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BEFORE THE ARIZONA CORPORATION COMMISSION

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IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF UNS ELECTRIC, INC. DEVOTED TO ITS OPERATIONS THROUGHOUT THE STATE OF ARIZONA AND FOR RELATED APPROVALS.	DOCKET NO. E-04204A-15-0142 **NOTICE OF FILING POST-HEARING BRIEF ON BEHALF OF NUCOR STEEL CORPORATION**

Nucor Steel Corporation ("Nucor"), hereby provides notice of filing its Post-Hearing Brief in the above-referenced matter.

DATED this 25th day of April, 2016.

MUNGER CHADWICK, P.L.C.

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Attorneys for Nucor Steel Corporation

Arizona Corporation Commission
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BEFORE THE ARIZONA CORPORATION COMMISSION

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IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF UNS ELECTRIC, INC. DEVOTED TO ITS OPERATIONS THROUGHOUT THE STATE OF ARIZONA AND FOR RELATED APPROVALS	DOCKET NO. E-04204A-15-0142

NUCOR STEEL

POST-HEARING BRIEF

APRIL 25, 2016

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Nucor Steel—Kingman ("Nucor"), by and through undersigned counsel, hereby files its Post-Hearing Brief in the above-captioned matter.

INTRODUCTION

Nucor Steel has operated a facility in Kingman since 2009, producing coiled rebar and wire rod products. It is a former North Star Steel facility that, after being shut down, was acquired by Nucor Corporation in 2003. The return of steel production to Kingman has provided a boost to the local and state economy. For electric arc furnace-based steel mills, electricity is a very important input and is typically one of the highest variable costs in steel production. Steel prices are the product of a highly competitive global commodities market, where steel producers in China, Mexico, Turkey, and other countries put near-constant price pressure on American steel mills like Nucor. Thus, in order to stay economically viable and keep electricity costs low, Nucor schedules operations, when feasible, to operate primarily during the Company's off-peak periods and to minimize its production during on-peak periods.

Nucor purchases most of its electricity through UNS Electric's (Company's) Large Power Service Time of Use (LPS-TOU) tariff. Nucor's primary interest in this docket is to ensure that the Company's tariffs for industrial customers are just and reasonable and that inter-class and intra-class subsidies be reduced or eliminated.

To that end, Nucor addresses three key issues in this brief:

I. **The demand charge applicable to large industrial energy consumers should be based on a customer's contribution to system peak demand;**

II. **The Company should reduce the disparities in class Relative Rates of Return and other rate inequities; and**

III. The Commission should order the Company to improve and clarify the LPS-TOU tariff, the proposed Interruptible Rider, and the proposed Economic Development Rider.

a. The present differential between on-peak energy charges and off-peak energy charges in the LPS-TOU tariff should be maintained;

b. The proposed Interruptible Rider should be redesigned so that it is available to all industrial energy consumers, regardless of when they operate; and

c. The proposed Economic Development Rider should be revised to clarify that the calculation of the customer's monthly load factor in the summer months is based on the customer's billing demand.

ARGUMENT

I. The demand charge applicable to large industrial energy consumers should be based on a customer's contribution to system peak demand.

The primary reason Nucor intervened in this rate case is to address the way the Company calculates the demand charges applied to industrial energy consumers. Demand charges for industrial customers should be based upon the customer's contribution to the *system peak demand*. Specifically, large industrial energy consumers—at least those within the LPS rate class (which includes customers served under the LPS-TOU tariff)—should pay their share of the demand-related costs allocated to the LPS rate class based on each customer's contribution to the Company's coincident peaks in the four summer months (June, July, August, and September) of the previous year. Nucor provided a sample calculation in its Direct Rate Design testimony to illustrate this method of calculating demand charges.[1]

Nucor raised the issue of the demand charge calculation in the Company's previous rate case.[2] Although the Commission did not adjust the demand charge calculation methodology, the Commission instructed the Company to conduct a study on the issue, thereby putting other customers

[1] *See* Nucor 1 at 19.
[2] *See* Direct Testimony of Dr. Jay Zarnikau on Behalf of Nucor Corporation at 14–19, Docket No. E-04204A-12-0504 (Sept. 19, 2013).

on notice that this could be an issue in a subsequent rate case. This is addressed in item 15.2 of the Appendix to the Final Order:

> 15.2 Four Coincident Peak ("4CP") Billing Demand. In its next general rate case, UNSE will present an evaluation of what the impact would be if the company changed from its present method of determining an industrial customer's billing demand to a 4CP method. This evaluation may include calculating a demand charge rate using the prior year's 4CP billing determinants in a manner that yields revenues matching the revenues generating by UNSE's present method of determining an industrial customer's billing demand. UNSE need not endorse this method of calculating a customer's billing demand, but will provide notice that such methodology may be explored in its next general rate case.[3]

Although the Company presented this evaluation in the current proceeding, it again decided not to adopt a 4CP billing demand method or make any other meaningful changes to the method used to calculate industrial customers' demand charges.[4]

The lack of changes to the demand charge calculation methodology will continue to have a significant negative impact on industrial customers. The present design of the demand charges paid by industrial customers of UNS Electric is not just and reasonable because it does not properly reflect cost causation, which is most accurately reflected by the customer's demand at the time of the Company's system peak. This disconnect was outlined in detail in Nucor's Direct and Surrebuttal Testimony.[5]

Instead, the current calculation of the LPS-TOU demand charge is based on four criteria that have nothing to do with the demand placed upon the utility's system during the system's annual peak. As proposed in Company Witness Jones's Exhibit CAJ-3, the monthly billing demand for an LPS-TOU customer shall be the greater of the following:

1. The greatest measured 15 minute interval demand read of the meter during the on-peak hours of the billing period;

[3] Decision No. 74235, Exhibit A: Proposed Settlement Agreement of Rate Application of UNS Electric, Inc., Docket No. E-04204A-12-0504 (Dec. 31, 2013).
[4] *See* UNSE-31 at 78 (Jones).
[5] *See* Nucor 1 at 5, 10; Nucor 2 at 6–7.

2. One-half of the greatest measured 15 minute interval demand read of the meter during the off-peak hours of the billing period;

3. The greater of (1) or (2) above during the preceding 11 months; or

4. The contract capacity or 500 kW, whichever is greater.

Costs associated with generation and transmission capacity which UNS Electric seeks to recover from industrial energy consumers through demand charges were largely incurred by the Company to meet the Company's system peak demand. Power plants are constructed and other generation resources are secured in order to ensure that there is adequate generating resource capacity to meet hourly peak demand, plus some reserve margin. Similarly, the transmission system is designed and constructed to meet the needs of the system during peaks.[6] As Company Witness Jones testified: "Generation is typically designed to meet its highest peak, and that's at any point during the year. Transmission, for the most part, is designed to meet—at least, you might as well say its highest peak as well."[7] In fact, all parties who addressed the issue, including the Company's witnesses, appear to be in agreement that the *system peak demand* drives the need for investment in generation and transmission capacity.[8] This basic concept is supported by witnesses for UNS Electric in the present proceeding[9] and by testimony from UNS Electric and Tucson Electric in previous proceedings.[10] Indeed, no party disputes that capacity-related or demand-related costs imposed by customers, including large industrial energy consumers, are directly related to the utility's investment in generating capacity and transmission capacity to meet the system peak demand.

Despite that basic rate design principle, the Company's current and proposed tariff for LPS-TOU customers calculates demand according to the four criteria outlined above, none of which has

[6] *See* Nucor 1 at 8.
[7] Tr. at 2049.
[8] *See, e.g.*, APS-6 at 7 (Miessner) (". . . power plant costs are primarily driven by peak demand."); APS-3 at 10 (Faruqui) ("generation capacity costs vary with system peak demand. Similarly, transmission costs also vary with system peak demand . . .").
[9] *See* UNSE-32 at 35 (Jones).
[10] *See* Nucor 1 at 9.

anything to do with LPS-TOU customers' contribution to the system peak. Ignoring the principles of cost causation contributes to significant intra-class subsidies. As Fresh Produce Witness Simer noted:

> Low load-factor, seasonal, and off-peak users may not have incurred the same cost responsibility as their counterparts and . . . are imposing a lower average capacity requirement during the four coincident peak summer months. By assigning them the same cost responsibility, low load-factor, seasonal, and off-peak users may experience a significant financial hardship for their off-peak use of the system, which equates to an intra-class subsidy for other customers.[11]

Nucor is a good example of the "off-peak users" to which Mr. Simer refers.[12]

In response to questions from ALJ Rodda, Company witness Jones recognized that Nucor is subsidizing the other customers in the LPS customer class:

> Q. I'm sure that class would prefer a lower allocation than the recent proposal. But I'm not sure that that's the big dispute in the rate design. Is that –
>
> A. **I think—and I don't know whether I would even characterize it as a dispute. They fairly believe, since they're providing a subsidy to the other customers, they should be allocated somewhat less of the overall revenue requirement in this case.** I guess that characterizes it the best way I can.
>
> Q. I guess what I'm hearing from Nucor is more— maybe it's not. Maybe— is more questions about the actual rates they're being charged to collect whatever has been allocated to them.
>
> A. I think you're right, yes. Nucor's concern, as I understand it, is more a matter of how we allocate a cost—once a cost, an amount is allocated to the class, they've expressed more concern about how we allocate it between the customers within the class.[13]

A properly-designed demand charge should recognize that generation and transmission capacity costs are incurred to meet peak system demands. This is the cost causation concept accepted by nearly all of the witnesses who addressed rate design.[14] Customers should pay for costs associated with generation and transmission capacity in relation to their contribution to the system peak

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[11] FAPP-2 at 13.
[12] *See* Nucor 1 at 7.
[13] Tr. at 2659 (emphasis added).
[14] *See, e.g.*, UNSE-28 at 9 (Dukes; UNSE-31 at 8 (Jones).

demand.[15] This is consistent with the principle put forward by Company Witness Jones that parties "who cause the costs should pay the costs."[16] On the witness stand, Company Witness Dukes elaborated:

> Q. [Pozefsky] I heard you use the term **fair and equitable rates in reference to demand charges**. Can you explain to me what your definition of fair and equitable is?
>
> ...
>
> A. So what I am talking about, there is -- we know how the costs are incurred by the system, and those are allocated to that customer class. And the most fair and equitable way to present that to the customers is in a manner that gives them **the price signals based on how those costs are incurred**, and then to step back and look at the bill impacts and how they are being charged now and make sure that we are not giving them -- we are not making such significant changes that they cannot understand their bill and they cannot control their bill.[17]

In the current and proposed LPS-TOU tariff, the allocation of demand costs to LPS-TOU customers is not based on system peak demand. Instead, these four criteria represent an inaccurate price signal for LPS-TOU customers and contribute to significant intra-class subsidies.

LPS-TOU Demand Criterion #1 – "The greatest measured 15 minute interval demand read of the meter during the on-peak hours of the billing period."

The first criterion is a very poor measure of the generation and transmission capacity costs caused by a customer because the on-peak time period is far too broad. In the summer on-peak period of the test year, there were 3,096 on-peak hours and an additional 3,024 winter on-peak hours for LPS-TOU customers. In many of these hours, the system demand was not very high. For example, when Nucor Witness Zarnikau compared the hourly demand figures for all peak hours to the highest system demand reading for the test year, he found that during the test year there were hours within the

[15] Nucor 1 at 10.
[16] UNSE-31 at 11.
[17] Tr. at 1905 (emphasis added).

peak period in which the load on the UNS Electric system was less than 17% of the annual system peak.[18]

If an LPS customer's individual demand peaked in one of these on-peak hours of very low system demand, it would be a poor measure of that customer's contribution to the system peak demand because it would not have created a need for additional generation or transmission capacity. Indeed, a customer's highest demand during the over 6,000 hours of on-peak period may have nothing to do with the customer's contribution to the utility's system peak.

LPS-TOU Demand Criterion #2 – "One-half of the greatest measured 15 minute interval demand read of the meter during the off-peak hours of the billing period."

The present demand charge criterion based on one-half of the highest hourly use by the customer during the off-peak period is arbitrary and is not based on an industrial energy consumer's contribution to the system peak. Company Witness Jones acknowledged that this measurement represents neither the system coincident peak nor the customer's noncoincident peak. In fact, he could not explain how this criterion was connected to any of the Company's stated ratemaking principles:

> Q. Let's look at the second criteria. One half of the greatest measured 15-minute interval demand read of the meter during the off-peak hours of the billing period. Is that a measurement of coincident peak?
>
> A. No.
>
> Q. Is it a measurement of noncoincident peak for a particular customer?
>
> A. No.
>
> Q. Okay. In this case, unlike the first category which was based on the full amount of the 15-minute interval demand, here it's 50 percent of the demand during the off-peak period. I'm curious how that number was arrived at and whether there was any kind of analysis behind 50 percent. Why not 30 percent or 25 percent? What is it about 50 percent that makes it an appropriate allocator for the billing demand costs?
>
> A. Well, first, as I mentioned, when I mentioned billing determinants earlier? I'm looking at the class billing determinants. And if a customer's billed demand was actually based on 50 percent of their off-peak, that is the billing determinant that

[18] *See* Nucor 1 at 12–13.

would have been accumulated to divide into the million dollars. It would have been part of the hundred thousand billing unit. So -- first, just so that's clear.

Q. Okay.

A. That's how we determined that. Now, to answer your question, **I'm not sure we have a specific analytical method used to determine whether or not 50 percent is exactly right. That's evolved over time with this customer class, especially in -- basically in consideration of the time of use customer. And we only have one now, but there were more in the past. And part of that is you have to kind of evaluate when you're designing rates, how do we want to get to the end result? What's fair? What's equitable? If a customer is actually using enough energy in the off-peak period, they're not putting the burden on the on-peak period. So it was determined about -- let's just call it 50 percent. So it could be 55 percent. It could be 47 percent. I'm not saying 50 percent is scientifically derived, but we believe it's a fair and equitable way to give that time of use customer the ability to save some costs because they aren't putting the burden on the system.** They still need to contribute to the million dollars. This just happens to be when they create and use demand, they're only going to pay for half the demand they create because of doing it off-peak. So we're going to give them a substantial break in what they're contributing.[19]

Under further questioning from ALJ Rodda, Company Witness Jones further conceded that the 50% is somewhat arbitrary and is not even connected to the average and excess method of cost allocation:

Q. So it sounded to me when you were discussing with him that you were just sort of guessing at 50 percent being appropriate. Is there a basis for that 50 percent?

A. **Well, the 50 percent has been in past rate cases, probably arrived at before I was even with the company. But I don't know that there is a scientific method used to arrive at that.** It was decided that for billing determinants created in the off-peak period, there is a reduction in how much that customer should contribute to the overall recovery of demand cost than if they produced in the annual on-peak period. And 50 percent seemed like a fair number to reflect that, the fact that they aren't using the system on peak, and I believe we just chose not to change that component.

Q. **So is that 50 percent factor for the off-peak usage, is that tied to or consistent with the average and excess method of cost allocation?**

A. **I would not say directly.** It is a billing determinant. The allocation of cost to that class is tied to the average and excess method. The use of the billing determinant is simply a method of recovering the amount allocated to the class.[20]

A noncoincident peak demand measurement is not a useful or accurate basis for calculating an industrial time-of-use customer's contribution to system cost. For *distribution-level* customers, there

[19] Tr. at 2611–13 (emphasis added).
[20] Tr. at 2658–59 (emphasis added).

may be some merit to using a noncoincident peak demand measurement—that is, a measurement of the maximum demand of the customer, regardless of when that maximum demand occurs—to design a demand charge to recover fixed costs. Customers served at distribution voltages cause many distribution-related costs,[21] and many of these distribution costs are related to the *customer's* maximum demand, regardless of when that maximum occurs.

By contrast, large industrial energy consumers served at transmission voltage do not cause the utility to incur distribution system investments. As Company Witness Jones explained in his Direct Testimony: "Distribution costs differ based on the portion of the system used by different classes of service. In fact, some customers make no use of the distribution system at all. For example, for LPS customers there are no distribution costs allocated to the class other than metering related costs."[22] On the witness stand, Jones further explained: "Distribution would be more aligned from a cost allocation standpoint to noncoincident peaks . . . ."[23] Because the utility does not recover distribution-related costs from large industrial energy consumers, a demand charge based on the industrial customer's non-coincident peak demand is inappropriate.

LPS-TOU Demand Criterion #3 – "The greater of (1) or (2) above during the preceding 11 months."

The third criterion is simply a "ratchet." Utilities apply ratchets in order to achieve some stability in their collection of revenues.[24] However, in order to maintain just and reasonable results, a demand ratchet should be based on justifiable and accurate methods of calculating a customer's contribution to system peak. As noted above, neither of the first two billing criteria are a good measurement of an LPS-TOU customer's demand-related cost causation.

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[21] *See generally* Nucor 1 at 6, n.1; APS-6 at 3–4 (Miessner).
[22] UNSE-31 at 20.
[23] Tr. at 2049.
[24] *See generally* Tr. at 2437–39

LPS-TOU Demand Criterion #4 – "The contract capacity or 500 kW, whichever is greater."

The final criterion should simply be eliminated. According to the Company, no customers of UNS Electric even have a contract capacity, and it is not clear how a simple "500 kW minimum" reflects a customer's contribution to the system peak.[25]

Nucor's Recommendation for LPS-TOU Demand Charge Billing

The demand charge should be based simply upon the industrial customer's contribution to the system peak. Nucor recommends using the customer's contribution to the coincident peak in four summer months as a suitable proxy. Not only does it satisfy cost causation principles, but it also sends the proper signal to reduce demand on the utility system when demand is high.[26]

As an alternative, we suggest that a customer's contribution to the "top 20 hours"—i.e., the customer's contribution to system demand in the 20 hours of highest demand in the previous year—as an alternative. Nucor Witness Zarnikau provided examples of how demand would be calculated under these methodologies in his Direct Testimony.[27]

This change in the design of the demand charge can and should be done in a manner which does not affect the revenues that UNS Electric recovers from the LPS rate class (or any other class upon which this redesign is applied).[28] This improvement in the design of the demand charge will not affect how costs are allocated among rate classes.[29] It only improves how costs are recovered from customers within a class, thereby taking a significant step toward reducing intraclass subsidies.

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[25] *See generally* Nucor 1 at 13–14.
[26] *See* Nucor 1, Attachments JZ-3, JZ-4, and JZ-5.
[27] *See* Nucor 1 at 19–22.
[28] *See* Nucor 1 at 18–19, 22.
[29] *See* Nucor 1 at 19.

II. The Company should reduce the disparities in class Relative Rates of Return and other rate inequities.

Several parties in this proceeding, including the Company, have stated that a reduction in interclass subsidies and other rate inequities is a primary ratemaking goal.[30] Company Witness Dukes outlined the Company's interest in moving away from interclass subsidies:

> Q. Sure. How does the existence of interclass subsidies impact the soundness of the rate design?
>
> A. Well, it always exists. I mean you're always kind of chasing the perfect or chasing the balance, because cost structures change. Load profiles change. So you're always trying to fine-tune that. And then again, you've got to take into consideration impacts on the individual classes of customers. So I'm not sure that I'm answering your question, but you're never going to get it exactly right. You're just trying to get it as close to right as possible.
>
> Q. But the company does believe that the Commission should be moving to eliminate interclass subsidies, correct?
>
> A. Yes.
>
> Q. And you would agree with me that the rates that were proposed in your direct went farther to eliminate those interclass subsidies than the rates that are currently being proposed by the company, correct?
>
> A. That is correct.[31]

Nucor concurs with the Company and several other parties in this case that reducing inter-class subsidies is one of the most important ratemaking goals.

The Company's original revenue allocation proposal, as detailed in its Direct Testimony, would have resulted in a small decrease in LPS rates, based on test year billing determinants.[32] Even with that rate decrease, it would still have perpetuated a situation whereby LPS customers are providing large subsidies to customers in other classes.[33] In his Direct Testimony, Company Witness Jones explains that UNS Electric is presently earning a return of 27.95% from this class at present

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[30] *See, e.g.,* UNSE-32 at 1 (Jones); APS-1 at 23 (Brown); APS-4 at 12, 15 (Faruqui); APS-3 at 2, 5, 8 (Faruqui).
[31] Tr. at 1615.
[32] *See* Exhibit CAJ-2.
[33] *See* UNSE-31 at 24.

rates using an Average & Excess cost allocation.[34] Given that significant inter-class subsidy as compared to other rate classes, LPS rates should be reduced, or at least not increased, in order to move toward a reduction in subsidization among rate classes.

Nucor could support the Company's revenue allocation in its Direct Testimony, provided the Company commits to further reducing such subsidies in subsequent rate cases. However, to be clear, Nucor strongly opposes Staff Witness Solganick's recommendation to apply a rate increase upon the LPS (and LPS-TOU) customers.[35] By increasing rates on the Company's industrial customers, Staff's recommended revenue allocation would make the inter-class subsidies even worse than under present rates. Under Mr. Solganick's recommendations, the rate of return received by the utility from the LPS class would be over 64 times higher than the rate of return from serving the Residential Service class.[36] The rate of return for serving LPS customers would be nearly eighteen times higher than the return earned from serving Small General Service customers.[37]

Nucor also opposes the Company's revised revenue allocation as presented in its rejoinder testimony. Although the Company's revised revenue allocation would result in a smaller increase—1.12% increase based on Test Year results—than the increase proposed by Staff Witness Solganick, such an approach would also exacerbate the existing rate subsidy between the industrial and the residential rate classes. The chart below compares the Relative Rates of Return of various customer classes based on the Company's original filing and its revised filing.

Comparison of Class Rates of Return on Rate Base

Customer Class	Company's Original Filing, May 5, 2015	Company's Revised Filing, April 1, 2016

[34] *Id.* at 25.
[35] *See* S-18.
[36] That is, the utility would receive a rate of return of 36.62% from LPS customers, as opposed to a 0.57% rate of return from Residential Service customers. *See generally* Nucor 2 at 17.
[37] That is, the utility would receive a rate of return of 36.62% from LPS customers, as opposed to a 2.07% rate of return from Small General Service customers. *See generally* Nucor 2 at 17.

Residential Service	-3.09%	-2.57%
Small General Service	-0.24%	3.32%
Medium/Large General Service	16.42%	17.55%
Large Power Service	28.31%	31.48%
Lighting	4.16%	3.54%

Indeed, even though the Company's overall revenue requirement has decreased by $15.1 million, the subsidy-paying customer classes are even worse off than in the Company's initial proposal. As explained by Witness Higgins,

> I believe that as the company has—as this case has progressed, I have observed that the revenue requirement has come down. It has come down about seven and a half million dollars, but the company has not really directed the benefit of that reduced revenue requirement to the subsidy paying classes, the medium general service, large general service, or large power service customers. In fact, in the company's rebuttal case, every one of those classes was made worse off, despite the fact that the revenue requirement had come down. So I believe the company began with a balanced approach in its direct case as supported, even though there is significant subsidies, and then given that the revenue requirement has come down, I believe that the benefit of that reduction should be going to each of the customer classes, as I recommend in my testimony.[38]

The changes in revenue assignment proposed by the Company in its rebuttal testimony and rejoinder are simply steps in the wrong direction. We agree with other parties that disparities in the Rates of Return received from various rate classes should be reduced, not increased.[39] And we agree that any such actions should address the high subsidies provided by the LPS rate class to other customer classes. As outlined by Wal-Mart Witness Tillman in his Summary of Testimony:

> A. Yes. In my direct testimony I had four recommendations to the Commission, resulting -- based on the company's direct filing. Now, the Commission should

[38] Tr. at 1113–14.
[39] *See, e.g.*, Wal-Mart-4 at 3 (Tillman).

> approve UNSE's cost of service model, as we found issues no with that. And the Commission should order UNSE to further mitigate the disparity in the medium and large general service rate class relative rate of return in all future proceedings until all classes are brought to their cost of service. The Commission should order that any reduction in the revenue requirement resulting from this case would be primarily used to further reduce those subsidies.
>
> ...
>
> Following the company's rebuttal testimony I made some modifications. One of the things that happened in the difference between the direct and the rebuttal case was an increase in the subsidies through the company's rate allocation amongst the classes. So I recommended that the Commission should order UNSE to adjust the revenue allocation, and allocate the reduction between the direct and rebuttal case of approximately 4.1 million in a way that would serve to reduce the subsidies on the subsidized classes, and use the majority of that reduction to reduce the increase originally proposed by the company in its direct case.[40]

The existing inter-class subsidies should be reduced by aligning the revenues to be recovered from each class to the costs caused by each class.[41] We believe that increasing the rates of customers who are already subsidizing other customers is a move in the wrong direction.

On the witness stand, Company Witness Jones did not dispute that the Company's Rebuttal case slowed down progress toward parity in Relative Rate of Return among the customer classes:

> Q. But you would agree that as between the direct testimony and your rejoinder testimony, you actually moved the large customers farther away from cost of service than what is included in the direct testimony, correct?
>
> A. Yes.
>
> ...
>
> Q. Again I would like you to look at the right-hand column, the cost of service returns.
>
> A. Yes.
>
> Q. And again, they're not exactly lined up, but would you agree that the cost of service returns for the medium and large general service has increased under your revised proposal to 18.3 percent?
>
> A. Yes, that's what's reflected here, yes.
>
> Q. And the cost of service returns that you are now receiving from the large power service class has practically doubled to 18.42 percent?

[40] Tr. at 1215–16.
[41] See, e.g., Wal-Mart-4 at 7–9 (Tillman); UNSE-28 at 9 (Dukes); UNSE-31 at 3 (Jones).

A. Yes.

...

Q. I think you've been here for earlier testimony talking about gradualism and the fact that gradualism can move quickly or it can move at a glacier's pace. Would you agree that moving the dial back moves it closer to a glacial pace than it does to trying to get customers at their true cost of service?

A. It slows down the progress, I agree with that.

Q. And would you agree there have been discussions about winners and losers in the rate design? You would agree that the large customer classes with respect to your revisions in your proposal are the losers in this case?

A. I think I actually responded not as much a winner.[42]

Reducing the inter-class subsidy being paid by the Company's largest customers is not simply an academic exercise. It is important to keep the rates paid by industrial energy consumers as low as possible in order to maintain a viable business climate through this difficult economic period. Company Witness Hutchens acknowledged that energy costs were likely one of the factors that ultimately resulted in the loss of large industrial customers:

Q. Okay. Let me start with some general questions first. During his opening statement yesterday, if I recall correctly, Mr. Patten referred to the fact that the company had experienced the loss of two very large customers within the last year or two. Which customers would those be?

A. That was Mercator and the gold mining company, which is -- that name all of a sudden left me.

Q. Would that be Mineral Park Corporation?

A. Mineral Park is the Mercator mine, yes.

....

Q. Do you know whether or not energy costs were a significant operating cost for each of those customers?

A. Energy costs are always a significant input to their production, costs of their production, for any copper mine, yes.

Q. And how about with respect to the other company that you mentioned other than Mineral Park, would energy costs be a significant part of its operating cost?

A. Yes. Yes, they would be a significant part. I am not as familiar with the gold mining process as I am with the copper mine.[43]

[42] Tr. at 2635–37.

In their testimony about the Economic Development Rider (EDR), Company witnesses acknowledge the value of attracting and retaining large, high load–factor customers. As stated by Mr. Dukes in his Direct Testimony:

> Q. Do you believe an Economic Development Rider could assist business growth in these areas?
>
> A. Yes. The inclusion of this additional incentive along with the rate design changes discussed in UNS Electric witness Craig Jones' testimony, reducing rates for the business classes - should put the UNS Electric service territory in a better competitive position to attract and expand business load. This would be beneficial to the entire customer base and the State of Arizona.[44]

Indeed, the Company indicated that it is willing to absorb any potential costs of such programs because all customer classes would ultimately benefit. As explained by Mr. Hutchens:

> Q. Okay. Then go to page 16 of your rebuttal testimony. And starting on line 3 and continuing through the major portion of line 6, you make the following statement, and I will read it just for the record. Quote, UNS Electric will not seek recovery of any lost nonfuel revenues associated with the EDR in future rate case proceedings. The long-term benefits of attracting or retaining large high load factor customers greatly outweigh the short-term costs, close quote. Now, Mr. Black asked you one or two questions regarding that, but looking at page 16 and lines 5 to 6, where you refer to the long-term benefits, let me ask you: What are those benefits? Could you be more specific?
>
> A. Sure. The long-term benefits of any economic development are, you know, one, jobs. That's obviously the big specific one that you focus on from an economic development perspective. Obviously increasing both the wealth of the service territory as well as, you know, the prosperity, **it just kind of raises all boats**. Now, on the long-term perspective from a utility's view is it also creates -- I know we settled the whole pie about how much costs have to be recovered. And we are trying to figure out who is going to cover those costs. That's why we are sitting here having this conversations. The pie has been decided. Now, if you have more customers, more load, more demand to spread those costs out, it lowers the effective costs to every individual. So from our perspective, it creates a longer term, more efficient utilization of existing infrastructure, and creates more efficient use of -- or creates a more efficient system going forward and reduces the amount of infrastructure, additional infrastructure investments that you would need. So that's the long-term benefits.[45]

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[43] Tr. at 287–88.
[44] UNSE 28 at 31.
[45] Tr. at 292–94 (emphasis added).

The impact of retaining (or losing) large high-load factor customers is particularly acute for a small utility like UNS Electric. As indicated by AECC Witness McElrath:

> Q. Given the relatively small UNSE industrial and commercial customer base in its service areas, would you agree that UNSE and the communities it serves have a limited ability to absorb or offset the loss of large commercial or industrial customers if they were to exit the system?
>
> A. Well, our experience what happens is, as we are seeing with our Sahuarita operation in Green Valley, because of the benefits that we provide, you know, an ongoing concern, a business, provides a community, if a large business goes away or reduces staff, jobs go away, support for the schools go away. It is a significant impact, as Kingman is dealing now with what is going on with the loss of Mineral Park. And I think Nucor is having some issues there as well.[46]

Nucor's Recommendation for Class Relative Rates of Return

Nucor recommends that the bill impacts applied to LPS and LPS-TOU customers be no higher than the values appearing in Exhibit CAJ-2 of the Company's original filing. Under the column "Test Year Adjusted Fuel True-Up and Margin Increase, Percent Change to the Total Bill with Fuel Increase," the percentage applied to LPS-TOU customers was 0.17%, and the percentage applied to LPS customers was -0.44%. In fact, these values should be reduced since they are based upon the original revenue requirement proposed by the Company and the overall revenue requirement to be approved by the Commission is likely to be a smaller value.[47] Nucor would also not oppose the Revenue Allocation solution proposed by AECC/Noble Solutions Witness Higgins[48] because it would take a meaningful step toward reducing inter-class subsidies.

III. The Commission should order the Company to improve and clarify the LPS-TOU tariff, the proposed Interruptible Rider, and the proposed Economic Development Rider.

a. The present differential between on-peak energy charges and off-peak energy charges in the LPS-TOU tariff should be maintained.

[46] Tr. at 1179–80.
[47] As we understand it, the Company's overall revenue requirement request has decreased by $15.1 million since its initial filing.
[48] *See* AECC/Noble Solutions-4.

One of the primary goals of time-of-use pricing is to send price signals to customers to encourage shifting consumption from on-peak to off-peak periods. A well-designed time-of-use tariff will help flatten the system demand curve and contribute to lower rates for all customer classes. In time-of-use rates, the ratio between on-peak and off-peak power can impact the effectiveness of the tariff—as the ratio decreases, so does the incentive for customers to shift usage to the off-peak period.

As an LPS-TOU customer, Nucor has tailored production schedules to operate during the off-peak period wherever possible. Although we would prefer that the on-peak/off-peak energy charge ratio be higher, the present ratio at least serves as an incentive to run production mainly during the off-peak period. Presently, the LPS-TOU Power Supply Charge, Base Power price during on-peak periods in the summer is $0.12358 per kWh, and the price during off-peak periods is $0.024716 per kWh. Thus, the ratio in the summer is 5 to 1. During the winter, the current charges are $0.09338 during the on-peak period and $0.022105 during the off-peak period, resulting in a ratio of roughly 4.25 to 1 during the winter pricing period.[49]

Under the proposal by UNS Electric, the summer Power Supply Charge: Base Power price would be $0.12251 and $0.03211 during on-peak and off-peak periods, respectively. Thus, the differential would be 3.8 to 1. During the winter, the proposed charges are $0.09211 during the on-peak period and $0.03091 during the off-peak period, resulting in a differential of less than 3 to 1.[50] It is clear that UNS Electric is proposing to greatly increase the off-peak energy charges, while the on-peak energy charges would be left at very similar levels. This reduction in the difference between the on-peak and off-peak energy charges will greatly reduce the incentive for consumers on this tariff to move consumption to off-peak periods. The Company is not proposing to reduce the on-peak/off-peak ratio for all time-of-use customers. We note, for example, that the Company is proposing to

[49] *See* Nucor 1 at 23.
[50] *Id.*

increase the ratio in the summer for the LGS tariff.[51] The Company has not provided adequate justification for reducing the LPS-TOU on-peak/off-peak energy charge ratio, thereby reducing the effectiveness of the LPS-TOU rate.

Nucor's Recommendation for the on-peak/off-peak energy charge ratio

Nucor recommends that the existing differential between on-peak and off-peak energy charges be maintained at their present levels and as agreed-upon by the signatories to the stipulation approved by the Commission in the Company's previous rate case. We recommend that this be done in a revenue-neutral manner.

b. <u>The proposed Interruptible Rider should be redesigned so that it is available to all industrial energy consumers, regardless of when they operate.</u>

Although Nucor views the proposed Interruptible Rider (R-12) to be a step in the right direction, we believe that it will be of limited value on the Company's system. Nucor, and perhaps other industrial energy consumers, have loads which could be interrupted during emergencies at the utility's request.[52] However, these loads are not always available "around the clock," as defined by the Company, and would thus not qualify for the proposed Rider R-12.[53]

A potentially more effective program would be a "peak rebate program" whereby industrial customers would be notified by UNS Electric when a load reduction would be valuable in order to maintain reliability or for economic reasons. The program would allow industrial customers an opportunity to voluntarily reduce load in return for a payment or bill credit from the utility.

Participation in this option would, of course, be limited to customers who were not otherwise interruptible—i.e., taking service under the interruptible tariff or participating in the Rider R-12 program as proposed by UNS Electric. There would also be no obligation placed on the customer to

[51] See *id.* at 24.
[52] *See id.* at 25.
[53] *See id.* at 25–26.

interrupt, and the customer would receive no bill credit if it declined to curtail at the utility's request or had no load that could be shed at the time of the utility's request. When the industrial customer receives a request from UNS Electric, the customer could compare the payment quoted by UNS Electric against the value of their lost production and make an appropriate economic decision.[54]

Compensation should be based on a simple split of the savings evenly between the utility and the participating load. The savings would be the cost avoided by the actions taken by the consumer. For example, the interruption of 1 MW of load for an hour-long period when the wholesale price was $1,000 would result in savings of $1,000. A purchase of power at $1,000 per MWh could be avoided, or 1 MWh of excess generation on the UNS Electric system could be sold, resulting in a similar economic outcome.[55]

Alternatively, UNS Electric's proposed Rider R-12 could be modified to allow for participation from industrial energy consumers that operate on "shifts" or predominately during off-peak periods. The compensation provided to such loads could be adjusted appropriately.[56] As explained by Nucor Witness Zarnikau in his Direct Testimony, a customer with a largely predetermined fixed schedule could provide the Company with information about expected loads on specific days and times of the day. The Company could adjust a bill credit according to the value of the interruptibility of the load. Other adjustments may apply based on the value that the Company assigns to resources available during the various hours and days.

Nucor's Recommendation for the Interruptible Rider (R-12)

The Commission should direct the Company to establish a "peak rebate program" in which the Company would notify industrial customers when a load reduction would be valuable in order to maintain reliability or for economic reasons. In the alternative, the Commission could direct the

[54] *See id* .at 25–28.
[55] *See id.* at 29.
[56] *See id.* at 27–28.

Company to modify proposed Rider R-12 to incorporate a program for large industrial customers that operate principally in the off-peak periods.

c. <u>The proposed Economic Development Rider should be revised to clarify that the calculation of the customer's monthly load factor in the summer months is based on the customer's billing demand.</u>

As it has been proposed by the Company, the new Economic Development Rider's (EDR) qualification criteria are not clear. In order for any new economic incentive to be effective, the terms must be spelled out in enough detail that current or prospective customers can make business decisions confident that the incentive will apply to their circumstances. There are two basic problems with the EDR as currently proposed. First, it is unclear how the minimum load factor requirement should be calculated.[57] Second, it is also unclear how the requirement that load factors be calculated for "the highest 4 coincident-peak months in a rolling 12-month period" would be implemented.

The load factor requirement should be clarified.

Regarding the calculation of the load factor, the relevant language of the tariff is as follows: "This rider is available for commercial or industrial standard offer customers **with a projected peak demand of 1,000 kW or more and a load factor of 75% or higher for the highest 4 coincident-peak months in a rolling 12-month period**."[58] In order to calculate a customer's load factor for the EDR, the Company will need to use the customer's peak demand. However, it is not clear which measure of the Customer's Peak Demand should be used in the formula to determine load factor. For an LPS or LPS-TOU customer, as explained above, the current options for measuring a customer's demand under the current tariffs might include the customer's highest demand during a peak period, the customer's highest demand during an off-peak period, the customer's contribution to the monthly or annual system peak, the contract capacity value mentioned in part 4 of the Billing Demand section

[57] *See* Nucor 2 at 10.
[58] UNSE 31, Exhibit CAJ-4 (Rider-13, Economic Development Rider) (emphasis added).

of the tariff, or the 500 MW minimum demand also mentioned in part 4 of the Billing Demand section of the tariff. Without a clarification of the demand measurement to be used in the calculation of the load factor under the EDR, the Company's new incentive may not achieve its intended result.

The coincident peak calculation method should also be clarified.

It is also unclear how the Company intends to implement the requirement that load factors be calculated for "the highest 4 coincident-peak months in a rolling 12-month period." Here again, different interpretations of this requirement could lead to widely varying results. Does this suggest that the average of the load factors for four summer months would need to exceed 75%? Or would the customer's load factor in each of the four months need to exceed 75%? Which months are "coincident-peak months"? How will this calculation "roll"? Would a calculation made in the middle of 2017 include values from the later summer months of 2016? To determine whether expansion of an existing facility might qualify for the proposed EDR tariff, would both the existing load and the load of the proposed expansion be considered in the calculation of the load factor? Or would this calculation merely consider the proposed expansion?[59]

Under cross-examination, Company witnesses were not able to articulate exactly how this provision would be applied if the EDR is approved as proposed:

> Q. "This rider is available for commercial or industrial standard offer customers with a projected peak demand of 1000 kW or more, and a load factor of 75 percent or higher for the highest four coincident peak months in a rolling 12-month period." What I'm going to ask you is, how the company intends to calculate that load factor or how a customer would calculate their projected load factor to make sure they qualified for this. First, for an existing customer is the load factor calculated for the new load only, or let's say they have a 90 percent or 100 percent load factor, and they bring on a 70 percent load factor but the average ends up being over 75 percent. Is it based on only the new load or the customer's total load factor? Does that make sense?
>
> A. It does. I think Mr. Dukes testified that we tried to be -- give guidance in the language, but we would hope we would have some latitude in applying that to

[59] *See generally* Nucor 2 at 11.

customers as they came in. I think if I were to add a word in here to hopefully help clarify part of it, would be either projected or actual measured demand during that period. That's what would determine it. So in other words, if you had a -- I don't know -- your CCCCP was 10,000, then if we believed your projected added load was going to be 7500 or greater in that period, then you would qualify. And that would be projected if you're a new customer. If you're an existing customer, we would be able to look at your data.

And the reason it's qualified as rolling is if you moved from, you know, you would use June of last year if you're, you know, July now. Or whatever the actual period would be. And then as you moved to August, you could go ahead and use June of this year. But you would have to use last year's data for an existing customer. So that's what the rolling part is. It would be based on measured in comparison, you know, your measured is what would determine your 4 coincident peak volume here. So that's what the actual 75 percent would be based off. Then you had an added question in there about an existing customer with added load.

Q. Correct.

A. You know, my interpretation of this as it was originally written would say it would be based on the original load only. But you make a very valid point, and I don't know. We would have to talk to someone else if there's something else that we would have to do. But at this point, the interpretation would be if you add load, it has to be the incremental load itself. Because part of the reason behind this EDR rate is it is all incremental-added load. So the ability for us to offer that discount hinges on that. If it's analyzing existing load, now we're cutting existing rates for existing customers which would be -- I'm not sure we're comfortable with going there.[60]

The Company's witnesses indicated that the Company is flexible as to modifications of the EDR. Per Company Witness Jones:

A. Yeah. I would say the Commission is certainly in authority to suggest, require -- whatever word you want to use -- any modifications they deem appropriate, if it's truly designed to protect new customer load or new customers in accordance with what our proposal is. That's our intent. We want to offer an opportunity for some economic development that allows larger, higher load factor customers to add either preferably to existing facilities in our territory or new facilities in our territory.[61]

However, ambiguity in the terms and conditions will make it difficult for customers to know whether they might qualify.

[60] Tr. at 2626–28 (Jones).
[61] Tr. at 2629–30.

Nucor's Recommendation to Clarify the Economic Development Rider

Nucor suggested a simple modification in its Direct Testimony that would add significant clarity to the applicability of the EDR.

> In the proposed Rider-13 Economic Development Rider (EDR), it should be clarified that the calculation of the customer's monthly load factor in the summer months is based upon the customer's billing demand.[62]

Nucor also recommends that the load factor be calculated according to the customer's total load and not just the new incremental load.

CONCLUSION

Based on the evidence presented in this case, the Commission should order the Company to:

1. Apply a demand charge to LPS-TOU customers that reflects the customer's contribution to the system peak based on a 4CP calculation method;

2. Adopt a revenue allocation that reduces the disparities in Relative Rate of Return among the customer classes;

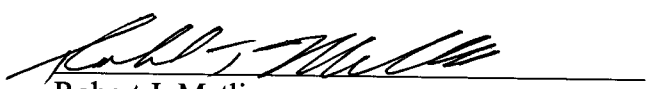
3. Maintain the present differential between on-peak and off-peak energy charges in the LPS-TOU rate;

4. Modify the proposed Interruptible Rider to include a broader range of interruptible loads; and

5. Clarify the applicability of the Economic Development Rider.

RESPECTFULLY SUBMITTED this 25th day of April, 2016.

MUNGER CHADWICK, P.L.C.



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[62] Nucor 1 at 6.