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Tucson, Arizona 85702-0711



April 1, 2010

Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, AZ 85007

Re: Decision No. 70653, Docket No. E-04204A-07-0593  
2010 Renewable Energy Standard and Tariff Compliance Report

Pursuant to A.A.C. R14-2-1812, each Affected Utility shall file with Docket Control a report that describes its compliance with the requirements of the Renewable Energy Standard and Tariff ("REST") Rules. Decision No. 70653 (December 18, 2008) approved UNS Electric, Inc.'s ("UNS Electric") 2009 REST Plan. Please find enclosed an original and thirteen copies of UNS Electric's 2010 REST Compliance Report for year-end 2009. This report contains confidential information that is being provided to Arizona Corporation Commission Staff separately.

If you have questions or comments please contact me at (520) 884-3680.

Sincerely,

A handwritten signature in black ink that reads "Jessica Bryne". The signature is written in a cursive style.

Jessica Bryne  
Regulatory Services

Enclosures: Compliance Report

cc: Compliance, ACC

# **UNS Electric, Inc.**

**Response to R14-2-1812 Utility Reporting Requirements**

**of the**

**Arizona Corporation Commission**

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## **RENEWABLES DATA FOR YEAR-END 2009**

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## Executive Summary

The Renewable Energy Standard and Tariff R14-2-1801 (“REST”) became effective August 14, 2007 following approval from the Arizona Corporation Commission (“Commission”). Among other things, the REST rules require UNS Electric Inc. (“UNS Electric”) to generate or purchase at least 15% of its total annual retail energy requirements from eligible renewable energy resources by 2025, with smaller amounts required in earlier years.<sup>1</sup> This report covers UNS Electric’s progress from January 1, 2009 through December 31, 2009.

UNS Electric’s REST requirement for this period was **35,688,060** Renewable Energy Credits (“REC”). That amount represents 2% of UNS Electric’s retail energy sales for 2009. The REST requires that 15% of those RECs be met through distributed energy (“DE”) renewable resources, which represents a total of 5,353,209 kilowatt-hours (“kWh”). Of the 15% met through DE resources, 50% must come from residential customer systems, and 50% must come from non-residential, non-utility applications. The remaining portion of the REST required RECs for 2009, 85% or 30,334,851 kWh, comes from utility-scale renewable energy resources.

UNS Electric exceeded its 2009 REC target with **37.3 million** RECs. Included in the 37.3 million RECs are RECs that were carried over (not retired) from the 2008 as well as RECs produced in 2009. The total REC amount includes actual kWh production from eligible renewable energy resources and energy purchases, as well as applicable extra credits that were achieved through the REST multipliers.

Table ES-1, found on the following page, summarizes the REST compliance goals for 2009, the progress UNS Electric has made in achieving those goals, and the installed capacity for each category of resource, including utility-scale resources, residential DE resources, and non-residential DE resources. It is apparent from the table that UNS Electric exceeded the total REC goals for 2009. Additional detail on UNS Electric’s progress toward each of the REC goals is described below.

In Commission Decision No. 70653 (December 18, 2008), the Commission approved UNS Electric’s REST Implementation Plan (“Implementation Plan”), including a budget of \$5 million. Of the \$5 million, UNS Electric spent \$4.9 million, including over \$2.5 million that went solely to customer incentives. In addition, residential DE projects reserved \$1.5 million. The amount of surcharge collected from customers relative to program expenditures will be deferred and reflected in UNS Electric’s financial statements as a regulatory liability. REST funds not spent in 2009 will be deducted from the annual approved funding in the following year’s Implementation Plan.

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<sup>1</sup> Under the REST, eligible renewable energy resources include biogas electricity generation, biomass electricity generation, eligible hydropower resources, fuel cells that use renewable fuels only, hybrid wind and solar electric generation, new small hydro (10 MW or less), solar electric generation, wind generation. Distributed renewable energy resources include renewable CHP, commercial solar pool heaters, biomass and biogas thermal systems, biogas electric generation, geothermal space and process heating, solar daylighting, solar HVAC, solar space heating, solar water heating, and small wind generation (1 MW or less).

**Table ES-1 2009 REST Compliance Summary**

	Utility-Scale Resources	Distributed Energy: Residential	Distributed Energy: Non-Residential
<b>Installed Capacity</b>			
<b>Pre-2009 (kW)</b>	0	215	22
<b>2008 New Installations (kW)</b>	0	1,048	48
<b>Reserved in 2008 but Not Yet Installed (kW)</b>	0	282	407
<b>Renewable Energy Credits</b>			
<b>Carry Over from 2008</b>	4,603,128	41,411	0
<b>RECs Created in 2009</b>	1,132,666	1,350,605	105,819
<b>RECs Purchased</b>	30,281,000		
<b>RECs Retired under GreenWatts Program</b>	(136,260)		
<b>Total Available RECs</b>	<i>35,880,534</i>	<i>1,392,016</i>	<i>105,819</i>
<b>RECs Needed for Compliance</b>	30,334,851	2,676,605	2,676,605
<b>RECs Retired for Compliance</b>	30,334,851	1,392,016	105,819
<b>2009 Compliance (%)</b>	100%	52%	4%
<b>RECs Carried Forward to 2010</b>	5,545,683	0	0

**Utility-Scale Renewable Energy Goals**

UNS Electric achieved and exceeded the utility-scale renewable energy goals during the 2009 REST compliance period. The RECs retired for the 2009 compliance period came from landfill gas credits that were purchased from Tucson Electric Power Company (“TEP”), as well as from Manufacturing Partial Credits. The surplus RECs available at the end of 2009 were carried forward to be used in future years. No new utility-scale capacity was added during 2009. However, UNS Electric is awaiting approval for an awarded power purchase agreement (“PPA”) made with a wind project in 2009, the details of which are included in the Commission filing.

**Residential Distributed Energy Goals**

UNS Electric made great strides in its Residential DE program, adding over 800 new installations; this did not reach the 2009 goal, but UNS Electric is committed to increasing residential DE programs going forward. The RECs retired for this period, amounting to 1,392,016 kW, were associated with solar PV, solar hot water, and wind installations at residential sites.

**Non-Residential Distributed Energy Goals**

UNS Electric achieved 4% of its Non-Residential DE goals for the 2009 compliance period, retiring 105,819 kW RECs. UNS Electric is committed to improving its Non-Residential DE

program. For the 2009 compliance period, several factors outside of UNS Electric's control contributed to the low number of installations, including:

- the continued credit crisis and economic state of 2009, which made it difficult to finance PV systems of sufficient scale;
- the lead time necessary to develop and install a non-residential PV system (roughly one year or more); and
- the small and under-developed commercial market in the UNS Electric service territory.

There are currently 10 commercial solar PV reservations awaiting installation for 2010.

## **1. Introduction to UNS Electric, Inc.**

UNS Electric, a subsidiary of UniSource Energy Services, Inc., provides electric service to the communities of Mohave and Santa Cruz counties. UNS Electric's system was acquired from Citizens Communications Company in 2003.

This report covers UNS Electric's progress in meeting the REST requirements for the compliance period of from January 1, 2009 through December 31, 2009. During 2009, UNS Electric made important strides in increasing renewable programs for all portions of the REST's requirements. In fact, UNS Electric even exceeded its utility-scale REC requirement. UNS Electric is committed to improving its REST required RECs going forward.

## **2. Renewable Energy Standard and Tariff Legislation Requirements**

The REST R14-2-1801 became effective August 14, 2007 following approval from the Commission. Among other things, the REST rules require UNS Electric to generate or purchase at least 15% of its total annual retail energy requirements from eligible renewable energy resources by 2025, with smaller amounts required in earlier years.<sup>2</sup> The Commission determined that the REST should supersede the then existing Environmental Portfolio Standard ("EPS"), which like REST, was designed to encourage development of renewable generation. When the REST supplanted the EPS, the Commission ordered that all remaining EPS funds be transferred to the REST program and that UNS Electric be released from all EPS requirements.<sup>3</sup> Accordingly, some of the RECs generated during the EPS program were transferred to the REST compliance period.

Table 1, shown on the following page, shows the REST goals disaggregated by category for the period 2008 through 2025.

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<sup>2</sup> Under REST, eligible renewable energy resources include the following: biogas electricity generation, biomass electricity generation, eligible hydropower resources, fuel cells that use renewable fuels only, hybrid wind and solar electric generation, new small hydro (10 MW or less), solar electric generation, wind generation, and distributed renewable energy resources (these include renewable CHP, commercial solar pool heaters, biomass and biogas thermal systems, biogas electric generation, geothermal space and process heating, solar daylighting, solar HVAC, solar space heating, solar water heating, and small wind generation (1 MW or less).

<sup>3</sup> See Arizona Corporation Commission Decision No. 70315 (April 28, 2008).

**Table 1 - REST Goals 2008-2025**

Year	REST Goals	Year	REST Goals
2008	1.75% (10% DG)	2017	7.00% (30% DG)
2009	2.00% (15% DG)	2018	8.00% (30% DG)
2010	2.50% (20% DG)	2019	9.00% (30% DG)
2011	3.00% (25% DG)	2020	10.00% (30% DG)
2012	3.50% (30% DG)	2021	11.00% (30% DG)
2013	4.00% (30% DG)	2022	12.00% (30% DG)
2014	4.50% (30% DG)	2023	13.00% (30% DG)
2015	5.00% (30% DG)	2024	14.00% (30% DG)
2016	6.00% (30% DG)	2025	15.00% (30% DG)

Source: Renewable Energy Standard and Tariff, Section R14-2-1804 and R14-2-1805

UNS Electric's REST Implementation Plan was approved by the Commission in Decision No. 70315 (April 28, 2008), and became effective on June 1, 2008, at which time the RES Tariff was added to customer bills.<sup>4</sup> After this date, the REST compliance period began, and the EPS compliance period ended.

### **2.1. UNS Electric 2009 Compliance Requirements**

UNS Electric's REST target requirement for the 2009 period was **35,688,060** RECs. That amount reflects 2% of UNS Electric's retail energy sales for the period of January 1, 2009, through December 31, 2009.<sup>5</sup> The REST requires that 15% of those RECs be met through DE renewable resources, which represents a total of 5,353,209 kWh. Of the 15% met through DE resources, 50% must come from residential customer systems, and 50% must come from non-residential, non-utility applications. The remaining portion of the REST REC requirement for 2009, 85% or 30,334,851 kWh, comes from utility-scale renewable energy resources. Table 2 on the following page shows the breakdown of UNS Electric's REST requirements for 2009.

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<sup>4</sup> The customer RES tariff for 2009 was set at \$0.006 per kWh, with caps for maximum monthly payment established for each customer class.

<sup>5</sup> One REC is equivalent to one kilowatt-hour (kWh) of production from an eligible renewable energy resource. Except for RECs from DE resources, the energy from an eligible renewable energy resource that is associated with a REC must be delivered to its retail customers.

**Table 2 - 2009 REST Goal (kWh)**

Category	kWh
Jan-Dec 2009 UNS Electric Retail Sales	1,784,403,000
REST Goal @ 2% of Retail Sales	35,688,060
DE @ 15% of REST Goal, including:	5,353,209
50% Residential DE	2,676,605
50% Non-Residential, Non-Utility DE	2,676,605
Utility Scale @ 85% of REST Goal	30,334,851

## 2.2. Extra Credit Multipliers

The REST order allows utilities to earn RECs from sources other than actual energy production based on applicable Extra Credit Multipliers (“Multipliers”). These Multipliers include the Early Installation Extra Credit Multiplier, the In-State Power Plant Installation Extra Credit Multiplier, the In-State Manufacturing and Installation Content Extra Credit Multiplier, and the Distributed Solar Electric Generator and Solar Incentive Program Extra Credit Multiplier.

The Multipliers are applied to the energy generated by an Eligible Renewable Energy Resource. The energy generated by a given facility during a compliance period is multiplied by the multiplier, producing the Extra Credit earned by that facility. This Extra Credit is then added to the RECs produced by the facility as a result of its energy production to provide the total number of RECs generated by that facility during a given compliance period. The multipliers are additive, but the total multiplier cannot exceed 2.0.

Table 3, below, shows each multiplier and its related value.

**Table 3 - REST Extra Credit Multipliers**

Extra Credit Multipliers	Value
Early Installation Extra Credit: Installed and Began Operating in	
2001	0.3
2002	0.2
2003	0.1
In-State Power Plant Extra Credit (1997-2005)	0.5
In-State Manufacturing and Installation Content (1997-2005)	0.5 * (% in-state content in installed plant)
DE Solar Electric Generator and Solar Incentive Program (1997-2005)	0.5
<i>Source: Renewable Energy Standard and Tariff, R14-2-1806.</i>	



The multipliers only apply to systems installed between January 1, 1997 and December 31, 2005. In some cases, the definition is narrower. There is no expiration date for any of the multipliers except the Early Installation Extra Credit Multiplier. The Early Installation Extra Credit Multiplier is only applied during the first five years following a facility's operational startup. As a result, 2008 will be the final year for applying this multiplier. The remaining multipliers can be applied to facility generation for the life of the facility.

### 3. Overview of 2009 Compliance Status

UNS Electric has **37,378,369** RECs available to meet the 2009 REST requirement. This REC availability includes RECs that were carried over (not retired) from 2008. The total REC amount includes actual kWh production from eligible renewable energy resources, applicable extra credits that were achieved through the REST multipliers, and REC purchases from Tucson Electric Power Company ("TEP"). Table 4 below summarizes the breakdown of the total RECs available to UNS Electric, including those retired, to meet each category of the REST 2009 requirements and the amount of surplus RECs. The certificate of retirement for the RECs retired for REST compliance year 2009 can be viewed in the attached Appendix C.

**Table 4 - 2009 Renewable Energy Credits for UNS Electric**

	Utility-Scale Resources	Distributed Energy: Residential	Distributed Energy: Non-Residential
<b>Installed Capacity</b>			
<b>Pre-2009 (kW)</b>	0	215	22
<b>2009 New Installations (kW)</b>	0	1,048	48
<b>Reserved in 2009 but Not Yet Installed (kW)</b>			
	0	282	407
<b>Renewable Energy Credits</b>			
<b>Carry Over from 2008</b>	4,603,128	41,411	0
<b>RECs Created in 2009</b>	1,132,666	1,350,605	105,819
<b>RECs Purchased</b>	30,281,000		
<b>RECs Retired under GreenWatts Program</b>	(136,260)		
<b>Total Available RECs</b>	<b>35,880,534</b>	<b>1,392,016</b>	<b>105,819</b>
<b>RECs Needed for Compliance</b>	30,334,851	2,676,605	2,676,605
<b>RECs Retired for Compliance</b>	30,334,851	1,392,016	105,819
<b>2009 Compliance (%)</b>	100%	52%	4%
<b>RECs Carried Forward to 2010</b>	5,545,683	0	0

As of December 31, 2009, UNS Electric had reserved or installed approximately 2,178 kW of renewable generating capacity. This amount reflects cumulative capacity, including the amount installed during EPS program years, as well as the amount installed during the 2008 and 2009 REST program years.

### 3.1. 2009 Expenditures and Surcharge

In Commission Decision No. 70653 (December 18, 2008), the Commission approved UNS Electric’s REST Implementation Plan (“Implementation Plan”), including a budget of \$5,042,877. Of the \$5.04 million, UNS Electric spent \$4.9 million, including over \$2.5 million that went solely to customer incentives. In addition, residential DE projects reserved \$1.5 million and \$191,000 was reserved for residential wind projects. An additional \$9,147 was reserved for solar hot water heating projects. The amount of surcharge collected from customers relative to program expenditures will be deferred and reflected in UNS Electric’s financial statements as a regulatory liability. REST funds not spent in 2009 will be deducted from the annual approved funding in the following year’s Implementation Plan.

Table 5 below shows the breakdown of UNS Electric’s 2009 REST expenditures. The 2009 total includes funds collected under REST and GreenWatts (Refer to Section 5.1.2.3 for GreenWatts program details).

**Table 5 - 2009 REST Collections, Expenditures, & DE Reservations**

	2009 REST Collections (\$)	Expenditures (\$)	2009 Reserved Funds (\$)
Total	\$ 4,561,302	\$ 4,924,658	
Customer Incentives			
Residential		\$ 2,500,858	\$ 1,535,551
Commercial		\$ 1,487	n/a
Program Administration		\$ 728,799	n/a
Utility-Scale Spending		\$ 1,373,955	n/a
Marketing & Outreach		\$ 319,559	n/a
GreenWatts	\$ 11,689		n/a

Below, Table 6 shows the REST surcharge that UNS Electric collected from its customers during the 2009 compliance period.

**Table 6 - REST Surcharge Collections from Customers in 2009**

<b>Date</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Total</b>
-	-	-	-	-
<b>Jan-09</b>	\$245,993.13	\$133,229.46	\$6,595.00	\$385,817.59
<b>Feb-09</b>	\$222,360.25	\$113,832.33	\$4,840.00	\$341,032.58
<b>Mar-09</b>	\$230,687.49	\$129,038.44	\$4,960.00	\$364,685.93
<b>Apr-09</b>	\$225,016.38	\$127,181.86	\$4,900.00	\$357,098.24
<b>May-09</b>	\$216,428.28	\$124,912.16	\$5,010.88	\$346,351.32
<b>Jun-09</b>	\$256,583.60	\$150,559.83	\$5,085.76	\$412,229.19
<b>Jul-09</b>	\$272,248.67	\$155,644.82	\$5,140.00	\$433,033.49
<b>Aug-09</b>	\$266,567.84	\$153,311.63	\$5,140.00	\$425,019.47
<b>Sep-09</b>	\$261,489.21	\$150,878.60	\$5,200.00	\$417,567.81
<b>Oct-09</b>	\$247,122.92	\$141,781.07	\$5,398.00	\$394,301.99
<b>Nov-09</b>	\$197,876.83	\$111,091.78	\$5,020.00	\$313,988.61
<b>Dec-09</b>	\$238,024.80	\$126,891.44	\$5,260.00	\$370,176.24
<b>TOTAL</b>	<b>\$2,880,399.40</b>	<b>\$1,618,353.42</b>	<b>\$62,549.64</b>	<b>\$4,561,302.46</b>

#### **4. Utility-Scale Renewable Energy Resources**

For 2009, 85% of UNS Electric’s REST goal was to come from utility-scale renewable energy resources. UNS Electric met and exceeded this goal with purchased RECs that originated with TEP’s Landfill Gas and Manufacturing Partial Credits. Section 4.1, below, describes the competitive bid request for proposal (“RFP”) process that both TEP and UNS Electric use to procure new utility-scale renewable energy resources. Section 4.2, below, describes UNS Electric’s compliance position relative to the 2009 REST utility-scale goals and breaks down these results along technology lines.

##### **4.1. Acquiring RECs from Utility-Scale Resources - Request for Proposals**

TEP and UNS Electric issued one solar-only RFP in 2009. In response, TEP and UNS Electric received 58 bids. Accion Group, an independent auditor, found the RFP process and its results to be reasonable, fair, and transparent; attached Appendix B includes Accion Group’s statement to this effect. TEP and UNS Electric short-listed 24 of the solar-only proposals, and as of this report, have not finalized contracts with any of the bidders. Negotiations for all of the selected projects are ongoing in 2010.

##### **4.2. RECs from Utility-Scale Resources**

UNS Electric does not currently have utility-scale eligible renewable energy resources available to meet its utility-scale REST requirement. UNS Electric continues to explore possibilities for this area, however. Together with purchased credits from TEP and Global Solar, and an internal surplus of UNS Electric RECs, UNS Electric has a total of 36 million kWh of RECs that are available to meet the Utility-scale REST requirement in 2009. This includes 1,937,675 RECs that are derived from the Global Solar Manufacturing Partial Credit. Detailed documentation of the REC retirements can be found in attached Appendix C.

**Table 7 – Technology Specific Breakdown of Utility-Scale Resources**

	Landfill Gas	PV	Concentrated Solar Power	Partial Manufacturing Credit (PMCs)(kWh)	Wind
<b>Installed Capacity</b>					
Pre-2009 (kW)	0	0	0	n/a	0
2009 New Installations (kW)	0	0	0	n/a	0
Reserved in 2009 but Not Yet Installed (kW)	0	0	0	n/a	0
Cumulative Capacity	0	0	0	n/a	0
<b>Energy Production</b>					
Annualized Energy Production (kWh)	0	0	0	n/a	0
<b>Renewable Energy Credits (RECs)</b>					
Carry Over from 2008	0	3,798,119	0	805,009	0
RECs Created in 2009 From Energy Production or Purchase	30,281,000	0	0	n/a	0
RECs Created in 2009 From Extra Credit Multipliers or PMCs	0	0	0	1,132,666	0
<b>Total Available RECs</b>	30,281,000	3,798,119	0	1,937,675	0
RECs Retired under GreenWatts Program	136,260	0	0	0	0
RECs Retired for Compliance	30,144,740	0	0	190,111	
RECs Carried Forward to 2010	0	3,798,119	0	1,747,564	0

## 5. Distributed Energy Resources

The REST rules place special priority on DE resources and ramp up their contribution toward the total REST goal during the first five years under the standard. In 2009, DE accounted for 15% of the total REST goal. Of this amount, half of the RECs must come from systems sited on residential customer sites and half must come from systems sited on non-residential, non-utility sites. UNS Electric was unable to achieve the DE REST goal for 2009, but continues to explore ways to improve in this area.

Section 5.1, below describes the process that UNS Electric uses to procure RECs from new DE systems, namely the Renewable Energy Credit Purchase Program (“RECCP”). Section 5.2 summarizes UNS Electric’s compliance position for RECs from DE installations, breaking down the results by the types of programs offered to different classes of customers. A suite of technologies are eligible to participate in the DE program, and UNS Electric has developed PV, wind, and solar water heating projects to date.

## 5.1. Acquiring RECs from Distributed Energy Resources - Renewable Energy Credit Purchase Program

In accordance with the REST, UNS Electric developed and received approval for the RECPP. RECPP is UNS Electric's Uniform Credit Purchase plan ("UCPP"), which is required under the REST. The goal of RECPP is to create a program that will provide incentives for affordable, environmentally sensitive, customer-sited renewable energy generation systems to supplement customers' energy needs. This approach is intended to ensure that UNS Electric meets its 2009 REST DE requirement. The Commission approved UNS Electric's RECPP as part of the 2009 Implementation Plan, effectively deeming it reasonable, fair, and transparent to all ratepayers.

The RECPP provides two primary forms of incentives to customers:

- **Up-Front Incentive ("UFI").** The UFI is based on installed capacity. The customer is given a one-time payment in exchange for UNS Electric's right to the RECs. The UFI is generally for residential customers, though commercial projects smaller than 20 kW are also eligible.
- **Performance-Based Incentive ("PBI").** The PBI is based on actual annual energy production, measured in kWh. The PBI provides a stream of payments to the customer for up to 20 years in exchange for UNS Electric's right to the RECs. The PBI is generally for commercial customers and is required for all commercial projects larger than 20 kW.

RECPP incentives can be applied to systems designed to serve the typical load of the customer with whom the incentive agreement has been established. The assessment of that typical load does not preclude the periodic production of electricity in excess of the customer's demand. Under some circumstances it is understood that select customer installations will be designed to serve loads greater than that of the customer. Under those circumstances, the RECPP incentive will be applied only to the fraction of the generation which is used to serve the typical customer load.

In exchange for the financial rebates that UNS Electric provides to the customer, the customer transfers the rights to the RECs to UNS Electric. UNS Electric then applies the RECs toward the DE portion of the REST requirement. In return for UNS Electric's payment of a UFI, UNS Electric will be given complete and irrevocable ownership of the RECs until December 31st of the 20th full calendar year after completion of installation of the system. Operational life during that time frame must be supported by system warranty or planned maintenance schedules. UNS Electric's payment of a PBI will assure UNS Electric complete and irrevocable ownership of the REC for the full duration of the PBI agreement. The agreement duration must fully coincide with the PBI payment schedule and the system must be supported by system warranty or planned maintenance schedules for the term of the agreement.

The RECPP provides for a uniform procedure and a transparent timeline to facilitate project realization. In order to receive an incentive from UNS Electric, the customer must first submit a project request. Upon approval of this request, the customer receives a reservation confirmation, which reserves REST funds for that project. If the project is subsequently built within the required timeframe and meets all of the UNS Electric RECPP conforming project guidelines, the customer is approved for the incentive for which it applied. The incentive rate depends on several factors: customer sector, capacity size of system (kW), technology type, and the year in which the reservation was approved.

See attached Appendix D for the 2009 RECPP Incentive Matrix for both UFIs and PBIs for all eligible renewable energy technologies as approved in the Implementation Plan.

## 5.2. RECs from Distributed Energy Resources

UNS Electric segments its DE programs according to the size of the system and the customer class. Commercial systems smaller than 20 kW are grouped with residential projects, which are typically below this threshold. The selection of these projects is governed by the RECPP project described earlier in Section 5.1. The RECs acquired through the development of these projects contribute to the residential or non-residential REST goals, depending on the site at which the system is located.

Commercial projects larger than 20 kW are considered separately from the SunShare / Solar Hot Water / Wind program. These larger projects are either selected through the competitive solicitation process outlined earlier in Section 4.1, or apply for a PBI through the RECPP. However, UNS Electric does not currently have any large commercial projects operational or in the application process.

**Table 8 - Technology-Specific Breakdown of Distributed Energy Resources**

	Residential PV	Residential Solar Thermal	Residential Wind	Non-Residential PV	Non-Residential Solar Thermal	Non-Residential Wind
<b>Installed Capacity</b>						
Pre-2009 (kW)	315	21	34	22	0	8
2009 New Installations (kW)	777	32	239	48	0	0
Reserved in 2009 but Not Yet Installed (kW)	261	6	15	407	0	0
<b>Cumulative Capacity</b>	<b>1,353</b>	<b>59</b>	<b>288</b>	<b>478</b>	<b>0</b>	n/a
<b>Energy Production</b>						
Annualized Energy Production (kWh)	1,856,400	148,497	518,700	119,680	0	15,200
<b>Renewable Energy Credits (RECs)</b>						
Carry Over from 2008	41,411	0	0	0	0	0
RECs Created in 2009 From Energy	1,017,464	154,303	113,302	89,524	0	8,915
RECs Created in 2009 From Extra Credit	65,536	0	0	7,380	0	0
<i>Total Available RECs</i>	<i>1,124,411</i>	<i>154,303</i>	<i>113,302</i>	<i>96,904</i>	<i>0</i>	<i>8,915</i>
RECs Retired for Compliance	1,124,411	154,303	113,302	96,904	0	8,915
RECs Carried Forward to 2010	0	0	0	0	0	0

## **5.2.1. Residential & Small Commercial Distributed Energy**

UNS Electric operates programs targeted at residential and commercial customers seeking to develop projects smaller than 20 kW. The economics of systems at this scale are similar regardless of whether the customer is a residential or commercial customer, which leads to efficiencies in offering a single incentive for the two customer classes. This section describes the two programs that are targeted at these smaller projects. SunShare provides incentives for PV projects of this scale; SunShare is now part of the overall RECPP and includes all eligible renewable technologies. In the UNS Electric service territory, the three technologies that are most common include solar PV, solar hot water and wind.

### **5.2.1.1. SunShare**

UNS Electric has offered the SunShare program to its customers since the Commission approved the program under the EPS in 2004. Now incorporated into the RECPP, this program provides incentives for the installation of customer-sited solar PV systems, including both residential and commercial projects smaller than 20 kW. The SunShare program offers UFI to qualifying customers to install these systems. In 2009, the incentive payments offered were \$3.00/Watt for solar PV, as outlined in the Commission Staff's Plan approved by the Commission. The incentive payments for all technologies are detailed in attached Appendix D.

In 2009, **138** customers qualified for a SunShare/RECPP incentive payment. This participation increased cumulative participation in the program to 209 since the program's inception in 2004. Through the residential customers' participation in 2009, 777 kW of new PV was installed as a result of the SunShare Program. Together with existing residential systems, these new systems produced 1,017,464 kWh during 2009. Table 11, below, shows the SunShare installations for PV, wind, and solar hot water in 2009.

**Table 9 – SunShare Installations, 2009**

	PV			Wind			Solar Water Heating		
	Funds Released	# of Installed Systems	Installed kW	Funds Released	# of Installed Systems	Installed kW	Funds Released	# of Installed Systems	Energy Savings
January-09	\$ 92,350.00	6	32	\$ 26,000.00	4	10	\$ 11,162.50	8	20650
February-09	\$ 104,065.00	9	36	\$ 19,500.00	3	8	\$ 11,459.25	8	22130
March-09	\$ 105,348.00	6	36	\$ 22,094.00	5	10	\$ -	-	-
April-09	\$ 150,697.40	13	52	\$ 34,310.80	7	14	\$ 1,525.00	1	3100
May-09	\$ 107,880.00	6	36	\$ 52,000.00	8	21	\$ 5,675.00	4	10700
June-09	\$ 163,498.92	12	55	\$ 110,500.00	17	44	\$ 2,775.00	2	5100
July-09	\$ 40,770.00	2	14	\$ 15,250.00	2	6	\$ 2,614.00	2	4456
August-09	\$ 149,700.00	11	52	\$ 38,100.00	9	17	\$ -	0	0
September-09	\$ 105,690.00	4	23	\$ -	0	0	\$ 1,370.25	1	2481
October-09	\$ 408,914.00	26	139	\$ 74,160.00	13	31	\$ 8,522.75	6	16091
November-09	\$ 346,472.70	16	116	\$ 26,000.00	4	16	\$ 2,826.00	2	5304
December-09	\$ 548,993.00	27	186	\$ 163,480.00	26	63	\$ -	0	-
<b>Total</b>	<b>\$ 2,324,379</b>	<b>138</b>	<b>777</b>	<b>\$ 581,395</b>	<b>98</b>	<b>239</b>	<b>\$ 47,930</b>	<b>34</b>	<b>90,012</b>

**5.2.1.2. Solar Hot Water and Wind**

UNS Electric began offering incentives for solar hot water and small wind systems in June 2008 as part of RECPP, the DE component of the REST Implementation plan. The calculated kWh savings from each solar hot water project is based upon the SRCC OG-300 published rating of the system. These incentives remained at the same level in compliance year 2009.

In 2009, **34** solar hot water systems, including 34 residential systems and zero commercial systems, received an incentive payment from UNS Electric. The residential systems installed during 2009, in addition to the existing systems resulted in the production of 154,303 kWh during 2009, as RECs (the systems were not eligible for any extra credits), that were applied toward 2009 residential DE compliance targets.

In 2009, 98 wind systems—97 residential and 1 commercial—received an incentive payment from UNS Electric. The residential systems that were installed produced 113,302 kWh of both energy and an equivalent number of RECs, and the commercial system produced 8,915 kWh and RECs. The wind systems did not qualify for any extra credits, and all RECs earned from the cumulative 121 systems were applied toward the 2009 residential and commercial DE compliance targets.

**5.2.1.3. GreenWatts**

GreenWatts is a Commission approved green power purchase program that enables commercial, industrial, and residential customers to pool funds and invest directly in the creation of green power. UNS Electric’s GreenWatts program was approved by the Commission in August 2004, together with the approval of the SunShare program. The renewable energy (landfill gas) procured through GreenWatts does *not* count toward REST goals because the customers purchase the RECs; therefore, UNS Electric cannot also own and retire the RECs. The purchase of the landfill gas for GreenWatts is funded by non-REST money. The community-based (within the UNS Electric service territory) solar projects that are funded by the customer contribution to GreenWatts contribute energy production that qualifies under REST as eligible commercial DE systems. UNS Electric will count this production toward the commercial DE portion of their REST requirement when an installed GreenWatts community project is operational. What follows is a short description of the program and summary of its activity during 2009.



Each GreenWatt is sold in blocks of 20 kWh per month (“blocks”). Revenues from GreenWatts are used for installing community-based solar energy systems, a program that is unique to UniSource Energy Corporation. At the end of December 31, 2009, UNS Electric had commitments from 2,821 residential customers, amounting to adoption of 6,602 blocks, and 82 commercial customers, amounting to 211 blocks of energy.

The cumulative revenues from GreenWatts amount to \$43,401.50. Table 10, below, shows the annual revenues generated from the program, which are rolled into REST as a result of the 2007 REST order, as well as the Lifetime revenues. In 2009, 136,260 landfill gas RECs (which were available from the 2009 TEP purchase) were retired under GreenWatts. These RECs are excluded from retirement under REST. The certificate of retirement for the 2009 GreenWatts RECs can be found in Appendix E.

**Table 10. GreenWatts 2009.**

<b>GreenWatts</b>	<b>2009 Revenues</b>	<b>2009 Blocks</b>	<b>Life-to-Date Revenues</b>	<b>2009 RECs retired under program</b>
Total	\$11,688.50	6,813	\$43,401.50	136,260
Commercial	\$355.00	211	\$1,402	4,220
Residential	\$11,333.50	6,602	\$41,999.50	132,040

Total revenues produced in 2009 are \$355.00 from commercial customers and \$11,333.50 from residential customers, for year-to-date revenues of \$11,688.50. All of these funds have been, or will be, applied to installation costs of community based PV systems installed in the UNS Electric service territory. There are no GreenWatts installations yet operational in the UNS Electric service territory, but project planning is currently underway.

## **6. Conclusion**

During 2009, UNS Electric achieved and exceeded its REST goals in the utility-scale category, and made very strong progress in the residential DE category. Though the residential DE goal was not met, UNS Electric continues to make strides in the area and is committed to increasing participation. At the utility scale, purchased landfill gas accounted for the bulk of the retired RECs, along with a lesser amount of Manufactured Partial Credits. On the DE side, PV, wind, and solar hot water were the resources that counted toward the goal.

UNS Electric installed many new DE systems in 2009. UNS Electric customers installed 274 new DE systems during 2009 that would have contributed, together with existing capacity, about 51% of the 2009 DE requirement in 2009, had they all been operational for the entire year. These installed systems, together with reserved systems, annualized, would have met 73% of the 2009 REST DE goal, as the table on the following page shows.

**Table 11. REST Compliance Scenarios for 2009**

	Residential			Commercial			Total DG kWh		
	Scenario 1: Actual Production	Scenario 2: Annualized Production	Scenario 3: Annualized Production + Annualized Reservations	Scenario 1: Actual Production	Scenario 2: Annualized Production	Scenario 3: Annualized Production + Annualized Reservations	Scenario 1: Actual Production	Scenario 2: Annualized Production	Scenario 3: Annualized Production + Annualized Reservations
Installed kWh (YTD only)	1,285,069	2,628,647	3,117,557	98,439	95,880	789,480	1,383,508	2,724,527	3,907,037
Total kWh	1,285,069	2,628,647	3,117,557	98,439	95,880	789,480	1,383,508	2,724,527	3,907,037
Required kWh	2,676,605	2,676,605	2,676,605	2,676,605	2,676,605	2,676,605	5,353,210	5,353,210	5,353,210
% Compliance met	48%	98%	116%	4%	4%	29%	26%	51%	73%

The chart above shows three compliance scenarios: (1) metered production from currently installed systems; (2) production that is annualized from currently installed systems; and (3) the annualized production from currently installed plus reserved systems (reserved systems are systems that are expected to be installed within 120 days).

In Commission Decision No. 71464 (January 26, 2010), the Commission approved UNS Electric’s 2010 REST Implementation Plan, including a REST surcharge that is expected to collect \$8.7 million, or approximately \$0.007134 per kWh, from retail customers in 2010. This will help offset the costs of implementing the REST projects and programs. REST implementation plans and the associated surcharge are submitted annually to the Commission for their review and approval.

Although meeting the DE portion of the REST requirement is more costly per kWh than meeting the utility scale requirement, UNS Electric remains committed to achieving the REST goals in future years. It will be important for REST compliance in the future for UNS Electric to help develop a greater commercial market for renewable energy resources in order to better meet the commercial category for the DE REST requirement, as well as to have the regulatory flexibility to consider alternative compliance mechanisms with which to meet the DE goals.

# Appendix A

## Breakout of UNS Electric's 2009 RECs

	Category	Production (kWh)	REST Multiplier(s) Applied*	Multiplier Value	Extra credits (from multipliers)	Total RECs	Carryover Credits	RECs Retired	RECs Purchased	
Utility-Scale (Non-DG)	Landfill Gas	-						30,281,000	30,281,000	
	Springerville Solar	-					3,798,119			
	Global Solar MPC		<b>Manufacturing Partial Credit</b>			<b>1,132,666</b>	805,009	190,111		
	Total Production	-								
	<b>Subtotal Non-DG</b>					<b>1,132,666</b>				
DG		<b>1,017,464</b>	<b>Annual kWh Production</b>							
	SunShare (DG Res)	56,988	In-State Manufacturing and Installation Content	0.15	8,548					
		56,988	In-State Power Plant Installation Credit	0.5	28,494					
		56,988	Distributed Generation Credit	0.5	28,494					
						<b>1,083,000</b>	41,411	1,124,411		
	DG-Commercial-2 projects		<b>89,524</b>	<b>Annual kWh Production</b>						
			7,380	In-State Power Plant Installation Credit	0.5	3,690				
			7,380	Distributed Generation Credit	0.5	3,690	<b>96,904</b>		96,904	
		Solar Hot Water-Residential	<b>154,303</b>	n/a			<b>154,303</b>		154,303	
	Wind-Residential	<b>113,302</b>	n/a			<b>113,302</b>		113,302		
	Wind-Non Residential	<b>8,915</b>	n/a			<b>8,915</b>		8,915		
	Total Production	<b>1,383,508</b>								
	<b>Subtotal DG</b>					<b>1,456,424</b>				
<b>2009 New Production (DG +NonDG)</b>						<b>2,589,090</b>				
<b>Carryover credits from 2008</b>						4,644,539				
<b>Sub-total 2009 RECS</b>						7,233,629				
<b>RECS purchased</b>						30,281,000				
<b>RECS retired for GreenWatts Program</b>						136,260				
<b>Total RECS available for 2009 REST compliance</b>						37,378,369				
<b>RECS retired for 2009 compliance</b>						31,832,686				
<b>FINAL TOTAL (2009 new production + 2008 carryover - RECs retired)</b>						<b>5,545,683</b>				

## **Appendix B**

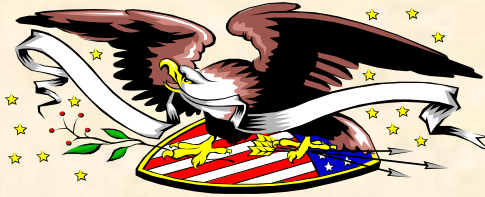
### **Auditor's Statement of Fair Process and Procedure**

**(Redacted)**

## Appendix C

### Documentation of UNS Electric REC Retirements for 2009

(Signed Certificate available upon request)



## CERTIFICATE OF RETIREMENT OF RENEWABLE ENERGY CREDITS

### Original Certificate Issue

Certificate No. UNSE/REST: LG9481001 – 39,625,741  
Certificate No. UNSE/REST: MPC0000001 – 190,111  
Certificate No. UNSE/REST: DERP918554 – 2,042,965  
Certificate No. UNSE/REST: DERSHW000001 – 154,303  
Certificate No. UNSE/REST: DERW000001 – 113,302  
Certificate No. UNSE/REST: DECPV0010097 – 107,001  
Certificate No. UNSE/REST: DECW000001 – 8,915

On January 31, 2010 UNS Electric (UNSE) retired 30,144,740 Landfill Gas Credits, 190,111 Partial Manufacturing Credits (MPC), 1,124,411 Distributed Energy-Residential-Solar PV Credits (DERPV), 154,303 Distributed Energy-Residential Solar Hot Water Credits (DERSHW), 113,302 Distributed Energy-Residential Wind Credits (DERW), 96,904 Distributed Energy-Commercial-Solar PV Credits (DECPV), and 8,915 Distributed Energy-Commercial Wind Credits (DECW) towards meeting its 2009 Renewable Energy Standard requirements.

1. UNSE certifies that it derived the Landfill Credits from application of the Actual Generation of Electricity from the combustion of landfill gas produced at the Los Reales Landfill for the generation of electricity at TEP's Sundt Generating Station.
2. UNSE Certifies that it derived all Utility Scale Solar and Distributed Energy Solar and Wind from Actual Generation of Electricity or certified rated energy savings, and the application of the multipliers as permitted by the RES.
3. UNSE further certifies that, at the time of this transfer, it had title to the Credits transferred to UNSE and that such Credits have not previously expired, have not been otherwise used by UNSE to meet its Environmental Portfolio Standard or Renewable Energy Standard requirements, and have not been transferred by UNSE to any other entity.

Attested to:

Name of TEP officer – David Hutchens

Title – Vice President, Energy Efficiency and Resource Planning

Date – January 31, 2010

Signature \_\_\_\_\_

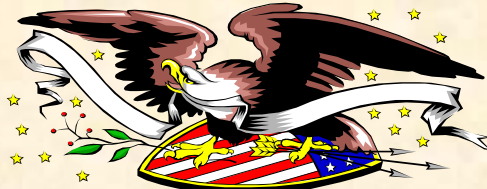
## Appendix D

### 2008-2009 RECPP Conforming Project Incentive Matrix

Technology/Application	UP FRONT INCENTIVE <sup>1</sup>	10-Year REC Agreement <sup>2</sup> 10-Year Payment (\$/kWH)	15-Year REC Agreement <sup>2</sup> 15-Year Payment (\$/kWH)	20-Year REC Agreement <sup>2</sup> 20-Year Payment (\$/kWH)
	20-Year REC Agreement			
BIOMASS/BIOGAS (Electric)	NA	0.060	0.056	0.054
BIOMASS/BIOGAS – CHP (Electric) <sup>3</sup>	NA	0.035	0.032	0.031
BIOMASS/BIOGAS – CHP (Thermal) <sup>3</sup>		0.018	0.017	0.016
BIOMASS/BIOGAS (thermal)	NA	0.015	0.014	0.013
BIOMASS/BIOGAS (cooling)	NA	0.032	0.030	0.029
DAYLIGHTING (Non-Residential)	\$0.20/kWH <sup>7</sup> See this note for clarification	NA	NA	NA
GEOHERMAL – (electric)	NA	0.024	0.022	0.022
GEOHERMAL – (thermal)	1.00/Watt	0.048	0.045	0.043
GEOHERMAL – (cooling)	NA	0.032	0.030	0.029
SMALL HYDRO	NA	0.060	0.056	0.054
SMALL WIND (grid-tied) <sup>4</sup>	\$2.50/Watt AC	0.145	0.135	0.130
SMALL WIND (off-grid) <sup>4</sup>	\$2.00/Watt AC	0.116	0.108	0.104
<b>SOLAR ELECTRIC:</b>				
RESIDENTIAL (GRID-TIED)	\$3.00/Watt DC <sup>8</sup>	0.202	0.187	0.180
Non-Residential (Grid-Tied) 20 kW or less	\$2.50/Watt DC <sup>8</sup>	0.202	0.187	0.180
NON-RESIDENTIAL (GRID-TIED) More than 20 kW	NA	0.202	0.187	0.180
RESIDENTIAL (OFF-GRID)	\$2.00/Watt DC <sup>8</sup>	NA	NA	NA
NON-RESIDENTIAL (OFF-GRID)	NA	0.121	0.112	0.108
SOLAR SPACE COOLING <sup>5</sup>	NA	0.129	0.120	0.115
SOLAR WATER HEATING/SPACE HEATING <sup>5</sup> (Non-Residential)	NA	0.057	0.052	0.051
RESIDENTIAL SOLAR WATER/SPACE HEATING <sup>6</sup>	\$750.00 plus \$0.25/kWH to a maximum of \$1,750.00 <sup>9,10</sup>	0.057	0.052	0.051
NON-RESIDENTIAL POOL HEATING	NA	0.012	0.011	0.011

## Appendix E

### GreenWatts Certificate of Retirement 2009 (Signed Certificate available upon request)



## CERTIFICATE OF RETIREMENT OF GREENWATTS CREDITS

Original Certificate Issue

Certificate No. UNSE/GW: 0148941 - 0285201

On January, 2009 UNS Electric (UNSE) retired 136,260 kWh of Landfill Gas Credits in meeting its 2009 GreenWatts Program Energy requirements.

1. UNSE certifies that it derived the Landfill Credits from application of the Actual Generation of Electricity from the combustion of landfill gas produced at the Los Reales Landfill for the generation of electricity at TEP's Sundt Generating Station.
2. UNSE further certifies that, at the time of transfer, it had title to the Landfill Credits transferred to UNSE and that such Credits have not previously expired, have not been otherwise used by UNSE to meet its Environmental Portfolio Standard or Renewable Energy Standard requirements, and have not been transferred by UNSE to any other entity.

Attested to:

Name of TEP officer – David Hutchens

Title – Vice President, Energy Efficiency and Resource Planning

Date – January 31, 2010

Signature \_\_\_\_\_