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BEFORE THE ARIZONA CORPORATION COMMISSION

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IN THE MATTER OF THE APPLICATION OF  
UNS ELECTRIC, INC. FOR APPROVAL OF ITS  
2011-2012 ENERGY EFFICIENCY  
IMPLEMENTATION PLAN.

DOCKET NO. E-04204A-11-0056

NOTICE OF FILING -  
SUPPLEMENTAL C&I DEMAND  
RESPONSE PROGRAM

UNS Electric, Inc. ("UNS Electric" or "Company"), through undersigned counsel, hereby files a supplemental Appendix to its proposed Energy Efficiency Implementation Plan that was filed with the Arizona Corporation Commission ("Commission") on January 31, 2011. Appendix J is UNS Electric's Commercial and Industrial ("C&I") Demand Response Program. Appendix J contains confidential information that is being provided directly to Commission Staff.

RESPECTFULLY SUBMITTED this 20<sup>th</sup> day of July 2011.

UNS Electric, Inc.

By Melody Gilkey  
Phillip J. Dion  
Melody Gilkey  
UNS Electric, Inc.  
One South Church Avenue, Suite 200  
Tucson, Arizona 85701

and

Michael W. Patten  
Roshka DeWulf & Patten, PLC  
One Arizona Center  
400 East Van Buren Street, Suite 800  
Phoenix, Arizona 85004

Attorneys for UNS Electric, Inc.

1 Original and 13 copies of the foregoing  
filed this 20<sup>th</sup> day of July 2011 with:

2 Docket Control  
3 Arizona Corporation Commission  
1200 West Washington Street  
4 Phoenix, Arizona 85007

5 Copy of the foregoing hand-delivered/mailed  
this 20<sup>th</sup> day of July 2011 to:

6 Lyn A. Farmer, Esq.  
7 Chief Administrative Law Judge  
Arizona Corporation Commission  
1200 West Washington Street  
8 Phoenix, Arizona 85007

9 Janice Alward, Esq.  
10 Chief Counsel, Legal Division  
Arizona Corporation Commission  
1200 West Washington Street  
11 Phoenix, Arizona 85007

12 Steve Olea  
13 Director, Utilities Division  
Arizona Corporation Commission  
1200 West Washington Street  
14 Phoenix, Arizona 85007

15 Terri Ford  
16 Utilities Division  
Arizona Corporation Commission  
1200 West Washington  
17 Phoenix, Arizona 85007

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20

By



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# **APPENDIX J**

## **Commercial and Industrial Demand Response Program**

**UNS Electric, Inc.**  
**Commercial and Industrial**  
**Demand Response Program Description**

# C&I Demand Response Program

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## C&I Demand Response Program

### **Program Concept and Description**

UNS Electric, Inc. ("UNS Electric") proposes to manage peak demand and to mitigate system emergencies through a commercial and industrial ("C&I") load curtailment program ("Program" or "C&I Program"). The Program will be delivered on a turn-key basis by a third-party implementation contractor, who will negotiate load reduction agreements with multiple customers and "aggregate" these customers to provide UNS Electric a confirmed and guaranteed load reduction capacity available upon request. It is anticipated that the contract between UNS Electric and the demand response ("DR") aggregator will be similar to a power purchase agreement in that the contracted party will be obligated to provide megawatts ("MW") of load curtailment while maintaining a degree of flexibility in how the curtailments are achieved. The goal of the program will be to enroll enough customers to provide up to 10 MW of summer peak demand reduction, available for up to 80 hours per year, with a typical load control event lasting 3-4 hours.

Participants in the program will be compensated with incentives for their participation at negotiated levels that will vary depending on multiple factors including the size of the facility, amount of kilowatts ("kW") under load control, and the frequency with which the resource can be utilized.

Upon Commission approval, UNS Electric will add this program to its portfolio of Energy Efficiency (EE) Programs and will credit kilowatt hour (kWh) savings towards the Electric Energy Efficiency Standard (EEES) adopted by the Commission in Decision No. 71819 (August 10, 2010). Per Section R14-02-2404(c) of the Arizona Administrative Code, UNS Electric will credit 2,321 MWh for 2011 and 5,735 MWh for 2012 towards the EEES, assuming the minimum megawatts of load curtailment to achieve this credit is under contract.

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### **Program Rationale**

Commercial and industrial load represents a total of approximately 14% of system demand during peak hours in the late afternoon and evening during summer months. Modification of controls for chillers, rooftop air conditioning ("AC") units, lighting, fans, and other end uses is capable of significantly reducing power demand at peak times.

Program experience in other service territories suggests that many participants would be relatively unaffected by a modest and temporary increase in facility temperature resulting from a load control event. C&I customers are expected to participate in a DR program due to the financial incentives provided by the selected contractor. The contractor would be free to customize the incentive terms based on a number of factors including:

- the types of load that customers are able to reduce;
- whether the load can be directly controlled by the contractor (automated DR);
- the amount of advanced notification required by the customer;
- the maximum amount of time the customer is willing to curtail load in a given event; and
- the number of events and hours the customer is willing to curtail load per year.

## C&I Demand Response Program

The Program will generate the following benefits:

- Avoided firm capacity required to meet reserve requirements.
- Reduced or avoided open-market power purchases during periods of high energy prices.
- Greater grid stability and reduction in outages due to reduced grid demand.
- Emergency and rapid-response demand reduction resource in case of system-wide or localized emergencies.

### **Target Markets**

The Program will be targeted to commercial and industrial customers within UNS Electric's territory with a peak demand sufficient to enable load curtailments of approximately 50 kW or more and whose facility operations will permit load reductions coincident with UNS Electric's summer peak hours.

### **Delivery Strategy and Administration**

Program administration is expected to be outsourced to a firm with extensive experience in C&I load control equipment, processes, and marketing. UNS Electric will design basic program requirements and resource specifications (e.g., total MW, desired response times, target market) and will select an experienced DR service provider that will be overseen by UNS Electric staff.

The responsibilities of the third-party contractor will include, but not be limited to, the following:

- recruitment of participants;
- participant assistance in designing effective load control strategies;
- provision of load control equipment and/or ensuring that participants successfully enable curtailment capability;
- participant tracking and reporting;
- establishing a head-end software system that can be used by UNS Electric to call and monitor load control events;
- call center services;
- customer satisfaction/problem resolution; and
- negotiation and payment of incentives to customers for program participation.

UNS Electric staff will be responsible for the following:

- managing the contractor(s) and tracking program implementation;
- developing internal staff training and protocols for calling load control events; and
- public relations, program promotion, cross-program coordination of other demand-side management and renewable opportunities.

## C&I Demand Response Program

Evaluation of program processes, customer feedback, technology assessment, and impact assessment will be conducted by an independent evaluation contractor who is not responsible for program delivery.

### **Marketing and Communications**

Recruitment will be targeted to help ensure that customers invited to participate are able to provide reliable and significant load control reductions. Consequently, it is not anticipated that mass media, such as radio and television will be used. Rather, the DR aggregator will conduct direct marketing according to an approach approved by UNS Electric for purposes of ensuring a consistent message with UNS Electric's public communications.

### **Monitoring and Evaluation Plan**

Monitoring and evaluation of the Program will help ensure that the load curtailments are providing the megawatts for which UNS Electric is paying and counting on for resource planning purposes. Monitoring and evaluation will be conducted by an independent evaluation contractor who is not responsible for program delivery, and will include the following elements:

- **The impact evaluation** will address the changes in demand during load control events. These changes in demand will be estimated using statistical regression modeling and by comparing each customer's expected usage during an event with their actual usage based on interval meter data during the event and in the days and hours prior to the event. The customer-specific load reductions reported by the DR provider will be verified, and system-wide reduction estimated using data from the entire summer season. Alternative baseline methodologies may be examined to assess whether alternative baselines provide a more accurate prediction of usage.
- **The process evaluation** will encompass a review of how well UNS Electric and the selected third party implementation contractor has administered the program and how customers perceive the program. A program delivery assessment will include interviews with UNS Electric staff, vendors, and participants to identify program strengths, areas for improvement, and features that are preferred or disliked by customers. Customer feedback will be a major aspect of the process evaluation and will be obtained primarily through surveys of at least a portion of participants at various stages of the program implementation.

### **Estimated Peak Demand Savings and Environmental Benefits**

The program will be capable of delivering up to 10 MW of load reduction during typical summer peak hours, and varying amounts by the season, time of day, and day of the week according to customers' ability to shed load and the contractor's load reduction nominations. These full demand savings will be available after approximately one year of implementation of the program, and persist throughout the anticipated ten year contract duration (Table 1), which may be extended or transferred to continue program benefits. UNS Electric will negotiate with the selected vendor a guarantee provision to ensure the demand reduction resource is available upon request.

## C&I Demand Response Program

**Table 1. Demand and Energy Savings**

Energy and Demand Savings	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10
Annual Demand Savings (Peak) MW	2	10	10	10	10	10

While some amount of energy savings will occur during load control events, the majority of consumption is typically deferred to off-peak periods rather than avoided altogether. As such, it is conservatively assumed that savings from DR events are restricted to demand savings only, and environmental benefits (including carbon emissions reductions) are not considered to be significant enough to influence cost-effectiveness or to contribute significantly toward emissions reductions goals.

There may be additional emissions reductions, not quantified here, due to load-shifting to hours of the day when higher efficiency generation resources are used, as well as environmental benefits related to the reduced need for additional peaking generation.

### Program Costs

Table 2 presents an estimate of Program costs of \$7.5 million over a projected 10-year period. The present value of costs in 2011 dollars is \$6.0 million discounted at 4.0%. Please see Exhibit 1 for an updated Energy Efficiency Plan budget.

**Table 2. C&I Direct Load Control Costs**

Cost in \$1000s	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6-10	Total	NPV (2011\$)
Program Administration	■	■	■	■	■	■	■	■
Customer Incentives (estimate of pass-through)	■	■	■	■	■	■	■	■
Outsourced Services (excluding incentives)	■	■	■	■	■	■	■	■
<b>Total</b>	<b>\$237</b>	<b>\$821</b>	<b>\$801</b>	<b>\$803</b>	<b>\$805</b>	<b>\$4,061</b>	<b>\$7,529</b>	<b>\$6,019</b>

### Program Cost Effectiveness

UNS Electric expects an outsourced C&I DR program to be cost-effective over the 10-year program period evaluated for this filing. Program benefits in the form of avoided capacity costs are expected to be \$5.3 million in 2011 dollars. Under the Societal Cost Test ("SCT"), incentives are treated as transfers (a benefit to the customer that offsets the cost to TEP) and thus are not included in the net program costs.<sup>1</sup> Excluding incentives, the present value of program costs is only \$3.1 million, resulting in a benefit/cost (B/C) ratio of 1.69 (Table 3).

<sup>1</sup> UNS Electric will provide incentives to customers through its contract with a DR aggregator. One advantage of using a third-party contractor is that the contractor is able to customize incentives to meet the needs and load curtailment flexibility of individual customers. Based on similar programs in other utility jurisdictions, it is

## C&I Demand Response Program

**Table 3. Benefit-Cost Ratio using Societal Cost Test (10-year Program Duration)<sup>2</sup>**

Costs	\$3.1
Benefits (Avoided Costs)	\$5.3
Benefit/Cost Ratio	1.69

### Program Implementation Schedule

UNS Electric anticipates that the full 10 MW of peak load reduction potential will be available within 18 months after contract signing with the selected implementation vendor, and quick start availability of 2 MW within four months of contract signing.

Table 4 shows an implementation schedule for the first year of the Program, with dates for major milestones in the program design and implementation. This schedule assumes a quick approval by the Arizona Corporation Commission (“Commission”). The initial contract with the implementation contractor is expected to be ten years, but the contract may be extended, or a new contract awarded in order to extend program benefits beyond that term.

**Table 4. Direct Load Control Program Implementation Schedule**

Major Milestone	Date
Finalize program plan and submit to Commission for approval	June 2011
Anticipated date of program approval	Oct 2011
Finalize contract with vendor/implementation contractor	Aug 2011
Complete recruitment and equipment installation for 2 MW	Dec 2011
Achievement of 10 MW of load curtailment capability	Dec 2012
Decision regarding contract extension/renewal	2020

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estimated that greater than 50% of UNS Electric’s payments to the contractor will be passed through directly to customers in the form of financial incentives for participation.

<sup>2</sup> Costs in millions, NPV 2011\$

# **EXHIBIT 1**

## Exhibit 1 – DSMS Backup (Update)

**Table 1: 2010 Expenditures and 2011-2012 Proposed Budgets**

DSM Support Programs	2010 Expenditures	2010 Approved Budgets	2011 Budget	2012 Budget	Combined 2011-2012 Budget
Education and Outreach	\$139,183	\$127,308	\$141,822	\$141,884	\$283,706
Residential Energy Financing	NA	NA	\$425,853	\$426,606	\$852,459
Codes Support	NA	NA	\$22,174	\$29,278	\$51,452
Support Programs Subtotal	\$139,183	\$127,308	\$589,849	\$597,768	\$1,187,617
<b>Behavioral Programs</b>					
Home Energy Reports	NA	NA	\$209,150	\$312,933	\$522,083
Behavioral Comprehensive Program	NA	NA	\$309,683	\$518,716	\$828,399
Behavioral Subtotal	\$0	\$0	\$518,833	\$831,649	\$1,350,482
<b>Residential Efficiency Programs</b>					
Low-Income Weatherization	\$122,438	\$111,395	\$351,433	\$351,817	\$703,250
Appliance Recycling	NA	NA	\$225,011	\$225,249	\$450,260
Residential New Construction	\$151,154	\$445,578	\$359,084	\$411,454	\$770,538
Existing Home (was Efficient Home Cooling)	\$197,085	\$318,270	\$1,138,800	\$1,529,231	\$2,668,031
Shade Tree Program	\$21,536	\$65,000	\$47,965	\$60,433	\$108,398
Efficient Products (CFL)	\$323,644	\$350,200	\$558,208	\$766,185	\$1,324,393
Multi-Family Direct Install	NA	NA	NA	\$81,300	\$81,300
Residential Subtotal	\$815,856	\$1,290,443	\$2,680,501	\$3,425,669	\$6,106,170
<b>Non-Residential Efficiency Programs</b>					
Bid For Efficiency	NA	NA	\$147,087	\$323,583	\$470,670
C&I Facilities	\$445,935	\$424,360	\$1,497,435	\$2,058,880	\$3,556,315
C&I Schools Program	NA	NA	\$161,402	\$197,645	\$359,047
Retro-Commissioning	NA	NA	NA	\$256,352	\$256,352
Non-Residential Subtotal	\$445,935	\$424,360	\$1,805,924	\$2,836,460	\$4,642,384
<b>Demand Response Programs</b>					
C & I DLC	NA	NA	\$237,400	\$821,138	\$1,058,538
<b>Program Totals</b>	<b>\$1,400,974</b>	<b>\$1,842,111</b>	<b>\$5,832,507</b>	<b>\$8,512,684</b>	<b>\$13,286,653</b>
Program Development, Analysis & Reporting Software <sup>1</sup>	\$241,282	NA	\$216,000	\$222,480	\$438,480
Baseline Study	\$142,067	\$142,000	NA	NA	NA
<b>Sub-total</b>	<b>\$383,349</b>	<b>\$142,000</b>	<b>\$216,000</b>	<b>\$222,480</b>	<b>\$438,480</b>
<b>Total</b>	<b>\$1,784,322</b>	<b>\$1,984,111</b>	<b>\$6,048,507</b>	<b>\$8,735,164</b>	<b>\$14,783,671</b>

1. Expenses are necessary for compliance and reporting requirements of EEES.

**Table 2: DSMS Rate Calculation**

UNSE	DSM Budget	19MoForecast	Rate/kWh
Total Expense	\$14,783,671	4,775,244,697	\$0.003096
Performance Incentive	\$2,231,343	4,775,244,697	\$0.000467
	\$17,015,014		\$0.003563