approach could possibly control the impacts of short term volatility but financial mechanisms alone cannot eliminate that risk.

In addition, neither proposal addresses the environmental risks to customers from the impacts of fossil fuel combustion. Natural gas is a carbon intensive source of electricity, the emissions from which contribute to climate change. Florida customers are particularly vulnerable to the changes expected in a warming world.²⁸ Sea level rise threatens the beaches, mangroves, and lowland wetlands that define Florida's unique ecology. Ocean acidification and warming

²⁷ *Id.* at 5.

²⁸ Ron Hurtibise, *Report: Florida at highest risk for flooding from climate change*, Sun Sentinel, July 30, 2015, available at <http://www.sun-sentinel.com/business/consumer/fl-florida-climate-change-economic-toll-20150730-story.html>.

temperatures exacerbate coral reef bleaching. And an uptick in powerful hurricanes and storm surges threaten properties and businesses along the coasts. Risks of these occurrences are directly linked to the concentration of greenhouse gases in the atmosphere. But many of the worst effects from a shifting climate can still be mitigated by curtailing the use of fossil fuels for generating electricity.

Because financial mechanisms do nothing to address the underlying cause of ratepayer risk from volatile natural gas markets and the environmental damage from relying on natural gas, we urge the Commission to look beyond the two proposals. Instead, and as described in more detail below, the Commission should require the utilities to invest in energy efficiency and generating sources that provide electricity without volatile fuel costs.

III. Utilities should diversify their generating portfolios with renewables and energy efficiency, thereby reducing their demand for natural gas and limiting customer exposure to volatile fuel prices.

Instead of allowing the utilities to continue to waste ratepayer money on financial mechanisms, the Commission should guide those resources towards addressing Florida's overreliance on natural gas. Reducing natural gas demand through energy efficiency and renewables is the wisest course for Florida's IOUs. These two approaches can limit ratepayer exposure to risk without relying on dubious financial mechanisms. First, energy efficiency improvements decrease customer exposure to price shocks, ultimately reducing their risk (as well as their average monthly bills). Second, investing in renewables divorces electricity production from the volatile natural gas market. Instead of making annual investments in a failed attempt to corral the gas market, the IOUs should invest in energy efficiency and renewables which yield lasting long-term benefits to Florida's ratepayers.

Energy efficiency lowers ratepayers' risk profiles by decreasing the gross amount of electricity that they demand from natural gas fueled power plants. Energy efficiency funding can go towards incentive programs for efficient appliances, light bulbs, and HVAC systems. Decreasing a customer's reliance on natural gas will have a corresponding impact on their tolerance for market volatility.

Additionally, investment in demand response measures could further limit ratepayer exposure to upside movement in natural gas markets. Demand response includes measures that shift load away from periods of peak demand. This in turn decreases the amount of fuel required to power generating units. Studies have shown that such investments also reduce total demand on a system wide basis.²⁹

Florida's utilities have only scratched the surface of potential system wide gains from energy efficiency and demand response improvements. These measures are now the lowest cost option for meeting marginal electricity need, and implementing them can displace the demand for natural gas based electricity.³⁰

Florida customers would also benefit if the IOUs committed to building lasting renewable energy infrastructure rather than directing an annual amount to temporarily manage the natural gas market. Gulf has long acknowledged the viability of reducing risk from volatile markets through diversification. In its 2016 Ten Year Site Plan, Gulf acknowledged that a strategy of augmenting long term capacity with shorter term PPAs "has proven to be effective over the

²⁹See, e.g., American Council for an Energy-Efficient Economy, *Demand response programs can reduce utilities' peak demand an average of 10%, complementing savings from energy efficiency programs*, (Feb. 9, 2017), available at <http://aceee.org/blog/2017/02/demand-response-programs-can-reduce>.

³⁰ American Council for an Energy-Efficient Economy, *How Much Does Energy Efficiency Cost?* <http://aceee.org/sites/default/files/cost-of-ee.pdf> (last visited Mar. 6, 2017).

years” for reducing ratepayers’ risks.³¹ Diversification should play a key role in addressing ratepayer exposure to volatile fuel markets. The greatest potential for gains come from the areas least developed by Florida’s utilities: renewables and energy efficiency.

Florida’s IOUs would be following strong national trends when making these investments. For the past three years, “more than half of [the country’s new generation] additions are renewable technologies, especially wind and solar.”³² Renewables are now so competitive that according to the Chairman of NextEra Energy, FPL’s parent company, solar and storage may erase the need for new peaker construction as soon as 2020.³³ The actions of utilities across the nation, including several Florida IOU sister companies, have demonstrated the feasibility of integrating renewables and efficiency.

Renewables can be rapidly deployed at a scale significant enough to reduce risk exposure from natural gas markets. Georgia Power Company included 1.2 GW of new solar capacity as part of its 2016 Integrated Resource Plan, all to come on-line by the end of 2019.³⁴ Both Georgia Power and Gulf are subsidiaries of Southern Company. An even greater commitment to renewables has been made by TECO’s parent, Emera Energy, which now generates over a quarter of the energy for its Nova Scotia subsidiary from renewable sources.³⁵ The millions of

³¹ Gulf Power Company, Ten Year Site Plan For Electric Generating Facilities and Associated Transmission Lines: 2016-2025 (Apr. 2016) at 51, available at <http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/TenYearSitePlans/2016/Gulf%20Power.pdf>

³² Cara Marcy, *Renewable generation expected to account for most 2016 capacity additions*, U.S. Energy Information Administration, Jan. 10, 2017, <http://www.eia.gov/todayinenergy/detail.php?id=29492>.

³³ Eric Wesoff, Greentech Media, *NextEra on Storage: “Post 2020, There May Never Be Another Peaker Built in the US*, Sept. 30, 2015, <https://www.greentechmedia.com/articles/read/NextEra-on-Storage-Post-2020-There-May-Never-be-Another-Peaker-Built-in-t> (quoting NextEra Energy CEO Jim Robo as saying “Post-2020, there may never be another peaker built in the United States – very likely you’ll be just building energy storage instead.”).

³⁴ See Georgia Power IRP Stipulation, Dkt. No. 40161. See also Georgia Power, *Renewable Energy Development Initiative (REDI)*, <https://www.georgiapower.com/about-energy/energy-sources/solar/redi.cshml> (last visited Mar. 6, 2017).

³⁵ See Nova Scotia Power, *Renewables*, <http://www.nspower.ca/en/home/about-us/todayspower#renewables> (last visited Mar. 6, 2017).

dollars that would otherwise go to call options or financial hedges would provide a significant portion of the funding needed to reproduce these efforts in Florida.

Building renewables and energy efficiency will also address customers' aversion to environmental risk. Natural gas harms the environment at every step in the electricity generation process. Local water quality and air pollution accompany extraction and transport and leakage and combustion are prominent contributors to climate change. Natural gas is itself a potent greenhouse gas. One molecule of methane, the primary component of natural gas, is about twenty five times as potent of a heat-trapping gas as one molecule of carbon dioxide in the atmosphere.³⁶ And burning natural gas creates carbon dioxide. No matter which way you slice it, an overreliance on natural gas is bad for the environment.

The Commission should consider the environmental co-benefit of climate mitigation when considering which program to authorize. Climate change will have a dramatic impact on Florida. Sea levels could rise as much as ten inches above 1992 levels by 2030.³⁷ A rise of this magnitude will threaten from \$15-36 billion of Florida's coastal property.³⁸

Global warming also adds a level of unpredictability to storm patterns, prompting a greater incidence of large storms and other severe weather events. In a state all too familiar with the destructive power of hurricanes, the Commission should be sensitive to not authorize activities that will exacerbate those tendencies. If the goal is to control risks to customers then the prudent course is to not further enshrine a dangerous overreliance on gas. This should factor into the design of the IOU's practices to control exposure to natural gas price volatility. The purpose of

³⁶ United States Environmental Protection Agency, *Overview of Greenhouse Gases: Methane Emissions*, <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane> (last visited Mar. 6, 2017).

³⁷ Erika Bolstad, ClimateWire, *Seas Rising but Florida Keeps Building on the Coast*, June 20, 2016, available at <https://www.scientificamerican.com/article/seas-rising-but-florida-keeps-building-on-the-coast/>.

³⁸ *Id.*

these hedging protocols is to avoid violating ratepayers' tolerances for losses associated with natural gas.

Despite an abundance of solar potential, Florida has lagged behind other states in building out utility-scale solar.³⁹ Florida has also failed to develop any wind resources, even while importing wind power from other states.⁴⁰ Investments in these sources of electricity would displace a corresponding amount of natural gas. Because wind and solar have negligible operating costs, they will always be dispatched ahead of fossil fuel based resources, “significantly reduc[ing] the exposure of electricity costs to natural gas price uncertainty.”⁴¹

The benefits of adopting a diversification approach to risk management are cumulative rather than transient. Where financial hedges expire after a contracted period, and therefore must be renewed at the end of each term, investments in renewables and energy efficiency continue to reduce risk over the full lifetime of the product. To put it differently, spending \$10 million on hedges for 2017-2018 will only reduce risk for that one year. To maintain that level of risk exposure the company will have to invest \$10 million in every subsequent year.⁴² At the end of the hedging period customer benefits disappear unless the investment is renewed. Solar and efficiency, on the other hand, are not so fleeting. Building \$10 million of renewables will add a set amount of generating capacity and circumvent the need for a corresponding amount of natural gas. Those gains will continue past the end of the year.⁴³ Investing another \$10 million the next

³⁹ *C.f.* Solar Energy Industries Association, *Top 10 Solar States*, <http://www.seia.org/research-resources/top-10-solar-states> (Ranking the top ten solar states by a number of metrics without any mention of Florida).

⁴⁰ See Gulf Power Company Wind PPA, Dkt. No. 160158-EI.

⁴¹ Thomas Jenkin, et al., *The Use of Solar and Wind as a Physical Hedge against Price Variability within a Generation Portfolio*, National Renewable Energy Laboratory, Aug. 2013 at vii, <http://www.nrel.gov/docs/fy13osti/59065.pdf>.

⁴² The annual amount would vary based upon underlying market conditions and may be significantly more or less for future years.

⁴³ Utility scale solar farms are regularly expected to operate for twenty or thirty years. See National Renewable Energy Laboratory, *Useful Life*, http://www.nrel.gov/analysis/tech_footprint.html (last visited Mar. 6, 2017).

year would augment the benefit already in place. As the renewable generation capacity obtained by such investments continues to amass, the utility's reliance on natural gas, captivity to the fuel market, and exposure of customers to fuel price risks will also decrease.

IV. Conclusion

The Commission should instruct the utilities to protect their customers from a volatile natural gas market by diversifying their generating fleet. Unfortunately, both Staff's tiered hedging and the IOUs' out-of-the-money call option proposals focus too narrowly on preventing the symptoms of a risky overreliance on natural gas and not enough on finding an actual cure.

Respectfully Submitted,

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