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BEFORE THE ARIZONA CORPORATION COMMISSION

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AZ CORP COMMISSION  
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. E-04204A-07-0365  
UNS ELECTRIC, INC. FOR APPROVAL OF ITS )  
DEMAND-SIDE MANAGEMENT PROGRAM )  
PORTFOLIO. )

NOTICE OF ERRATA

UNS Electric, Inc., through undersigned counsel, hereby submits a copy of its Demand-Side Management Program Portfolio Plan 2008-2012, which may have been inadvertently excluded from the application in this docket.

RESPECTFULLY SUBMITTED this 31<sup>st</sup> day of October 2007.

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- 2 filed this 31<sup>st</sup> day of October 2007 with:
- 3 Docket Control
- 4 Arizona Corporation Commission
- 5 1200 West Washington Street
- 6 Phoenix, Arizona 85007
- 7 Copy of the foregoing hand-delivered/mailed
- 8 this 31<sup>st</sup> day of October 2007 to:
- 9 Chairman Mike Gleason
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UNS Electric, Inc.  
Demand-Side Management  
Program Portfolio Plan  
2008-2012

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Education and Outreach Program Description .....	Attachment 1
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Low-Income Weatherization Program Description .....	Attachment 3
Energy Smart Home Program Description (Residential New Construction Program).....	Attachment 4
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Commercial Facilities Efficiency Program Description .....	Attachment 7

## 1. Introduction

UNS Electric, Inc. (“UNSE”) is requesting approval of the portfolio of DSM programs presented in this plan (the “DSM Portfolio Plan”). This DSM Portfolio Plan provides an overview of DSM programs that UNSE proposes to implement to provide savings and net benefits for UNSE customers.

## 2. DSM Portfolio Performance Costs, Savings and Net Benefits

UNSE proposes to implement a DSM Portfolio Plan designed to reduce the use of energy by encouraging its customers to implement certain energy-efficiency products, services or practices. The proposed programs are designed to influence residential and non-residential customers to adopt energy efficiency measures through a combination of rebates, technical assistance, training, and consumer education. While the focus of the programs is on reducing demand and electric energy use, some of the programs will likely result in natural gas energy savings as well and those savings have also been estimated and included in the analysis of the programs.

Exhibit 1 summarizes the proposed budget and expected energy savings as a result of program activities from 2008-2012<sup>1</sup>. Exhibit 2 summarizes program net benefits of the programs from 2008-2012 from the perspectives of the Total Resource Cost (“TRC”) and the Societal Cost (“SC”) tests<sup>2</sup>. These tests are described in more detail below.

**Exhibit 1**  
**DSM Portfolio Budgets and Estimated Savings 2008-2012**

<b>Program Budget 2008-2012</b>	<b>Annual Therm Savings</b>	<b>Non- coincident Peak Demand Savings (MW)</b>	<b>Coincident Peak Demand Savings (MW)</b>	<b>Annual MWH Savings</b>
\$15,171,081	208,372	53.5	52.6	19,753

The total budget represent UNSE’s best estimate of spending, however, it is inevitable that some programs will achieve greater participation than others. DSM costs will be recovered through an adjuster mechanism approved by the ACC and actual spending will be trued up after each full year. Therefore, UNSE suggests that the proposed annual budgets should not represent a maximum annual spending limit and that flexibility is approved for UNSE to adjust spending for programs achieving greater participation than expected. Budgets may need to be adjusted annually to maximize the effectiveness of the overall portfolio.

**Exhibit 2**  
**DSM Portfolio Net Benefits 2008-2012**

Total Resource Cost Test Portfolio Benefits	\$21,761,485
Total Resource Cost Portfolio Costs	\$17,663,097
Total Resource Cost Portfolio Net Benefits	\$4,098,388
Societal Cost Test Portfolio Benefits	\$26,561,573
Societal Cost Test Portfolio Costs	\$17,663,097
Societal Cost Test Portfolio Net Benefits	\$8,898,476
Total Resource Cost Test – Portfolio Level	1.23
Total Societal Cost Test – Portfolio Level	1.50

<sup>1</sup> Both the coincident and non-coincident demand savings include a 47.1 MW reduction attributable to the proposed direct load control program. Base load reductions attributable to DSM activities are estimated to be 6.3 kW non-coincident and 5.5 MW coincident peak.

<sup>2</sup> The total resource costs and societal costs include \$350,000 in customer tracking database costs expected to be incurred in 2008.

Total Net Benefits are equal to Total Societal Benefits minus Total Societal Costs. Total Societal Benefits are equal to the avoided costs of demand and energy savings over the life of the efficiency measures, and Total Societal Costs include all program costs including the cost of program development, administration, measurement, evaluation and research.

### 3. Description of Proposed Programs

The DSM Portfolio Plan includes a range of programs designed to provide all of UNSE’s customer segments with opportunities to reduce demand, save energy and reduce energy costs. The programs are designed to provide options for improving the energy efficiency of existing residential homes, residential new construction projects, residential low-income homes, and commercial and industrial (“C&I”) buildings. New commercial construction projects can participate in the Commercial Facilities Efficiency program.

While this document provides cost and benefit information for a five-year program portfolio plan it is important to note that this does not mean programs will be eliminated at the end of the first five years. Through regular monitoring and evaluation of each program, UNSE will determine if programs are cost effective. Individual programs may be modified or eliminated at an earlier date than 5 years or they may continue for additional years until each individual program is no longer cost-effective.

This section includes a brief description of each proposed DSM program. Detailed program descriptions are provided in the Attachments hereto including information about (1) program concepts; (2) target markets; (3) baseline conditions; (4) customer eligibility; (5) program rationales; (6) program objectives; (7) products and services provided; (8) delivery strategy and administration; (9) marketing and communications; (10) implementation schedules; (11) monitoring and evaluation plans; (12) program costs; (13) estimated energy savings; and (14) program cost effectiveness. Exhibit 3 shows the list of programs included in this plan and the proposed total budget for 2008 - 2012:

**Exhibit 3**  
**Listing of Programs Included in the Portfolio Plan**

<b>Program</b>	<b>Total Cost</b>
<b>Cross Market Programs</b>	
Education and Outreach	\$713,872
Direct Load Control	\$7,617,698
<b>Residential Efficiency Programs</b>	
Low-Income Weatherization	\$557,459
New Home Construction	\$2,229,837
Residential HVAC Retrofit	\$1,592,741
Shade Tree Program	\$335,821
Residential Subtotal	\$4,715,858
<b>Non-Residential Efficiency Programs</b>	
Commercial Facilities Efficiency	\$2,123,654
Non-Residential Subtotal	\$2,123,654
<b>Total</b>	<b>\$15,171,081</b>

### **3.1 Education and Outreach Program**

The Education and Outreach Program includes initiatives specifically formulated for UNSE's residential and non-residential customers.

#### **Residential Education and Outreach**

UNSE currently provides on-line energy audit services to residential customers. The Energy Advisor ("EA") is a highly interactive, graphical home energy analysis application that is easy to use and understand. The EA can generate more than 140 energy savings recommendations or measures and is personalized for weather and electric utility rates based on the customer's zip code. A user can complete the audit with or without an electric bill history download. UNSE's on-line energy tools are designed to help customers understand and manage their energy use and include a Detailed Home Energy Analysis and Energy Savings Calculators. UNSE's residential education program also includes an energy efficiency media campaign to educate customers on how to conserve energy, as well as energy education initiatives formulated for academic institutions. The campaign includes bill inserts, radio advertising, and home page icons on UNSE's website. This DSM Portfolio Plan proposes to continue the program in its current configuration but with increased funding. UNSE expects that this program will serve as a conduit to the proposed Residential HVAC Retrofit program, Shade Tree program and the New Home Construction program. The education and outreach program also includes education about the proposed time-of-use ("TOU") rates for residential customers.

#### **Non-Residential Education and Outreach**

This DSM Portfolio Plan proposes to continue the Business Energy Advisor program in its current configuration as on-line audit service with the goal of educating UNSE small commercial consumers on how to conserve energy and lower their utility bills. The education and outreach program also includes education about TOU rates for current and future non-residential customers. UNSE expects that this program will serve as a conduit to the proposed Commercial Facilities Efficiency program.

The changes to the Education and Outreach Program include an increase in funding levels to allow for greater promotion of energy efficiency and TOU education to residential and small commercial customers through media, brochures, direct mailings and bill inserts. UNSE is also proposing to increase funding of Academic education to allow for in-class presentations. For a detailed Education and Outreach program description, see Attachment 1.

### **3.2 Direct Load Control Program**

This proposed program is to provide UNSE with the capacity for direct load control ("DLC") of residential and small- to mid-sized commercial central air conditioning equipment in the Lake Havasu area using communicating thermostat technology. The DLC program will be delivered in-house. A DLC implementation option being considered is through integration with an in-house Automatic Meter Reading / Advanced Meter Infrastructure ("AMR/AMI") program. UNSE hopes to install DLC on 3,500 air conditioning units during the first year of implementation and ramp up participation to an estimated 35,000 units within 10 years. UNSE's ultimate goal is to have up to 47 MW of load shedding capacity from the residential and small-mid size commercial component of the DLC system. For a detailed program description, see Attachment 2.

### **3.3 Residential Efficiency Programs**

Proposed residential efficiency programs included in the DSM Portfolio Plan are described below.

#### **Low-Income Weatherization Program**

Customers who receive weatherization assistance live with poverty-level incomes (\$10,210 for a household of one; \$20,650 for a household of four, as adjusted from time to time). Utilities typically consume a larger portion of the low-income family's income than they consume of the higher income family's income. Low-

income persons must often make monthly decisions as to whether to pay rent or mortgage, pay utilities, or buy food.

UNSE recognizes that many low-income customers live in older homes or mobile homes built when energy prices were low and energy efficient construction methods were not recognized. Many of these homes require significant repair to improve the livability of the structure and to incorporate some level of energy efficiency. The primary goal of the Low-Income Weatherization (“LIW”) Program is to provide financial assistance to install measures that improve comfort and reduce overall energy consumption for eligible customers. Steps taken through this program will reduce electric and gas bills and provide eligible customers with more disposable income for other needs.

Analysis has been completed on a defined list of energy efficiency measures to determine energy and demand impact. This list includes a broad mix of measures covering the following technologies:

- Efficient Lighting;
- Weatherization Improvements;
- Insulation Improvements;
- HVAC Repair and Replacement;
- Domestic Hot Water Improvements;
- Appliances Repair and Replacement; and
- Health and Safety Enhancements.

Agencies will be allowed to use UNSE funding for any item on the approved list up to the maximum allowance of \$2,000 per home. Agency representatives will determine which items should be installed in each home. Funding provided to LIW agencies from the Department of Energy (“DOE”) limits installation of items installed to only those measures that combined, contribute a minimum of 20% energy savings. Funding from UNSE will not be limited to a percentage of energy savings and may allow agencies to complete additional work in each home.

Agencies will be asked to install certain energy saving products in any home they enter through the emergency repair and/or flood repair programs. This will support an increase in installation of low-flow shower heads, faucet aerators, CFLs and hot water heater blankets. For a detailed program description, see Attachment 3.

### **Energy Smart Home Program**

The UNSE Energy Smart Homes (“ESH”) Program will emphasize the whole-house approach to improving health, safety, comfort, durability and energy efficiency. The Program will promote homes that meet the 2006 Environmental Protection Agency (“EPA”) / DOE Energy Star Home<sup>®</sup> performance requirements. To encourage Program participation by builders, the Program will provide incentives to home builders for each qualifying Energy Star Home<sup>®</sup>. Required on-site inspections and field testing of a random sample of homes to meet Energy Star Home<sup>®</sup> performance requirements will be conducted by third-party RESNET certified energy raters selected by each builder

Savings are based on heating, cooling and hot water energy use and are achieved through a combination of (1) building envelope upgrades; (2) high performance windows; (3) controlled air filtration; (4) upgraded heating and cooling systems; (5) tight duct systems; and (6) upgraded water heating equipment. New homes constructed through the Program will be eligible to display the Energy Star Home<sup>®</sup> seal. The ESH program will also encourage builders to install Energy Star<sup>®</sup> labeled dishwashers, clothes washers and refrigerators.

Builders will sign on as an EPA/DOE Energy Star Home<sup>®</sup> partner and agree to adhere to all requirements of that Program. UNSE will provide training and education about building science and the whole-house approach to building homes, marketing and builder incentives. The training and education will be offered to homebuyers, builders, sub-contractors and realtors/builder sales agents. Training is aimed at increasing the applied knowledge of building science and energy efficient building practices to transform the market and

improve construction practices in the UNSE service territories. Educational and promotional pieces and design tools will assist builders and associated trade allies (architects and engineers, sub-contractors, etc.) with the construction standards that meet or exceed the ESH program standards. For a detailed Program description, see Attachment 4.

#### **Residential HVAC Retrofit Program**

The Residential HVAC Retrofit Program promotes the installation of high-efficiency residential HVAC equipment by providing incentives to homeowners for equipment that meets minimum qualifying efficiency requirements. For a detailed Program description, see Attachment 5.

#### **Shade Tree Program**

The purpose of the Shade Tree Program is to promote energy conservation and environmental benefits associated with planting low-water usage trees and other vegetation. Desert-adapted trees will be promoted by UNSE through bill inserts for nurseries and large retail stores. Rebates will be offered to customers who purchase qualifying trees that are 15 gallons or larger in size. The Program will provide an application that requires customers to plant trees at residential sites on the south, west and east sides of home, with the objective of providing summer shading, reducing cooling loads, reducing customer cooling energy costs, and reducing peak loads on the UNSE system. UNSE will develop a tracking system to identify where trees are being purchased, and to allow for EM&V activities to confirm that plantings are occurring and that planting practices are achieving the desired energy benefits. UNSE will quantify the number of trees installed, energy savings realized, and report on Program achievements. For a detailed Program description, see Attachment 6.

### **3.4 Commercial & Industrial Efficiency Programs**

#### **Commercial Facilities Efficiency Program**

The UNSE Commercial Facilities Efficiency Program is open to participation by all existing and new commercial facilities in the UNSE service territory; however the Program is structured to focus on the smaller facilities, with peak demand estimated to be under 100kW. This focus is important because of the relatively small commercial market in the UNSE service territory, and the high percentage of small customers in this market, estimated to be nearly 90% of accounts. DSM incentive programs have typically had limited success reaching small business participants. This market segment generally has limited access to investment capital, little or no knowledge of energy cost savings opportunities, and requires a simple payback of one year or less before they will participate. In order to successfully reach this market segment and encourage small businesses to participate, the Company proposes to offer a direct installation program with the features described below. The proposed program will focus on reducing known barriers in this market and provide the incentives and delivery mechanisms to encourage participation in the Program.

- In order to minimize the hassle factor for customers and encourage the market to provide energy efficiency services to the small business market segment, the Program will be operated as an “up-stream” market program and offer incentives directly to installing contractors. In order to stimulate the market, incentives will be offered which are intended to reduce the measure payback to one year or less, cover from 41% to 88% of the installed cost of the measure, and provide a Total Resource Cost (“TRC”) cost effectiveness of one or more.
- The target market for this Program is small non-residential customers. Typically, this is defined as customers with an aggregate monthly demand of 100 kW or less. The vast majority of customers in the UNSE service region fall into this category. However, in order to avoid confusion in the market and unnecessary participant processing requirements, all non-residential customers will be eligible for this Program regardless of monthly demand.
- An annual incentive cap of \$10,000 will apply to all customers, and is intended to ensure that the few large customers in the region will not consume a disproportionate amount of the available incentives.
- The Program will offer incentives for a select group of retrofit and replace-on-burnout (“ROB”) energy efficiency measures in existing facilities. The efficiency measures offered by the Commercial Facilities

Efficiency Program include high-efficiency lighting equipment upgrades, high-efficiency HVAC equipment, lighting controls, programmable thermostats, and selected refrigeration measures.

- The direct install component will utilize an on-line proposal generation and project tracking application to reduce the transaction costs of the contractor which will result in lower costs for the participants.

The viability of each of the measures has been assessed through a cost-effectiveness analysis according to the TRC, Ratepayer Impact Measure (“RIM”) and Societal Cost (“SC”) tests. The cost-effectiveness tests account for the energy and demand savings of each measure, the associated avoided costs and net benefits to UNSE, the customer incremental or installed costs, and the program administration costs. The custom measure is designed so that each project that is approved must meet the TRC test.

The Program includes consumer educational and promotional pieces designed to assist business owners, building operators and decision makers in the small business market with the information necessary to improve the energy efficiency of the lighting, HVAC and refrigeration systems in their facilities. The Program includes customer and trade ally education to help them with understanding of the technologies being promoted, what incentives are offered, and how the Program functions. For a detailed Program description, see Attachment 7.

#### 4. Budget

UNSE is proposing to spend a total of \$15.2 million on energy-efficiency DSM programs collectively from program years 2008-2012<sup>3</sup>. The proposed budget maximizes the amount of program funds that go directly to customers through rebates and incentives, training and technical assistance, and consumer education. This DSM Portfolio Plan also takes into account the realities of DSM program start-up costs and funds needed to adequately plan, develop and deliver and evaluate quality programs. It typically takes two years or more to ramp up programs and achieve significant customer participation levels and program savings, and the DSM Portfolio Plan accounts for program ramp-up costs over the 2008-2009 time period. Through 2009, UNSE expects that, on average, 70% of the program costs (depending on the program) will benefit customers directly in the form of incentives, training or education. Once the program has reached maturity, UNSE expects that approximately 74% of total program costs will go directly to customers. The balance of budget expenditures will be applied to program administration. Program administration expenses include all non-incentive expenses, including UNSE internal staff expenses, marketing and communications expenses, implementation contractor fees and expenses, measurement, evaluation and research, and other direct expenses attributable to the programs.

Incentive levels and other program elements will be reviewed and modified as needed during the first year and periodically thereafter. Such modifications will be reported in the mid-year and year-end reports submitted to Staff.

For the purposes of presenting the proposed budgets for this DSM Portfolio Plan, the program budgets have been broken into the following categories:

- **Rebates and Incentives** – Funds that go toward customer rebates and incentives, and installation of measures.
- **Training & Technical Assistance** – Funds that are used for energy-efficiency training and technical assistance.
- **Consumer Education** – Funds that are used to support general consumer education about the benefits of energy-efficient improvements and load management options.

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<sup>3</sup> This does not include \$350,000 in customer tracking database development costs expected to be allocated to the UNSE DSM Portfolio Plan in 2008.

- **Program Implementation** – Program delivery costs associated with implementing the program, including implementation of contractor labor and overhead costs as well as other direct program delivery costs.
- **Program Marketing** – All expenses related to marketing the program and increasing DSM consumer awareness and participation.
- **Planning & Administration** – Costs related to planning, developing and administering the programs, including management of program budgets, oversight of implementation contractors, program coordination and general overhead expenses.
- **Measurement, Evaluation, and Research** – Program expenses related to conducting measurement and evaluation of savings attributable to the program and program operational efficiency, as well as related research activities.

Exhibit 4 below shows a summary roll-up of the anticipated budgets for each program by cost category for program years 2008 through 2012. Exhibit 5 presents the proposed annual budget for each program over the planning period from 2008 through 2012. Detailed annual budgets for each program year are included in the Attachments. These budgets represent UNSE’s best estimate of spending, however, it is inevitable that some programs will achieve greater participation than others. DSM costs will be recovered through an adjuster mechanism approved by the Arizona Corporation Commission (“Commission”) and actual spending will be trued-up after each full year. Therefore, UNSE suggests that the proposed annual budgets should not represent a maximum annual spending limit and that flexibility is approved for UNSE to adjust spending for programs, achieving greater participation than expected. Program budgets may need to be adjusted annually to maximize the effectiveness of the overall DSM Portfolio Plan.

#### Exhibit 4 2008-2012 DSM Portfolio Budgets by Cost Category

Program	Total Administrative and O&M Cost Allocation	Total Marketing Allocation	Total Direct Implementation	Total EM&V Cost Allocation	Total Cost
Education and Outreach	\$64,248	\$132,581	\$502,765	\$14,277	\$713,872
Direct Load Control	\$494,113	\$599,525	\$6,443,004	\$81,056	\$7,617,698
<b>Residential Efficiency Programs</b>					
Low-Income Weatherization	\$83,619	\$0	\$451,542	\$22,298	\$557,459
New Home Construction	\$336,017	\$418,552	\$1,413,489	\$61,779	\$2,229,837
Residential HVAC Retrofit	\$143,347	\$127,419	\$1,274,193	\$47,782	\$1,592,741
Shade Tree Program	\$67,164	\$36,940	\$218,283	\$13,433	\$335,821
Residential Subtotal	\$630,147	\$582,912	\$3,357,507	\$145,292	\$4,715,858
<b>Non-Residential Efficiency Programs</b>					
Commercial Facilities Efficiency	\$318,548	\$195,129	\$1,516,529	\$93,448	\$2,123,654
Non-Residential Subtotal	\$318,548	\$195,129	\$1,516,529	\$93,448	\$2,123,654
Total	\$1,507,056	\$1,510,146	\$11,819,805	\$334,074	\$15,171,081
% of Cost By Category	9.9%	10.0%	77.9%	2.2%	100.0%

**Exhibit 5**  
**2008-2012 DSM Portfolio Budgets by Year**

<b>Program</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total Cost</b>
Education and Outreach	\$170,000	\$130,000	\$133,900	\$137,917	\$142,055	\$713,872
Direct Load Control	\$1,968,000	\$1,288,389	\$1,370,300	\$1,453,372	\$1,537,637	\$7,617,698
<b>Residential Efficiency Programs</b>						
Low-Income Weatherization	\$105,000	\$108,150	\$111,395	\$114,736	\$118,178	\$557,459
New Home Construction	\$420,000	\$432,600	\$445,578	\$458,945	\$472,714	\$2,229,837
Residential HVAC Retrofit	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$1,592,741
Shade Tree Program	\$65,000	\$66,050	\$67,132	\$68,246	\$69,393	\$335,821
Residential Subtotal	\$890,000	\$915,800	\$942,374	\$969,745	\$997,938	\$4,715,858
<b>Non-Residential Efficiency Programs</b>						
Commercial Facilities Efficiency	\$400,000	\$412,000	\$424,360	\$437,091	\$450,204	\$2,123,654
Non-Residential Subtotal	\$400,000	\$412,000	\$424,360	\$437,091	\$450,204	\$2,123,654
<b>Total</b>	<b>\$3,428,000</b>	<b>\$2,746,189</b>	<b>\$2,870,935</b>	<b>\$2,998,125</b>	<b>\$3,127,833</b>	<b>\$15,171,081</b>

## 5. Program Energy Savings and Benefits

UNSE has estimated the energy savings, costs, net benefits, and environmental benefits associated with each of the programs included in the proposed DSM Portfolio Plan. The following sections describe the energy savings, cost-effectiveness, and environmental benefits that are expected to accrue from the program.

### 5.1 Portfolio Energy Savings, Costs and Net Benefits

In preparing this DSM Portfolio Plan, UNSE examined energy efficiency measures that are applicable to electric end use applications (electric and gas efficiency measures were examined for the low income program and the new home construction program) and provide a broad set of electric savings opportunities in all of UNSE's customer sectors. The analysis included a detailed energy savings and a cost effectiveness analysis of each measure, as well as each program as a whole. In order to complete the analysis, UNSE assembled data on baseline and energy efficient performance of each measure technology as well as a range of other technical and financial data including:

- UNSE avoided cost data;
- Discount rates;
- Effective Useful Lifetimes ("EULs") for each measure;
- Incremental and installed measure costs for each measure; and
- Projected participation rates for each program over the projected program life presented in this plan.

Exhibit 6 provides estimates of the expected total of the 5-year annual energy savings for each proposed DSM program and a summary of the net benefits.

**Exhibit 6**  
**Electric Savings and Benefits**  
**2008-2012 Programs**

<b>Program</b>	<b>Non-coincident Capacity Savings (MW)</b>	<b>Coincident Capacity Savings (MW)</b>	<b>Energy Savings (MWh)</b>	<b>Energy Savings (Therms)</b>	<b>Program Budget (\$000)</b>	<b>Societal Benefits (\$000)</b>	<b>Societal Costs (\$000)</b>	<b>Net Benefits (\$000)</b>
Education and Outreach	0.0	0.0	0	0	0	0	0	0
Direct Load Control	47.1	47.1	318	0	7,618	9,182.9	7,617.7	1,565.2
<b>Residential Efficiency Programs</b>								
Low-Income Weatherization	0.1	0.0	232	14,886	\$557	\$298	\$557	-\$259
New Home Construction	2.7	2.1	3,178	193,486	\$2,230	\$6,962	\$3,634	\$3,328
Residential HVAC Retrofit	1.2	1.2	3,304	0	\$1,593	\$2,904	\$1,947	\$956
Shade Tree Program	0.0	0.0	701	0	\$336	\$566	\$402	\$164
Residential Subtotal	4.0	3.3	7,416	208,372	\$4,716	\$10,730	\$6,541	\$4,189
<b>Non-Residential Efficiency Programs</b>								
Commercial Facilities Efficiency	2.3	2.1	12,019	0	\$2,124	\$6,648	\$2,441	\$4,208
Non-Residential Subtotal	2.3	2.1	12,019	0	\$2,124	\$6,648	\$2,441	\$4,208
<b>Total</b>	<b>53.5</b>	<b>52.6</b>	<b>19,753</b>	<b>208,372</b>	<b>\$15,171</b>	<b>\$26,562</b>	<b>\$17,313</b>	<b>\$9,248</b>

For the analysis of net program benefits, UNSE used avoided cost savings that will result from the expected energy savings generated by each DSM program in the proposed DSM Portfolio Plan for measures implemented from 2008 through 2012. Levelized avoided cost data for a 20-year planning horizon was developed for use in the cost effectiveness analysis. UNSE has evaluated the cost effectiveness of each measure and each program as a whole using the RIM, TRC and SC tests.

The SC test is a variant of the TRC test and differs from the TRC test by including the valuation of environmental benefits and using a societal discount rate instead of the market discount rate used for the TRC. A societal discount rate of 5% was used in the computations of the SC test.

For the analysis of the portfolio of programs, UNSE quantified the expected environmental benefits resulting from measures installed through the program although they were not monetized for the purposes of cost-effectiveness testing. Exhibit 7 provides the TRC, SC, and RIM test results for each program.

**Exhibit 7  
DSM Benefit Cost Test  
2008-2012 Programs**

<b>Program</b>	<b>Total Resource Cost Test</b>	<b>Societal Cost Test</b>	<b>Rate Payer Impact Measure Test</b>
Education and Outreach	NA	NA	NA
Direct Load Control	1.06	1.21	0.94
<b>Residential Efficiency Programs</b>			
Low-Income Weatherization	0.44	0.53	0.34
New Home Construction	1.45	1.92	0.82
Residential HVAC Retrofit	1.19	1.49	0.54
Shade Tree Program	1.07	1.41	0.62
<b>Non-Residential Efficiency Programs</b>			
Commercial Facilities Efficiency	2.21	2.72	0.57

**5.2 Environmental Benefits**

In preparing this DSM Portfolio Plan, UNSE has estimated the environmental benefits, as avoided CO<sub>2</sub> emissions and avoided water use, expected to result from measures installed as a result of the portfolio of DSM programs. Based on the direction of Commission staff, UNSE is reporting environmental benefits in this plan but has not monetized the benefits for the purposes of cost effectiveness analysis of measures and programs. The environmental reductions are based on the energy savings of all program measures over their expected useful lifetimes.

The factors used to calculate the DSM Environmental Benefits are shown in Exhibit 8. The CO<sub>2</sub> value for natural gas savings is derived from EPA's publication of Emission Factors, AP-42, 5<sup>th</sup> Edition. Although UNSE's customers utilize various types and sizes of natural gas combustors, conversion of fuel carbon to CO<sub>2</sub> is largely independent of combustion type and size. Avoided costs calculations for UNSE assume a simple cycle gas turbine as the plant that will be avoided. Water use for a simple cycle gas turbine is limited to a water spray into the air stream to the turbine. Water use from this type of plant is very small and therefore water is not listed for UNSE as an Environmental Benefit.

**Exhibit 8  
Environmental Benefits Factors**

<b>Environmental Factor</b>	<b>Value</b>	<b>Units</b>
CO <sub>2</sub>	1,626	Lbs CO <sub>2</sub> / MW-hour
SOx	0.78	Lbs SOx / MW-hour
NOx	2.52	Lbs NOx / MW-hour

Exhibit 9 shows the estimated CO<sub>2</sub> emissions avoided over the expected lifetime of all measures installed as a result of the proposed DSM Portfolio Plan.

**Exhibit 9**  
**DSM Estimated Environmental Benefits**  
**2008-2012 Programs**

<b>Program</b>	<b>Sox (Lbs)</b>	<b>Nox (Lbs)</b>	<b>CO2 (lbs)</b>
Education and Outreach	0	0	0.0
Direct Load Control	1,119	3,614	2,331,794
<b>Residential Efficiency Programs</b>			
Low Income Weatherization	181	585	377,602
New Home Construction	2,479	8,010	5,168,086
Residential HVAC Retrofit	2,577	8,325	5,371,825
Shade Tree Program	547	1,768	1,140,476
Residential Subtotal	5,784	18,688	12,057,989
<b>Non-Residential Efficiency Programs</b>			
Commercial Facilities Efficiency	9,375	30,288	19,542,947
Non-Residential Subtotal	9,375	30,288	19,542,947
Total	16,278	52,589	33,932,730

## **6. Program Marketing and Delivery**

This section of the DSM Portfolio Plan presents UNSE's proposed marketing and communications strategy, and implementation/delivery plan.

### **6.1 Program Marketing and Communications**

This DSM Portfolio Plan includes targeted marketing and communication of program offerings and benefits to encourage participation among customers, key market players and trade allies. The objective of the marketing and communications strategy is to make customers and key market actors aware of the program offerings and benefits, and to influence their decision making at the time of purchasing or installing equipment in favor of choosing more energy efficient options.

The specifics of the marketing strategy depend on the program, but generally include a mix of internet, print media, radio, direct contact, direct mailings, bill inserts and presentations depending on the market to be reached. The program descriptions in the Attachments describe the proposed approach for each program.

### **6.2 Program Delivery and Implementation**

UNSE proposes that programs be implemented using a mix of both in-house and outsourced resources. UNSE will likely outsource the implementation of the Commercial Facilities Efficiency Program and the New Home Construction Program as well as field verification inspections of measure installations. The delivery of the LIW Program will also be outsourced to community action agencies. This enables UNSE to take advantage of outsourced experts who have implemented similar programs in other areas, while also using in-house resources where appropriate. For all programs, UNSE will retain responsibility for program administration, measurement and evaluation, and reporting activities. UNSE intends to issue Requests for Proposals ("RFP") to qualified firms for all significant activities that will be outsourced.

Exhibit 10 provides a timeline that shows key dates and program implementation activities. For a detailed description of the proposed implementation schedule and implementation models for each individual program, see the program descriptions included in the Attachments.

**Exhibit 10**  
**Program Development and Implementation Timeline**  
**2008-2012**

Tasks	2007				2008				2009			
	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr	Qtr
	1	2	3	4	1	2	3	4	1	2	3	4
Submit Portfolio Plan												
ACC Review & Approval												
Program Marketing & Communication Planning												
Submit RFP for IC and MER												
Select IC and MER Contractors												
Education and Outreach Implementation												
Direct Load Control Implementation												
Low Income Weatherization Implementation												
New Home Construction Implementation												
Residential HVAC Retrofit Implementation												
Shade Tree Program Implementation												
Commercial Facilities Efficiency Implementation												
Program Impact and Process Evaluation												
Submit Updated Portfolio Plan												

**7. Program Measurement, Evaluation and Research**

Measurement, evaluation and research (“MER”) is an integral component part of the proposed DSM Portfolio Plan. UNSE will select a MER contractor at the same time it selects outsourced implementation services. UNSE will develop deemed savings values for all measures promoted by the program. UNSE will develop a database tracking system for monitoring program progress, and use the deemed savings values for tracking and reporting of program savings. UNSE will also adopt an integrated data collection strategy to support program management and MER activities. Integrated data collection requires that the data necessary to support program management and evaluation activities be collected throughout the course of program implementation. The integrated data collection process will provide UNSE with the capacity to assess program progress and savings achievements on an ongoing basis. MER activities are expected to include:

- Verification that energy-efficiency measures are installed as expected;
- Impact analysis to compute the savings that are being achieved;
- Cost-effectiveness analysis; and
- Process evaluation to indicate how well programs are working to achieve objectives.

The MER contractor will work directly with UNSE and implementation contractors to ensure that the program design, database systems, and implementation processes will collect the necessary data for MER.