Market Manipulation and Demand Response
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Executive Summary

This paper reviews the FERC enforcement cases involving two companies providing demand response in New England, the Rumford Paper Company and the Lincoln Tissue and Paper Company. Both firms were not only ordered to refund demand response payments but were also ordered to pay substantial penalties for the conduct at issue in these cases. In this review we first seek to identify the principles applied by FERC and enforcement staff in finding that these firms engaged in fraudulent conduct and seeking to impose these penalties, and to assess whether these principles would enable market participants to anticipate the kind of conduct that would be found to be fraudulent in the future. Second, we seek to assess whether the enforcement principles that we conclude underlie these cases would be effective in avoiding the outcome that concerned FERC and enforcement staff in these cases where rate payers may pay for nothing in economic demand response programs. In particular, we ask whether the application of this principle would be effective in avoiding the outcome in which rate payers pay for nothing in the type of economic demand response programs mandated by Order 745.

We draw six conclusions from our review of these enforcement cases and discussion of their interaction with FERC's Order 745 principles for economic demand response. First, the principle that we believe underlies the FERC and enforcement staff finding of fraud in the Lincoln and Rumford cases (principle 4 in the discussion below), is reasonably narrow, and the prospective application of such a principle to define fraud in establishing baselines likely would not deter unduly power consumers from responding to the incentives provided by the kind of economic demand response programs mandated by Order 745.

This principle is that the conduct was fraudulent because it would have been economic absent the demand response program to operate the behind the meter generation at a

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[1] The author has not had any involvement in the demand response manipulation cases discussed in this paper so these comments are based entirely on the public record. The author was involved in Order 745 Compliance by the New York ISO and the ISO and RTO Council, and also participated in the preparation of Comments on Order 745 by the California ISO Market Surveillance Committee, see James Bushnell, Scott Harvey, Benjamin Hobbs and Steven Stoft, "Opinion on Economic Issues Raised by FERC Order 745," June 6, 2011, at http://www.caiso.com/Documents/MSCFinalOpinionDemandResponseCompensationinResponse-FERCOrder745.pdf. This paper has benefitted from the comments of William Hogan and Joe Cavicchi but any remaining errors are solely the responsibility of the author. This paper was not funded by anyone and the views expressed are those of the author and not necessarily those of any past or present clients. The views expressed in this paper are the individual opinions of the author and do not reflect the collective opinion of the California ISO Market Surveillance Committee.

higher output level than was actually the case during the hours when the baseline was set. Moreover, it is transparent that the operation of the behind the meter generation was economic and there was not barrier to providing demand response with this generation because the failure to operate the behind the meter generation at a higher output level during the hours in which the baseline was set was inconsistent with the past practice of the power consumer in operating its behind the meter generation when spot prices were at the levels that prevailed during the hours when the baseline was set.

This is a very long statement for a principle but it has basically three elements. 1) The fraud concerned the operation of the behind the meter generation during the hours in which the initial baseline was set. 2) the operation of the behind the meter generation at a higher output level would have been economic during these hours; and 3) there is no question that it was profitable and feasible to operate the behind the meter generation at the higher output level because that is the way the generation normally operated.

Second, in our view the prospective application of even this narrow principle is unclear outside the precise facts of the Lincoln and Rumford cases. In our view some of the ambiguities in how demand response baselines are to be calculated are clearly elements of the market design that should be addressed in market rules, either in the tariff or a manual, rather than being defined on an ad hoc basis through after the fact enforcement actions. One of the issues raised by the parties in these cases was the extent to which the conduct at issue arose from a failure of ISO New England or FERC to clearly spell out the rules governing the determination of baselines rather than fraudulent behavior of market participants. We do not revisit the reasonableness of FERC and enforcement staff's findings on this issue but observe that even now it is not clear in all respects how FERC and enforcement staff believe the output of behind the meter generation should be accounted for in setting baselines. The rules for setting baselines are a fundamental element of the design of a demand response program and they should not be left for market participants to try infer by reading between the lines of the relevant tariff provisions or manuals and be subject to penalties if they do not correctly infer what is intended.

The intended resolution of market design choices is much better addressed by spelling them out in the market rules, rather than pretending after the fact that one or another approach was the only non-fraudulent approach. For example, even after reading the reports and orders it is still not clear to us how FERC and enforcement staff believe the baseline should be established for a power consumer with new behind the meter generation. While this ambiguity leaves enforcement staff more flexibility in litigating future cases, this flexibility in what enforcement staff may find to be fraudulent in the future is not helpful to a market participant evaluating the economics of new behind the

meter generation. Moreover, the treatment of new generation really should be specified in the market rules, and specified in a manner consistent with the design and goals of the program, rather than determined through enforcement actions.

We understand and agree with FERC and enforcement staff's observation that ISOs will never be able to anticipate every possible ambiguity or anticipate every flaw in the market rules. That is one reason we believe that ISOs should have flexibility to modify manuals or issue technical bulletins on a prospective basis to resolve ambiguities as they are identified, with market participants having the ability to seek redress at FERC on a prospective basis if they do not like the way the ISO resolves the ambiguity. In our view it cannot simultaneously be true that conduct is fraudulent because there is no ambiguity in the market rules, the conduct is already forbidden, yet for the ISO to issue a technical bulletin that clarifies the conduct not is not permitted would be a change in market rules that would require FERC approval.

There has been an unfortunate long standing tendency in market design efforts to achieve "consensus" by using language that everyone can agree to because the language is so general that it leaves the resolution of contentious issues unspecified and papers over the fact that there is no agreement on how the contentious issues are to be resolved. We have not tried to understand why some elements of the rules for determining baselines in the ISO New England DALRP program were initially left undefined, it may simply have been a result of the time pressure on ISO New England in early 2005 resulting from FERC's insistence that ISO New England implement the economic demand response program quickly in 2005, and subsequently the relatively infrequent triggering of the program may have made reaching agreement on rules for setting baselines low priority relative to other demands on ISO New England resources during that period. In any event, these cases show that using vague ambiguous languages to paper over unresolved market design issues can be a really bad idea for market participants because the ambiguity could end up being resolved in an enforcement action in which penalties are imposed based on how FERC resolves the ambiguity.

Third, we observe that while the application of the principle that we understand to underlie the FERC and enforcement staff actions in these cases would address the problem of rate payers paying for nothing for demand reductions by power consumers buying power at market prices within the specific facts of these cases and the past ISO New England DALRP design, with slight changes in the facts, rate payers would still be paying for nothing yet there would be no fraudulent conduct from the standpoint of this principle. Moreover, it appears that the application of this principle would also be ineffective in addressing the potential for payments for nothing to be greatly inflated by

Order 745's elimination of ISO bid floors and replacement with the net benefit test threshold.

While enforcement staff actions based on the principle we conclude underlies these cases (principle 4) would deter transparent changes in behavior intended to inflate consumption base lines (and thereby cause ratepayers to pay for nothing), the potential for ratepayers to pay for nothing due to baselines that do not reflect what actual consumption would have been absent the demand response subsidy is much broader than the conduct that could be foreclosed by the application of this principle to defining fraudulent behavior. Enforcement actions based on this principle would not eliminate the incentives that lead to inefficient outcomes and inflated consumer costs, they would only deter the inefficient behavior that is most transparent and perhaps most visible.

This observation is not intended to suggest that ISOs, FERC or enforcement staff should not take actions to reduce the extent to which inflated baselines cause ratepayers to pay for nothing. Rather the point is that if avoiding outcomes in which rate payers pay for nothing is recognized as an important objective, then there is a fundamental inconsistency between the goal of avoiding outcomes in which economic demand response programs cause rate payers to pay for nothing on a large scale and FERC's Order 745 requirements that ISOs pay LMP for reductions in power consumption and eliminate the bid floors and LMP-G designs that the ISOs have established to reduce the extent to which rate payers pay for nothing under existing economic demand response programs.

Fourth, we recognize that it is not clear that we have correctly identified the principle underlying the FERC and enforcement staff actions in the Lincoln and Rumford cases. We identify and discuss a number of other principles that might have instead, or in addition, provided the basis for the FERC actions, as suggested by various FERC and enforcement staff comments. Although some FERC and enforcement staff comments could be read to suggest that these broader definitions of fraud were being applied, we explain in Section IIIC below why we do not think these broader definitions of fraud provide the basis for the FERC and enforcement staff actions in these cases. We reach this conclusion because the other principles appear inconsistent with clearly stated FERC policies, appear to be inconsistent with what appear to be undisputed facts in these cases, or appear to concern the design of the demand response program rather than market participant behavior .

Nevertheless, it is not clear from the record in these cases that FERC and enforcement staff share our view of why these other principles would not provide an appropriate basis for enforcement actions nor is it clear that enforcement staff understand the inconsistency between some of the principles suggested by FERC and enforcement staff comments and

the design of Order 745 economic demand response programs. While it is a good thing that we believe we that we were able to identify a principle for defining fraud underlying the demand response enforcement cases that is consistent with the facts of the cases, consistent with FERC demand response policy, and that would draw at least a reasonably bright line around some conduct as fraudulent, it is not clear that we have correctly identified the principle that actually underlies these cases.

Fifth, we point out that our observation that the application of the enforcement principle we believe underlies the FERC and enforcement staff's finding of fraudulent behavior would not avoid outcomes in which rate payers will at times pay for nothing under Order 745 designs which pay LMP for reductions in power consumption by power consumers that buy power at market prices has an important implication in the context of Order 745 demand response. This potential for rate papers to pay for nothing even when there is no fraudulent behavior invalidates the basis asserted by FERC for paying LMP for reductions in power consumption, the billing unit effect and associated net benefits test. This is because the net benefits test articulated by FERC only takes into account the cost of payments for demand response that at the margin reduce power consumption, but the design of the demand response programs mandated by Order 745 pay LMP for all reductions in consumption relative to the baseline, including reductions that would have been economic based on the avoided cost of purchased power alone. Because this potential for rate payers to pay for nothing is intrinsic in the Order 745 economic demand response program mandated by FERC, FERC's net benefit test is not a valid measure of the pecuniary benefits to load from paying LMP for reductions in power consumption relative to baselines, even if the objective were accepted as face value.

Furthermore, while the failure to take account of the cost of paying for nothing invalidates the net benefit test articulated by FERC for customers buying power at market prices, we also point out that the net benefit test calculates a completely fictional benefit to customers of traditional utilities who buy power from their utility, public or investor owned, at cost based rates, not market based rates. Hence there is no net benefit to rate payers from the design ordered by FERC, the net benefit will likely accrue largely to the power consumers that would be paid for nothing.

This leads to our sixth and final conclusion, that there is no net benefit to paying LMP for economic demand response from customers that buy power at market prices and this is the real underlying problem in both the Rumford and Lincoln cases, one that is obvious but never discussed in the FERC orders or enforcement staff reports. Since these power consumers were buying power from a retail access supplier at market prices, there was no market failure or barrier to demand response that needed to be addressed through subsidies for demand response.

Instead of paying for nothing and trying to cover this fact up with enforcement actions that punish particularly visible instances of paying for nothing but do not address the core problem, economic demand response should be refocused on the original goal of providing more efficient incentives for power consumers that do not buy power at market prices, such as those that buy power at regulated cost based prices from traditional utilities or that buy power from POLR providers at fixed prices. This goal can be achieved by choosing the road not taken by FERC in Order 745 and basing economic demand response on:

1) paying LMP-G for reductions in consumption by consumers buying power at fixed rates;
2) allocating the cost of demand response payments (i.e. LMP-G) to the load serving entity of the power consumer providing the demand response;
3) providing for G to be specified by the load serving entity, and
4) allowing the load serving entity (and its regulators) to determine the eligibility of their power consumers to participate in the demand response program.

A final observation discussed in section V concerns the choice between using FERC enforcement cases or prospective market design changes to correct market design flaws that create incentives for inefficient behavior be market participants. In our view, if the ISO, market participants and FERC do not like the behavior that is incented by a particular market design, the ISO, market participants and FERC should change the design. Attempting to eliminate inefficient behavior incented by market design flaw through after the fact enforcement actions has a number of limitations in competitive power markets:

- the potential for after the fact penalties to be imposed for engaging in behavior that is incented by the market design and leads to inefficient outcomes as a result of the market design but is not identified as inappropriate in the market rules, manuals or technical bulletins will not only deter behavior that increases the cost to consumers of market design flaws, it will likely also deter competitive responses that would reduce the cost to consumers of market design and software flaws or imperfections;
- if the source of inefficient behavior and market outcomes is market design flaws, enforcement actions are unlikely eliminate to the inefficient behavior, the penalties will only deter the most transparent of the inefficient behavior. This outcome may enable FERC to assert it is addressing the problem and protecting rate payers from undue costs but it does not really solve the problem and does not really protect rate payers from undue costs;

- if conduct is defined as fraudulent, the impact of that definition is not limited to that market in that period as would be the impact of a market design change. Defining conduct as fraudulent means that it is intrinsically fraudulent and this definition will generally apply to and impact all ISO markets, not only the market with the inefficient market rules, and will apply after the market rules have been changed, leading to potential unintended consequences in other markets or future periods, consequences that will not have been evaluated in the context of the manipulation case;
- The more inefficient conduct is addressed through manipulation cases that articulate definitions of fraud intended to deter a particular type of conduct incented by particular market design flaws, the greater the potential for inconsistencies in the conduct required of market participants because different types of conduct will exacerbate the impacts of different types of market design flaws. We already perceive at least some inconsistency between the standard we see articulated in the New England demand response cases and those in other manipulation cases, and perhaps a lot of inconsistency, depending on which principle actually underlies the FERC and enforcement staff finding of fraud in the demand response cases.

It is also, however, unacceptable to allow market design flaws to remain in place, potentially imposing material costs on transmission customers in the form of varying combinations of wealth transfers, market inefficiencies and adverse reliability impacts. Are stakeholders coming to rely on FERC enforcement actions to address market design flaws because the process required for an ISO to implement such changes has become so slow and difficult, due to requirements for a perhaps extended stakeholder process, limits on the ability of the ISO to make some kinds of filings without a sufficient level of stakeholder approval, and delays in FERC review and approval.

To their credit, ISO New England and NEPOOL coordinated an expedited stakeholder process in early 2008 to review and approve market rule changes to address the problems in the New England demand response market that gave rise to these enforcement actions, and FERC retroactively approved an immediate effective date for the changes. But even in this case the need to develop a permanent market design change and conduct even an abbreviated stakeholder process delayed implementation of the changes for several months, leading to the consumer impacts asserted in the enforcement cases. We discuss in greater detail in section V a number of other limitations on using the normal stakeholder process to address some kinds of market design flaws.

An alternative to using enforcement cases to quickly correct market design flaws that are imposing material costs on transmission customers would be to provide ISOs with greater ability to clarify market rules through immediate changes in manuals or the issuance of technical bulletins, and to provide them with the ability to propose and implement on a prospective basis temporary measures that would modify the market rules so as to eliminate ongoing transmission customer costs, perhaps while better longer term market design changes are evaluated in a stakeholder process. Even if the ISO could not immediately implement a full change in its software or in its settlement system, it could specify the bidding or scheduling behavior that would be forbidden on a prospective basis, and it could prospectively notify market participants that any revenues that were incorrectly paid out while changes were being made in the software or settlement system would ultimately be restated when the changes were fully implemented in the settlement system.

These temporary measures could be reviewed by FERC and FERC could terminate them if it concluded they were inappropriate, but no costs would be imposed on transmission customers in the meantime. ISO stands for "independent" system operator, perhaps the problem of large short term costs associated with market design and software flaws should be addressed by providing the independent system operator more ability to in concert with its independent market monitor temporarily implement changes in market rules to address market design flaws. It is perhaps worth recalling that the New York ISO had some authority to take actions to correct market design flaws following its start up which was used a few occasions, including issuing extraordinary correction actions A and B.

In our view, some sort of approach to enabling ISOs to clarify ambiguities in market rules and implement temporary changes in market rules to address material market design flaws would be preferable to relying on enforcement actions to address the same problems, even if the ISO remedy was to forbid exactly the same conduct that would be forbidden by an enforcement action. First, the ISO action would be explicitly limited to that market at that point in time, and would be in effect only until the rule was changed, rather than a definition of conduct as fraudulent that would apply to all markets in all future time periods. Second, the ISO rule changes would be prospective so would avoid the potential for the risk of possible future enforcement actions and uncertainty as to what might subsequently be defined as fraudulent to deter competitive behavior.

Perhaps most importantly, ISO actions to temporarily correct inefficient incentives due to a market design flaw would not be limited to the kind of changes that can be implemented through enforcement actions. The ISO could also choose actions that

would address the core incentive problem and be more likely to avoid most or all of the costs to transmission customers from the inefficient incentives created by the market design flaw, rather than merely deterring some of the most transparent manifestations of the underlying market design flaw.

We recognize that there are a number of difficulties with adopting such an approach. The difficulty that we see as particularly hard to resolve is the practical reality that in many enforcement cases the underlying market design flaw stems directly from a FERC order. Hence the logical action for the impacted ISO to take when the inefficient behavior manifests itself would be to suspend or change the market rule ordered by FERC. One can foresee that this will be awkward. Perhaps one of the reasons FERC is relying on enforcement actions to address these market design flaws is that enforcement actions do not point the responsibility for the problem back at FERC. One can foresee immediate difficulties with using such an approach to address the incentive problems that the ISOs will confront if Order 745 is upheld, as the incentive problems and outcomes in which consumers pay for nothing will derive directly from what FERC ordered.

I. Introduction

This paper focuses on the enforcement cases IN12-10-000, IN12-11-000 and IN12-13-000. The core allegation regarding fraud in the Rumford case is outlined by the Office of Enforcement in the paragraphs below and illustrates the ambiguity we perceive in what constitutes the evidence of fraud.

> "Rumford's scheme was based on misrepresentations to ISO-NE about Rumford's typical load and willingness and ability to reduce load. Because of these misrepresentations, Rumford and CES were compensated for load response that they knew would never occur and in fact never occurred."[2]

As discussed below, enforcement staff does not appear to contest the assertion that Rumford would reduce the output of its behind the meter generation and buy more power from the grid when spot power prices were low. For such a power consumer what is the typical load, the typical load when power prices are high or when they are low? And if enforcement staff agrees that Rumford bought power from the grid when power prices were low, this in turn implies that Rumford did have the ability to reduce its load relative to what it would have been at low power prices, by running its behind the meter generation at a higher output level when power prices were sufficiently high.

> "By curtailing generation and buying more grid power, CES and Rumford knowingly established and communicated to ISO-NE an inflated baseline that did not reflect Rumford's genuine load response capability, as Rumford did not intend to reduce the consumption or increase its generation once the baseline was established. The baseline is a critical component to determining the load reduction of load response resources and calculating load response payments."

The assertion that "By curtailing generation and buying more grid power, CES and Rumford knowingly established and communicated to ISO-NE an inflated baseline that did not reflect Rumford's genuine load response capability" cannot establish fraud because the commission has held in multiple orders that behind the meter generation can be used to provide demand response.[3] Behind the meter generation can only provide demand response if it is not operating when the baseline used to measure demand

[2] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 p. 15

[3] This is discussed further in section IIC below.

response is established, so it cannot be a fraud in and of itself to curtail behind the meter generation and buy power from the grid during the period when the baseline is set. Moreover, there does not appear to be any factual question that Rumford and Lincoln were able to operate their behind the meter generation to reduce their net load, relative to what it would have been if it did not operate the behind the meter generation.

> "The submission to ISO-NE of load response registration information was also false, claiming that the mill had a DALRP load response capability of 20MW."

This is just a repetition of the assertions above, but enforcement staff appears to agree that Rumford reduced its purchases of power from the grid when power prices were high, relative to its purchases when power prices were low. [4] This implies that Rumford could reduce its load by 20 megawatts when power prices were high and it operated its behind the meter generation so the mill did have a load response capability of 20MW.

> "Additionally, by submitting daily offers to reduce load, CES and Rumford communicated a willingness and ability to reduce load. These communications were false because, as Rumford was not reducing load and did not intend to reduce load as a result of its DALRP participation. Instead, CES and Rumford used the offers to perpetuate the inflated baseline. These actions defrauded ISO-NE at the expense of all rate payers in New England as the cost of demand response is socialized across all Network Load."[5]

This statement also fails to establish any criteria that would enable a power consumer to understand what would constitute fraud, it merely repeats the assertions regarding Rumford's ability to reduce its load. The assertion regarding offers that perpetuate the baseline describes the intended operation of the ISO New England demand response program, there was nothing else Rumford and Lincoln could have done, as discussed below.

So what is the core principle that identifies the conduct in the Rumford and Lincoln cases as fraudulent or manipulative? We think that identifying this core principle is less straightforward than enforcement staff and the Commission appear to believe. Time will tell whether this is simply a lack of clarity by FERC and enforcement staff in articulating the core principle underlying their findings or whether it reflects a deeper problem. We

[4] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 p. 245
[5] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 pp. 15-16

briefly summarize below seven possible core principles suggested by one or more Commission or enforcement staff comments in the public orders in these cases. We conclude that in our view six of these possible principles are either inconsistent with the facts of the cases, inconsistent with clearly expressed FERC policies, or inconsistent with the design and operation of ISO New England demand response programs as approved by FERC

There is one principle (number 4 below) that might have been the principle applied by FERC and enforcement staff in finding some of the conduct at issue in these cases to be manipulative that appears to us to be consistent with the facts of the cases as presented in public documents, apparently consistent with FERC's Order 745 policies and consistent with the design and operation of the ISO New England demand response programs. However, it is not clear that we have in fact identified the principle underlying FERC and enforcement staff's finding of fraud.

While it appears likely to us that FERC and enforcement staff statements suggesting reliance on some of these seven principles in finding fraud are simply not very precise and do not reflect an intent of FERC and enforcement staff to rely on those principles in defining fraud, it is unclear whether this is actually the case. While we do not believe that some of these principles provide an appropriate basis for identifying fraudulent behavior, it is not clear that FERC and enforcement staff recognize the inconsistencies we see in using these principles to identify fraud. Hence, FERC and enforcement staff may view these principles as appropriate definitions of fraudulent conduct and the findings in these, and perhaps future cases, may be tied to these principles.

The application of the 4th principle to identify fraud would not address the frequently repeated concern with paying for nothing, so we may be misunderstanding the policy FERC and enforcement staff actually intend to apply. Moreover, we do not think that there is any enforcement staff policy that would avoid paying for nothing and are not sure the Commission and enforcement staff recognize that this is inherent in the Commission's demand response policies and that it is only a matter of how much is paid for nothing and how transparent that fact is that can be impacted at the margin by the enforcement policy..

We briefly explain below why we do not believe six of the seven principles should be the principle underlying finding of fraud in these or future cases. These principles, and the FERC and enforcement staff statements suggesting their possible reliance on these principles, are discussed in more detail in section IIIC.

1. The conduct was fraudulent because the behind the meter generation was not operating when the baseline was set.

While there are a number of FERC and enforcement staff statements that might be interpreted to be articulating such a principle for identifying fraudulent behavior in the use of behind the meter generation to provide demand response, in our view this principle is clearly inconsistent with other FERC orders that unambiguously find it permissible to use behind the meter generation to provide demand response. The only way behind the meter generation can compensated with an LMP payment for providing demand response is if the generation is not operating when the baseline is set. Hence, while there are FERC and enforcement staff statements that might in isolation be read to suggest that such a principle is being applied, we conclude that these statements are simply not very precise and are misleading as to FERC and enforcement staff intent if considered in isolation.

2. The conduct was fraudulent because Rumford and Lincoln lacked the ability or willingness to reduce load.

There are a number of statements in the various orders and reports suggesting that such a principle provided the basis for the determination that the conduct in the Lincoln and Rumford cases constituted fraud. At the same time, however, it appears clear FERC and enforcement staff concluded that at least Rumford at times reduced the output of its behind the meter generation and purchased power when spot power prices were low. This behavior means that Rumford was providing demand response when it operated its behind the meter generation at higher output levels to reduce its net load.

Hence we conclude that this is not the principle that was applied by FERC and enforcement staff in reaching their conclusion that Lincoln and Rumford's participation in the DALRP program was fraudulent.

3. The conduct was fraudulent because it would have been economic absent the demand response program for Lincoln and Rumford to operate their behind the meter generation at a higher output level during the hours when the baseline was set.

There are a number of statements by FERC and enforcement staff in these cases that might be interpreted to reflect the application of such a principle to establishing the presence of fraud based on the decision of Rumford and Lincoln to operate their behind the meter generation at a lower output level during the period in which the baseline was set than would have been profitable based on energy and fuel prices, which inflated the baseline used to calculate the payments under the DALRP program .

Such a principle would be broadly consistent with statements by FERC and enforcement staff that tie the fraud to acts that inflated the baselines and would narrow principle 1 to focus on the circumstance in which the behind the meter generation was not operated during the period when the baseline was established yet its operation would have been economic. There would be significant challenges in implementing such an economic evaluation of the operation of behind the meter generation as a general matter, but this standard would make a certain amount of economic sense as a conceptual approach to measuring what normal consumption would otherwise have been.

However, we believe that this cannot be the principle FERC and enforcement staff intend to apply in identifying fraud in setting baselines as this principle would be inconsistent with the core premise for Order 745's requirement that ISOs pay LMP for demand response: that there are barriers to the provision of demand response such that demand response will, at least at times, not be provided, even if it is nominally economic, without additional subsidies.

Moreover, it is relatively clear that enforcement staff does not intend to be applying a purely economic evaluation to the manner in which the behind the meter generation was operated as the enforcement staff reports include only brief, extremely general, discussion of the economics of operating the behind the meter generation.

4. The conduct was fraudulent because it would have been economic absent the demand response program for Lincoln and Rumford to operate their behind the meter generation at a higher output level than was actually the case during the hours when the baseline was set. Moreover it is transparent that the operation of the behind the meter generation was economic and there was no barrier to providing demand response with this generation because the failure to operate the behind the meter generation at a higher output level during the hours in which the baseline was set was inconsistent with the past ("typical" or "normal") practice of the power consumers in operating their behind the meter generation when spot prices were at the levels that prevailed during the hours when the baseline was set.

We recognize that this is a rather long and convoluted principle but it is consistent with a number of FERC and enforcement staff statements relating to the finding of fraud in these cases. Moreover, the articulation of such a principle would make policy sense for the standpoint of establishing limits on the ability of power consumers to change their past behavior in a manner that inflates their baselines so that they would be paid for reducing their consumption of power that they would never have purchased. [6]

[6] There were issues raised by the respondents in these cases about whether the criteria for defining baselines were clear at the time, we do not consider those issues in this paper. As noted above, we intend

The application of this principle by FERC and enforcement staff appears consistent to us with apparently uncontested facts in the Rumford and Lincoln cases, discussed below, that establish that there was a change in the past behavior of these power consumers that raised power consumption during the hours in which the baseline was set. The application of this principle would also be consistent with what appears to have been explicit discussion and acknowledgement by Rumford and Lincoln that the reduced output of their behind the meter generation during the hours in which the baseline was set would raise the mills' total operating costs. Hence, as discussed more fully below in section III, this conceptual standard for identifying potentially fraudulent conduct in establishing a baseline appears to us to be consistent with the facts of these cases as presented in the public documents.

While this principle appears consistent to us with the facts of these cases and other FERC policies, it is not necessarily the principle that the FERC and enforcement staff actually rely on to define fraud in these cases, or whether they have in fact applied a different broader standard as suggested by some of their other statements in these cases. In our discussion of this principle in section III we explain that with slight changes in the facts of the Lincoln and Rumford cases, the market participant conduct would in our view clearly not be fraudulent under this principle 4, yet the operation of the ISO New England DALRP would produce almost exactly the same behavior and consumer impacts as did the behavior of Lincoln and Rumford, without any changes in normal behavior by the hypothetical power consumer during the hours in which the baseline was set. Hence we see a clear potential for demand response providers to be paid for demand response without any intent "to reduce load as a result of its DALRP participation," and without any behavior that we believe would be fraudulent under this principle.

One implication we draw from our discussion of these hypotheticals is that enforcement policy based on principle 4 would not an effective substitute for changes in market rules to avoid inflated economic demand response costs and the likelihood consumers would often be "paying for nothing." However, FERC and enforcement staff may intend to apply a broader principle that they believe would address this potential for power consumers to be paid for demand response even when they do not change their behavior. We will discuss this more fully under principle 7.

5. It was fraudulent to submit bids at the bid floor because when those offers cleared, those hours would be excluded from the rolling baseline, perpetuating the existing baseline.

There are a number of statements that could be read to suggest such an enforcement policy but we do not believe that this can be a legitimate standard for identifying fraud. The exclusion from the baseline of hours with cleared bids is an intended feature of the

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in this paper on understanding the principles articulated by FERC and enforcement staff in these cases, not what was understood in 2007.

ISO New England DALRP program, not an artifact of market participant conduct. In our view it is not apparent what Lincoln, Rumford, or any DALRP program participant could have done differently to avoid this outcome. Moreover, if as FERC and enforcement staff argue, it was economic for Lincoln and Rumford to operate their behind the meter generation during the DALRP program hours simply in order to avoid the cost of purchased power (G), then it was certainly economic for them to operate their behind the meter generation if they thereby avoided paying the retail rate (G) for power and were also paid LMP for their behind the meter generation output to the extent that it reduced power consumption.

It will be the case for many power consumers that when LMP is above the bid floor it will always be profitable for the power consumer to reduce consumption if they avoid paying the retail rate and are also paid LMP for the power they do not consume. When power consumers reduce their consumption in this manner, ISO New England will exclude those hours of reduced consumption from the calculation of their rolling baseline. If FERC and enforcement staff find this outcome to be fraudulent, what are these power consumers to do if they participate in the ISO New England program? These are the FERC approved program rules and the rules are administered by ISO New England not by the participant, so what is a market participant to do if the operation of this rule is held to be fraudulent by FERC and enforcement staff? Moreover, these rules serve a logical purpose, without such an exclusion, responding to demand response events would reduce the baseline of the power consumer and the power consumer would not get credit for all of the demand reduction they provide.

However, while we do not believe it is appropriate to use this principle to identify fraud, it is not clear that our view is shared by FERC and enforcement staff. Moreover, we do not think this is an insignificant ambiguity, we see a potential widespread applicability of such a principle under Order 745 demand response programs. Hence, we believe that a correct understanding of what FERC and enforcement staff meant by their statements relating to the perpetuation of an existing baseline is extremely significant for power consumers potentially participating in demand response programs.

6. It was fraudulent to collect these demand response payments without regard to how the base line was set because it would have been economic to operate the behind the meter generation during the program hours and Rumford and Lincoln would have done so without receiving the demand response payments, that is, it was fraudulent to cause rate payers to pay for nothing.

While the desire of enforcement staff to not have rate payers “pay for nothing” is well intentioned, in our view the outcome in which rate payers pay for nothing is intrinsic in design of demand response under both the DALRP program and the programs required by Order 745. Such an outcome is inevitable in any demand response design in which

power consumers that buy power at market prices are paid LMP for reductions in consumption that clear in the market. It will inevitably be the case that at times when LMP prices are very high, some power consumers will be paid for reducing consumption when they would have done so anyway because power prices were so high.

There was no mention in the ISO New England DALRP program or in Order 745 that demand response providers are only to be paid LMP for reductions in power consumption if the demand response would not have been economic and would not have provided absent the demand response payment. There is not even any framework in any Order 745 demand response design for applying the kind of principle to payments for demand response by evaluating the economics each power consumer of providing demand response absent the demand response payment to determine whether or not the additional payment was needed.

Perhaps what enforcement staff means is that it was fraudulent for Rumford to participate in the DALRP program because participation in the program would *never* have caused Rumford to reduce load when it would not have done so anyway without the DALRP payment. Hence, perhaps FERC and enforcement staff would not have found the conduct tot have been fraudulent if Rumford had sometimes changed its behavior because of the program.

But what FERC and enforcement staff intend is unclear. There are a number of statements in the various reports and replies that could be interpreted convey an enforcement staff believes that it is fraudulent for a power consumer to be paid for demand response it would have provided without the demand response payment In the extreme they might be read as articulating a Marxist principle of to each according to its needs so that power consumers would only be paid for reducing consumption if it would not be economic to reduce their power consumption absent the payment. As with principle 6, while we do not believe this principle provides a sound basis for identifying fraud, it is not clear what FERC and enforcement staff intend.

7. It was fraudulent to collect economic demand response payments for demand response resources that buy power at the wholesale spot price.

There does not appear to be any statement by FERC or enforcement staff in these cases that explicitly articulates such a principle. Moreover, FERC and enforcement staff do not appear to us in the Lincoln or Rumford cases to even focus on the fact that these companies bought power at spot market prices (although it was implicit in the discussion of the circumstances in which Rumford dispatched its generation up or down). Nevertheless we have included this principle in the list because the underlying reason for features of these cases that FERC and enforcement staff appear to dislike, such as rate

payers paying for nothing and frozen baselines, arise because these power consumers have the ability to adjust their power consumption in response to market prices.

Hence, this principle would make a certain amount of economic sense as none of the barriers to the use of demand response asserted in Order 745 exist for a demand response resource that buys power at the wholesale spot market price. However, the Commission did not state any such exclusion in its 745 orders and there was nothing in the rules for the ISO New England DALRP program suggesting such a restriction. Failing to comply with an unstated rule cannot be fraudulent. This is not a matter of whether the tariff forbids particular behavior, this is a question of whether there can be a test of eligibility for payments that is never stated yet failure to comply with it can be fraudulent. We think not. It is particularly implausible that there could be such an unstated rule when there are many different pricing arrangements for retail customers that might or might not be covered by such a rule.

It is seen in the comments above, and in the more detailed discussion below, that in our view it is not clear even after the fact what constitutes impermissible behavior in providing demand response supported by behind the meter generation. We know the answer for the specific facts of the Lincoln and Rumford cases, but we cannot predict the answer for even slightly different factual situations. The guide these cases provide to what constitutes impermissible conduct is even more muddled by the failure of FERC enforcement staff to bring any manipulation cases in New York where the rise in gas prices over 2007-2008 lead to a similar increase in the dispatch of economic demand response as discussed below. Is this difference in the application of enforcement policy due to the fact that FERC enforcement policy is based on principle 5 or is it just a random act of omission by FERC enforcement staff.

The Commission and enforcement staff provide uncertain ambiguous guidance in the demand response orders as what conduct may be claimed to be fraudulent and subjected to after the fact penalties in the future. While we have summarized above what we believe to be the underlying principle for defining fraud in these cases, it is not certain that our conclusion is what the Commission and enforcement staff intend and as noted above there are a number of other possible reading of the various Commission and enforcement statements regarding fraud in these cases. We reject these other readings as being inconsistent with the facts of the cases or with clearly stated Commission policies, but the Commission and enforcement staff may not recognize these inconsistencies.

A core purpose in introducing electricity markets is that markets provide price incentives to guide market participant actions. If market participants are deterred from responding to price incentives because of uncertainty about what FERC intends to be the consequence of its rules, this will undermine the competition on which all market based

designs are premised. While there are some market design and software flaws whose impact cannot be mitigated by competitive behavior, in many cases the presence of aggressive competition will greatly diminish the impact of the market design or software flaws. If that competition is diminished by uncertainty as to whether the response to profitable opportunities would be permissible, the consumer cost impact market and software flaws may be exacerbated.

Moreover, while FERC enforcement actions would be largely ineffective in deterring inefficient behavior incented by the ISO New England DALRP demand response program, the changes ISO New England implemented in this program during February 2008 [7]substantially reduced the impact of these incentives by substantially raising the minimum offer price. Order 745, however, would have the effect of reducing the minimum offer prices and therefore increasing the adverse impact on consumers from these inefficient incentives.

II. Market Manipulation and Demand Response

A. Introduction

This paper focuses on two recent market manipulation orders involving demand response and behind the meter generation. The paper is partly about market manipulation and partly about economic demand response. Economic demand response concerns reductions in consumption of power during hours in which the price of power is high, but there is no shortage of reserves, transmission overloads or other reliability concerns and the spot price of power accurately reflects its cost. This kind of demand response can be economically efficient if the power consumer providing the demand response buys power at a price that does not reflect the cost of generating that power during such high priced hours. In this circumstance an economic demand response program is a way of avoiding an outcome in the cost of power exceeds its actual value to the consumer, hence society would be better off if the consumer would reduce its consumption.

The market failure in this situation is that the rate paid by the power consumer does not reflect that actual spot price of power, so the consumer does not have as strong an incentive to reduce its consumption as it would if it bought power at the spot market price. The incentives of consumers paying a fixed retail rate for power can in principle be improved by paying them the amount by which the retail rate they pay understates the actual cost of power for reductions in consumption. Hence, the payment would be LMP –G, where G is the fixed retail rate and LMP the spot price. This was the basic design of

[7] These changes are discussed in section IIB below

the pre-Order 745 PJM demand response program.[8] If the consumer pays a price that reflects the spot price of power, there is no market failure and no need from the standpoint of economic efficiency to provide additional incentives for the consumer to reduce its consumption. Similarly, if the consumers pays a price that exceeds the spot price of power, there is also no need from the standpoint of economic efficiency to provide additional incentives for the consumer to reduce its consumption as the retail rate more than adequately incents reductions in consumption.

Reliability demand response is slightly different in motivation and design than economic demand response because it concerns consumption incentives during hours that are not only high priced, but in which there are reserve shortages or other reliability concerns that can cause the value of power to be higher than reflected in the spot price. Hence while reliability demand response may include some hours in which the full value of the power is reflected in the spot price of power (if the spot price includes appropriate shortage values), it also may include hours in which the spot price does not fully reflect the value of power and hence even power consumers that pay the spot price of power may not have an efficient incentive to reduce consumption.

Reliability demand response programs improve economic efficiency by avoiding the construction of generating capacity whose cost would exceed the value of power to consumers during the peak hours in which the additional generation would otherwise be needed. Both economic and reliability demand response measure performance of the demand response resource relative to a baseline and the power consumer providing the demand response is paid for the power it does not consume, relative to this baseline. An important difference between economic and reliability demand response in the context of the issues discussed in this paper is that the provision of economic demand response is controlled by the power consumer through its bids, while reliability demand response is supplied when called upon by the system operator in order to maintain reliability.

The paper discusses three points which are partly about enforcement policy and partly about economic demand response market design and public policy. The first point is that even after the fact, the Lincoln and Rumford cases do not establish clear understandable guidelines for what constitutes permissible or impermissible use of behind the meter generation to provide demand response, beyond the narrow facts of these cases.

The second point is that some of these ambiguities regarding what constitutes permissible or impermissible conduct in defining baselines for demand response provided by behind the meter generation are intrinsic in the Order 745 framework for economic demand

[8] See PJM Manual 11, Energy and Ancillary Services Market Operations, Section 10, and Manual 28, Operating Agreement Accounting, Section 10.

response of paying customers that buy power at market prices full LMP for power that they neither purchase nor consume.

The third point is that the inefficient incentives that enforcement staff presumably intended to address in the Lincoln and Rumford enforcement cases can only be corrected by adopting a market design framework for economic demand response that:

a) is based on paying power consumer providing economic demand response LMP-G (i.e. the spot price of power less the retail rate the consumer pays for the power);
b) allocates the cost of these payments to demand response providers to the load serving entity serving the power consumers providing the demand response;
c) Allows G (the retail rate) to be specified by the load serving entity, and
d) allows the load serving entity and the local regulatory authority to determine the eligibility of the retail power consumers they serve to participate in the demand response programs;

Hence, the basic point is that FERC got every element of Order 745 wrong, and the DC Circuit got everything right.

B. ISO New England DALRP

The ISO New England DALRP was proposed as part of the initial ISO New England SMD design in 2002.[9] The ISO New England DALRP is an economic demand response program. By economic we mean that program participants specify the price at which they will reduce their power consumption relative to a baseline at times and in amounts specified by the market participant. As explained above, this is in contrast to an emergency demand response program or demand response participating in a capacity market or resource adequacy program in which the participant agrees to reduce its power consumption relative to a baseline, but at times selected by the transmission or distribution system operator.

The DALRP program as proposed in July 2002 and implemented on June 1, 2005, not only allowed the customer providing the demand response to avoid the cost of paying for the energy it would otherwise have consumed by reducing its power consumption but also provided for payments to the power consumer equal to the LMP price of the power it did not consume.[10]

[9] See ISO New England and New England Power Pool July 13, 2002 filing in Docket ER02-2330-000, attachment 2, page 36.

[10] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, pp. 4,6 ; Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept

The New England DALRP design allowed program participants to bid into the day ahead energy market an amount of energy load reduction (e.g. a dollar per megawatt hour bid for a specified megawatt hour amount of reduction in power consumption) which they agreed to reduce their power consumption relative to their baseline in real time. [11] One of the limitations of the initial implementation was that only one bid quantity pair could be offered. That is, a program participant could not offer to curtail some consumption at one price, and curtail more consumption at a higher price.[12]

An important feature of the ISO New England DALRP program is that it has a bid floor.[13] The bid floor is an important design element of an economic demand response program because it reduces, but far from eliminates, the ability of program participants to submit bids to reduce power consumption at times when they did not plan to consume power in any case, thus being paid for doing nothing. [14] Bid floors are expected to reduce the extent to which rate payers are paying for nothing because they prevent market participants from submitting offer to reduce consumption during very low priced hours in which it is unlikely that any difference between power consumption and the baseline reflects an actual reduction in power consumption. This is particularly the case for power consumers buying power at market prices.

Another motivation for including a bid floor in economic demand response programs is that the usual rationale for economic demand response programs is to provide an incentive for power consumers to reduce consumption at times when the price of power is

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11, 2012, Rumford p.14. Market Rule 1 Appendix E, section IIIE2.3; ISO New England Load Response Program Manual, April 7, 2006, section 4.5.1.1

[11] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 pp. 5-6. Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, p.11.

[12] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 p. 6. Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.11.Market Rule 1, Appendix E section IIIE2.2.

[13] The ISO New England design included a bid floor from the time it was proposed in July 2002, see ISO New England and New England Power Pool July 13, 2002 filing in Docket ER02-2330-000, attachment 2, page 36.

[14] The ISO New England tariff also had an explicit provision stating that "The Day-Ahead Load Response Program is not intended to pay for load reductions that would have been scheduled in any event, such as facility shut-downs." Market Rule 1 Appendix E, section 2. This rule could be construed very broadly to mean that it would not pay for any load reductions that would have been economic without the additional payments. This does not appear to have been the intent as there were no rules in the manual explaining how such a standard would have been applied and ISO New England did not apply such a standard. Such a standard would in practice be extremely difficult if not impossible to apply as the ISO does not have very good insight into what would otherwise have been done by individual power consumers and the cost of trying to monitor power consumer behavior at this level of detail would be prohibitive, except possibly for a few large customers. There is no reference to such a rule in the performance measurement section of the manual ISO New England Load Response Program Manual, April 7, 2006, section 4.3, nor in the discussion of payments in section 4.5.1, nor in section 4.5.5 concerning Verification, Errors Fraud.

particularly high and retail prices based on average costs do not cover the actual cost of generating power. In this circumstance, reductions in power consumption would reduce generating costs by more than would have been paid for the power, so reductions in load can potentially reduce rates, depending of course on how much is paid to induce the reductions in power consumption. There is no such potential rate benefit, however, from reductions in power consumption at times when the retail rate equals or even exceeds the incremental cost of power. [15]

The bid floor in New England was initially set at $50 per megawatt hour and this was the bid floor in 2007 when Lincoln and Rumford began participating in the program.[16] A spot power price of $50 per megawatt hour would have been well below, not above, the retail rate of most consumers buying power under a fixed retail rate, such as POLR customers. Hence, the bid floor was set at a quite low level from the beginning of the demand response program. As fuel prices rose in 2007 ISO New England experienced a large increase in participation in the DALRP program and a large increase in the cost of payments for load curtailments under the DALRP program.[17]

This increase in participation undoubtedly occurred in large in part because the spot price of power very frequently exceeded the $50 minimum price threshold in this period, due to the rise in gas and hence power prices beginning in late 2005. Hence, ISO New England stated that the $50 per megawatt hour bid floor was exceeded in 84% of all hours during 2007, with the hours in which the price fell below the minimum offer threshold falling on nights, weekends and holidays when the DALRP program was not in effect.[18] In fact, ISO New England stated that day-ahead market prices exceeded the $50 threshold during every hour covered by the DALRP program from January 1, 2007 on.[19] This rise in power prices obviously made the $50 bid floor completely ineffective in preventing power consumers from submitting curtailment bids during hours in which they expected their power consumption to be less than their baseline for reasons unrelated to the demand response program.

Moreover, ISO New England explained in a February 2008 filing that it did not believe that the increase in cost of the DALRP program simply reflected an increase in payments

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[15] Some ISOs and RTOs account for this by paying economic demand response the spot price less the retail rate (often described as paying LMP-G), so there would be no payment for demand reductions at times when the spot price is less than the retail rate. See PJM Manual 28, Operating Agreement Accounting, Section 10

[16] See FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 p. 6. Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.11.

[17] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 8-9, 13.

[18] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 p 9 and Testimony of Henry Yoshimura pp. 6, 11.

[19] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 p 9 and Testimony of Henry Yoshimura pp. 10-11.

for demand response that had little value because it was provided during hours with relatively low spot prices, but stated that in the ISO's view the increase reflected payments for phantom demand response (i.e. payments for reducing power consumption that would not have occurred). ISO New England attributed this increase in payments for phantom demand response in part to inflated baselines, baselines that were particularly vulnerable to inflation because power prices exceeded the minimum price threshold in so many hours (as discussed further below in the context of baselines). [20]

By 2007 the New York ISO also had a bid floor in its day-ahead demand response program. Similar issues with demand response providers offering reductions in power consumption at very low prices arose in the New York ISO Day-Ahead Demand Response Program (DADRP) as early as 2002. The New York ISO followed the ISO New England SMD design precedent by imposing a $50 price floor, effective February 19, 2003, to reduce free riding by participants (i.e. payments for nothing) who would submit bids to reduce consumption at low prices during hours in which they expected their power consumption to be lower than normal and lower than their baseline.[21] In September 2004, the New York ISO filed a further change to raise the bid floor to $75 to reduce free riding. [22] This increase was approved by FERC on October 29, 2004 and implemented on November 1, 2004.[23]

Even with the higher $75 per megawatt bid floor, the New York ISO, like ISO New England, experienced a rise in payments under its economic demand response program in 2007 and 2008 when the rise in natural gas prices increased spot power prices enough that they exceeded the $75 bid floor much more often than had been the case in prior years.

The NYISO noted in its January 15, 2008 report on its demand response programs in Dockets ER01-301 and ER03-746 that for the period September 2006 through August 2007, "offer activity increased by more than 500% over the previous 12-month period. Also, more than twice as many hours of program participation were scheduled as compared to the prior year period. [24]

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[20] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 11-12; Testimony of Henry Yoshimura pp. 3-4, 14-22.

[21] See New York ISO Dec 20, 2002 filing in Docket ER03-303-000, p. 5, approved by FERC March 21, 2003, 102 FERC ¶ 61,313. Although the ISO New England DALRP program was not implemented until June 2005, FERC had approved its $50 bid floor during 2002 (see footnote 16)

[22] Docket ER04-1188-000

[23] See October 29, 2004 letter order in Docket ER04-1188-000. New York ISO December 15, 2005 filing letter in Docket ER01-3001 p. 12.

[24] See New York ISO January 15, 2008 filing letter in Docket ER01-3001, p. 2

Over the period, September 2007 through August 2008, "more than twice as many hours were scheduled (5128) as the previous period (2,509)." and "Scheduled MWh increased by 86% to 7,727 MWh."[25] Total payments fell from $209, 624 for the year ending August 2004, to $172,376 for the year ending August 2005, then rose to $332,941 for the year ending August 2006 (reflecting post Katrina Rita gas prices), rose slightly to $365,862 for the year ending August 2007, then more than doubled to $801,108 for the year ending August 2008, before falling to $190,129 for the year ending August 2009 with the decline in gas prices. [26]

The fact that most of this demand response was offered at the price floor (or a penny above it at $75.01), and all that cleared was offered at the price floor, could be viewed as suggesting that relatively little if any actual reduction in load was elicited by the program In negawatt demand response designs[27] such as the New York ISO and ISO New England economic demand response programs, the higher the LMP price, the more apower consumer will be paid for not consuming power, so the total benefit to the power consumer from not consuming power are the retail rate + the LMP price. Hence, the higher the LMP price, the more likely it will be that it would be profitable for the power consumer to reduce consumption, so an increase in the bid floor also makes it more likely that it will be profitable to reduce consumption when the LMP price exceeds the bid floor. Nevertheless, the congregation of bids at the floor is a remarkable coincidence if they reflect real reductions in power consumption and the pattern suggests that program participants bid at the floor to get paid for reductions in load relative to the baseline that were going to occur without regard to prices or demand response payments. [28]

As the cost of DALRP program rose in 2007 ISO New England identified behavior suggesting that rate payers were paying for a rising amount of phantom demand response, or free riding in the terminology used by the New York ISO in its FERC filings, because of the rise in power prices relative to the bid floor. ISO New England filed a tariff change on February 5, 2008 to address the ineffectiveness of the bid floor in limiting the potential for phantom demand response by tying the bid floor to a fuel price index so that the bid floor would float up and down with fuel prices.[29] It is noteworthy that ISO New England's February 5, 2008 filing requested an effective date of February 7, 2008, which

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[25] See New York ISO January 15, 2009 filing letter in Docket ER01-3001 and ER03-647 p. 4 and 16-17.

[26] See New York ISO January 16, 2007 filing letter in Docket ER01-3001 p. 25; January 15, 2008 filing letter in Docket ER01-30001 pp. 17-18; January 15, 2009 filing letter in Docket ER01-3001 and ER03-647 pp. 20-21, 27; January 15, 2010 filing letter in Docket ER01-3001 and ER03-647 p. I-22

[27] A negawatt design is a demand response program in which a power consumer is paid for not consuming power it has not purchased.

[28] See New York ISO January 15, 2010 filing letter in Docket ER01-3001 and ER03-647 p. I-26

[29] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 15-16.

would effectively allow the changes to go into effect immediately.[30] The Commission's April 4, 2008 order approved the changes proposed by ISO New England, including the February 7, 2008 effective date.[31]

ISO New England explained in its filing that the changes had been developed and approved with an abbreviated stakeholder process, with the first meeting on January 23, 2008.[32] A number of parties that likely benefitted from the low bid floor for demand response offers under the existing ISO New England rules urged delay in implementing these changes, but ISO New England and NEPOOL moved ahead on an accelerated time frame to correct the market design flaw.

Another feature of the DALRP program was a ceiling of $500 per megawatt hour on the curtailment bids submitted in the program, to ensure that the resources could be dispatched in the day-ahead market during times of high loads, and before power prices reached extreme levels.[33] In addition, payments under the program were limited to payments for demand reductions during the hours of 7am to 6pm on non-holiday weekdays, periods of likely higher demand.[34] Resources with offers that cleared the market were paid the LMP price in the day-ahead market for the amount of load reduction that cleared. [35]

The presumed intent of economic demand response programs is to pay the demand response provider for reductions in power consumption relative to what the demand response provider would otherwise have consumed. This requires determining what the power consumer "would otherwise have consumed" which is of course not observable if the power consumer reduces its consumption in response to the incentives provided by the demand response program.

The measurement of what the power consumption would otherwise have been is generally accomplished by calculating a 'baseline" which attempts to measure what power consumption would have been absent participation in the program.

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30 See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 2, 23-24

31 See 123 FERC ¶61,201 April 4, 2008 p. 1, 9-11.

32 See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 p. 23.

33 Filing Letter July 17, 2002 Docket ER02-2330-000 attachment 2 p. 36, similarly Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.14.

34 See ISO New England, ISO New England Load Response Program Manual, April 7, 2006 section 2.2.1; also FERC Office of Enforcement, Rumford Paper Company, July 17, 2012 p. 5.

35 See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, p. 6 citing ISO NE LRP Manual section 4.5.1.1

There are many complexities in setting baselines, some of which are mentioned by enforcement staff, Lincoln or Rumford, in the various reports, answers and replies and some which are not mentioned.

Some of the high level problems in setting baselines are:

- the level of power consumption absent the incentives provided by the demand response program depends on many factors and will likely change over time in response to changes in market conditions, seasonal changes in power consumption, and changes in the power consumer's production processes;
- If the baseline is updated over time, this updating must account for the periods in which power consumption was reduced because of participation in the program;
- the fewer the number of hours or days used to measure the baseline, the greater the potential for actions which subtly or unsubtly inflate the baseline;
- variations in power consumption will occur for reasons outside the model used to set the baseline. For example load will likely be higher than the baseline on a day on which high temperatures raise load and will likely be lower than baseline on days on which moderate weather reduces load;
- power consumption may depend on the price of power, independent of the demand response program.

The ISO New England DALRP program took account of the impact of changing conditions on power consumption by recalculating the hourly baseline on a rolling basis.[36] The program accounted for curtailments by excluding the days on which the power consumer provided demand response.[37] Significantly, although the baseline is sometimes described as a 10 day rolling average, including by ISO New England, this was not the case. Instead, the baseline was a rolling weighted average of consumption on all prior days. Specifically, if day t-1 was an eligible day, the baseline for hour h on day t was calculated as .9 the baseline for hour h on day t-1 plus .1 the consumption in hour h of day t-1.[38]

This structure for adjusting the baseline had the effect that the baseline adjusted slowly to changes in consumption patterns, particularly if consumption was frequently interrupted

[36] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 5. 9-10, Testimony of Henry Yoshimura, p. 7.

[37] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000 pp. 5, 10. ISO New England Load Response Program Manual, April 7, 2006 section 4.2.2.

[38] ISO New England Load Response Program Manual, April 7, 2006 section 4.2.1

under the program. Under a pure 10 day rolling average, consumption on days more than 10 days in the past would completely drop out of the baseline calculation. Under the original design in New England, the days more than 10 days in the past would have had a weight of around 35% in determining the baseline. This is relevant to these cases because it meant that errors in setting the initial baseline did not disappear after 10 non-event days but could have an impact for a long time.

The initial baseline was apparently to be set during a period chosen without regard to the level of prices and the program rules relating to the baseline do not seem to have envisioned the possibility that a demand response provider might have different levels of consumption at different price levels

Hence, while the initial program set a bid floor of $50, neither the tariff nor the load response manual appear to include any apparent rules to account for price responsive load in setting the baseline. If load is price responsive, then the "normal" load depends on the price, i.e. one cannot specify what the "normal" load is independent of the price level. However, the ISO New England demand response program had no rules for how to account for the economics of the behind the meter generation or even the economics of other forms of price responsive load in setting the baseline.[39]

These design elements apparently worked as was presumably intended until fuel prices rose in 2007. By early 2007, however, a program participant could submit bids that would clear in almost every hour, leading to baselines that reflected very old consumption data or consumption data on scattered days that might not reflect typical consumption. For example, a program participant could curtail its load on almost every day, except days on which it expected its consumption to be particularly high.[40] Moreover, ISO New England expressed concerns in 2008 that because of the small number of days used to set baselines that persisted for long periods of time, program participants had an incentive to operate in a manner that would increase the baseline during the hours that set the baseline. The changes in operations referred to by ISO New England included turning off behind the meter generation, as well as increased consumption.[41]

The use of baselines to measure hypothetical "but for" consumption has three main practical difficulties from the standpoint of limiting the potential for rate payers to pay for nothing. First, there is an incentive for program participants to inflate their baseline so

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[39] See ISO New England, ISO New England Load Response Program Manual, April 7, 2006, section 2.2.1

[40] This higher consumption might reflect forecast high temperatures, the expected operation of additional equipment or the outage of on site generation.

[41] See ISO New England, filing letter, February 5, 2008 Docket ER08-538-000, pp. 5, 11-12

they will be paid for doing nothing when their load is less than the inflated baseline. Second, even if the baseline accurately measures a program participant's true average consumption, program participants will be paid for doing nothing if they can bid load reductions into the program on the days when they know their power consumption will be lower than the baseline and not offer reductions in consumption on days when they expect their consumption to exceed the baseline. Third, and relevant to these cases, baselines are typically developed to account for how a power consumer's power consumption varies over time and perhaps with weather, they are not designed to account for how the power purchases of power consumer buying power at market prices will vary with the level of power prices. Hence, there is a potential for power consumers that buy power at market prices to be paid for reducing their power consumption on high priced days on which they would have reduced their consumption without receiving the additional demand response payments.

More detailed information about power consumption can be used by ISOs to develop more accurate baseline estimates. These improvements would reduce the potential for program participants to be paid for nothing when their consumption is reduced for reasons unrelated to their participation in the program. However, attempting to develop more accurate baselines for individual power consumers that are adjusted for factors like weather and other seasonal factors (such as the length of the day) also raises the administrative cost of the program for both participants and the system operator. It is particularly difficult to account for the third difficulty in setting baselines. Not only would it be complex to model the economic decisions of a price sensitive power consumer but economic demand response programs are not designed to make payments only when power prices are below a threshold level. This design reflects the original idea behind such programs, to incent more efficient behavior by retail power consumers that purchase power at a fixed retail rate that is not related to market prices.

The ISO New England program also had an option to base payments for load reduction directly on the output of behind the meter generation.

A final quirky feature of the DALRP program that is mentioned by the parties to the enforcement actions but does not appear to be particularly significant to us in the context of these enforcement actions is that the bids that were submitted in the DALRP program were not actually cleared in the day-ahead market during the period covered by the enforcement action. Instead, the bids were cleared after the day-ahead market and did not directly impact the clearing price. [42] FERC rejected this approach in its December 21,

[42] See ISO New England filing letter, February 5, 2008 Docket ER08-538-000 p. 11

2004 Order;[43] however this approach was ultimately approved to allow the program to be implemented during 2005 [44]

C. Behind the Meter Generation in the NYISO Day-Ahead Demand Response Program

In a 2013 proceeding pertaining to the demand response programs of the New York ISO (EL13-74-000), the FERC ordered the New York ISO allow behind the meter generation to participate in its day-ahead economic demand response program, DADRP. The Commission paid lip service to the issues involved in the New England demand response manipulation cases by stating that the New York ISO would be allowed to develop tariff provisions that "address appropriate eligibility, measurement, verification, and control requirements to ensure that demand response facilitated by behind-the-meter generation is provided in manner that maintains system reliability and ensures that the resources are compensated only for the demand response service that they actually provide."[45]

But the FERC order provides no guidance into how baselines can be set so that power consumers would only pay for the demand response that the demand response program participants actually provide nor does it provide guidance at even a conceptual level as to how the amount "they actually provide" should be measured. In particular, the Commission did not address how the amount of demand response provided should be measured for power consumers that buy power at the LMP price, and for whom the amount power they consume is related to the price of the power.

The FERC order in Docket ER13-74-000 asserts that the development of rules to measure the amount of demand response provided is not unduly complex because

"the NYISO itself has developed rules to allow such resources to participate in other programs including DSASP, EDRP and the SCR capacity market program. Therefore, we find that it is not only reasonable, but necessary, to require that such rules be developed for the DADRP in order to address the concerns raised by NYISO." [46]

Rather than providing a reasoned basis for the Commission's action, this assertion suggests that the Commission lacks understanding of what it is talking about. The reference to DSASP is to the New York ISO demand side ancillary services program, which allows demand side resources, including behind the meter generation, to provide

43 See 109 FERC ¶61,314 Docket ER04-1255-000 at paragraph 24
44 ISO New England Filing in Docket ER04-1255 February 18, 2005.
45 145 FERC ¶61,163 paragraph 37. Docket No. EL13-74-000.
46 145 FERC ¶61,163 paragraph 36. Docket No. EL13-74-000.

ancillary services such as regulation or reserves. [47] However, this program does not entail paying for demand reductions relative to a hypothetical baseline level of power consumption. Rather, the demand side ancillary services provided are measured by the actual real-time metered consumption of the resource, which is increased or decreased based on instructions from the New York ISO. There is no reliance on hypothetical baselines and no payments for nothing in this design. [48] The rules under which demand response and behind the meter generation participate in the New York ISO DSASP program therefore have absolutely no relevance to the measurement and verification of economic demand response considered in EL13-74-000.

Similarly, EDRP, the New York ISO emergency demand response program, and the SCR program, which allows demand side resources to participate in the New York ISO capacity market, do not involve economic demand response. While these programs measure response relative to a baseline, and the programs cannot be triggered by the demand response provider by submitting a low bid when it anticipates that its power consumption will be lower than a hypothetical baseline. Instead, these programs are activated by the New York ISO in response to emergency conditions.[49] This difference reflects the core problem with measurement and verification of demand reductions in economic demand response programs, if the bid floor is set low, the power consumer can use its bids to control when it is called upon to provide demand response and is thereby able to offer to provide demand response only when it knows it will be paid for doing nothing.

Thus, the FERC order in the New York ISO behind the meter complaint post dates the show cause orders in the New England demand response cases and is noteworthy in four respects. 1) it explicitly orders the New York ISO to allow behind the meter generation to provide demand response; 2) it instructs the New York ISO to compensate economic demand response providers "only for the demand response service they provide," 3) provides no guidance on how the New York ISO is to only pay demand response providers "for the demand response service they provide, and 4) does not appears an understanding of the problems involved in setting baselines for economic demand response so as to avoid paying for nothing.

D. Behind the Meter Generation in Order 745

[47] Filed by the New York ISO on March 24, 2008 in Docket ER04-230-034 and accepted by the Commission in Orders 123 FERC ¶ 61,203 May 23, 2008 and 123 FERC ¶61,306 June 25, 2008.

[48] See New York ISO Ancillary Services Manual, March 2015 section 6.2.4

[49] See New York ISO, Emergency Demand Response Program Manual, August 2013, section 4.1; Installed Capacity Manual, April 2013 section 4.12.5

While the FERC order in Docket ER13-74-000 is striking evidence that FERC intends behind the meter generation to be used to provide demand response, the same intent is evident in several other Order 745 related orders. FERC recognized the potential for behind the meter generation to be used to provide demand response in Order 745A. [50] FERC also explicitly determined that behind the meter generation could be used to provide demand response in its orders on the ISO New England compliance filing for Order 745.[51] It is also noteworthy that in early 2012 while the Rumford and Lincoln investigations were in progress, the FERC order on the ISO New England order 745 compliance filing initially refused to approve ISO New England's inclusion of a bid floor in its demand response programs.[52]

Similarly, in its orders on the MISO Order 745 compliance filing the FERC rejected the rules proposed by MISO that would have precluded behind the meter generation from being paid LMP for providing economic demand response. [53] Moreover, the FERC also forbade MISO from not paying for economic demand response even when the LMP price was less than the net benefits test threshold. [54]

It is noteworthy that FERC clearly intends for behind the meter generation to be used to provide economic demand response and is also clearly hostile to ISO efforts to include bid floors in their demand response programs in order to limit the extent to which rate payers "pay for nothing."

This hostility is striking since ISO New England addressed the payment for nothing problem in its DALRP program in early 2008 by raising the bid floor so that market participants could not routinely submit bids that would clear whenever they had low demand, restricting the program to high priced days. This market design change also avoided the potential for frozen baselines, another of the concerns expressed by FERC and enforcement staff in these manipulations cases that is discussed in section III below .

With Order 745, however, FERC eliminated the rules the ISOs have implemented over the years to reduce the extent to which rate payers pay for nothing under their economic demand response programs. FERC's Order 745 voided PJM's LMP-G design which avoided paying for power consumption on low priced days when the retail rate alone provided an efficient signal for demand response. The threshold price set by FERC's

50 137 FERC ¶ 61,215 December 15, 2011 at paragraph 66.
51 See 138 FERC ¶61,042 January 19, 2012 Docket ER11-4336 paragraphs 76-78.
52 See 138 FERC ¶61,042 January 19, 2012 Docket ER11-4336 paragraph 25.
53 See 140 FERC ¶ 61,059, July 19, 2012 Dockets ER12-1266 and ER11-4337, paragraph 14
54 See 140 FERC ¶ 61,059, July 19, 2012 Dockets ER12-1266 and ER11-4337, paragraph 14

"net benefits test" ranged from a low of $29.01 in December 2014 to a high of $34.93 in March 2014, averaging only $30.91 over the year. [55]

The result of the low threshold price set for PJM by Order 745's net benefit test was that during 2014, demand response received negawatt payments during 7921 out of 8760 hours or 90.4%.of all hours in 2014, up slightly from 88.6% in 2013. Moreover, there was demand response in 88.9% of all hours in 2014 and 88.3% of all hours in 2013.[56] These data illustrate the extent to which order 745 has completely undone the protections PJM had established against rate payers paying for nothing.

FERC waved its hands in Order 745 about the payment for nothing problem, asserting it is simply a matter of measurement and verification, without explaining how a measurement and verification program could be designed that would avoid large payments for nothing when the price floor is set at the low levels implied by the net benefit test specified by Order 745.[57]

The FERC enforcement actions in the New England demand response cases might be viewed as supporting the efforts of ISOs to limit the magnitude of payments for nothing under Order 745 demand response programs. The discussion below and in section IIIC explains we this appears unlikely to be the case. The principle that we believe underlies these enforcement cases is relatively narrow and would do very little to limit payments for nothing under Order 745 demand response programs, so these enforcement cases appear to do little to actually address the payment for nothing problem that will be associated with Order 745 demand response programs.

III.Manipulation Cases

A. Lincoln

It is apparently undisputed that Lincoln operates a paper Mill in Maine with an electrical load of around 20 megawatts when fully operational, normally operating around the clock, seven days a week.[58] Lincoln meets its electrical load by purchasing power in the ISO New England spot market through a competitive supplier, Constellation, and through

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[55] Monitoring Analytics, State of the Market Report for PJM 2014, March 12, 2015 volume 2 table 6-11 p. 226

[56] Monitoring Analytics, State of the Market Report for PJM 2014, March 12, 2015 volume 2 table 6-12 p. 227

[57] See Order 745, Docket RM10-17-000 March 15, 2011, paragraphs 93-95

[58] See FERC Office of Enforcement, Lincoln Paper and Tissue, LLC, Enforcement Staff Report and Recommendation, July 17, 2012 pp. 2-3.

the output of its on site generation. [59] The on-site generation is also used to produce process steam used for some plant functions.[60]

Significantly, Lincoln does not buy power through a local distribution company at regulated rates.

The mill had two generating units at the beginning of the period covered by the complaint, a third that became operational during the complaint period, and a fourth that had operated until it suffered a catastrophic failure. One of the units in operation was a back up diesel generator for the mill's waste treatment plant which was not an issue in the enforcement action because according to enforcement staff it only had 1 megawatt of capacity and "rarely operates.". [61]

One of the other two generators is referred to by enforcement staff as the "Westinghouse" unit, which had a nameplate capacity of 4 megawatts. According to enforcement staff, Lincoln "usually operated" the Westinghouse unit 24 hours a day, seven days a week through December 2007. [62] The enforcement staff report does not indicate what period the "usually" applies to nor does it discuss whether the operation of the plant was related to the spot price of power in the ISO New England market. Does "usually" mean that it operated when power prices were high, and they were usually high in that period, or does "usually" mean that the behind the meter generation was operating unless there were problems with the operation of the unit or the mill?

The Lincoln responses do not clarify how the plant was operated, in particular, whether it was shut down when power prices were low. One will recall that gas prices were at or near all time highs in 2007, so the economics of operating the Westinghouse unit may have been different in prior and later periods.

Lincoln asserts that sometime after the failure of the GE unit it spent $174,000 on modifications to allow the paper mill to continue operations using purchased power if the Westinghouse unit was not operating. [63] The office of enforcement does not appear to contest this assertion in its November 13, 2012 reply. Lincoln also asserts that it took the Westinghouse out of service in December 2006 and January 2007 and spent $300,000 for

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59 See FERC Office of Enforcement, Lincoln Paper and Tissue, LLC, Enforcement Staff Report and Recommendation, July 17, 2012 pp. 3.

60 Answer of Lincoln Paper and Tissue LLC, September 14, 2012 p. 7

61 See FERC Office of Enforcement, Lincoln Paper and Tissue, LLC, Enforcement Staff Report and Recommendation, July 17, 2012 pp. 3. footnote 8 No data was provided about how often "rarely" means or what the units costs were.

62 See FERC Office of Enforcement, Lincoln Paper and Tissue, LLC, Enforcement Staff Report and Recommendation, July 17, 2012 pp. 3. footnote 8

63 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 3, 8

repairs to enable the unit to continue operation until a new unit (the TG3 unit described below) came into service. [64] The office of enforcement also does not appear to contest this assertion in its November 13, 2012 reply. While Lincoln mentions these costs in the public documents, it does not explicitly tie its willingness to incur these costs to the prospect of receiving payments for using the Westinghouse unit to reduce its power consumption under the DALRP. [65]

Lincoln does, however, defend its decision to reduce the output of its Westinghouse unit during the period in which the baseline was set on the basis that even with these expenditures the continued operation of the Westinghouse unit was uncertain. [66]

The third generator is referred to by staff as the "TG3," which the enforcement staff states had a capacity of 13 megawatts. The enforcement staff states that the "newer and more efficient" TG3 generator began operational testing in November 2007 and began commercial operations on January 15, 2008, after which the Westinghouse generator rarely operated, while the TG3 unit operated 24 hours a day to meet the Mill's load. [67]

Another difference between the enforcement staff report and Lincoln's version of the facts is that while Lincoln agrees that it began testing the TG3 unit 0n November 27, 2007 and that the unit had a nominal capacity of around 13.5 megawatts, Lincoln asserts that the testing "revealed significant problems with the unit" and that efforts to improve its performance were "largely unsuccessful." As a result, Lincoln states that it "did not accept the unit for commercial operations, ultimately reaching a financial settlement with the contractor." Moreover, Lincoln states that even today, the output of the TG3 units is in the range of 7.5 to 9.1 megawatts, not the 13.5 nameplate capacity. [68] These performance issues do not appear to be discussed anywhere in the enforcement staff report or answers. Taken at face value, enforcement staff's position appears to be that once behind the meter generation was built, its capacity must be reflected in setting the baseline, seemingly even if the generation is not capable of achieving that output.

Lincoln further asserted that while the TG3 unit was intended to replace both the Westinghouse and the failed GE unit, its poor performance has "kept Lincoln from shutting down the Westinghouse unit." [69]

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64 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 3,8.

65 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 3,8.

66 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp 27-28.

67 See FERC Office of Enforcement, Lincoln Paper and Tissue, LLC, Enforcement Staff Report and Recommendation, July 17, 2012 pp. 3. footnote 8

68 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 11

69 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 11. It is not clear whether this statement means that the Westinghouse unit is sometimes operated to supplement the output of the TG3 unit or that the Westinghouse unit is kept as a backup unit for operation when the TG3 units is out of

Lincoln notes that there was a fourth generating unit, a 2.5 megawatt GE turbine which suffered a "catastrophic failure" in May 2005, which damaged the unit beyond repair.[70] Lincoln states that after the failure of this unit it "solidified plans to build a replacement unit both for the GE unit, and the Westinghouse unit, which was of a similar vintage. [71]

FERC states that Lincoln enrolled in the DALRP program in July 2007, with its baseline set on July 25, 26, 27, 30 and 31, 2007. On these days Lincoln increased its withdrawals of power from the grid from around 16 megawatts to around 19 megawatts, with the increased withdrawals offset by a 3 megawatt reduction in the output of the Westinghouse generator. The Order notes that the purchase of power cost Lincoln $10,000 over this period but does not discuss the savings from reduced fuel consumption. The order cites a letter from Lincoln stating that retail rates made it economic for Lincoln to run the Westinghouse unit near its maximum output in this period. Moreover, the order cites deposition testimony that the output "would probably not have been curtailed if Lincoln had not been participating in the DALRP." [72] It is not credible that this reduction in output was somehow related to the spot price of power as power prices tended to be higher, not lower, during the hours covered by the DALRP program.

Lincoln does not appear to dispute that it curtailed its behind the meter generation output during the period in which its baseline was being set. Most of Lincoln's explanations for its conduct relate to its asserted understanding of the DALRP program rules at the time and the ambiguity in how baselines were to be set. [73] We do not consider those issues in this paper because we are not revisiting the merits of the enforcement case in terms of what was known in 2007 but are instead assessing the standard for fraud established going forward by these cases in 2015.

The Lincoln answer reads like it is responding to an enforcement staff view that the operation of behind the meter generation at the time the baseline was set was by itself fraudulent. [74]

A striking feature of the enforcement staff reports, the Lincoln answers and the Commission's order assessing civil penalties is that there is no discussion of the price at

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service. There is also no discussion in the Lincoln Answer of why Lincoln would not buy power from the grid rather than operating the Westinghouse unit either when the output of the TG3 unit was limited or when it was out of service or whether Lincoln did at times buy power from the grid rather than operating the Westinghouse unit.

70 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 7

71 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 7-8

72 See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 30.

73 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 1-2, 6, 13-14, 22-23 etc

74 See Answer of Lincoln Paper and Tissue LLC, September 14, 2012 pp. 1-3.

which Lincoln purchased power, Lincoln's generation costs, or even its fuel source. While it is clear from the public record that Lincoln was buying power through Constellation, a retail access supplier, and hence buying power at unregulated prices, the actual pricing terms are nowhere discussed in the public record. Similarly, were is no discussion of fuel costs or of any policy by Lincoln to adjust its generation output in response to the level of spot prices.[75] The implication we draw from this record is that Lincoln's fuel costs were so low (perhaps because its generation was consuming plant waste products) that once the behind the meter generation was built, it was always economic to operate it.

Once the baseline was set, the normal operation of the DALRP rules excluded all days on which Lincoln was dispatched under the DALRP program from the calculating of its rolling baseline. In actual practice, however, Lincoln's baseline was gradually reset over time through the inclusion of additional hours. [76] The Commission suggests that this was inadvertent and due to bidding errors but Lincoln but acknowledges that it occurred. [77] It is in this context that the fact that the baseline was not actually a rolling 10 day average is significant. If the baseline were a true rolling average, the inflated consumption during the period in which the baseline was originally set would have dropped out of the calculation after 10 days of new data were included. Neither FERC nor enforcement staff appear to suggest that Lincoln altered its behavior during the new hours that entered the baseline and if this were the case any distortions in the original baseline would have been washed out once there were 10 days of new data. However, under the actual ISO New England formula for recalculating the baseline discussed in Section IIB above, the impact of the inflated initial baseline would have persisted much longer than 10 days. For example, even if 10 new days were included in the baseline calculation, consumption on the days originally used to calculate the baseline would have a 38% weight.

B. Rumford

According to enforcement staff the Rumford paper mill had a load of 95 megawatts when fully operational and operated 24 hours a day, seven days a week, with a load that did not fluctuate materially between the day and night hours.[78] Rumford similarly noted that the plant operated around the clock seven days a week, using both steam and electricity for its production processes.[79]

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[75] The Order Assessing Civil Penalty, 144 FERC ¶61,162 refers at paragraph 30 to prevailing fuel and energy prices but refers back to a discussion in the Enforcement Staff report attached to the show cause order that merely shows that Lincoln increased its net load during the hours in which the baseline was set.

[76] See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 19, 41, 48.

[77] See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 41, 48.

[78] FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 12

[79] Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.7

Rumford had an onsite generator which enforcement staff refers to as the G4 unit, with a nameplate capacity of 110 megawatts. [80] Enforcement staff asserts that the G4 unit was "operated to meet virtually all of Rumford's electricity needs", with Rumford buying or selling power at the margin.[81] The G-4 unit also produced steam which Rumford used in its paper manufacturing process. .[82]

While the enforcement staff report refers to load profiles for Rumford Paper company for the months of July, August and November 2007 that were provided to enforcement staff by ISO New England, there is no data in the public reports portraying the historical pattern of generation output or net load in the period prior to their participation in the DALRP program.[83]

Enforcement staff state that "company documents estimated that the incremental cost of running G-4 was approximately $45.00 per MWh.[84] This estimate is roughly consistent with the estimates provided by Rumford in its answers.[85] Enforcement staff, for example, note that "operating procedures given to G4's day-to-day operators in May 2007 directed operators to curtail generation and purchase energy from the grid only when the LMP price of power in New England was less than $40 per MWh.[86] The difference between the reported $45 incremental cost of the behind the meter generation and the $40 price threshold presumably reflects other charges that would be avoided by generating the power instead of purchasing it.

Enforcement staff note that "Electricity purchase prices virtually always exceeded $45 per MWh during the DALRP program hours when Rumford was in the program."[87] By this enforcement staff presumably means that spot prices always exceeded $40 or $45 during 2007, prices were not always above this level during on peak hours in other years.

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80 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 2

81 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 2

82 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 2

83 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 2

84 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 24

85 See August 4, 2011 letter to Division of Enforcement, p. 3; Rumford Answer, Docket IN12-11-000September 14, 2012 p. 1-2.

86 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 24

87 FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012, p. 24

Moreover, prices were not always above $40 during off peak hours during 2007. We need to keep in mind that gas prices rose to a peak during 2007.

The enforcements staff's statements appear to be largely consistent with Rumford's description of its operating policy for its behind the meter generation. Rumford asserted that it had a policy in the 2007-2008 period of buying power from the grid and reducing generation when spot electricity prices were lower than around $40 per megawatt hour. [88] It is not clear, however, from the Rumford answers relating to operating policies whether Rumford actually reduced the output of its behind the meter generation when power prices were low. Enforcement staff's comments cited above, however, indicate that this was not just an abstract policy but an actual practice so we assume this was the case. This is significant in the context of the enforcement case because it indicates that Rumford could and did provide demand response by reducing its power consumption from the grid in response to high prices by increasing the output of its behind the meter generation.

The graphical data in the July 17, 2012 Enforcement Staff Report appears to show minimal load during the off-peak hours over the period July 24 through July 30, implying that the behind the meter generation must have been operating during these off-peak hours.. [89] However, in reviewing the day-ahead and real-time price data for these days, there were only a handful of off-peak hours when the day-ahead market price fell below the suggested $40 per megawatt breakpoint for operating the behind the meter generation.

Another potentially complicating factor impacting Rumford's operation of its behind the meter generation was that the plant operated under a long-term cogeneration contract and then another short-term contract through February 2007. [90] The implication of these contracts is that the operation of the plant during this earlier period reflected the normal operation of those plants under the terms of the prior contracts, but it has no bearing on their normal operation when compensated based on spot market prices. However, these contracts were apparently expired and no longer impacting operating practice during the July 2007 period when the baseline was set.

It also appears that the plant was operated in this period as if the minimum stable operating level was 60 megawatts, although operating experience later showed that the plant could operate stably at a lower minimum load level. [91] Thus, the dispatchable range of the plant, either in response to market prices or the incentives provided by demand

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[88] Answer of Rumford Paper Company, September 14, 2012pp. 1-2 and 8-9 Letter to Enforcement Staff, May 5, 2011 pp.5-6 attached to July 17, 2012 Show cause Order.

[89] See Figure "Rumford Load During Baseline Period," p. 12 and "Rumford July 31, 2007 DALRP Participation," p. 14

[90] Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.7

[91] Affidavit of Roy J. Shanker, Exhibit RJS-1 Docket IN12-11-000, Sept 11, 2012, Rumford p.9 Answer of Rumford Paper Company, September 14, 2012 pp. 3, 8, 15.

response programs, was from 60 megawatts up to its capacity. In practice, however, the range offered for dispatch appears to have only been from 60 megawatts up to 85 megawatts. There is no apparent discussion in the public record by Rumford, FERC or enforcement staff of why the plant was apparently never dispatched above 85 megawatts in response to the incentives of the DALRP program.[92]

C. FERC enforcement actions

With this background on the public facts of these cases and FERC's stated policies towards the use of behind the meter generation to provide demand response we turn to a discussion of the various statements of the Commission and enforcement staff that potentially explain the principle underlying the Commission and enforcement staff determination that the actions of Lincoln and Rumford constituted fraud. The purpose of this review is to assess which of the possible principles suggested by the various FERC and enforcements staff statements are consistent with FERC policies, the facts of the cases and the design of the ISO New England demand response program.

We identify one such principle, principle four in the list below. We discuss this principle in some detail below to explain why a FERC enforcement policy based on such a principle will not be sufficient to, in the terminology of FERC and enforcement staff, avoid consumers paying for a great deal of nothing under FERC managed Order 745 demand response programs. So while such an enforcement policy may provide a political cover for the consequences of FERC policies, it will not serve to actually protect consumers from those consequences.

We also recognize that we may misunderstand the principles applied by FERC and enforcement staff in determining the conduct of Lincoln and Rumford to be fraudulent and that finding may have been based on one or more of the other six principles. He other purpose of the discussion below is that although FERC and enforcement staff may not have recognized it in reaching their decisions, none of the other principles can provide a basis for identifying fraud that is consistent with FERC policy or the design of Order 745 economic demand response programs.

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[92] When the Rumford behind the meter generation was operating, enabling Rumford to and reducing purchases of power from the grid, the operation of the generation not only enable Rumford to avoid paying the spot price of power but also enabled Rumford to avoid paying various other charges, such as those for transmission, ancillary services, and pool operation etc. Hence, there would be a range of wholesale spot prices in which it would be profitable for Rumford operate the generation to reduce purchases from the grid but not to inject power. One would expect that it would have been economic at times when spot prices were very high to operate the generation above 85 megawatts, but if this was the case it does not appear to be discussed in the public record.

1. The conduct was fraudulent because the behind the meter generation was not operating when the baseline was set.

Several Commission and enforcement staff statements in these cases could be read to suggest a principle finding that it was fraudulent to not operate the behind the meter generation during the period in which the baseline was being set.
For example, FERC stated in its Order assessing civil penalties in IN12-10-000 that:

> "Lincoln devised and implemented a plan to inflate its customer baseline by curtailing its use of on-site generation during its initial DALRP customers baseline period, and instead of replace that on-site energy with energy taken from the grid. This curtailment created an inflated customer baseline that did not reflect Lincoln's routine electricity consumption from the grid. After establishing its initial inflated customer baseline, Lincoln resumed its routine practice of operating its on-site generation to lower electric consumption from the grid."[93]

The broadest reading of this statement would be that the use of behind the meter generation to provide demand response is fraudulent. A slightly narrower reading would be that it was fraudulent not to operate the behind the meter generation during the period in which the baseline was set. But neither reading can be what FERC or enforcement staff intend because such a reading would be completely inconsistent with other FERC orders discussed in section IIC above that not only unambiguously find it permissible to use behind the meter generation to provide demand response, they even require ISOs and RTOs to allow behind the meter generation to be used to provide demand response.

Nevertheless, there are many statements by FERC and enforcement staff that could be read as finding it to be fraudulent to curtail behind the meter generation during the hours a demand response baseline is being determined.

FERC noted elsewhere in the order assessing civil penalties that "OE Staff asserts the undisputed facts establish that Lincoln knowingly curtailed generation during the initial customer baseline period in order to obtain DALRP payments without altering its manufacturing behavior or energy usage."[94]

Taken by itself this statement also might suggest that simply curtailing behind the meter generation during the period in which the baseline was set constituted fraud.

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[93] FERC, Order Assessing Civil Penalties, 144 FERC ¶61,162 Docket IN12-10, August 29, 2013 p. 2.

[94] FERC Order Assessing Civil Penalty, 144 FERC ¶61,162 August 29, 2013 paragraph 27

Moreover, Enforcement Staff stated in the Rumford Staff report that:

> "Rumford used high energy price in New England as an opportunity to implement a scheme to receive demand response payments without providing any load reductions. Rumford decided to curtail its generation during the baseline period and to offer energy into the market every day to ensure that its baseline did not change. While ISO-NE's tariff did not explicitly prohibit such actions, tariffs cannot explicitly prohibit all fraudulent actions that market participants may undertake." [95]

Enforcement staff also stated in its November 13, 2012 reply in the Rumford case that:

> "The essence of this fraud case is this: the contemporaneous evidence establishes beyond dispute that Rumford knowingly curtailed generation during the DALRP baseline period. Rumford did this so it could obtain DALRP payments, in essence for free –that is, to get program payments without altering its manufacturing behavior or changing its energy usage. In other words, Rumford sought to get demand response payments without ever providing, or intending to provide, any actual demand response. This conduct is fraudulent.
>
> Rumford does not deny that it curtailed generation during the baseline period. Instead, Rumford has attempted to articulate how this behavior can be explained on grounds other than fraud. But Rumford has been unable to provide such an explanation consistent with the contemporaneous facts – or even common sense." [96]

Enforcement staff used identical language in its Reply in the Lincoln case in explaining its rationale for finding that the conduct of Lincoln was fraudulent.[97]

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[95] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, pp. 26-27

[96] See Reply of Enforcement Staff, Rumford Paper Company, Docket No. IN12-11-000, Nov 13, 2013 pp 2-3.

[97] See Reply of Enforcement Staff, Lincoln Paper and Tissue LLC, Docket IN12-10-000 November 13, 2012 pp. 2-3.

While the statements in both cases appear to tie the fraud to curtailing generation during the DALRP baseline period, our view is that finding fraud on this basis would be plainly inconsistent with clear Commission policy that behind the meter generation can be used to provide demand response, discussed in section IIC above. The only way behind the meter generation can provide demand response is if the output of the behind the meter generation is not included in the customer baseline, so that the operation of the behind the meter generation results in a reduction in load relative to the baseline. There is no way to establish a baseline to compensate for demand response provided by behind the meter generation except to not operate the behind the meter generation during the hours when the baseline is established. Hence, for FERC to find that behind the meter generation must be operated during the period when the baseline is established would be equivalent to finding that behind the meter generation cannot be used to provide demand response.

Hence the mere fact that behind the meter generation was not operating when the baseline was set cannot have provided the basis for FERC or enforcement staff to find that the conduct was manipulative or fraudulent.

2. The conduct was fraudulent because Rumford and Lincoln lacked the ability or willingness to reduce load.

FERC enforcement staff explained in its reports for both the Lincoln and Rumsfords that demand response requires a reduction in load stating :

> "Demand response is a 'change [] in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.' Demand response programs require, at the least, either reduced consumption or increased production of electricity by the responder."[98]

[98] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, p. 4, and FERC Enforcement Staff Report and Recommendation, Lincoln Paper and Tissue, LLC, July 17, 2012 Docket IN12-10-000, p. 4, both citing U.S. Department of Energy, Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them: A Report to the United States Congress Pursuant to Section 1252 of the Energy Policy Act of 2005,"

The enforcement staff also cited the ISO New England tariff to the effect that that DALRP requires that the resources "provide a reduction in their electricity consumption in the New England Control Area during peak demand periods." [99]

The enforcement staff similarly stated in its replies in both the Lincoln and Rumford cases that "It is axiomatic that demand response programs require a 'response,' and specifically, a response that reduces energy consumption from the grid. A demand response participant must change its operations either by reducing consumption or increasing production of electricity." [100]

FERC cited these statements in its order assessing civil penalties in the Lincoln case, stating that:

> "OE Staff argues that it is 'axiomatic' that demand response requires a response that results in an actual reduction of energy consumption from the grid relative to routine consumption." [101]

Similarly, FERC stated in accepting the settlement with Rumford that

> "demand response is a 'reduction in the consumption of electric energy by customers from their expected consumption in response to an increase in the price of electric energy or to incentive payments designed to induce lower consumption of electric energy." [102]

FERC used the same words in the Lincoln order assessing civil penalties observing that

> "The Commission's regulations define demand response as 'a reduction in the consumption of electric energy by customers from their expected consumption in response to an increase in the price of electricity or to incentive payments designed to induce lower consumption of electric energy.'" [103]

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[99] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, p. 5 and FERC Enforcement Staff Report and Recommendation, Lincoln Paper and Tissue, LLC, July 17, 2012 Docket IN12-10-000, p. 5

[100] Reply of Enforcement Staff, Docket IN12-11-000 November 13, 2012 pp. 4-5. and Reply of Enforcement Staff, Docket IN12-10-000 November 13, 2012 pp. 4-5

[101] 144 FERC ¶61,162 Docket IN12-10, August 29, 2013 p. 16

[102] 142 FERC ¶61,218 Docket IN12-11-000, March 22, 2013 paragraph 38 p. 7

[103] 144 FERC ¶61,162 Docket IN12-10, August 29, 2013 p. 5, citing 18 CFR section 35.28(b)(4)(2013).

Despite the many statements by FERC and enforcement staff in these cases that appear to suggest reliance on this second principle in establishing fraud, we do not believe this is in fact a principle relied upon by FERC in these cases. We have two reasons for this view. First, our reading of these statements in the context of the facts of these cases is that FERC and enforcement staff are not articulating a concern with whether the behind the meter generation could actually operate and reduce net load compared to what it would otherwise be. It is clear from the record that the behind the meter generation of Lincoln and Rumford could and did operate, and did reduce the net load relative to what it otherwise would have been.

Second, while some of these statements appear to tie the finding of fraud to an asserted inability of Lincoln and Rumford to reduce net load in response to high prices, we also do not believe this can be the principle relied upon by FERC or enforcement staff. It is not clear from the public record whether Lincoln ever adjusted its power consumption in response to prices, so it is possible that FERC could have found Lincoln to be guilty of fraud based on this principle. However, the record in the Rumford case appears to be clear that enforcement staff agrees that Rumford adjusted its behind the meter generation output based on spot prices, buying power from the grid when spot prices were low and operating its behind the meter generation at a higher output when spot prices were high.[104] Hence, Rumford did reduce its "expected consumption in response to an increase in the price of electricity."

Hence, this second principle cannot have provided the basis for concluding that the conduct was fraudulent because at least in the case of Rumford, enforcement staff appears to agree with Rumford that Rumford reduced the output of its behind the meter generation and purchased power when spot power prices were low, which [105] means that Rumford was providing demand response when it operated its behind the meter generation at higher levels in response to higher prices, which is precisely how FERC and enforcement staff defined demand response.

Hence, it appears to us that the FERC and enforcement staff statements cited above to not describe the principle underlying the finding of fraud in these cases but are simply unclear. We believe the issue the FERC and enforcement staff are concerned with is that the baselines were inflated and did not reflect the typical or expected consumption of Lincoln and Rumford as discussed under principles 3 and 4 below to which we now turn. But we may not understand what FERC and enforcement staff intend.

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[104] FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendation, July 17, 2012 p. 24.

[105] See the discussion in section IIB above and FERC Office of Enforcement, Rumford Paper Company, Enforcement Staff Report and Recommendations July 17, 2012 p. 24

3. The conduct was fraudulent because it would have been economic absent the demand response program for Lincoln and Rumford to operate their behind the meter generation at a higher output level during the hours when the baseline was set.

This failure to operate the behind the meter generation at a higher output level when it was economic inflated the baseline and thereby caused rate payers to pay for demand reductions that would have occurred anyway when the behind the meter generation operated under the DALRP program. There are a number of statements by FERC and enforcement staff in these cases that might be interpreted to reflect such a principle for establishing fraud. We cited a number of statements by FERC and enforcement staff relating to baselines inflated by the failure of Lincoln and Rumford to operate their behind the meter generation during the hours in which the baseline was set in our discussion of principle 1 above.

We observed above in discussing those statements that it could not have been the failure to operate the behind the meter generation during the period in which the baseline was set that alone constituted fraud because FERC has clearly stated that behind the meter generation can be used to provide demand response and it can only do so if it does not operate during the hours in which the baseline is established. One possible distinction would be whether the operation of the behind the meter generation was economic during the hours in which the baseline was set.

The FERC and enforcement staff statements cited in the discussion of principle 1 did not explicitly refer to the economics of operating the behind the meter generation during the hours in which the baseline was set, but FERC and enforcement staff clearly made the point that the operation of this generation was economic during all of the program hours during 2007, which of course included the baseline hours. FERC also referred to the economics of the behind the meter generation when it stated "Lincoln reduced its Westinghouse generator's operating level by approximately 3 MW from the level at which it otherwise have operated given the prevailing fuel and energy prices and mill energy requirements."[106]

One can understand the attractiveness of the idea that consumers should only pay for reductions in consumption that would not occurred absent the demand response payment. When this is not the case it is painfully obvious that consumers are paying for nothing. The concept of setting baselines is intended to reduce the extent to which consumers are

[106] Order Assessing Civil Penalty, Docket IN12-10-000, 144 FERC ¶61,162 August 29, 2013 pp. 16-17

paying for nothing under negawatt demand response designs, and if baselines are inflated, rate payers will likely end up paying for nothing.

We will discuss further below under principle 6 why a goal of only paying for demand response that would not have occurred absent the payment is inconsistent at a very fundamental level with the current structure of demand response programs, including the ISO New England DALRP But principle 3 as we have stated it does not go that far, it would simply find that it would be a fraudulent inflation of the baseline if the demand response would have been economic yet not provided during the hours when the baseline was initially set.

In our view, such a standard for identifying fraud based purely on an economic evaluation of the profitability of providing demand response would be inconsistent with the articulated basis for the Order 745 requirement for ISOs to pay LMP for demand response. This was the FERC assertion that there are barriers to demand response that made it just and reasonable to require the additional payment . The asserted existence of such barriers implies that some demand response that appears to be profitable would not occur without the additional incentives provided by demand response payments.

In light of FERC's assertions in order 745 and related orders, one could not conclude that the failure to provide demand response during baseline hours reflected fraud, because FERC's premise for the Order 745 demand response subsidies was that demand response that was economic would not be provided without additional payments.

While one might take the view that these statements lacked any factual or conceptual basis, they are the basis for FERC's order 745. There are many FERC statements in Order 745 and associated orders asserting the existence of such barriers, and implicitly asserting that they are of such a large magnitude that they warrant the substantial subsidies for demand response required by FERC in order 745.

For example, in Order No. 745 the Commission asserted:

> "Barriers to demand response participation at the wholesale level identified by commenters include the lack of a direct connection between wholesale and retail prices, lack of dynamic retail prices (retail prices that vary with changes in marginal wholesale costs), the lack of real-tie information sharing, and the lack of market incentives to invest in enabling technologies that would allow electric customers and aggregators of retail customers to see and

> respond to changes in marginal costs of providing electric service as those costs change." [107]

Presumably providing a rationale basis for FERC's statements that "The Commission concludes that paying LMP can address the identified barriers to potential demand response providers," [108] FERC stated:

> "Removing barriers to demand response will lead to increased levels of investment in and thereby participation of demand response resources (and help limit potential generator market power), moving prices close to the levels that would result if all demand could respond to the marginal cost of energy." [109]

The Commission similarly asserted in Order 745A:

> "Petitioners challenge the Commission's consideration of market imperfections caused by existing barriers to demand response as relevant to the level of appropriate compensation for demand response resources participating in the organized wholesale energy markets. We continue to find that the barriers to demand participation in the wholesale market, such as the lack of a direct connection between wholesale and retail prices, lack of dynamic retail prices (retail prices that vary with changes in marginal wholesale costs), lack of real-time information sharing, and the relative lack of sufficient retail metering technology, demonstrate that customers do not have the ability to respond to the often volatile price changes in the wholesale market and demonstrate the need for including demand respond as part of wholesale market design. If the price responsiveness of demand is not fully reflected in the wholesale market, the price, a fortiori, will be higher than it would be in a competitive market." [110]

The Commission repeated these assertions a few paragraphs later in Order 745A stating:

> "the existence of barriers helps to explain why payment of LMP as the market value of demand response services helps to explain why payment of LMP as the market value of demand response

[107] Order 745 Docket RM10-17-000 March 15, 2011 pp. 45-46 paragraph 57
[108] Order 745 Docket RM10-17-000 March 15, 2011 pp. 45-46 paragraph 58
[109] Order 745 Docket RM10-17-000 March 15, 2011 pp. 46-47 paragraph 59.
[110] Order 745A Docket RM10-17-001 December 15, 2011 p. 25 paragraph 59.

> services helps to produce just and reasonable wholesale prices. Paying LMP to demand resources will help address the lack of a direct connection between wholesale and retail prices and the lack of dynamic retail prices by providing those customers that can respond to price signals with the accurate market price signal for such response. Paying LMP, the marginal cost of energy, when demand response is a capable alternative to a generation resource, also will encourage more demand-side participation. As stated in the Final Rule, more demand-side participation will cause wholesale and retail prices to converge on a price level reflecting demand's ability to respond to the marginal cost of energy." [111]

And the Commission further asserted in Order 745A that:

> "in determining that LMP is the just and reasonable price to pay for demand response, the Commission examined some of the previously recognized barriers to demand response that exist in current wholesale markets. These barriers create an inelastic demand curve in the wholesale energy market that results in higher wholesale prices than would be observed if the demand side of the market were fully developed, The Commission found that paying LMP when cost-effective may help remove these barriers to entry of potential demand response resources, and, thereby help move prices closer to the levels that would result if all demand could respond to the marginal price of energy. Furthermore, the Commission found that since LMP reflects the marginal value of the demand response resource to the RTO or ISO, it is a just and reasonable rate to be paid to demand response resources. RTOs and ISOs already pay LMP compensation to generation resources because LMP represents their marginal value. Thus, demand response resources, where capable of balancing supply and demand as an alternative to generation and when dispatch of demand response resources is cost effective, also should be compensated for the marginal value they provide. The Commission recognized that in some circumstances paying the LMP to demand response would not be cost-effective and therefore determined that payments of LMP in conjunction with a

[111] Order 745A Docket RM10-17-001 December 15, 2011 p 26 paragraph 61.

> net benefits test will ensure a just and reasonable rate by resulting in the cost-effective dispatch of demand response resources." [112]

Enforcement Staff has asserted that FERC's statements in articulating the legal basis for Order 745 are not relevant to defining fraud, asserting that

> "Setting aside the inconsistency of Rumford's defenses, Rumford's argument about Order No. 745 is untenable as a matter or fact, law and common sense. First, Order No 745 is simply irrelevant to Rumford's behavior. Order No. 745 was issued in 2011, more than three years following the conclusion of Rumford's fraud. Further Order No. 745 addresses the amount that ISOs and RTOs will pay demand response. The order does not address the manner in which the programs are administered, how baselines are calculated or what constitutes fraud in demand response programs." [113]

Staff is correct that Order 745 was issued after the conduct in question, but enforcement staff is also correct that Order 745 did not change the definition of fraud. Any conduct that is envisioned or called for under Order 745 cannot be fraudulent now or in the past.

Hence, while this standard makes a certain amount of economic and policy sense, it is fundamentally inconsistent with the premise for order 745 that there are barriers to the introduction of demand response that require additional payments to demand response. Hence, it cannot by itself serve as the principle used to identify fraud until the premise for the payments to demand response required by Order 745, that there are barriers to the provision of demand response such that demand response will not be provided, even if it is nominally economic, without additional subsidies, is rejected. This conclusion leads to our discussion of the fourth principle, which is a slight variation on the third principle.

4. The conduct was fraudulent because it would have been economic absent the demand response program for Lincoln and Rumford to operate their behind the meter generation at a higher output level than was actually the case during the hours when the baseline was set. Moreover, it is transparent that the operation of the behind the meter generation was economic and that there was no barrier to using behind the meter generation to provide demand response in these cases because the failure to operate the behind the meter generation at a higher output

[112] Order 745A Docket RM10-17-001 December 15, 2011 p 26-27 paragraph 63.

[113] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, p. 30

> level during the hours when the baseline was set was inconsistent with the past practice (the "typical" or normal" practice) of these power consumers in operating their behind the meter generation when spot prices were at the levels that prevailed during the hours the baseline was set.

This is a long and slightly narrowed version of principle 3 that is suggested by some of the FERC comments and would not be as directly inconsistent with the asserted basis for Order 745. For example FERC noted in its Order Assessing Penalty that Lincoln did not simply not operate it's behind the meter generation at full output during the period in which the baseline was set but reduced its generation output by 3 megawatts relative to the output level in prior hours specifically during the hours in which the baseline was set.[114] Several other statements in the Order Assessing Penalties could be read to suggest that it was not just the possibility that it would have been profitable to operate the behind the meter generation at a higher output level during the hours in which the initial baseline was established that constituted fraud, it was the change in the way the behind the meter generation was operated during the period in which the initial baseline was set that lead to the determination that the behavior constituted fraud.[115]

For example, the Commission observed in the Lincoln order assessing civil penalties that;

> "Lincoln reduced its Westinghouse generator's operating level by approximately 3 MW from the level at which it otherwise would have operated given the prevailing fuel and energy prices and mill energy requirement. That departure from Lincoln's routine increased the amount of mill load served by energy from the grid and cost Lincoln approximately $10,000 over the five days in question. Curtailing the Westinghouse generator in those hours – and only in those hours – was uneconomic given Lincoln's ability and established practice of generating electricity from its Westinghouse generator at lower cost. Therefore, we find that it served no legitimate purpose."[116]

While this statement refers to the reduction being uneconomic, consistent with principle 3, it also refers to the reduced output being a change from the established practice. Hence, the reduced output during the hours in which the baseline was set could not be attributed to a barrier to demand response or to costs because the generation had operated at the higher level on prior days and even earlier during the same day on which the output was reduced during the hours used to establish the baseline.

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114 FERC Order Assessing Civil Penalty, 144 FERC ¶61,162 August 29, 2013 paragraph 16.
115 FERC Order Assessing Civil Penalty, 144 FERC ¶61,162 August 29, 2013 paragraph 23
116 FERC Order Assessing Civil Penalty, 144 FERC ¶61,162 August 29, 2013 paragraph 30

Similarly, the enforcement staff stated in the Rumford Reply:

> "Moreover, the sole effect of Rumford's participation in the DALRP load reduction program was to increase its load during the baseline period. Indeed, Rumford, in effect, argues that the DALRP required it to make an up-front $120,000 uneconomic purchase of energy to receive a monthly 'subsidy.' This is not a credible interpretation of any demand response program. Uneconomic behavior is often a sign of fraudulent or manipulative behavior. Here, the facts show that Rumford viewed the baseline period $120,000 uneconomic energy purchase and inflated baseline as a means to obtain much larger demand response payments." [117]

Essentially identical language appears in the enforcement staff reply in the Lincoln case.[118]

Along the same lines, FERC stated in the order assessing civil penalties that:

> "Staff does not allege that Rumford's offer, in isolation, violated section 1c2. Rather, Rumford's fraudulent scheme consisted of coupling minimum price offers with a fraudulently inflated baseline. The scheme, in its entirety, was fraudulent because it misrepresented Rumford's load and resulted in payments for phantom load reductions." [119]

Enforcement staff argued in the Lincoln case that "the baseline period should have been reflective of Lincoln's normal operations."[120]

Similarly, FERC stated that:

> "Even if resources facilitated by behind-the meter generation are eligible to receive demand response compensation under a particular tariff, that does not mean that an individual resource that is likely to use (or has used) its behind the meter generation regardless of whether it receives (or has received) compensation

[117] Reply of Enforcement Staff, Rumford Paper Company Docket No IN12-11-000, November 13, 2012 p. 8.
[118] Reply of Enforcement Staff, Lincoln Paper and Tissue Company Docket No IN12-10-000, November 13, 2012 p. 8.
[119] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, footnote 117 p. 27
[120] 144 FERC ¶61,162 Docket IN12-10, August 29, 2013 (Lincoln) p. 13

> may shut down the generator for purposes of establishing its baseline."[121]

One way to read this statement would be that it is fraudulent to shut down behind the meter generation during period in which the baseline is set. However, as noted above such an interpretation would be plainly inconsistent with FERC's policy that behind the meter generation can be used to provide demand response. Hence we think the statement is intended to refer to behavior in which the behind the meter generation is shutdown during the hours in which the baseline was being set while the normal practice would have been to operate the generation during these hours if its operation was economic.

However, what FERC intends by this statement is unclear. In particular, it is not clear what FERC intends by the statement "has used?" Does this mean that if behind the meter generation has ever been used in the past, even if only when spot prices were very high, or only in response to public appeals or outages, then it would be ineligible to be used to provide demand response? Again, we do not think this is what FERC means because FERC has also stated that demand response entails reducing consumption in response to price which necessarily means that the demand response is sometimes used to reduce consumption. [122]

A further complicating factor in understanding how FERC intends for power consumers such as Lincoln and Rumford that buy power at market prices to participate in demand response programs is that what is "routine" for these customers potentially depends on the spot price of power. There might be some price levels at which Lincoln and Rumford would buy power and higher price levels at which they would operate their behind the meter generation and reduce purchases of power from the grid.

If we are correct that principle four underlies the Commission and enforcement staff's actions in the Lincoln and Rumford cases, this principle appears to us to be consistent with other FERC policies. However, while we believe that principle 4 as we have stated it could be applied as a general standard for classifying conduct relating to the establishment of baselines as fraudulent, and appears to us to focus on behavior that is likely to entail inefficient conduct, such a principle would not eliminate all ambiguities in defining fraudulent conduct in establishing baselines.

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[121] 144 FERC ¶61,162 August 29, 2013 p. 20.

[122] "Demand response is a 'change [] in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity" See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, p. 4, citing U.S. Department of Energy, Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them: A Report to the United States Congress Pursuant to Section 1252 of the Energy Policy Act of 2005,"

One obvious potential ambiguity is the standard for deciding when the change in behavior during the hours in which the baseline is set so transparently inconsistent with past behavior that the change constitutes fraud as opposed to reflecting a reassessment of the circumstances in which it would be economic to operate the behind the meter generation or even a mistaken judgement by a manager or plant operator. Those ambiguities would perhaps have to be resolved with a review of intent. .

Another ambiguity is how such a standard for defining fraud would be applied to new generation. Suppose there is no prior history because the behind the meter generation is provided by a new unit. In that circumstance there would be no past behavior to look to in assessing whether behind the meter generation should be running or not when the baseline was set.

The enforcement staff could be viewed as taking the position in the Lincoln case that new generation (the TG3 unit) must be operating at full output when setting the baseline. It is hard to know what to make of this as enforcement staff's rationale is not explained. Would FERC and enforcement staff examine the economics of a new generator find it to be fraudulent if a power consumer built a new generator that FERC staff calculated had a short-run variable cost of $50 but did not operate it either during program or non-program hours unless the price exceeded $70, then bid in demand response at $70 once the baseline was established? Suppose that once the baseline was established and the power consumer would also be paid LMP for operating, would it be fraudulent if it bid in demand reductions at a price of $50?

It may be that enforcement staff's position on fraud relating to the TG3 unit was based on staff's assertion that the unit was more efficient than the Westinghouse unit, hence if it were normal practice to operate the Westinghouse unit at a spot price of $40 to $45 per megawatt hour, it would also have been normal practice to operate the TG3 unit at prices in this range, however there is no explicit discussion of the how the appropriate baseline for the TG3 unit should have been established, and some comments suggest that the baseline had to be set with the new unit operating, which read like a view based on principle one.[123] .

While this approach might make sense to enforcement staff from the standpoint of minimizing payments for demand response provided by behind the meter generation, the point of FERC's Order 745 is presumably to encourage demand response which would include providing incentives for new investments to support demand response. But Order 745 demand response programs would not provide any incentive to build new efficient

[123] FERC Enforcement Staff Report and Recommendation, Lincoln Paper and Tissue Company, July 17, 2012 Docket IN12-10-000 pp. 3, 17, 18. There is no apparent reference to the TG3 unit in enforcement staffs November 13, 2012 Reply.

behind the meter generation if it were fraudulent to set the baseline without the new behind the meter generation operating. Is this what FERC intended in Order 745?

The statements regarding the TG3 unit only reflect enforcement staff views, but FERC accepted enforcement staff's calculations of damages, which was based on this view of the TG3 unit.

If FERC and enforcement staff take the view that it is fraudulent not to operate a new behind the meter generation during the hours the baseline is set if the operation of the unit is economic, this would lead to a market in which if a power consumer installed an inefficient generation whose operation was rarely economic without a demand response subsidy it would receive the demand response subsidy in addition to the avoided cost of power purchases from operating the unit, while if the power consumer installed a more efficient generator whose operation was often economic, it would be fraudulent for the power consumer to receive the subsidy for the reduction in power consumption provided by the output of the more efficient unit. This could make installing an inefficient generator more profitable than installing an efficient generator. Is this the intent of FERC in Order 745?

Moreover, while principle four appears to us to provide a basis for an enforcement policy that is consistent with FERC policies, , we may or may not be correct in identifying the principle that actually underlies FERC and enforcement staff actions in these cases. We highlight below some of the conceptual issues in applying such a principle and review several implications of applying such a principle for defining fraud that deserve discussion and which bear on whether FERC and enforcement staff have in mind a different enforcement policy than that implied by principle 4. We do this by considering several hypotheticals with slightly different factual situations in there would be no fraud under the 4th principle as we articulate it, and consider whether FERC and enforcement staff may have a different view, setting up the discussion of principles five and six below.

Higher Cost Generation

The first hypothetical considers a case with slightly higher cost behind the meter generation. Suppose that the breakeven spot price for operation of the Rumford generation to be economic was $60 per megawatt hour at 85 megawatts output, instead of $40 to $45 per megawatt hour. It would then have been the case that it would sometimes have been economic to run the behind the meter generation to provide 85 megawatts of output during on peak program hours and sometimes it would not have been economic. Suppose the unit was historically operated in this manner, operating at 85 megawatts when the spot price was expected to be $60 or higher and dispatched down to 60 megawatts at other times.

Further suppose that the initial baseline was set over a period of 5 days when the generation ran at 65 megawatts on 2 days and Rumford bought power to cover the remainder of its load, while Rumford ramped the unit up to 85 megawatts output on the remaining 3 days and bought correspondingly less power.

Then suppose that over time the behind the meter generation was operated in the same manner as in the past and dispatched down when prices were below $60 and dispatched up to 85 megawatts when spot prices exceeded $60. During this initial period, Rumford's baseline would reflect average energy consumption of 77 megawatts (65 base plus 12). On each of the hours during which the spot price was expected to exceed $60 Rumford would dispatch its generating unit up to 85 megawatts and reduce its energy purchases to 65 megawatts, 12 megawatts less than the baseline.

In our view, and under principle 4 as we have articulated it, there would be no fraudulent conduct by the power consumer in this hypothetical. The power consumer would not have uneconomically reduced the output of its unit in order to inflate the baseline and the unit would have been operated under the program in exactly the same manner as it had in the past.

However, it is not clear whether FERC and enforcement staff would share the view that there would be not fraud in this conduct and outcome. In the hypothetical above, the power consumer continues to operate exactly the same as it did prior to participating in the demand response program, yet would be paid for 12 megawatts of demand response whenever it found it profitable to operate its behind the meter generation. Hence, the power consumer would be paid for nothing.

There are a number of comments in the various FERC orders and enforcement staff reports which we discuss under principle 6 which could signal a view that this conduct would be fraudulent because the power consumer would not be operating any differently than before, so consumers would be paying for nothing. We discuss why we view this outcome as the inevitable consequence of negawatt demand response design, rather than an outcome of fraudulent conduct, in our discussion of principle 6 below.

Now let us follow this hypothetical and the operation of the demand response design forward in time.

Under the ISO New England DALRP rules, the hours in which the behind the meter generation was dispatched to reduce net load under the program would be excluded in updating the base line. Hence, over time the updated baseline would include more and

more hours in which the behind the meter generation was uneconomic and did not run and the weight given to the original baseline hours in which the price was above $60 would become less and less, so over time the baseline would tend to rise from 77 megawatts to closer and closer to 85 megawatts. At this point the power consumer would be paid for close to 20 megawatts of demand response for operating its behind the meter generation in the same way it would have operated without the demand response payments. Should this outcome be viewed fraudulent because the rate payers who bear the cost of the demand response payments are paying for nothing?

In our view, and under principle 4 as we have articulated it, there would be no fraudulent conduct by the power consumer. The rise in the baseline would not be a result of any fraudulent conduct by the power buyer, it would simply reflect the intended operation of the ISO New England tariff specified mechanism for adjusting the baseline over time. As we discuss further under principle 5 below, it does not appear to us that there is even anything the power consumer could do to avoid this outcome. However, it is not clear whether FERC and enforcement staff would share this view. There are other comments in the various orders and reports which we discuss under principle 5 which could signal a view that this conduct would be fraudulent. We discuss why we view this outcome as the inevitable consequence of negawatt demand response design, rather than the result of fraudulent conduct under principle 5.

We can take the hypothetical a step further. If it were economic for the power consumer to operate its behind the meter generation at a spot price of $60 per megawatt absent the payments provided by the demand response program, then if it were paid the LMP price for the output of its behind the meter generation in addition to saving the purchase price of power, then it would be economic for the power consumer to operate its behind the meter generation at a spot price of $50, which we will assume for the purpose of this hypothetical is the bid floor under the program.

Hence, with the additional payment of the LMP price for running, it would be economic for the power consumer to run the behind the meter generation in hours in which it would otherwise not have been economic to operate the generation. At an LMP price of $50, the power consumer would receive a $50 payment for the output of its behind the meter generation in addition to avoiding the cost of purchasing power, so the net cost of generation would be $10 ($60 - $50), compared to the $50 cost of buying power at the LMP price. Hence it would be economic for the power consumer to submit bids to reduce load at the bid floor in every hour.

This extension of the hypothetical raises two further questions regarding what FERC and enforcement staff intend to define as fraudulent conduct.

First, in this hypothetical, if the power consumer began offering to curtail load by operating its behind the meter generation at the floor price of $50 and prices were generally above $50, the baseline would largely be frozen, an outcome that FERC and enforcement staff seemed to find fraudulent in the Rumford and Lincoln cases. There would be no fraud under principle 4, however, and in our view the outcome in which the power consumer bids in demand reductions at the bid floor in every hour reflects the intended operation of the program, not fraud. We discuss this further under principle 5.

Second, this hypothetical raises the question of whether it would be fraudulent for the power consumer to operate its behind the meter generation and earn additional profits in the hours in which the operation of the behind the meter generation would have been uneconomic absent the demand response payment. On the one hand, Order 745 appears to intend demand response payments to incent the uneconomic operation of generation in order to depress the short-term spot price of power, i.e. the billing unit effect.

On the other hand, enforcement staff have clearly articulated in other cases a standard that it is fraudulent to undertake transactions that would be uneconomic based on market prices alone in order to profit from subsidies and rebates. For example, enforcement staff has held that trades are fraudulent if they are executed "not in an attempt to profit from the relationship between the market fundamentals of supply and demand i.e., from the anticipated change in prices between the Day-Ahead and Real-Time markets – but rather to secure claims on MLSA and make a reliable profit by reducing price differentials to zero."[124].

There are a number of other statements in the up to congestion cases that appear to articulate a standard that it is fraudulent to undertake uneconomic transactions for the purpose of capturing non-market payments and rebates, [125] "There is no question that the sham UTC trades were uneconomic on their own merits."[126] "Respondents' round-trip UTC strategy was a manipulative scheme. It bears all the indicia of a manipulative scheme: The trades were uneconomic on their own merits: they were insulated from and undisciplined by market forces." [127]

[124] See Order to Show Cause and Notice of Proposed Penalty, Docket No. IN15-3-000 December 7, 2014 pp. 38-39.

[125] See Order to Show Cause and Notice of Proposed Penalty, Docket No. IN15-3-000 December 7, 2014, "The evidence shows that Chen executed round trip UTC trades only for the purpose of capturing MLSA," p. 40.

[126] See Order to Show Cause and Notice of Proposed Penalty, Docket No. IN15-3-000 December 7, 2014, p. 41

[127] See Order to Show Cause and Notice of Proposed Penalty, Docket No. IN15-3-000 December 7, 2014, p. 74

Similarly, the reply of enforcement staff in the up to congestion cases in Docket No. IN15-3-000 concluded: "Also notable is what Respondents do not say in their answers. They do not dispute that they executed offsetting trades for the purpose of collecting MLSA. They do not claim they would have done those trades absent the MLSA."[128] "They do not claim that they ever made money on price spreads with their round-trip trades" [129]

It appears to us that exactly the same logic would apply to a demand response participant that uneconomically operated its behind the meter generation in order to collect the demand response subsidy. So would this conduct be fraudulent, or is this conduct required to avoid the outcome in which rate payers are paying for nothing (i.e. paying a subsidy for conduct that results from market fundamental of supply and demand.

We anticipate that FERC would not consider provision of uneconomic demand response to be fraudulent because FERC "likes" the uneconomic transactions that would be made profitable by the additional payments provided by the demand response program whereas FERC does not "like" uneconomic UTC that were made profitable by the loss payments mandated by FERC in its loss allocation orders. But what FERC "likes" is not a sound basis for defining fraud and relying on FERC "likes" is very risky for market participants because those "likes" can change in a flash.

So while the current FERC might intend demand response payments to incent activities that would not otherwise be economic and might even find it to be fraudulent to receive demand response payments for demand reductions that would have been economic without the payments, might a future FERC follow the logic of the UTC cases and find it to be fraudulent if a power consumer were to operate its generation uneconomically in order to receive the demand response payments. How are we to know what this or future FERCs and enforcement staff might find to be fraudulent?

Updating Baseline Scenario

The next scenario concerns the opposite of the frozen baseline that concerned FERC and enforcement staff in the New England demand response enforcement cases, it concerns the outcome of paying for nothing when the baseline is updated. Suppose that power consumer has historically found it economic to operate its behind the meter generation at a price only slightly above $50, perhaps $53, and bids in demand reduction at this price after it joins the program. Further suppose that prices exceed $53 in all the hours in

[128] See Reply of Enforcement Staff, IN15-3-000 March 2, 2015 p. 4.
[129] See Reply of Enforcement Staff, IN15-3-000 March 2, 2015 p. 5.

which its initial baseline is set, so its initial baseline reflects the operation of its behind the meter generation.

Under the ISO New England rules for updating its baseline, the hours in which it cleared in the program would be excluded in updating its baseline, which would be almost all of the hours. However, now and then there would be an hour in which the price was in the range $50 to $52.99 and the bid would not clear and the behind the meter generation would not operate. The initial baseline would continue to impact the updated baseline for a long time if the behind the meter generation almost always operated, but now and then an hour in which the price was low and the behind the meter generation would enter the updated baseline, causing it to gradually rise towards the level of the net load when the behind the meter generation was not operating and the power consumer would be paid for an increasing amount of low reductions on the many days on which the operation of its behind the meter generation was economic. In this case the rising left of payments for nothing would not be due to frozen baselines but to the fact that the baseline was not frozen, but gradually updating.

This outcome would not be fraudulent under principle 4 because there would have been no change in bidding and it would not be fraudulent under principle 5 as the payments for nothing would not be due to a frozen baseline but rather due to the baseline not being frozen, but would FERC and enforcement staff agree? and if not, what would be the principle that would be used to establish fraud?

A variation on this hypothetical would be to suppose that the behind the meter generation occasionally suffered forced outages or had to be taken out of service for maintenance and the paper mill was able to continue operating, buying additional power from the grid. With the behind the meter generation not available, no demand reductions would be bid in and none would clear so these hours would flow into the baseline, raising it above the level that would prevail when the behind the meter generation was operating.

If the behind the power consumers bids always cleared in the market when the behind the meter generation was available, the baseline would over time come to reflect the level of power consumption when the behind the meter generation was not available, so the power consumer would be paid LMP for the output of its behind the meter generation when it was available. The power consumer would be paying for nothing, but would this be fraudulent if the ISO rules did not provide for hours in which the behind the meter generation was not available to be excluded in updating the baseline?

If the market rules, manuals or technical bulletins required consumption during hours when the behind the meter generation was not available to be excluded in updating the

baseline, then failing to inform the ISO of outages so the baseline would be inflated would be fraudulent. But the ISO New England market rules do not appear have called for the exclusion of such hours. [130] So would such an outcome in which rate payers paid for nothing reflect fraud, and if so why?

Order 745 Scenario

Another interesting hypothetical would be to suppose that Lincoln and Rumford were operating in post Order 745 PJM during 2014 where as noted above the highest net benefit test threshold was $34.93 and the program applied to all hours not just on peak hours as in the ISO New England DALPR program. Suppose Lincoln and Rumford had offered demand reductions into this program at $40 during all hours, including the hours used to set the initial baseline. If all of the on-peak hour prices exceeded $40 as they did in ISO New England during 2007 the on peak hour baselines would have reflected the operation of their behind the meter generation. However, their baselines in the off-peak hours would have been composed of a mixture of hours in which the price was less than $40 and more than $40. If they bid in their behind the meter generation at $40, they would be paid for demand response for the difference between their baseline reflecting some hours with low prices and some hours with high prices and their consumption when their behind the meter generation was running in all the hours in which they would have operated anyway.

As in the hypothetical above, since hours with prices over $40 would be excluded in updating the baseline, over time the hours included in the baseline would come to be more and more weighted towards hours with prices below $40 in which it would not have been economic to operate the behind the meter generation, so the power consumers would come to be paid for reducing their consumption relative to the low priced hours in which the operation of their behind the meter generation would not have been economic.

It does not appear to us that there would be anything fraudulent about this conduct, it would simply be the presumably intended operation of Order 745. Would this be the view of FERC and enforcement staff?

Our conclusion is that while principle four might underlie the FERC and enforcement staff finding of fraud it is not clear that this is the case. Moreover, the application of this principle would not eliminate the problem of rate payers paying for nothing under economic demand response programs and would permit outcomes very similar to those in

[130] Section 4.2, calculation of customer baseline, of the ISO New England, June 1, 2005 Load Response Manual does not contain any provisions for excluding atypical hours in updating the baseline nor do any such provisions appear to be present elsewhere in the manual.

the Lincoln and Rumford cases without labelling any conduct as fraudulent. Perhaps therefore, FERC and enforcement staff do not base their findings of fraud on this principle but on the broader principles 5 and 6 that we discuss below.

In our view, however, the issues with payments for nothing to demand response providers in these hypotheticals do not arise from fraud and attempting to address them with enforcement actions based on increasingly broad definitions of fraud would not be very effective and would have more and more unintended consequences as the definition of fraud becomes broader and broader.

In our view, clarifications or changes to the market rules would be a more effective and direct method of addressing the source of some of these payments for nothing than enforcement actions based on fraud. But it also appears to us that much of these potential payments for nothing are unavoidable when paying LMP for reductions in consumption by power consumers that buy power at market prices. Hence we think that avoiding outcomes in which rate payers mostly pay for nothing requires fundamental changes in Order 745 demand response programs.

5. It was fraudulent to submit bids at the bid floor because when those offers cleared, those hours would be excluded from the rolling baseline, perpetuating the existing baseline.

There are a number of statements by FERC and enforcement staff that appear to articulate such a principle. For example, enforcement staff stated that Lincoln "perpetuated its inflated customer baseline by knowingly and fraudulently exploiting a DALRP provision that prevented a customer's baseline from adjusting on days when ISO-NE accepted its offer to provide demand response." [131]

Similarly, FERC noted in discussing scienter in the Lincoln penalty order that staff says "Lincoln further submitted load reduction offers at the minimum values to perpetuate its inflated customer baseline." [132] FERC further explained in discussing its determination regarding scienter in the Lincoln Order assessing civil penalty

> "We find that Lincoln's submission of continuous minimum $50 demand response offers is further evidence that Lincoln intended to enter into a fraudulent scheme that would prevent or delay changes to its customer baseline in order to continue to receive payments for non-existent demand response. Lincoln twice sought confirmation from Constellation that cleared daily offers

[131] See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 32

[132] See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 45.

> into the DALRP would freeze its customer baseline. We are unpersuaded by Lincoln's argument that it submitted its $50/MWh offers solely because it wanted its bids to clear. Having found that Lincoln first intentionally inflated its customer baseline, Lincoln would next have had to submit minimum offers to prevent that customer baseline from adjusting to ensure it continued to receive fraudulent DALRP payments. Lincoln's argument that its customer baseline did adjust on multiple occasions during its participation does not alter our conclusion that Lincoln acted with fraudulent intent. Lincoln's customer baseline changed because a small number of its offers were mistakenly submitted improperly and failed to clear. Had they cleared, as we believe Lincoln intended, they would have prevented the customer baseline from adjusting." [133]

Similarly, enforcement staff observed in the Rumford show cause report that "Rumford decided to curtail its generation during the baseline period and to offer energy into the market every day to ensure that its baseline did not change. While ISO-NE's tariff did not explicitly prohibit such actions, tariffs cannot explicitly prohibit all fraudulent actions that market participants may undertake." [134] Enforcement staff further explained their view in a footnote, stating that "Rumford's fraudulent scheme consisted of coupling minimum price offers with a fraudulently inflated baseline. The scheme, in its entirety, was fraudulent because it misrepresented Rumford's load and resulted in payments for phantom load reduction." [135] One way to read these statements would be that it was the inflated baseline that was fraudulent, which would be in accord with principle 4 above. But what then are we to make of the statement that the fraudulent scheme involved the bids at the bid floor. Why would such bids have been fraudulent if the break even point for the behind the meter generation was less than $50 as enforcement staff state? Perhaps what enforcement staff mean to be articulating is that the impact of the initial inflated baseline persisted, which increased the impact of the initial fraudulent act, but the persistence was still due to the intended operation of the ISO New England DALRP program.

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[133] See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 48.

[134] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000,pp. 26-27 Exactly the same statement appears in the Lincoln report, pp 21-22

[135] See FERC Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 Docket IN12-11-000, footnote 117 p. 27 The same comment appears in footnote 100 of the Lincoln report.

An enforcement policy based on this principle would appear to us to find that the normal operation of the DALRP design was fraudulent. The exclusion of hours in which a power consumer's bids clear in the market from the calculation of the baseline is not something the power consumer contrives to have happen, it is an intended feature of DALRP program. Moreover, we do not see any suggestion in the various FERC orders or enforcement staff reports of what Lincoln or Rumford should have done differently in order to avoid perpetuating the original baseline given the design of the ISO New England DALRP program. The suggestion that Lincoln knew "there was a high likelihood they would clear each day so that its customer baseline would not adjust" does not appear to us to identify any fraudulent action, it merely describes the intended operation of the DALRP program. [136]

As FERC itself noted, the DALRP process for calculating a customer baseline "required no customer action other than to operate the customer's facilities as it routinely would." [137] It is relevant in identifying an incentive to inflate the initial baseline to explain how that inflated baseline would be perpetuated by the design of the ISO New England DALRP program, and many other demand response programs, but it would be the inflation of the initial baseline that was potentially fraudulent, not the operation of the ISO New England rules for updating the baseline over time. [138]

This method of updating the baseline is what the ISO New England DALRP program called for, so if FERC or ISO New England did not like the outcomes from this design, the appropriate action would be to change the design, not to claim that the operation of the design resulted in fraudulent behavior. If ISO New England did not want to exclude hours in which the demand response program was triggered from the hours used to update the baseline, it could have implemented rules that did not exclude these hours. In fact there is reason to draft the rules for updating demand response baselines to exclude program hours as ISO New England did, particularly in establishing baselines for demand response used to support reliability, so that the incentive to respond does not disappear over a multi-day heat or cold wave.

If as FERC and enforcement staff argue it was economic for Lincoln and Rumford to operate their behind the meter generation during the program hours based on avoiding the cost of purchased power (G), then it was certainly economic for them to operate their behind the meter generation if they avoided the retail rate (G) and were also paid LMP

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136 See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 32.

137 See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 34.

138 As discussed above baselines were not completely frozen, Lincoln's baseline is stated to have changed 9 times, gradually rising over time, but because of the way ISO New England updated the baseline, the baseline continued to be materially impacted by its initial value. See Order Assessing Civil Penalty, 144 FERC ¶61,162 at paragraph 41.

for the reduction in net consumption equal to their generation output. In bidding into the program and clearing, Rumford and Lincoln would cause ISO New England to exclude those hours of reduced net consumption in which they cleared in the program from the calculation of their rolling baseline. But what else were power consumers to do if they participated in the DALRP program?

It still seems to us that the concern with the baseline in these cases is whether the initial baseline was inflated, not whether the design of the ISO New England demand response program tends to perpetuate the baseline of power consumers when they are dispatched in the DALRP program.

Let us return to the hypothetical we discussed in the context of principle 4 in which behind the meter generation is bid and operated in a manner consistent with past behavior in setting the initial baseline, and additional demand response payments cause the power consumer to consistently bid its demand response into the market at the bid floor, leading to a "frozen baseline" and to the power consumer receiving demand response payments in many hours for operating its behind the meter generation at prices at which it would have been economic to operate the generation absent the demand response payment.

In our view there would be no fraudulent behavior under principle 4 as articulated above and we do not believe that there is a basis for asserting that the intended operation of the ISO New England DALRP program in updating baselines would cause that behavior to become fraudulent. This is our view but it is not clear from these cases that it is the view of FERC and enforcement staff.

Another implication of the ISO New England design for updating baselines (and the rules of most other ISOs rules for excluding program hours when updating baselines) is that the lower the bid floor for the demand response program, the lower will be the LMP price in the hours in the which the demand response would not be activated, so that absent any fraudulent behavior, the baseline would come over time to reflect normal net power consumption during these very low priced hours, not the normal consumption during the higher priced hours in which the power consumer reduces its net load pursuant to the rules of the demand response program.

When ISO New England raised the bid floor for the DALRP program in February 2008 as discussed in section IIB, not only did this change limit the hours in which rate payers would pay for reductions in consumption to reductions in consumption during higher priced hours, it also reduced the potential for baseline consumption to be set by normal consumption during hours in which LMP prices were very low.

FERC's order 745 and related orders on ISO compliance filings, however, would have the effect of greatly reducing, if not eliminating bid floors, dramatically increasing the potential for frozen baselines, baselines that would reflect consumption during very low

priced hours, baselines that would entail larger payments for nothing by rate payers than under the pre Order 745 demand response programs. Contrast the 2014 post Order 745 net benefit thresholds in PJM ranging from $30 to $35 and demand response being activated during upwards of 90% of all hours, not just on peak hours, with the ISO New England bid floor established in 2008 that was tied to the price of fuel or the PJM or New York ISO $75 bid floor.

In our view, these enforcement cases do not, and realistically cannot, do anything to address the potential for greatly expanded payments for nothing under Order 745 compliant demand response programs due to frozen baselines and bid floors that are greatly reduced if not eliminated.

6. It was fraudulent to collect these demand response payments without regard to how the baseline was set because it would have been economic for Lincoln and Rumford to operate the behind the meter generation during the program hours and Lincoln and Rumford would have done so without receiving the demand response payment, that is, it was fraudulent to cause rate payers to pay for nothing.

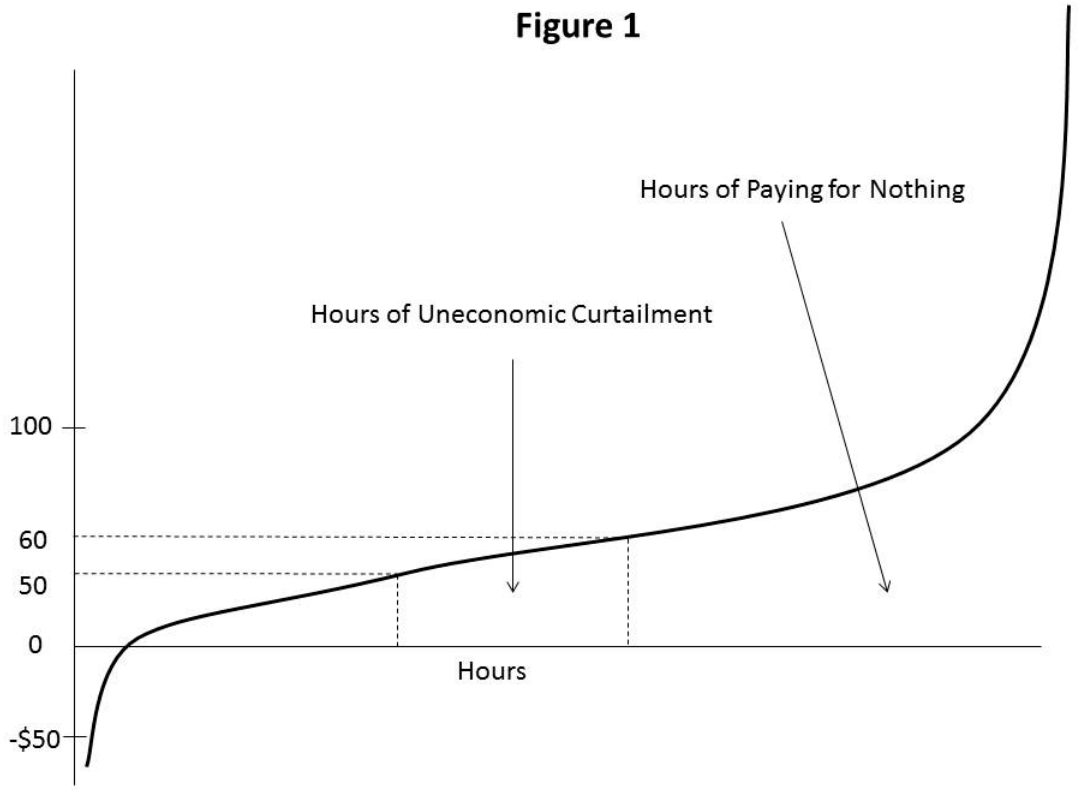
This principle would go beyond principle 4, which was limited in its application to changes in the operation of the behind the meter generation to inflate the baseline. This Principle would apply whenever a power consumer was paid for reductions in power consumption that would have occurred absent the demand response payment.

Consider the hypothetical we discussed under principle 4 of a power consumer with behind the meter generation having a breakeven point of $60, bid in to the ISO New England DALPR program at $60 per megawatt hour, was dispatched and paid for its load reduction relative to its baseline during many of the same hours in which it would have operated its behind the meter generation absent the payment, e.g. all the hours in which the LMP price was $60 or above.

This outcome is illustrated in Figure 1 which shows a hypothetical price duration curve. The region labeled uneconomic reductions in consumption shows the hours in which the LMP price is between $50 and $60 and the demand response subsidy results in uneconomic reductions in consumption, that is reductions in consumption that would not have occurred without the subsidy. The region with higher prices on the right labeled "hours of paying for nothing," portrays the hours with prices above $60 during which consumption would have been reduced because of the high price without the subsidy. The magnitude of the payments for nothing depend in part on the number of hours in which it would have been economic to operate the behind the meter generation absent the demand response subsidy, but would also be impacted by the fact that prices are higher, and hence if power consumer are paid LMP for power they do not consume, payments for

nothing would be higher, in the hours in which consumption would have been reduced because of the high prices alone.

Figure 1



Moreover, the baseline of this consumer would over time come to reflect the level of its power purchases in the hours in which prices were less than $60, which would be hours in which it would not be operating its behind the meter generation.

Enforcement Staff stated in the Rumford report in finding that Rumford's conduct was fraudulent that:

> "These communications were false because, as Rumford understood, Rumford was not reducing load and did not intend to reduce load as a result of its DALRP participation." [139]

It is not clear that FERC and enforcement staff has embraced such a principle, but enforcement staff stated in the Rumford report in discussing scienter:

[139] See Reply of Enforcement Staff, Docket IN12-11-000, Nov 13, 2012 p.7.

> "Rumford knowingly adopted and participated in a scheme that established an inflated DALRP baseline. Rumford knew it would be compensated for doing nothing, i.e. that it would not actually reduce any load when it participated in the DALRP. Instead, Rumford would be paid for phantom load reductions without any appreciable change in the mill's operations. Rumford understood it would neither increase generation nor decrease electricity consumption as part of Rumford's participation. In sum, Rumford knowingly participated in a scheme with the intent to defaur ISO-NE by getting DALRP payments to which it was not entitled."

This statement refers in the first sentence to inflated baselines, which would be consistent with enforcement staff applying principle 4, but the statement also refers more generally to the demand response provider being paid for nothing. This statement could be read to be limited to the potential for being paid for nothing as a consequence of an inflated baseline, but that it is also possible that enforcement staff had a broader principle in mind.

In the Enforcement's Staff's reply in the Rumford case, enforcement staff explained in discussing the asserted fraud that:

> "Rumford always understood that load response programs generally, and the DALRP program in particular, are programs that benefit consumers by reducing demand. For example, Rumford understood that one of the purchases of the DALRP was to reduce demand so that fewer generators would need to be constructed in New England. These goals could not be met if Rumford and other program participants did not actually reduce consumption after enrolling in the DALRP." [140]

One could again read this statement as being limited to the context of a power consumer that provides demand response without reducing its power consumption because the baseline is fraudulently inflated, but it is also possible that enforcement staff is referring more broadly to outcomes in which consumption is reduced, but consumption would have been reduced absent the demand response program.. The enforcement staff

[140] See Reply of Enforcement Staff, Docket IN12-11-000, Nov 13, 2012 p.7. it also stated in this reply(p. 5) that "the argument that the DALRP was a pure subsidy was incorrect. ISO-NE pays only for products that provide a benefit."

statement is also confusing because reductions in power demand during hours when prices are at low levels do not reduce the need for capacity in New England. Only a program that reduced consumption during high load reserve shortage hours would reduce the need for capacity and the DALRP program was not a reliability demand response program aimed at peak hours.

While avoiding the outcome in which rate payers pay LMP for reductions in power consumption that would have occurred anyway makes sense from a public policy standpoint, we explained above in our discussion of principle 4 that paying for nothing is intrinsic in the design of the ISO New England DALRP, and every other demand response program we are familiar with when applied to consumers that buy power at market prices.

It is inevitable that negawatt demand response programs of the type mandated by Order 745 that pay for reductions in power consumption relative to a baseline will sometimes cause power consumers that buy power at the market price, and adjust their consumption in response to that price, to be paid for reducing consumption that they would have reduced anyway in response to the level of spot prices. All of these programs pay for reductions in consumption when the market price rises above the bid prices submitted by the power consumer. None of these programs have provisions for the consumer to submit another higher price at which no payment should be made because the power consumer would have reduced its power consumption without receiving the demand response payment. Achieving a different outcome in which power consumers that adjust their consumption in response to spot power prices are only compensated for demand reductions that would not be economic without the demand response payment would require fundamental changes in the design of these demand response programs.

So what does Enforcement Staff mean by the concerns in these statements about paying for nothing? Does enforcement staff intend to simply be referring to payments for nothing due to inflated baselines as under principle 4, or do they have more than this in mind? Would enforcement staff construe it to be an act of fraud each time a power consumer receives payment for reducing power consumption if the power consumer would have reduced consumption without the payment because of the level of power prices? Or does enforcement staff mean that it is only fraud if a power consumer receives the demand response payments and never ever reduces its power consumption because of the payments received by the program? Or are these statements just a little unclear and the asserted fraud relates only to inflated baselines as discussed under principle 4.

One way of reading the various FERC and enforcement staff statements is that they only relate to the circumstance in which the power consumer is paid for nothing as a result of

an inflated baseline. If this is the case, fraud would be identified by principle 4 and although there would be possible gray areas when the power consumer is responding to changes in market conditions, it would be possible to avoid engaging in what would be termed fraudulent conduct without changes in the design of demand response programs. Second, it is possible that the FERC and enforcement staff statements reflect a view that it would be fraudulent if the power consumer only operated its behind the meter generation during the hours in which it would have been economic to operate the generation without the demand response payment so the rate payers who bear the cost of the program would be paying for nothing, but FERC and enforcement staff would not find it to be fraudulent if the behind the meter generation operated uneconomically in at least some hours as a result of the demand response payments.

If this is what FERC and enforcement staff intend, power consumers participating in Order 745 type demand response programs would need to bid in a manner that responds to the incentive provided by the demand response payment to operate behind the meter generation when its operation would not be profitable based on market fundamentals of supply and demand. Under this standard rate payers would be paying for nothing in many hours but not in all hours. This standard would not be costly for power consumers to comply with since the demand response subsidy would make the operation of the behind the meter generation profitable at times when its operation would not be profitable based on market fundamentals of supply and demand and power consumers could bid in this way without changes in the structure of demand response programs.

A third possible reading of these FERC and enforcement staff pronouncements is that it would be fraudulent to collect demand response payments for operating in any hours in which operation would have been economic absent the demand response payments, even if the behind the meter generation also operates in some hours in which its operation would not have been economic without the demand response subsidy; even its operation during the hours in which the baseline is set was consistent with its historical behavior.

This reading is the most extreme as it would require that the power consumer only receive the demand response payment when the payment would cause the power consumer to operate in a manner inconsistent with the market fundamentals of supply and demand. It seems to us that this reading is inconsistent with the design of current demand response programs which do not provide a power consumer a way in which to bid so that it is only compensated if its operation is uneconomic based on and the fundamentals of supply and demand. For this reason we do not believe this is a sustainable criterion for defining fraud as the current market designs do not provide a mechanism for power consumers to comply with it. It appears to us that a standard that cannot be satisfied by

the power consumer without changes in the market rules and software cannot be used to define fraudulent behavior.

Finally, we note the conflict between the second and third readings of the FERC and enforcement staff comments which require that power consumers at least at times operate in a manner that would not be profitable based on market fundamentals of supply and demand and the up to congestion case pronouncements that forbid such behavior.

The application of this principle to define fraud would also be inconsistent with the design of any Order 745 compliant demand response design for power consumers paying a time varying rate for power. For consumers paying a price based on the day-ahead or real-time spot prices, there would be some low price level at which it would not be economic to reduce demand without the incentives provided by the demand response payment, and higher LMP prices at which it would be economic to reduce power consumption without the demand response payment. Demand response providers are to be paid LMP when their offers clear in the market. There was no mention in order 745 that demand response providers would only be paid LMP if the demand response would not otherwise have been economic. There is not even any framework for evaluating the economics of providing demand response in any Order 745 design. Moreover, none of the Order 745 designs approved by FERC provide for demand response providers to only be paid LMP for demand response up to a price cap at which demand response would be economic without the payment.

Hence, such a standard for fraud would mean that there is a major unstated element of Order 745, that there is an additional test for demand response eligibility to receive payments that it must be shown that there is a barrier to the provision of demand response without the additional subsidy.

7. It was fraudulent for power consumers that buy power at the wholesale spot price to collect economic demand response payments.

There does not appear to be any statement by FERC or enforcement staff in these cases that explicitly articulates such a principle. Moreover, FERC and enforcement staff do not appear to us in the Lincoln or Rumford cases to even focus on the fact that these companies bought power at spot market prices (although it was implicit in the discussion of the circumstances in which Rumford dispatched its generation up or down). Nevertheless we have included this principle in the list because the underlying reason for features of these cases that FERC and enforcement staff appear to dislike, such as rate payers paying for nothing and frozen baselines, arise because these power consumers have the ability to adjust their power consumption in response to market prices.

The application of such a principle would make a certain amount of economic sense since none of the barriers to the use of demand response asserted in Order 745 exist for a demand response resource that buys power at the wholesale spot market price. Moreover, there is no inefficiency in its response to LMP prices. The barrier to entry rationale for order 745 presumes demand response resource do not pay the LMP price for power. In retail access states, however, the demand response resource may pay the LMP price and therefore responds to LMP prices without the need for additional subsidies.

This cannot be the principle underlying the finding of fraud, however because there was nothing in the rules for the ISO New England DALRP program suggesting such a restriction. Moreover, the Commission did not include any such exclusion in its 745 orders. Failing to comply with an unstated rule cannot be fraudulent. This is not a matter of whether the tariff forbids particular behavior, this is a question of whether there can be a test of eligibility for payments that is never stated yet failure to comply with it can be fraudulent. We think not. It is particularly implausible that there could be such an unstated rule when there are many different pricing arrangements for retail customers that might or might not be covered by such a rule.

There may be other principles that underlie the FERC and enforcement policy towards defining fraud. There are possible principles we at times thought we read between the lines in these orders but then decided were covered by the seven possible principles we ended up with.

The conclusion from this long review is that there is one principle that might underlie the finding of fraud in these orders that appears to be consistent with FERC policy, the facts of the cases and the design of demand response programs, but it is not certain this is the principle FERC and enforcement staff have in mind. Conversely, all of the other principles suggested by FERC and enforcement staff statements in these cases are either clearly inconsistent with other FERC policies, inconsistent with the facts of the cases, or inconsistent with the design of demand response programs.

IV. Market Manipulation and Order 745

A. Retail Access, Spot Prices and LMP-G

In our view the Lincoln and Rumford cases and the hypotheticals we introduced in discussing principles 4, 5 and 6 highlight the potential for negawatt demand response programs such as those required by Order 745 to cause consumers to “pay for nothing” in

competitive retail power markets, even absent any manipulative or fraudulent conduct by demand response providers. Although not emphasized by enforcement staff or the Commission in the various public documents, both of these companies were buying power from a competitive retail supplier at market prices, not at the regulated retail rate of a traditional utility. At least one of these companies and perhaps both were buying power from the grid when power prices were low and it was uneconomic to operate the behind the meter generation at a higher output level. If these entities were responding to the LMP price, the behind the meter generator operating when it was economic, and buying power from the grid when it's operation was not economic, there is no market failure, no barrier to demand response.

Moreover, while the public documents relating to the Lincoln and Rumford cases suggest that those companies inflated their baselines by changing the way they operated their behind the meter generation during the hours used to set their initial program baseline and incurred additional costs in order to inflate their baselines, we explained above in discussing principle 4 that had the behind the meter generation of these firms been a little higher cost, they would have sometimes found it economic to buy power during the hours used to set their baseline and would sometimes have found it economic to operate their behind the meter generation at a higher output level and reduce purchases of power from the grid.

With this slightly different cost structure, the normal operation of most demand response programs, including the ISO New England DALRP program, would cause periods in which operation of the behind the meter generation was economic to be excluded in updating the baseline, and over time the baseline would come over time to only reflect the level of power consumption when it was not economic to operate the behind the meter generation.

Hence, as explained in the discussion of principles 4 and 6 above, such a power consumer would therefore come over time to be paid LMP for operating its behind the meter generation when it was economic to do so based on spot prices, just as it had operated the generation when it was economic prior to participation in the demand response program and without receiving the demand response program subsidy.

In addition, as discussed in the context of principles 4 and 6 the power consumer would be incented by the demand response program to also operate its behind the meter generation in hours in which its operation would not be economic based on spot prices alone. In our view, there would be no fraud or manipulation entailed in this outcome, it would simply be the normal, and we think intended, operation of the demand response program rules for power consumers paying spot market prices for power. The outcomes

would be inefficient, but it is our perception that FERC intends the outcome of the demand response programs required by Order 745 to be inefficient.

While we have explained above that we do not believe that there is any basis for asserting that power consumers buying power at spot market prices were excluded from participation in the ISO New England DALRP program, a fundamental feature of the hypotheticals we discussed in the context of principles 4, 5 and 6 was that the power consumer was purchasing power at price related to the spot price and adjusting its power consumption in response to spot prices. One could imagine an ISO addressing the potential for rsate payers to pay for nothing in its demand response programs by seeking FERC permission to exclude power consumers buying power at market prices from participation in ISO demand response programs that pay LMP for reductions in power consumption. Indeed, operation of the LMP – G formulation for compensating demand response customers would tend to have that effect. If the retail rate G is the LMP price, then LMP – G becomes LMP – LMP and there would be no extra payments for reducing consumption.

It appears to us that there would be three issues with a demand response design that excluded payments to power consumers buying power at market prices. First, such an exclusion could have the perverse effect of deterring industrial and commercial customers from enrolling in programs in which they would buy power at market prices. Instead, those able to benefit from these types of demand response programs would have an incentive to seek to remain under pricing options that allowed them to benefit from being paid for reducing consumption under negawatt based demand response programs. Under the demand response cost allocation designs required by the Commission, such an exclusion would also tend to discourage utilities from offering real-time pricing options because a utility implementing such programs would continue to have the demand response costs of other utilities allocated to its customers while its customers would pay spot market prices and not be eligible to receive these demand response payments.

Second and related, there are many variations in how retail prices are related to whole market prices that defining some pricing designs as market based and not eligible for negawatt payments while defining slightly different designs as eligible would also be likely to have unintended effects.

Third, such an exclusion would potentially forgo some of the uneconomic (absent the additional demand response payment) reductions in power consumption that the Commission sought to incent under Order 745 in order to achieve the billing unit effect.

The first two issues could be addressed by 1) paying LMP-G for demand response; 2) allocating the cost of demand response payments (i.e. LMP-G) to the load serving entity of the power consumer providing the demand response; 3) providing for G to be specified by the load serving entity, and 4) allowing the load serving entity (and its regulators) to determine the eligibility of the power consumers to participate in the demand response program.

Such a set of rules would be flexible enough to provide efficient incentives for retail customers buying at market prices from a competitive retailer, for retail customers buying at fixed prices from a POLR provider, and for retail customers buying power at regulated prices from a traditional public or investor owned utility.

Consider first the application of such a design to power consumers buying power at market prices. If the power consumer buys power at the LMP price, then LMP-G =0 and there would be no payment for reductions in consumption. If the price in the retail contract was not based on the LMP price, then the design would provide an incentive for reductions in consumption whenever the LMP price exceeded the contract price and the cost of these payments would be allocated to the load serving entity which had failed to provide efficient incentives for reducing consumption in its contract.

Second, consider the case of residential and small commercial consumers served by POLR providers. In this case the power consumers would generally pay a fixed retail rate G which is not tied to the LMP price. In this case, the power consumers would not have an efficient incentive to reduce consumption of power when the LMP price exceeds the retail rate (LMP>G). In this situation, paying LMP – G for reductions in power consumption by the retail power consumers would improve economic efficiency. This payment to consumers who reduce load would reduce the load met by the POLR provider which would be a private benefit. For this reason, under this design any demand response payments to the customers of the POLR provider would be allocated to the POLR provider, not allocated to other load serving entities and the cost would not be borne by other rate payers.

Moreover, if the POLR provider concluded that the demand response program was badly run or badly designed and entailed an undue amount of paying for nothing, the POLR provider should be able to decline to have its customers participate in the demand response program, so that the POLR provider could thereby avoid bearing the costs of paying for nothing.

A third category of load serving entities would be traditional vertically integrated utilities, either public or investor owned utilities. These utilities might be able to reduce

their rates by providing incentives for their customers to reduce consumption when the LMP is greater than the retail rate. Again, participation of these customers in the ISO coordinated demand response program would be up to the vertically integrated utility and its regulators. They might conclude that their goals could be better achieved through a non-FERC jurisdictional demand response program and not allow their retail customers to participate in the ISO coordinated demand response program. Or they might conclude that participation in the ISO demand response program is more cost effective than operating a utility program. Or they might conclude that participation in the ISO coordinated program entail an undue amount of paying for nothing or excessive administrative costs and decline to participate. In any of these circumstances there is no reason to allocate the costs of the demand response payments received by the utility's retail customers to anyone other than the load serving entity whose customers participate in the program.

This logic applies to municipal and other public utilities as well as investor owned utilities. If the public utilities find the ISO demand respond program cost effective, they should be able to participate, and payments to their customers and a share of ISO administration costs for the demand response program should be allocated to them and if they do not choose to participate, they would not bear the costs of payments to the retail customers of other utilities.

Such a design based on paying LMP-G, assigning demand response costs to the load serving entity of the participating customers, and allowing load serving entity and its regulators to determine whether or not to participate in the ISOs demand response program would also resolve the legal issues that concerned the 2nd Circuit because all of these designs would be approved by the appropriate regulatory entity, the state regulator or the town in the case of municipal utilities.

This leaves the Commission's goal of using demand response under Order 745 to incent uneconomic reductions in power consumption in order to suppress the short-run spot price of power as the rationale for not allocating demand response costs to the customer's load serving entity.

B. Billing Unit Effect

FERC's assertion in Order 745 that there is an externality that warrants allocating demand response costs to someone other than the load serving entity of the power consumer providing the demand response rests on the premise that all customers, not

merely the demand response customers load serving entity, "benefit from the lower prices produced by dispatching demand response." [141]

FERC's rationale in Order 745 for paying LMP to power consumers that provide economic demand response by reducing their power consumption relative to a baseline, whether supported by behind the meter generation or reductions in power consumption, comes down to the asserted billing unit effect. The billing unit effect and associated net benefits test proposed by FERC in Order 745 is the condition for uneconomic supply of demand response to, at the margin, increase the total cost of meeting load but to at the margin reduce the charges paid by power consumers to meet load. As a number of commenters pointed out it is closely related to the condition for a monopolistic buyer to reduce the amount if pays by making uneconomic purchases.[142]

There are three reasons the billing unit effect as measured by the net benefits test does not provide a sound rationale for paying power consumers the LMP price for power they do not either purchase or consume. One of these errors, #3 below, is particularly noteworthy as it is closely related to the issues in the New England demand response cases.

1) FERC failed to recognize that the applicability of the billing unit effect and net benefits test is not limited to uneconomic demand response. The net benefits test is a criteria for cost effective suppression of market prices. There is nothing special about price suppression provided by uneconomic demand response from the standpoint of the billing unit effect. The price suppression could equally well be provided by uneconomic generating capacity or pricing rules that depressed the market clearing price. Hence, if price suppression were an appropriate policy goal, FERC failed to explain in Order 745 why this policy goal needed to be achieved through payments for uneconomic demand response rather than through uneconomic unit commitment and/or dispatch, for example. In addition, FERC failed to explain the fundamental inconsistency between FERC's findings in Order 745 that price suppression motivated by the billing unit effect is an appropriate policy goal and FERC's policy towards price suppression when price suppression is due to factors other than demand response.

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141 See Order 745 Docket 134 FERC ¶ 61,187, RM10-17-000 March 15, 2011 paragraphs 100-102.

142 See Order 745 Docket 134 FERC ¶ 61,187, RM10-17-000 March 15, 2011 paragraph 65

2) The net benefit test specified by FERC grossly overstates even the short-run pecuniary benefits to rate payers from price suppression because it fails to take account of the basic structural features of the electric system in the many states, municipalities and other public power entities that set electric rates for most power consumers based on costs rather than spot market prices and hence for whom there is no billing unit effect benefit from price suppression.

3) The net benefit test as described by the Commission understates the cost of the demand response required to elicit the price suppression benefit, perhaps substantially, because the calculation only takes account of the cost of payments at the margin for the uneconomic demand reductions that depress prices, and fails to take account of the payments for the demand reductions that are paid LMP but would have occurred absent the demand response payment and there is no incremental price suppression from paying LMP to power consumers for reductions in load that would have occurred without the payment. Yet as discussed in the context of principles 4, 5 and 6, not only is this paying for nothing intrinsic to Order 745 demand response programs, but Order 745 removes the mechanisms the various ISOs have established to limit the extent to economic demand response programs require ratepayers to pay for nothing. Hence, the net benefit test does not correctly calculate net benefits even if its premise were accepted.

Each of these issues is discussed further below.

Price Suppression and Demand Response

The crux of the billing unit effect rationale for paying LMP for demand response in order to elicit uneconomic reductions in power consumption is that by dispatching demand response that is uneconomic based on market prices (hence requiring the additional demand response payment to induce the reduction in power consumption), the ISO operator would depress the clearing price for energy sold in the spot market, and thereby benefit rate payers by reducing the spot price at which they purchase power. The Commission asserted in Order 745 that the price suppression impacts measured by the net benefits test warranted paying LMP to demand response for reductions in power consumption, in addition to the cost savings to the power consumer from not purchasing the power that it does not consume, and these price suppression impacts provide the basis

for the Commission's allocation of the costs associated with economic demand response to all load, rather than to the load serving entity serving the curtailed load.[143]

However, the Commission failed to recognize anywhere in the discussion of the billing unit effect that there is nothing special about demand response from the standpoint of price suppression. The Commission's price suppression goal could also be achieved by committing generation out of merit at minimum load or dispatching high cost generation up out of merit, and the net benefits test could also be applied to measure cost effective price suppression carried out through this uneconomic commitment or dispatch of generating units. The units committed or dispatched out of merit would be paid uplift costs that would raise the total cost of meeting load, just as would uneconomic reductions in power consumption, and would similarly depress the clearing price.

This omission is noteworthy in two respects. First, if price suppression is the policy goal served by Order 745, as opposed to simply benefitting favored market participants, then the Commission failed to explain in the order why the out of market payments used to induce price suppression should be limited to demand response. Why shouldn't system operators suppress spot market prices by committing high cost generation out of merit, paying uplift costs (analogous to the payments for uneconomic reductions in power consumption that must be recovered in uplift charges), or by dispatching high cost generation up out of merit, and thereby suppress clearing prices in the spot market. Thus, if the goal of price suppression were accepted as an appropriate policy goal, FERC fails to explain in Order 745 why achieving this goal entails a narrow focus on demand response.

The other noteworthy feature of this omission is that the Commission also failed to address the inconsistency between the price suppression rationale it articulates for subsidizing uneconomic demand response in order 745 and the concerns the Commission has expressed in a variety of dockets regarding the need to avoid price suppression in order to send an efficient price signal. These concerns avoiding price suppression in order to send an efficient price signal are fundamentally inconsistent with the price suppression goal of the net benefits criteria that the Commission asserts in justifying payments for uneconomic demand response in Order 745.

For example, in the order approving the implementation of ELMP in MISO, the Commission approved a design which raised the clearing price when fixed block units were committed to meet load, contradicting the price suppression goal underlying the billing unit effect and the net benefits test in Order 745. The Commission stated "we will conditionally accept MISO's proposal because the Extended LMP methodology will

[143] See Order 745 134 FERC ¶ 61,187 Docket RM-10-17-000 March 15, 2011 paragraphs 100-102

result in clearing prices that decrease incentives for strategic behavior and more accurately reflect the cost of actions taken by MISO to satisfy demand." [144]

Moreover, the Commission stated in the same order that "It is also important that prices send the correct signals to market participants about when more supply or demand response is needed." [145]

The Commission went on to note that " the Extended LMP algorithm should enhance market signals by allowing prices to better reflect the cost of actions taken to meet system requirements, a result which we find to be just and reasonable." [146] But if Extended LMP is just and reasonable, how can it be just and reasonable to artificially depress the market clearing prices so that it does not reflect the cost of meeting load.

The Commission similarly stated in the ELMP order that "By producing a clearing price that better reflects the most expensive action taken to satisfy demand in the region, the Extended LMP algorithm should promote more efficient development of supply and demand resources in the future." [147]

But the subsidy to uneconomic demand response in Order 745 is intended to do just the reverse of what the Commission calls for in the ELMP Order. The intent of the Order 745 demand response design is to understate the cost of the most expensive action taken to satisfy demand (which would be the LMP + G, the cost of the uneconomic reduction in power consumption) with the stated goal of depressing the short-run spot price of power through the billing unit effect.

The Commission's goal of price suppression articulated in order 745 as the basis for paying LMP for reductions in power consumption in order to incent uneconomic reductions in power consumption is also inconsistent with the Commission's policy statements regarding price suppression in capacity markets.

For example, FERC observed in a PJM order that buyer side market power:

> "reduce capacity costs in the short-run, by producing a capacity surplus, these strategies harm other suppliers and, of even greater concern, are deleterious to the market in the long-run. Ultimately, this strategy will prove more costly as existing generators become unable to recover their costs and therefore choose to exit

144 See 140 FERC ¶61,067 July 20, 2012 paragraph 37.
145 See 140 FERC ¶61,067 July 20, 2012 paragraph 37.
146 See 140 FERC ¶61,067 July 20, 2012 paragraph 38.
147 See 140 FERC ¶61,067 July 20, 2012 paragraph 39.

> the market, thus tightening capacity and raising costs. Similarly, new merchant generators will be reluctant to enter a market in which their expected prices are susceptible to such reduction."[148]

FERC similarly observed in a buyer side mitigation order applying to the New York ISO capacity market that:

> "Markets require appropriate price signals to alert investors when increased entry is needed. By allowing net buyers to artificially depress prices, these necessary price signals may never be seen. While a strategy of investing in uneconomic entry and offering it into the capacity market at a low or zero price may seem to be good for customers in the short-run, in can inhibit new entry and thereby raise prices and harm reliability, in the long-run. Under the FPA, the Commission must ensure that rates are just and reasonable."[149]

Overall, we conclude that these policy statements are fundamentally inconsistent with the price suppression policy that was articulated by FERC as the basis for paying LMP for uneconomic reductions in power consumption in Order 745. Moreover, the billing unit effect rationale articulated by FERC in Order 745 for paying LMP to subsidize uneconomic demand response is not consistent with the policies implemented by Order 745 because if the billing unit effect were accepted as a policy goal, the billing unit effect would warrant a much broader price suppression policy that would include uneconomic commitment and dispatch of generation. These inconsistencies suggest that the Order 745 requirement that ISOs pay LMP for uneconomic reductions in power consumption is not motivated by the asserted billing unit effect and the price suppression goal must have a different motivation.

Measuring Price Suppression Benefits

The second egregious flaw in the FERC's reasoning with respect to the billing unit effect and net benefit test in Order 745 is that its articulation of the net benefits test does not provide even a roughly accurate measure of even the short-run billing unit effect benefits to real-world power consumers of suppressing spot market prices. The Commission's discussion in Order 745 and related orders appears to shows a lack of interest in

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[148] See 143 FERC ¶61,090 May 2, 2013, Docket Nos ER13-535-000 and 001, paragraph 21

[149] See 122 FERC ¶ 61,211 March 7, 2008,docket No. EL07-39-000, paragraph 103. It is striking that paragraph 101 of this order contains an explanation of how a large net buyer in the capacity market could potentially benefit from the billing unit effect, but in this order FERC rejects that goal while it embraces it in Order 745.

attempting to accurately measure the asserted price suppression benefits as evidenced by two glaring omissions. First, the net benefits test described by FERC is not applicable to the power consumers of vertically integrated utilities, either public or investor owned, greatly overstating the benefits of price suppression to these customers. Second, the net benefits test specified by FERC in Order 745 when applied to consumers in retail access markets does not account for the impact of reduced energy market revenues on generation entry in anything more than the very short-run and hence does not provide an accurate measure even of the pecuniary benefits to power consumers in these markets from payments for uneconomic reductions in power consumption

The most glaring gap in FERC's Order 745 reasoning regarding the billing unit effect and the net benefits test is that the price suppression logic is only relevant for power consumers buying power at market prices. In particular, it is completely inapplicable to consumers buying power at cost based rates, such as the consumers of vertically integrated public utilities and traditionally regulated investor owned utilities. It would provide no actual or pecuniary savings to the power consumers of these load serving entities if their vertically integrated utility were to buy and sell power at artificially low prices, because the rates at which these power consumers purchase power are not based on those market prices.

The Commission dismisses this observation without any apparent effort to articulate an intelligible rationale, simply asserting:

> "Some commenters argue that the Commission should not impose a single pricing rule due to differences in market structure, state regulatory environment, and resource mix among the ISOs and RTOs. While such differences exist, the commenters have not shown why such differences warrant a different compensation level among the ISOs and RTOs. As discussed above, regardless of the resource mix or the state regulatory environment, demand response, which satisfies the net benefit test described herein and can balance the system, is a cost-effective alternative to generation in the organized wholesale energy markets, and payment of LMP represents the marginal value of a decrease in demand" [150]

There can be no price suppression benefit from inefficient demand response to the customers of traditionally regulated vertically integrated public and investor owned utilities because their rates are not determined by spot market prices. Since the rates of

[150] See Order 745 134 FERC ¶ 61,187 Docket RM-10-17-000 March 15, 2011 paragraphs 67.

these utilities are cost based, they are impacted by changes in market prices only to the extent that the utility serving those customers is buying or selling power in the spot market at the margin. For traditional vertically integrated utilities whose generation output roughly corresponds to their load, the impact of the price suppression envisioned by Order 745 would be to depress the price at which they both buy and sell power, with the only impact on consumer rates being the increase required to recover the cost of the payments for the inefficient demand response.

Moreover, this exception of vertically integrated public and traditionally regulated investor owned utilities is not deminimis. The vast bulk of the generation in SPP is owned by public and traditionally regulated investor owned utilities selling power at cost based rates. It is remarkable that a regulatory agency of the U.S. government would base a regulatory action on the premise that SPP rate payers served by vertically integrated utilities and buying power at cost based rates would be benefitted through a billing unit effect if SPP were to dispatch demand response uneconomically, or equivalently, commit units out of merit at minimum load in order to depress the spot prices at which its member utilities buy and sell power.

Similarly, while there are some retail access customers and some merchant generation in the MISO, most of the generation in MISO is owned by or under contract to public and traditionally regulated investor owned utilities selling power to their retail customers at cost based rates. PJM also includes states (Virginia and West Virginia) in which most of the generation is owned by or under contract to traditionally regulated investor owned utilities selling power to their retail customers at cost based rates. Within the NYISO a significant portion of the generation is owned or controlled by public power entities, the New York Power Authority and the Long Island Power Authority which also sell power to their customers at cost based rates.

Second, if the net benefits test were applied to consumers in retail access markets in the manner specified by the FERC, the test would not account for the impact of reduced energy market revenues on generation entry in anything more than the very short-run. Hence, the net benefit test would not provide an accurate measure of the pecuniary benefits to power consumers in these markets from payments to subsidize uneconomic reductions in power consumption. If the incremental uneconomic demand response subsidized by the Commission's Order 745 policies were limited to demand response that would be activated at relatively low and moderate prices, rather than during shortage conditions, the introduction of this uneconomic demand response would not reduce generation revenues during shortage conditions but would instead reduce revenues during other hours. These would likely be hours in which combined cycles and the most efficient gas turbines would be operating and impacted by changes in energy prices .

Hence, the uneconomic demand response induced by Order 745 would likely reduce the returns to such new efficient units and delay investments in such resources, thereby raising spot energy prices during mid merit non-shortage hours.

It appears to us that Order 745 and the net benefits best would likely have relatively little impact on the returns to generation during shortage hours in ISOs that have existing voluntary reliability demand response programs, such as the emergency demand response program in New York (EDRP), as much or all of the demand response that would be eligible for payments under Order 745 would also be eligible for similar or higher payments under a preexisting reliability demand response program. However, in markets lacking non-capacity market reliability demand response programs, such as New England, Order 745 compliant economic demand response programs could incent some reductions in power consumption during reserve shortage conditions by resources that would be unwilling to take on the performance obligation associated with participation in capacity market demand response programs. Participation of power consumers in economic demand response programs during these programs would contribute to lower prices during these hours in the short-run and lower capacity requirements in future years.

However, there would be no long-run billing unit effect benefit from the participation of such resources in these economic programs during shortage hours as the reduction in energy and ancillary service shortage revenues due to reduced consumption would be translated into higher capacity market prices, both directly through changes in the net cone calculation used to set the demand curve and indirectly through its impact on the capacity price required to attract entry and retain existing supply. FERC asserted in Order 745 that the net benefits test need not account for the impact of the changes on capacity market payments by rate payers because the rule was not focused on capacity markets, making the remarkable statement that:

> "ISO-NE and Pepco suggest that the net benefits test also consider the impact of demand respond compensation on both energy and capacity markets. However, this Final Rule is focused only on organized wholesale energy markets, not capacity markets. Given the differences in capacity markets among the ISOs and RTOs, the record in this proceeding provides neither a reasonable basis for including capacity market effects in net benefits calculations in the energy markets, nor have ISO-NE and Pepco provided a methodology for taking such effects into account. Indeed, in some cases, the capacity markets

> already reflect energy and ancillary revenue in determining capacity prices."[151]

The assertion in this statement that it is appropriate for a regulatory agency to find that an action is in the public interest because of its benefits to rate payers while only considering a subset of some of those impacts and ignoring the adverse impacts on rate payers is so remarkable one wonders if FERC understood the issue being raised. The last sentence of this statement is particularly remarkable because it appears to acknowledge the link between energy and ancillary service market shortage revenues and capacity market payments but does not seem to understand the implications. Does FERC simply not understand how capacity market payments and energy and ancillary service revenues are linked through the net cone calculation or is FERC acknowledging that the asserted billing unit effect benefits from Order 745 in the energy market would be offset by higher capacity market payments but saying they don't care that there would be no actual benefit to rate payers?

There are also a number of less obvious flaws in the net benefit test articulated by FERC for measuring the contribution of uneconomic demand response to the billing unit effect. First, the net benefits test described by FERC is the test for an uncongested transmission system. In practice, transmission systems are often congested and prices are lower in some regions and higher in other regions, and the cost to consumers of the higher price of power in constrained regions is in part offset by the congestion rents that flow back to consumers through FTRs. Accounting for the impact of congestion in calculating net benefit threshold prices would be a tremendously complex effort so the actual calculation of the net benefit test price threshold by ISOs is based on the overall ISO supply curve and ignores the impact of congestion. This has the consequence that the threshold can be exceeded in a constrained region even when there is little impact from the high prices on consumer costs.

Second, FERC's description of the net benefit test is focused on the slope of the supply curve of generation but the actual supply curve depends on the unit commitment. When uneconomic demand response is cleared in the day-ahead market, this does not simply depress the day-ahead market price, it also causes less generation to be committed which partially offsets the impact of the demand response on the clearing prices. This impact is also not accounted for ISO net benefit test calculations as it would require rerunning day-ahead market cases for each load level to carry out the calculation of net benefit threshold prices

Cost of Price Suppression

[151] See Order 745 134 FERC ¶ 61,187 Docket RM-10-17-000 March 15, 2011 paragraph 85.

The third flaw in FERC's specification of the net benefit test used to measure cost effective price suppression is that the net benefit test specified by FERC is applied at margin to the price impact from incremental reductions in consumption and to the payments for the incremental reductions in consumption that the produce the price suppression impact. However, the test order by FERC does not take account of the payments for demand response that are required under Order 745 for demand reductions that would have been economic and would have occurred without the additional demand response payments, i.e. in enforcement staff's words, it does not account for the cost to rate payers of paying for nothing.

This omission occurs because the net benefits test specified by FERC only takes account of the payments for demand reductions that are uneconomic and would not have occurred without the demand response payments, but the demand response programs mandated by Order 745 are not designed to operate in this manner. Instead, order 745 demand response programs pay LMP for all reductions in demand that are offered at a price lower than the LMP price, without regard to whether the LMP price is high enough that the reductions would have been economic without the additional payment. As a result of this omission, a demand reduction could pass FERC's net benefit test, yet the actual cost to consumers of the demand response payments could be several times higher than even the short-term price suppression benefits calculated by the net benefits test prescribed by FERC.

The reasons for this outcome were discussed above in the context of principles four and five and illustrated in Figure 1. If a demand response provider would find it economic to reduce its power consumption at a price of $60 and the Order 745 net benefits price floor is $50, the consumer will be paid to reduce its consumption whenever the price exceeds $50. The cost of price suppression measured by the Order 745 net benefits test is the cost of the payments for the hours labeled "hours of uneconomic curtailment" in Figure 1.

If the net benefits best were accurate, the price suppression benefits from the uneconomic demand response would exceed the payments to power consumers to reduce their consumption during these hours. However, the net benefits test calculation does not consider that the power consumer would also be paid when it reduces its consumption when the price is $60 or higher, the hours labeled "hours of paying for nothing" in Figure 1. But there is no price suppression benefit from these payments because the power consumer would have reduced its consumption without the demand response subsidy. The consequence of this omission in the net benefits test specified by FERC is that the cost of payments to demand response providers can swamp any short-run price

suppression benefits in restructured power markets despite the net benefits test being satisfied.

To illustrate this potential, suppose that the elasticity of the ISO supply curve were .8 at $55, which would pass the net benefits test. Suppose the market output were 25,000 megawatts in the hour, implying a slope for the supply curve of .00275, a 27.5 cent impact on the clearing price from a 100 megawatt reduction in load and hence a $6875 reduction in load payments if all 25,000 megawatts were purchased by consumers at market based rates. This $6875 short-run pecuniary benefit from prices suppression would exceed the $5500 paid for the 100 megawatt reduction in consumption, as required by the net benefits test.

Further suppose that there were 2000 hours a year with prices in the range between $50 and $60 in which this demand response would be provided, for a total net benefit of $2.75 million over the year. However suppose there are also 1000 hours a year in which the price exceeds $60 and the power consumer providing the demand response would reduce its load without the payment, with an average sales price of $75. The total additional payments to the demand response provider for the load reductions which would have occurred anyway would be $7,500,000, swamping the price suppression benefits. So there is no benefit to consumers in this example, the only benefits are to the demand response provider, and a large portion of the payments are for reductions in consumption that would have occurred without the demand response program.

Bottom line:

1. If suppression of spot market prices is accepted as an appropriate regulatory goal, the billing unit effect and net benefits test apply to all out of merit actions that would inefficiently depress prices. So if price suppression is an appropriate public policy goal, it warrants subsidies for other conduct that achieve the same price suppression goal at lower price.
2. This price suppression goal is inconsistent with other FERC orders relating to pricing.
3. The net benefits test specified by the Commission is the appropriate criterion for profitable price suppression at the margin, but it does not correctly measure the cost of using economic demand response to suppress prices unless the demand response design only makes payments for reductions in power consumption that would not have occurred absent the demand response payment. But Order 745 does not mandate demand response programs that would operate in that manner. If account were taken of the total payments of LMP for reductions in

consumption, the threshold price for cost effective price suppression would likely be far higher.

4. Even if taken at face value there would be no benefit from uneconomic demand response for customers served by vertically integrated utilities, either investor owned or public, that sell power to their rate payers at cost based rates. This consideration is extremely important in MISO and SPP, and is significant even in NYISO and PJM.
5. In the retail access markets in which most power consumers buy power at spot prices and would be potentially impacted by the uneconomic price suppression envisioned by FERC in Order 745, the price suppression impact from uneconomic reductions in power consumption would be less than calculated by the net benefit test because of the impact of the price suppression on investment in new efficient generation and potentially on capacity market payments.

   These observations suggest that the price suppression rationale for Order 745 articulated by FERC in the discussion of the billing unit effect and the net benefits test is a sham, the uneconomic demand response subsidized by Order 745 demand response programs is intended to benefit particular market participants, not rate payers.

V. Market Design Changes and Enforcement Actions

There sometimes appears to be a tendency to classify the results of inefficient incentives arising from market design flaws as "market manipulation." In our view, however, classifying inefficient behavior as market manipulation and addressing it through enforcement actions based on market manipulation claims, rather than as the logical consequences of a bad market design to be addressed by correcting the flawed market design, may appear to stop the inefficient behavior, as would be the case if the inefficient behavior were addressed with a forward looking market design change. However, this confusion between the consequences of poor market design and the market manipulation can have several adverse impacts.

First, as has been pointed out in a number of contexts, if inefficient behavior is classified as market manipulation not only will the behavior be stopped prospectively, but past inefficient behavior would logically be subject to penalties for market manipulation. Penalties would be appropriate for those engaged in market manipulation, and those subject to the penalties should have known not to engage in the manipulative actions.

But if the source of the inefficient conduct is actually bad market design and flawed market rules or flawed software implementation, how are market participants to account

for the potential for their actions responding to these inefficient incentives to be classified after the fact as market manipulation and subjected to penalties.

This is a particular problem in the context of some recent FERC enforcement cases because the sometimes tortured logic that is required to characterize inefficient behavior as fraud or market manipulation leads to a lack of clarity as to what kind of behavior would potentially be subject to penalties in the future. It does not appear to us that trying to apply a policy that market participants should not respond to inefficient incentives created by FERC orders would be a workable enforcement policy in the long-run nor would it provide a workable framework for competitive markets. While inefficient incentives will lead to conduct that raise consumer costs, at least in the long-run, the adverse impact on consumers from imperfect market design or rules may be much smaller in a highly competitive market than in a thin market in which many firms do not respond to profitable opportunities because of uncertainty as to what FERC may subsequently determine to be impermissible conduct.

FERC and enforcement staff argue that there is no lack of clarity as to what constitutes impermissible behavior because FERC rules forbid fraudulent behavior.[152] But simply describing the inefficient behavior as fraudulent does not provide the clarity needed to guide market participant behavior unless there is clarity as to what constitutes "fraud" and why. As discussed at length in section III, it is not clear to us even after reviewing the orders and reports in these cases what conduct FERC and enforcement staff intend to define as fraudulent. While labeling behavior as fraudulent may appear to serve the immediate goal of FERC in ending and punishing behavior it does not approve of, it can leave market participants unable to predict what behavior enforcement staff and FERC will decide they do not like in the future.

A second consequence of using market manipulation rules to address market design flaws is that FERC enforcement actions are usually not a good mechanism for implementing the changes needed to correct market design or software flaws. They can almost never address the root cause of the inefficient behavior and typically only address the most obvious manifestations of the inefficient incentives created by the market design flaws. This would be an acceptable outcome if the underlying problem were market manipulation as the threat of enforcement actions would deter inefficient behavior. However, when the real problem is a market design or software flaw, the conduct punished through enforcement actions is typically only the most visible of a wide range of inefficient behavior resulting from the market design or software flaws. Indeed, the

[152] See, for example, Enforcement Staff Report and Recommendation, Rumford Paper Company, July 17, 2012 section IIIB,

pretense that the inefficient incentives are addressed by the enforcement policy invites delay in changing the market rules or software to correct the underlying problem.

In addition, defining behavior as fraudulent in order to address a market design flaw in a particular market establishes a principle that applies to all FERC jurisdictional ISOs and RTOs and applies even after the problematic incentive is addressed with rule changes. Moreover, using market manipulation enforcement actions to correct market design flaws has the potential to result in unintended consequences because the enforcement process is not suited to developing and evaluating market design changes.

Allowing enforcement staff to in effect implement permanent market design changes through settlements and litigation in market manipulation cases isunlikely to lead to the same outcome as if ISO staff, market participants and state regulators were to participate in a process of developing market design changes to address the problem, being able to review the changes and evaluate the potential unintended as well as intended consequences.
The potential for poorly thought out market design changes to be implemented through the enforcement process is illustrated by the Rumford case in which the precedent that changes the market rules was established in negotiations between enforcement staff and the representatives of a bankrupt paper company.

There is no indication that ISO New England was involved even indirectly in these negotiations, and certainly the representatives of other ISOs and RTOs with demand response programs that might be impacted by the precedent established by this case were not involved. Nor did market participants in either ISO New England or other ISO snd RTO markets to which the enforcement precedent would be applied have an opportunity to comment on the market rule changes implicit in the FERC enforcement policy established by these cases. Moreover, as discussed in Section IIIC, even after reviewing the orders and reports in these cases we see considerable ambiguity in what kind of conduct by power consumers participating in demand response programs FERC and enforcement staff would find to be fraudulent based on their statements in the Rumford and Lincoln cases.

The precedent established by a settlement is of course more limited than that established by litigated cases, but absent litigated cases, these settlements define FERC and enforcement staff policy and can materially impact market performance, including deterring competitive behavior that might mitigate the impact of imperfect market designs or software flaws.

Another limitation of using enforcement cases to correct market design and software flaws is that the set of changes that can be implemented through an enforcement action is much different than those that can be implemented through tariff based market design or software changes. Hence the use of enforcement actions to address market design or software flaws has the potential to address the inefficient behavior in an indirect manner that gives rise to other inefficient behavior, behavior that might be even more inefficient than that intended to be addressed by the enforcement action.

Our perception is that an important motivations for efforts to classify the consequences of bad market design as market manipulation and address the inefficient behavior through enforcement actions, rather than treating them as market design problems and addressing them with tariff changes is that using tariff changes to correct bad market design can entail a significant time delay in correcting the market design flaw, with the consequence that the market design flaw will only be corrected after a long lag, with this long lag potentially imposing high costs or wealth transfers, on the impacted transmission customers. These delays can arise from the need for the tariff changes to be taken through a lengthy stakeholder process, from the time potentially required to develop and implement software changes that are necessary to implement market design changes, and from the time required to implement necessary changes in the billing and settlement system.

In this circumstance it is reasonable to ask why rate payers should incur additional costs while waiting for a stakeholder process to evaluate the need for market design or software changes, particularly if the costs are magnified by those benefitting from the market design flaw seeking to drag out the stakeholder discussions? [153] Why should rate payers incur additional costs while waiting for changes to be implemented in the market software, the settlement software, or even while waiting for the ISO to decide what to do? It would appear preferable from the standpoint of consumer costs if these costs could be avoided by FERC and enforcement staff asserting that the behavior benefitting from the market design or software flaw is fraudulent and bringing enforcement actions that will ensure that market participants benefitting from the market design or software flaw immediately change their behavior.

Moreover, if the market design flaw at issue is publicized through the discussion of market design changes to correct it, but the flaw is not immediately corrected, the costs

[153] This precise issue was pointed out by ISO New England in implementing changes to address the market design flaws relating to demand response that involve these cases, see ISO New England, "Motion For Leave to Answer and Answer," February 11, 2008 Docket No. ER08-538-000 pp. 4-6, 8-10. Indeed, a number of the stakeholder documents relating to the changes ISO New England proposed to make in the DALRP program in January 2008 called for just the sort of delay in correcting the underlying problem that we refer to in the text.

borne by power consumers will likely increase in the interim period until the market design changes are implemented. Not only would publication of the market design flaw potentially cause additional market participants to become aware of and seek to exploit the market design flaw (absent countervailing incentives such as the threat of an enforcement action), but the public discussion of the market design flaw may also increase the financial impact of the business strategies of those already taking advantage of the market design flaw.

This potential exists because the market participants whose activities benefit from a market design or software flaw may sometimes not be able to observe exactly what the flaw is or why particular bidding positions are sometimes highly profitable, perhaps sometimes not very profitable, and perhaps sometimes unprofitable. This lack of understanding of the exact nature of the flaw may limit market participants' ability to take advantage of the underlying market or software flaw. Discussion of the market design or software flaw in a public stakeholder process that leads to a more precise understanding of the nature or source of the market design flaw could enable development of bidding strategies designed to benefit much more substantially from the presence of the market design or software flaw.

Similarly, if the precise nature of the flaw and design of the underlying software is unclear to the market participants that seek to exploit it, these market participants may be cautious in taking large positions designed to benefit from the flaw because they would not know what risk they might be running of incurring large losses from seemingly minor changes in their bidding strategy, market conditions or the bidding strategies of others. Removing this uncertainty with a public discussion of the exact nature of the market design or software flaw would likely encourage market participants to more aggressively take advantage of the market design flaw, again absent countervailing considerations.

The potential cost to ISO market participants, (likely power consumers but this depends on the specifics of the market design flaw), of a requirement to conduct a stakeholder process and develop and implement new market or settlement software before fixing a market design flaw therefore create an incentive to pretend that the source of the problem is market manipulation, rather than market design flaws, because if the conduct benefitting from the market design flaw is classified as market manipulation, the rules can in effect be changed immediately, through the threat of enforcement actions if the conduct continues, without the need for a stakeholder process or software changes, or even for the IOS to decide on the appropriate changes.
As described above we perceive there to be significant problems with the current process for using prospective market design changes implemented through tariff changes to correct market design or software flaws because of the potential delays and disclosures

entailed. However, there are also consequences to using enforcement actions as the preferred method of implementing changes needed to correct market design flaws. These consequences include:

- the market design changes are not subjected to evaluation by anyone other than enforcement staff and FERC; moreover, market design changes implemented through enforcement actions are only evaluated in the context of the enforcement action but they can have broader impacts that are not considered in setting the enforcement policy;

- the market design changes are permanent, since the FERC enforcement action defines the conduct as fraudulent or manipulative, rather than establishing a market rule that can be changed if it turns out to have inappropriate or unintended impacts either initially or as a result of subsequent market design changes;

- market design changes implemented through enforcement actions impact all ISOs and RTOs because they are enforcement actions that address the problem by defining conduct as fraudulent, which has universal applicability;

- enforcement actions are not always or even often well suited to correcting market design flaws and likely leave the core market design problem unchanged while merely suppressing the most obvious consequences of the market design or software flaw;

If the cost of delay and risks from disclosure provide the core motivation for use of the enforcement process, rather than changes in market rules, to correct market design flaws, then an alternative approach would be to address the problems of delay and disclosure in correcting market design or software flaws with changes that reduced the costs of the current process for correcting these kinds of problems.

- allow ISOs and RTOs to implement changes in manuals or issue technical bulletins to clarify ambiguities in market rules on a prospective basis without going through a stakeholder process, but subject to after the fact stakeholder and FERC review and prospective reversal.

  While providing ISOs this flexibility might be viewed as undermining the stakeholder process, there is no stakeholder process when conduct is found after the fact to be fraudulent, so allowing ISOs more flexibility to clarify ambiguities on a prospective basis would allow issues to be resolved more quickly and more completely.

- A further step would be to allow ISOs to implement temporary rule changes immediately, pending review by FERC and a subsequent stakeholder process to evaluate better changes. While ISOs haave been able to implement rule changes in this manner in some instances, this is not always an option, and it could be made a more broadly available option;

- allow ISOs and RTOs to make filings to immediately, but temporarily, forbid behavior in the manner of an enforcement action, with the prohibition to last until a market design change is implemented, and without requiring a determination or finding that the conduct is fraudulent, manipulative or anything else and with an impact that is limited to the specific ISO or RTO impacted by the market design or software flaw.

Such an alternative approach would immediately stop ongoing wealth transfers or actions that have the potential to adversely impact reliability, but 1) there would be less ambiguity in what conduct constitutes fraudulent behavior and hence less potential to deter competitive responses to competitive opportunities in the future; 2) there would be no hangover effects of ill-considered market design ideas embedded in enforcement staff definitions of fraudulent behavior; 3) and addressing market design flaws with rule changes is likely to more completely eliminate the inefficient incentives and excess consumer costs than FERC enforcement actions which typically only apply to the most visible instances of the inefficient conduct incented by the market design flaws.

A second motivation for these enforcement actions sometimes appears to be covering up the more transparently obvious consequences of FERC policy mistakes. Some of the worst problems involving bad market design and "market manipulation," appear to be a direct result of FERC orders. In these situations, FERC has ordered ISOs and RTOs to implement deeply flawed market designs, then labeled the inevitable outcome of the market design as market manipulation. In some of these situations, FERC has even required that the flawed market design be left in place while labeling the resulting behavior as manipulation.

There are a number of difficult issues with changes such as these, such as the potential for an ISO to use this authority to make changes that go beyond addressing market design flaws that require urgent corrections. A difficulty that we see as particularly hard to resolve is the practical reality that in many enforcement cases the underlying market design flaw stems directly from a FERC order. Hence the logical action for the impacted ISO to take when the inefficient behavior manifests itself would be to suspend or change the market rule ordered by FERC.

One can foresee that this will be awkward. Perhaps one of the reasons FERC is relying on enforcement actions to address these market design flaws is that enforcement actions do not point the responsibility for the problem back at FERC. One can foresee immediate difficulties with using such an approach of ISO initiated changes to address the incentive problems that the ISOs will confront if Order 745 is upheld, as the incentive problems and outcomes in which consumers pay for nothing will derive directly from what FERC ordered.