

ORIGINAL

NEW APPLICATION



0000146275

RECEIVED

BEFORE THE ARIZONA CORPORATION COMMISSION

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11

**COMMISSIONERS**  
BOB STUMP - CHAIRMAN  
GARY PIERCE  
BRENDA BURNS  
BOB BURNS  
SUSAN BITTER SMITH

2013 JUL -1 P 3:48  
AZ CORP COMMISSION  
DOCKET CONTROL

Arizona Corporation Commission  
**DOCKETED**  
JUL - 1 2013

DOCKETED BY  
nr

IN THE MATTER OF THE APPLICATION OF )  
UNS ELECTRIC, INC. FOR APPROVAL OF ITS )  
2014 RENEWABLE ENERGY STANDARD )  
IMPLEMENTATION PLAN AND DISTRIBUTED )  
ENERGY ADMINSTRATIVE PLAN AND )  
REQUEST FOR RESET OF ITS RENEWABLE )  
ENERGY ADJUSTOR. )

DOCKET NO. E-04204A-13-0225

**APPLICATION**

12 UNS Electric, Inc. ("UNS Electric" or the "Company"), through undersigned counsel,  
13 hereby submits its 2014 Renewable Energy Standard and Tariff ("REST") Implementation Plan  
14 ("Plan") for Arizona Corporation Commission ("Commission") approval, in compliance with  
15 Arizona Administrative Code ("A.A.C.") R14-2-1801 *et seq.*

16 UNS Electric's Plan is designed to achieve 2014 REST compliance as cost-effectively as  
17 possible. The key components of the Plan include new renewable energy resources to be added  
18 through 2018 proposed and existing Company programs, budgets for each of those programs; and  
19 customer funding and related REST tariff. The estimated cost for 2014 related projects and  
20 programs is \$7.3 million. UNS Electric proposes to recover \$5.9 million through the REST tariff,  
21 which \$1.4 million less than the overall budget because of the application of carryover funds from  
22 the 2012 budget to the 2014 budget. In order to implement this Plan, UNS Electric requests  
23 approval of its 2014 REST surcharge of \$0.01200/kWh.

24 UNS Electric remains solidly committed to the REST and its Plan provides for renewable  
25 generation to meet the 2014 compliance requirement of four and a half (4.5) percent of retail sales.  
26 The Company has entered into agreements with developers for the construction of renewable  
27 generation and is moving forward with plans to construct its own renewable generation.



1 Copies of the foregoing hand-delivered/mailed  
2 This 1<sup>st</sup> day of July, 2013, to the following:

3 Lyn Farmer, Chief Administrative Law Judge  
4 Chief Administrative Law Judge  
5 Hearing Division  
6 Arizona Corporation Commission  
7 1200 West Washington Street  
8 Phoenix, Arizona 85007

9 Janice M. Alward, Chief Counsel  
10 Legal Division  
11 Arizona Corporation Commission  
12 1200 West Washington Street  
13 Phoenix, Arizona 85007

14 Steve Olea, Director  
15 Utilities Division  
16 Arizona Corporation Commission  
17 1200 West Washington Street  
18 Phoenix, Arizona 85007

19  
20  
21  
22  
23  
24  
25  
26  
27  
By 



**UNS Electric, Inc.**

---

**2014 Renewable Energy Standard  
Implementation Plan**

## TABLE OF CONTENTS

I.	Executive Summary .....	1
II.	UNS Electric 2014 Implementation Plan Components .....	2
	A. Utility Scale Renewable Generation .....	2
	B. Bright Arizona Solar Buildout Plan.....	3
	C. Distributed Generation Incentive Programs.....	5
	D. Market Cost of Comparable Conventional Generation .....	7
III.	The Plan Budget.....	8
IV.	The 2014 REST Tariff.....	9
V.	Renewable Energy Balancing, Integration, and Field Testing .....	10
	A. PV Panel Lab Degradation Testing.....	10
	B. Irradiance Measurement Devices.....	10
	C. Solar and Wind Forecast Integration Portal.....	10
VI.	Additional Compliance Issues and Information .....	11
	A. Compliance with Decision No. 72034.....	11
VII.	Conclusion.....	12

## **LIST OF EXHIBITS**

- Exhibit 1      Line Item Budget
- Exhibit 2      Definition of Market Cost of Comparable Conventional Generation
- Exhibit 3      Above Market Cost of Comparable Conventional Generation (Confidential)
- Exhibit 4      Implementation Plan New Resources Costs (Confidential)
- Exhibit 5      Implementation Plan New Resources
- Exhibit 6      REST – TS1 Renewable Energy Standard Tariff
- Exhibit 7      REST – TS2 Renewable Energy Standard Tariff (Customer Self-Directed Renewable Energy Option)
- Exhibit 8      Customer Load Percentage Analysis
- Exhibit 9      Renewable Energy Credit Purchase Program

## **I. EXECUTIVE SUMMARY**

UNS Electric, Inc. (“UNS Electric” or “Company”) has prepared its 2014 Implementation Plan (“Plan”) in compliance with the Arizona Corporation Commission’s (“Commission”) Renewable Energy Standard (“REST”) Rules pursuant to Arizona Administrative Code (“A.A.C”) R14-2-1813. The Plan’s cost-effective strategy demonstrates UNS Electric’s commitment to fulfilling the REST requirements for 2014 and beyond. The key components of the Plan include: new renewable energy resources to be added through 2018; proposed and existing Company programs; budgets for each of those programs; and customer funding and related REST tariff. UNS Electric requests that the Commission approve the Plan, as well as the associated budget and tariff, prior to December 31, 2013, so it may become effective January 1, 2014.

Pursuant to A.A.C. R14-2-1804 and R12-2-1805, UNS Electric must obtain four and one-half (4.5) percent of its 2013 annual retail sales from renewable resources; thirty (30) percent of that 4.5 percent must come from Distributed Generation (“DG”). In order to meet this requirement, UNS Electric proposes utilizing existing utility scale renewable generation and credits; Power Purchase Agreements (“PPA”) with renewable developers; new utility-owned renewable generation, and DG incentive programs.

In addition to proposed utility scale renewable generation and PPAs, the Plan also provides three options for DG incentive programs. Plan A proposes to keep the residential DG up-front incentives at 2013 levels (\$0.10 for photovoltaic (“PV”) and \$0.40 for solar water heating) and maintain a small commercial incentive. Plan B proposes to maintain only residential DG up-front incentives. Plan C proposes to remove DG up-front incentives entirely. The estimated cost for 2014 REST related projects and programs for Plan A is \$7.3 million, Plan B is \$7.2 million, and Plan C \$7.1 million. Based on the proposed incentive levels and the anticipated renewable generation requirements, the cost of projects and programs is expected to have a moderate annual increase through 2018, adding up to a five year combined total of \$40 million. (See Exhibit 1 for estimated projected budgets thru 2018.) The REST funding is

necessary to cover the cost of utility scale renewable generation, to make incentive payments for DG resources, to implement the programs, to create education and outreach programs, and to cover administration costs. For 2014, UNS Electric proposes to recover approximately \$5.9 million through the REST tariff (under the adoption of Plan A); this is \$1.4 million less than the overall budget because of the application of carryover funds from 2012 budget.

UNS Electric requests the Commission approve the Plan and find that it is in the public interest because it is realist and cost-effective plan for complying with the REST requirements.

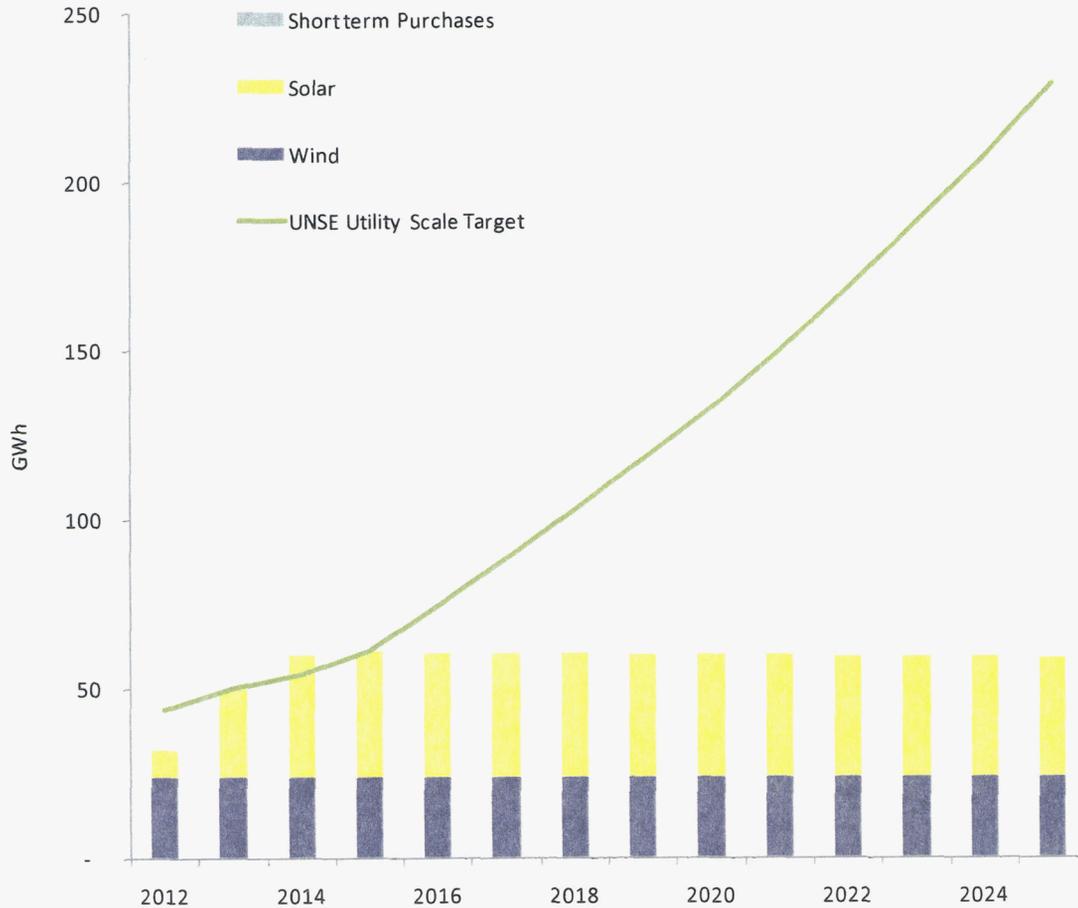
## **II. UNS ELECTRIC 2014 IMPLEMENTATION PLAN COMPONENTS**

In 2014, UNS Electric's total renewable generation requirement is four and one-half (4.5) percent of retail sales, or 77,274 megawatt hours ("MWh"). The REST targets two resource categories to meet this requirement: utility-scale generation and DG. UNS Electric intends to expand its utility-scale generation portfolio and enhance its Bright Arizona Solar Buildout Plan.

### **A. Utility-Scale Renewable Generation.**

UNS Electric will meet the 2014 utility-scale requirement by having a renewable generation capacity of 59,700 MWh in place by the end of 2014. UNS Electric will meet this target through a combination of self-owned generation and PPAs entered into by the Company. The Commission approved a PPA between UNS Electric and Western Wind on April 1, 2010. This project is located in the Kingman, Arizona area and has an estimated annual generation of 24,000 MWh from wind power and 850 MWh from solar power. Additionally, the Company has a 10 MW solar PPA, a 1.2 MW utility-owned solar project and will have a 7.2 MW utility-owned project expected to be completed in the first quarter of 2014. The above projects will provide UNS Electric with the renewable generation to meet its utility-scale REST requirement in 2014. Chart 1 below depicts the Company's utility scale REST requirements and expected resources.

**Chart 1. Renewable Energy Standard Targets.**



**B. Bright Arizona Solar Buildout Plan.**

UNS Electric’s solar ownership plan (“Bright Arizona Solar Buildout Plan” or “Buildout Plan”), represents a small portion of the utility-scale requirement that will be met through the utility-owned program. UNS Electric’s proposed investments in its Buildout Plan were approved by the Commission in the Company’s 2010 rate case (Decision No. 71914, September 30, 2010). The Decision approved the Company to invest up to \$5 million in capital each year to develop renewable technologies and help the Company’s efforts to diversify its renewable portfolio and

meet the REST requirements.<sup>1</sup> The Buildout Plan program is an essential component of the UNS Electric's renewable strategy because utility-owned projects provide balance to the renewable portfolio, as well as providing greater certainty for the continued development of renewable energy in the Company's territory.

As approved, the \$5 million annual Buildout Plan budget (see Table 1) will allow UNS Electric to own approximately 20 percent of the renewable energy needed to meet the utility-scale requirement of the renewable energy standard. Current market costs for panels and balance of system components have continued to decline in 2012, and UNS Electric expects to increase its installed capacity by approximately 2.4 MW annually under the Buildout Program.

**Table 1. Bright Arizona Solar Buildout Plan Investment Timeline.**

<b>Year Installed</b>	<b>Year Recovered</b>	<b>Annual Capital Investment</b>	<b>MW Capacity</b>
2011	2012	\$5,000,000	1.22 MW
2012	2013	\$5,000,000	2.4 MW
2013	2014	\$5,000,000	2.4 MW
2014	2015	\$5,000,000	2.4 MW
<b>4-Year Total</b>		<b>\$20,000,000</b>	<b>8.42 MW</b>

The annual revenue requirement for the investment in the Bright Arizona Solar Buildout Plan is detailed in Table 2 below. Revenue requirement encompasses recurring costs related to capital investment, including return on investment, depreciation, property taxes, and operations and maintenance ("O&M") expense. UNS Electric is proposing to continue to recover these costs through the REST adjustor approved by the Commission until the investment can be included in rate base. Each column shown in Table 2 represents the expected revenue requirement for UNS Electric's capital investment from the prior year. It should be noted that the property tax revenue requirement for each investment is recovered in year 2 for each project

---

<sup>1</sup> Decision No. 71914 (September 30, 2010) at page 64, line 6-9.

(i.e., property tax collected in 2014 is from 2012 capital investment). Please refer to Table 3 below for expected cumulative annual revenue requirements.

**Table 2. Revenue Requirement for the Bright Arizona Solar Buildout Plan.**

Revenue Requirement	2014	2015	2016	2017
Carrying Costs	\$963,354	\$993,295	\$1,191,450	\$1,403,755
Book Depreciation	\$562,500	\$760,417	\$1,010,417	\$1,260,417
Property Tax Expense	\$77,903	\$64,132	\$61,674	\$82,417
O & M	\$54,000	\$74,160	\$101,385	\$129,426
Lease Expense	\$30,000	\$30,000	\$30,000	\$30,000
<b>Total Revenue Requirement</b>	<b>\$1,687,757</b>	<b>\$1,922,003</b>	<b>\$2,394,925</b>	<b>\$2,906,015</b>

**Table 3. Estimated Annual REST Budget for the Bright Arizona Solar Buildout Plan.**

Utility Owned Solar Projects by Year	2014	2015	2016	2017	2018
2014 - Rio Rico 7.2 MW	\$1,687,757	\$1,911,587	\$1,782,644	\$1,729,489	
2015 - 2.5 MW built in 2015		\$10,417	\$601,864	\$563,661	
2016 - 2.5 MW built in 2016			\$10,417	\$602,449	
2017 - 2.5 MW built in 2017				\$10,417	\$603,148
2018 - 2.5 MW built in 2018					\$10,417
<b>Annual Revenue Requirement</b>	<b>\$1,687,757</b>	<b>\$1,922,003</b>	<b>\$2,394,925</b>	<b>\$2,906,015</b>	<b>\$613,565</b>

**C. Distributed Generation Incentive Program.**

The Plan proposes three options for a DG incentive program. The Company understands there are a number of outstanding issues that may affect incentive levels, such as: potential changes to the value of distributed generation and net metering policies; federal tax incentives; and the Commission's own energy policies objectives. The Company also recognizes the Commission's previous efforts and continued desire to find the level at which distributed generation remains viable. As such, the Company is providing three options and is supportive of all of them.

Plan A maintains the compliance floor levels of temporary residential DG over compliance as approved in the 2013 program and maintains an equivalent small commercial incentive program. Plan A budget would set aside \$300,000 for residential incentives at \$0.10

per watt for PV and \$0.40 per watt equivalent for residential solar hot water (“SHW”). The \$100,000 non-residential budget, as proposed, would generate approximately 1 MW of additional distributed generation using the small commercial limitation of 70 KW (“dc”) at \$0.10 per watt incentive level. It would also maintain the small commercial SHW program at the current incentive of \$0.40 per watt equivalent. The Company does not expect to exhaust its 2013 funding by the end of the year, and has only reserved approximately 35% of its residential budget and 11% of its up front non-residential budget for 2013 at the time of this filing. The associated DG incentives under the proposed Plan A budget is \$1.55 million.

Plan B, like Plan A, also maintains the compliance floor levels for residential DG, but does not include small commercial project incentives. Plan B maintains the current residential incentive of \$0.10 per watt for PV and \$0.40 per watt for SHW. This proposal recognizes that the Company is over-compliant with regards to the non-residential requirement for 2014, but still requires some residential distributed generation to meet the expected 2014 requirement. The associated DG incentives under the proposed Plan B budget are \$1.45 million.

Plan C proposes no new incentives for residential or non-residential projects, and maintains the existing performance based incentives (“PBI”) from prior years. The associated DG incentives for the previously entered PBI contracts for the proposed Plan C budget are \$1.35 million.

Plan A – Residential and Non-residential incentives in 2014 will be paid at the following levels:

- UFI PV - \$0.10 per DC Watt (max 30 or 70 kW DC for residential and non-residential);
- UFI SHW - \$0.40 per annual estimated kWh saved.

Plan B – Residential incentives in 2014 will be paid at the following levels:

- UFI PV - \$0.10 per DC Watt (max 30 kW DC);
- UFI SHW - \$0.40 per annual estimated kWh saved.

Plan C – There are no new additional incentives.

The residential and/or non-residential UFI for each plan and existing PBI allocations are shown in Table 4. Also included are the relative MWh and MW achieved.

**Table 4. UFI/PBI Budget and Forecast**

Plan Option	Customer Segment	2014 Budget	Annual MWh	Annual MW
A	Residential UFI	\$ 300,000	1,750	1.0
A	Small Commercial UFI	\$ 100,000	1,750	1.0
A	Existing PBI	\$ 1,348,541	14,273	8.2
B	Residential UFI	\$ 100,000	1,750	1.0
B	Small Commercial UFI	\$ -	-	-
B	Existing PBI	\$ 1,348,541	14,273	8.2
C	Residential UFI	\$ -	-	-
C	Small Commercial UFI	\$ -	-	-
C	Existing PBI	\$ 1,348,541	14,273	8.2

UNS Electric does not currently have any requests from Eligible Customers for self-direct funding under A.A.C. R14-2-1809; however, because of the issue that has arisen with Tucson Electric Power Company, UNS Electric is requesting the same clarification and guidance.

1) Should the Affected Utility authorize self-directed to funding to Eligible Customers when no other incentives are available to other customers in that customer class?

2) Should self-directed funding requests be subject to the same incentive level restrictions as other customers, such as \$0.10 per watt or 70kW size limit for up-front incentives?

**D. Market Cost of Comparable Conventional Generation.**

Consistent with the REST rules, UNS Electric calculates program expenses using the Market Cost of Comparable Conventional Generation (“MCCCG”). Details on the methodology for the MCCCG calculation are included in attached Exhibit 2. The annual MCCCG rates are calculated in advance and stated as a single dollar per MWh value by technology type. The expenses are based on the power purchase agreements (“PPAs”) pricing after subtracting the corresponding MCCCG based on projected hourly energy profiles and are included in

confidential Exhibits 3 and 4 (AMCCCG and Implementation Plan Resource Costs).<sup>2</sup> Associated capacity can be seen in Exhibit 5 (Implementation Plan New Resources). The profiles are determined by UNS Electric’s production cost model in coordination with the Company’s annual Purchase Power and Fuel Adjustment Clause (“PPFAC”) filing. The MCCCG is included for wind, PV systems, concentrated solar with storage, and bio-fueled renewable resources.

**III. THE PLAN BUDGET**

As stated previously, the cost to implement UNS Electric’s Plan will be: \$7.3 million for Plan A; \$7.2 million for Plan B; and \$7.1 million for Plan C. The detailed budget for all three options is attached as Exhibit 1. Exhibit 1 includes a breakdown of the costs for renewable energy, the DG programs, research and development, outside services support and reporting, technology, and marketing. Table 5 below includes a high level Plan budget.

**Table 5. Plan Budget by Category.**

Utility Scale	\$ 5,426,418
Plan A Residential/Non-Residential UFI	\$ 200,000
Plan B Residential UFI	\$ 100,000
Existing Large Commercial PBI	\$ 1,348,541
Associated Costs (Metering, I.T., Reporting & Labor, Technical Training, Education/Outreach, and R&D)	\$ 366,804
<b>2014 Program Cost Plan A</b>	<b>\$ 7,341,763</b>
<b>2014 Program Cost Plan B</b>	<b>7,241,763</b>
<b>2014 Program Cost Plan C</b>	<b>7,141,763</b>
Carryover Funds	\$ 1,393,241
<b>Total Plan A</b>	<b>\$ 5,948,522</b>
<b>Total Plan B</b>	<b>5,848,522</b>
<b>Total Plan C</b>	<b>5,748,522</b>

<sup>2</sup> Exhibits will be provided directly to Commission Staff upon execution of a protective agreement.

**IV. THE 2014 REST TARIFF**

The Plan's tariff is contained in Exhibit 6.<sup>3</sup> UNS Electric's Plan will require a tariff charge to be set at \$0.012000/kWh, with customer caps by class. The caps were developed using the proportional cap allocation method, previously approved by the Commission. Under this methodology, the caps for all customer classes are increased proportionately. Table 6 details the Company's approved budget for 2013 and proposed budget for 2014 delineated by rate class and sets forth the currently approved customer class caps and the caps proposed for the 2014 Plan.

**Table 6. 2013/2014 REST Budget by Rate Class.**

<b>Rate Class</b>	<b>2013 Approved REST Budget</b>	<b>2014 Proposed REST Budget</b>
Residential	\$4,094,401	\$2,826,476
Commercial	\$3,577,873	\$2,776,845
Lighting (PSHL)	\$5,906	\$6,027
Industrial & Mining	\$581,878	\$351,970
<b>Total</b>	<b>\$8,395,051</b>	<b>\$5,948,522</b>

<b>Rate Class</b>	<b>Current Rates Caps</b>	<b>Proposed Rates Caps</b>
Residential	\$5.25	\$3.25
Commercial	\$150.00	\$90.00
Lighting (PSHL)	\$135.00	\$90.00
Industrial & Mining)	\$10,000	\$7,500
<b>Per kWh to all Classes</b>	<b>\$0.012000</b>	<b>\$0.012000</b>

<sup>3</sup> Additionally, the Customer Self-Directed Tariff is set forth in the attached Exhibit 7 and the Customer Load Percentage Analysis is set forth in the attached Exhibit 8.

V. **RENEWABLE ENERGY BALANCING, INTEGRATION, AND FIELD TESTING**

UNS Electric dedicates portions of its REST funding towards technical support for the adoption of renewable energy. Table 7 outlines UNS Electric’s proposed budget for this work in 2014. The Company plans to continue its commitment to furthering the integration of renewable energy onto its system by participating in the following projects.

**Table 7. UNS Electric’s Integration Initiatives by Project**

<b>Renewable Integration Initiatives</b>	<b>Budget</b>
PV Panel Lab Degradation Testing	\$ 3,000
Irradiance Measurement Devices	\$ 10,000
Solar and Wind Forecast Integration Portal	\$18,200
<b>Total</b>	<b>\$31,200</b>

**A. PV Panel Lab Degradation Testing**

In order for UNS Electric to adequately maintain its existing and future portfolio of photovoltaic generation, specific degradation problems need to be identified early in order to prevent and prepare for failures in the field. UNS Electric will utilize the University of Arizona’s degradation laboratory with panels used on UNS Electric facilities. This will help save long-term Operations and Maintenance (“O&M”) dollars. The proposed budget for this important project is \$3,000.

**B. Irradiance Measurement Devices**

UNS Electric will deploy irradiance devices similar to those deployed in the Tucson Electric Power Company service territory for the purpose of monitoring real-time cloud conditions for use in solar forecasting initiatives. These devices will cost approximately \$10,000.

**C. Solar and Wind Forecast Integration Portal**

Integrating solar and wind resources on to the grid is an important responsibility of balancing area authorities like Tucson Electric Power Company (“TEP”) who serves as the

balancing authority for UNS Electric. UNS Electric will pay approximately 10% of the cost TEP pays for this project or \$18,200. One of the most critical areas of focus for proper integration is forecasting generation availability over several time horizons. TEP needs to have a reasonably accurate 2 day forecast of production as well as an extremely accurate 15 minute forecast. TEP observations have demonstrated that large scale solar resources can shed 80% of their production in 5 seconds. These “intermittent events” need to be predicted as accurately as possible to allow TEP to manage generation and reserve requirements effectively. There is no commercially available alternative on the market that has the high resolution accuracy needed by TEP and the Company is a widely recognized leader amongst high-solar-penetration utilities for its work in this area. The critical partner developing the forecast is the University of Arizona departments of Physics and Atmospheric Sciences. Funds will be managed through the University of Arizona Renewable Energy Network. This system critical project will be ongoing for 2 years and will be migrating in later years to an Information Technology upgrade project to TEP’s Energy Management System (EMS).

**VI. ADDITIONAL COMPLIANCE ISSUES AND INFORMATION**

**A. Compliance with Commission Decision No. 72034.**

As part of Decision No. 72034, UNS Electric was required to “include, as part of future annual REST plan filings, a list of any cases within the previous three calendar years where UNS Electric has received damages or other considerations as a result of non-compliance related to REST contracts.” As of the date of this filing, UNS Electric has received no damages or other considerations as a result of non-compliance related to REST contracts in the previous three years.

For consistency among Companies, UNS Electric is requesting that the decision and language referenced in the paragraph above be modified and included in the 2014 REST Order as follows:

“IT IS FURTHER ORDERED that included with the reporting requirement in Decision No. 70234, dated December 10, 2010, on page 20 lines 8-11, which outlined the reporting of any liquidated damages cases within the previous three calendar years, UNS Electric shall also make a recommendation for the disposition of the proceeds, and if applicable inform the Commission of the measures UNS Electric intends to take in order to comply with the REST requirements in light of the existing circumstances.”

UNS Electric was also ordered, as part of Decision No. 72034, to “disclose, as part of future annual REST plan filings, whether its affiliates, its employees, or its directors have any direct financial or other interest in renewable energy projects that are owned or whose output is contracted for by UNS Electric.” As of the date of this filing, UNS Electric has no affiliates, employees, or directors with any direct financial or other interest in renewable energy projects that are owned or whose output is contracted for by UNS Electric.

## **VII. CONCLUSION**

The proposed 2014 Renewable Implementation Plan, and options A, B and C, filed by UNS Electric has been developed in way to allow the Company to effectively comply with the REST mandate. The Company respectfully requests the Commission adopt UNS Electric’s 2014 REST Implementation Plan as submitted.

# **EXHIBIT 1**

UNSE EXHIBIT I

UNS Electric Renewable Energy Standard Tariff									
Line Item Budget	2013 Approved	2014 Plan A	2014 Plan B	2014 Plan C	2015	2016	2017	2018	
Total REST Budget & Tariff Collection:	\$ 8,395,051	\$ 5,948,522	\$ 5,848,522	\$ 5,748,522	\$ 7,194,934	\$ 9,107,396	\$ 9,409,262	\$ 6,908,470	
Utility Scale Energy									
Above Market Cost of Conventional Generation	\$ 4,726,000	\$ 3,738,661	\$ 3,738,661	\$ 3,738,661	\$ 3,586,414	\$ 5,023,464	\$ 4,811,626	\$ 4,600,538	
UNS Owned	1,191,463	1,687,757	1,687,757	1,687,757	1,922,003	2,394,925	2,906,015	613,565	
<b>Subtotal</b>	<b>5,917,463</b>	<b>5,426,418</b>	<b>5,426,418</b>	<b>5,426,418</b>	<b>5,508,417</b>	<b>7,418,389</b>	<b>7,717,641</b>	<b>5,214,103</b>	
<i>Customer Sited Distributed Renewable Energy</i>									
Up-front Incentive (UFI) (residential)	180,000	100,000	100,000	-	-	-	-	-	
Up-front Incentive (UFI) (commercial)	100,000	100,000	-	-	-	-	-	-	
Annual Performance Based Incentive (PBI)	1,786,546	1,348,541	1,348,541	1,348,541	1,348,541	1,348,541	1,348,541	1,348,541	
Meter Reading	6,250	6,250	6,250	6,250	6,250	6,250	6,250	6,250	
Education and Outreach	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	
<b>Subtotal</b>	<b>2,102,796</b>	<b>1,584,791</b>	<b>1,484,791</b>	<b>1,384,791</b>	<b>1,384,791</b>	<b>1,384,791</b>	<b>1,384,791</b>	<b>1,384,791</b>	
<i>Technical Training</i>									
Schools Program	-	-	-	-	-	-	-	-	
Internal and Contractor Training	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	
<b>Subtotal</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	<b>37,500</b>	
<i>Information Systems</i>									
<b>Subtotal</b>	<b>25,000</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>	
<i>Metering</i>									
<b>Subtotal</b>	<b>76,070</b>	<b>47,430</b>	<b>47,430</b>	<b>47,430</b>	<b>49,802</b>	<b>52,292</b>	<b>54,906</b>	<b>57,651</b>	
<i>Program Labor and Administration</i>									
Labor, Materials, Supplies	207,722	193,424	193,424	193,424	193,424	193,424	193,424	193,424	
AZ Solar Website	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
<b>Subtotal</b>	<b>208,722</b>	<b>194,424</b>	<b>194,424</b>	<b>194,424</b>	<b>194,424</b>	<b>194,424</b>	<b>194,424</b>	<b>194,424</b>	
<i>Renewable Energy Balancing, Integration, and Field Testing</i>									
PV Panel Lab Degradation Testing	-	3,000	3,000	3,000	-	-	-	-	
Irradiance Measurement Devices	-	10,000	10,000	10,000	-	-	-	-	
Solar and Wind Forecast Integration Portal	-	18,200	18,200	18,200	-	-	-	-	
<b>Subtotal</b>	<b>27,500</b>	<b>31,200</b>	<b>31,200</b>	<b>31,200</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>Total Spending</b>	<b>8,395,051</b>	<b>7,341,763</b>	<b>7,241,763</b>	<b>7,141,763</b>	<b>7,194,934</b>	<b>9,107,396</b>	<b>9,409,262</b>	<b>6,908,470</b>	
<b>Carryover of REST Funds</b>	<b>-</b>	<b>(1,393,241)</b>	<b>(1,393,241)</b>	<b>(1,393,241)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>Total Amount for Recovery</b>	<b>8,395,051</b>	<b>5,948,522</b>	<b>5,848,522</b>	<b>5,748,522</b>	<b>7,194,934</b>	<b>9,107,396</b>	<b>9,409,262</b>	<b>6,908,470</b>	

# **EXHIBIT 2**

**UNSE Exhibit 2**  
**Market Cost of Comparable Conventional Generation**  
**2014 Renewable Energy Standard and Tariff**

**OVERVIEW**

Consistent with the Renewable Energy Standard Tariff (“REST”) Rules passed by the Arizona Corporation Commission (“Commission”), UNS Electric, Inc. (“UNSE”) Renewable Energy Standard and Tariff Implementation Plan contemplates recovery of expenses in excess of the Market Cost of Comparable Conventional Generation (“MCCCG”).” The Commission provided guidance on defining MCCCG in the context of its REST Rules and identified the MCCCG as “the Affected Utility’s energy and capacity cost of producing or procuring the incremental electricity that would be avoided by the resources used to meet the Annual Renewable Energy Requirement, taking into account hourly supply and demand circumstances. Avoided costs should include any avoided transmission, distribution, and environmental compliance costs.” This exhibit defines the methodology for developing the MCCCG rate for the Company.

**METHODOLOGY**

Annual MCCCG rates shall be calculated in advance and stated as a single \$/MWh value by renewable technology type. The renewable technology types will be based on projected hourly energy profiles for each type of renewable resource. Annual MCCCG rates will include renewable resources such as wind resources, fixed photovoltaic systems, concentrated solar with storage, single-axis tracking photovoltaic systems, and bio-fueled resources. Specific MCCCG rates would be developed as needed when new renewable technologies or new purchase power agreements are added to the Company’s renewable portfolio. Annual MCCCG rates will capture the value of the seasonality and time of day delivery by deriving an average of on and off peak dispatch costs weighted by on and off peak renewable generation. MCCCG rates shall be calculated each year using the companies production cost simulation software ‘Planning & Risk’, and will be done in coordination with the company’s annual Purchase Power and Fuel Adjustment Clause (PPFAC) filing. The hourly MCCCG rate determination criteria are shown in Table 1 below by comparing the types of renewable generation with the resource dispatch type. All projected MCCCG hourly rates are based on a ‘Planning & Risk’

## UNSE Exhibit 2

production cost simulation that forecasts adequate generation and transmission capacity to meet all firm load obligations including system reserve requirements. Finally, the cost of renewable generation above the annual MCCCCG rates will be recovered through the REST Adjustor Mechanism and REST Tariff.

**Table 1 - MCCCCG Hourly Rate Determination Matrix**

		Types of Renewable Generation Resources			
		Dispatchable Renewable Generation	Firm Renewable Generation	Non-Firm Renewable Generation	Curtable Non Firm Renewable Generation
<b>Resource Dispatch Type</b>	Wholesale sales transaction served from existing resource portfolio	The MCCCCG rate will be based on projected incremental production costs to serve firm load and wholesale sales opportunities for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			
	No market transactions. Generation available from thermal resource portfolio.				
	Day, week or month ahead purchase transaction to serve firm load requirements.	The MCCCCG rate will be based on the projected day, week or month-ahead firm purchase power transactions committed for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			
	Spot market transaction to serve firm load requirements.	The MCCCCG rate will be based on the projected Palo Verde spot market price for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			

## UNSE Exhibit 2

### CALCULATION

$$MCCCG_{on} = \text{Annual Average On Peak MCCCCG Rate} = \frac{\sum_{i=1}^{8760} PR_i * G_i * X_i}{\sum_{i=1}^{8760} G_i * X_i}$$

$$MCCCG_{off} = \text{Annual Average Off Peak MCCCCG Rate} = \frac{\sum_{i=1}^{8760} PR_i * G_i * (1 - X_i)}{\sum_{i=1}^{8760} G_i * (1 - X_i)}$$

$MCCCG_{Annual Rate}$  = Average of on and off peak MCCCCG rate weighted by projected on and off peak renewable generation.

*It is assumed that there is a specific MCCCCG rate for each renewable technology type.*

Where

$PR_i$  = Projected Planning & Risk dispatch cost (\$/MWh) for hour  $i=1,2,\dots,8760$ .

$G_i$  = Projected energy generation in renewable technology resource profile for hour  $i=1,2,\dots,8760$ .

$X_i = \begin{cases} 1 & \text{if hour } i \text{ is an on peak market hour} \\ 0 & \text{Otherwise} \end{cases}$  for  $i = 1, 2, \dots, 8760$

**Table 2 – UNSE’s 2014 MCCCCG Annual Rates**

Renewable Technology	MCCCCG Annual Rates	\$/MWh
	Solar PV	
AZ Wind		\$48.12
Biomass		\$50.37
NM Wind		\$48.62
Solar CSP		\$56.61

# **EXHIBIT 3**

**REDACTED**

# **EXHIBIT 4**

**REDACTED**

# **EXHIBIT 5**

**IMPLEMENTATION PLAN NEW RESOURCES**

Table 1 - Targeted Resources

Line No.	Targeted Generation Resources:	Ownership <sup>1</sup>	Targeted Completion	2008-2012 Total MW	2014	2015	2016	2017	2018	Total
1	<b>Solar:</b>									
2	La Senita	UNSE	Complete	1.2	2,100	2,100	2,100	2,100	2,100	10,500
3	Black Mountain	PPA	Complete	10.0	23,400	23,300	23,200	23,100	23,000	116,000
4	Rio Rico	UNSE	01/2014	7.2	10,500	11,400	11,400	11,300	11,300	55,900
5										
6	<b>Wind:</b>									
7	Western Wind	PPA	Complete	10.0	23,700	23,700	23,700	23,700	23,700	118,500
8										
9	<b>Total Targeted Generation</b>			<b>28.4</b>	<b>59,700</b>	<b>60,500</b>	<b>60,400</b>	<b>60,200</b>	<b>60,100</b>	<b>300,900</b>
10										
11	<b>Targeted Distributed Energy Resources:</b>									
12										
13	<b>Residential:</b>									
14	Solar PV	UFI		6.9	14,538	14,538	16,038	19,038	22,038	86,190
15	Solar Thermal	UFI			441	441	441	441	441	2,205
16										
17	<b>Subtotal Residential</b>			<b>6.9</b>	<b>14,979</b>	<b>14,979</b>	<b>16,479</b>	<b>19,479</b>	<b>22,479</b>	<b>88,395</b>
18										
19	<b>Non-Residential:</b>									
20	Solar PV	UFI/PBI		4.2	15,418	15,418	15,918	18,918	21,918	87,590
21	Solar Thermal	UFI			752	752	752	752	752	3,760
22	Wind	UFI			6	6	6	6	6	30
23										
24	<b>Subtotal Non-Residential</b>			<b>4.2</b>	<b>16,176</b>	<b>16,176</b>	<b>16,676</b>	<b>19,676</b>	<b>22,676</b>	<b>91,380</b>
25										
26	<b>Total Targeted DE</b>			<b>39.5</b>	<b>90,855.0</b>	<b>91,655.0</b>	<b>93,555.0</b>	<b>99,355.0</b>	<b>105,255.0</b>	<b>480,675</b>

# **EXHIBIT 6**



**Renewable Energy Standard and Tariff Surcharge  
REST-TS1  
Renewable Energy Program Expense Recovery**

**APPLICABILITY**

Mandatory, non-bypassable surcharge applied to all energy consumed by all customers throughout Company's entire electric service area.

**RATES**

For all energy billed which is supplied by the Company to the customer, the price shall be \$0.01200 per kWh of metered monthly energy consumption on all kWh consumed per meter that month up to and including a monthly cap of:

For Residential customers:	\$3.25 per month
For Commercial customers:	\$90.00 per month
For Industrial customers:	\$7,500 per month
For Lighting (PSHL)	\$90.00 per month

Note: An industrial customer is one with monthly demand equal to or greater than 3,000 kW.

For non-metered services, the lesser of the load profile or otherwise estimated kWh required to provide the service in question, or the service's contract kWh shall be used in the calculation of the surcharge.

This charge will be a line item on customer bills reading "Renewable Energy Standard Tariff."

Per Decision No. 73638, effective March 12, 2013, any customer who has received incentives on and after January 1, 2012 under the REST Rules, shall pay the average of the REST surcharge paid by members of their customer class. Any customer who has a renewable installation without incentives that is interconnected with UNS Electric's system on and after February 1, 2013 shall pay the average of the REST surcharge paid by members of their customer class. The average price by class shall be the following:

For Residential customers:	\$2.90 per month
For Commercial customers:	\$23.32 per month
For Industrial customers:	\$7,488.71 per month
For Lighting (PSHL)	\$4.38 per month

**RULES AND REGULATIONS**

The standard Rules and Regulations of the Company as on file with the Arizona Corporation Commission shall apply where not inconsistent with this pricing plan.

**TAX CLAUSE**

To the charges computed under the above rate, including any adjustments, shall be added the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of the Company and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

Filed By: Kentton C. Grant  
Title: Vice President of Finance and Rates  
District: Entire Electric Service Area

Tariff No.: REST-TS1  
Effective: pending  
Page No.: 1 of 1



**Renewable Energy Standard and Tariff Surcharge  
REST-TS1  
Renewable Energy Program Expense Recovery**

APPLICABILITY

Mandatory, non-bypassable surcharge applied to all energy consumed by all customers throughout Company's entire electric service area.

RATES

For all energy billed which is supplied by the Company to the customer, the price shall be \$0.01200 per kWh of metered monthly energy consumption on all kWh consumed per meter that month up to and including a monthly cap of:

For Residential customers:	<del>\$3.255-25</del> per month
For Commercial customers:	<del>\$90.00450.00</del> per month
For Industrial customers:	<del>\$7,50040,000</del> per month
For Lighting (PSHL)	<del>\$90.00435.00</del> per month

Note: An industrial customer is one with monthly demand equal to or greater than 3,000 kW.

For non-metered services, the lesser of the load profile or otherwise estimated kWh required to provide the service in question, or the service's contract kWh shall be used in the calculation of the surcharge.

This charge will be a line item on customer bills reading "Renewable Energy Standard Tariff."

Per Decision No. 73638, effective March 12, 2013, any customer who has received incentives on and after January 1, 2012 under the REST Rules, shall pay the average of the REST surcharge paid by members of their customer class. Any customer who has a renewable installation without incentives that is interconnected with UNS Electric's system on and after February 1, 2013 shall pay the average of the REST surcharge paid by members of their customer class. The average price by class shall be the following:

For Residential customers:	<del>\$2.904-34</del> per month
For Commercial customers:	<del>\$23.3253-82</del> per month
For Industrial customers:	<del>\$7,488.719,580.96</del> per month
For Lighting (PSHL)	<del>\$4.385-24</del> per month

RULES AND REGULATIONS

The standard Rules and Regulations of the Company as on file with the Arizona Corporation Commission shall apply where not inconsistent with this pricing plan.

TAX CLAUSE

To the charges computed under the above rate, including any adjustments, shall be added the applicable proportionate part of any taxes or governmental impositions which are or may in the future be assessed on the basis of gross revenues of the Company and/or the price or revenue from the electric energy or service sold and/or the volume of energy generated or purchased for sale and/or sold hereunder.

Filed By: Kentton C. Grant  
Title: Vice President of Finance and Rates  
District: Entire Electric Service Area

Tariff No.: REST-TS1  
Effective: pending March 12, 2013  
Page No.: 1 of 1

# **EXHIBIT 7**



**Customer Self-Directed Renewable Energy Option  
REST-TS2  
Renewable Energy Standard Tariff**

---

AVAILABILITY

Open to all Eligible Customers as defined at A.A.C. R14-02-1801.H.

APPLICABILITY

Any Eligible Customer that applies to the Company under this program and receives approval shall participate at its option.

PARTICIPATION PROCESS

An Eligible Customer seeking to participate shall submit to the Company a written application that describes the Distributed Renewable Energy (DRE) resources or facilities that it proposes to install and the estimated costs of the project. The Company shall have sixty (60) calendar days to evaluate and respond in writing to the Eligible Customer, either accepting or declining the project. If accepted, the Customer shall be reimbursed up to the actual dollar amounts of customer surcharge paid under the REST-TS1 Tariff in any calendar year in which DRE facilities are installed as part of the accepted project. To qualify for such funds, the Customer shall provide at least half of the funding necessary to complete the project described in the accepted application, and shall provide the Company with sufficient and reasonable written documentation of the project's costs. Customer shall submit their application prior to May 1 of a given year to apply for funding in the following calendar year.

FACILITIES INSTALLED

The maintenance and repair of the facilities installed by a Customer under this program shall be the responsibility of the Customer following completion of the project. In order to be accepted by the Company for reimbursement purposes, the project shall, at a minimum, conform to the Company's System Qualification standards on file with the Commission. (REST Implementation Plan, Renewable Energy Credit Purchase Program – RECPP, Distributed Generation Interconnection Requirements, Net Metering Tariff, Company's Interconnection Manual)

PAYMENTS AND CREDITS

All funds reimbursed by the Company to the Customer for installation of approved DRE facilities shall be paid on an annual basis no later than March 30<sup>th</sup> of each calendar year. All Renewable Energy Credits derived from a project, including generation and Extra Credit Multipliers, shall become the property of the Company and shall be applied towards the Company's Annual Renewable Energy Requirement as defined in A.A.C. R14-2-1801.B.

RULES AND REGULATIONS

The standard Rules and Regulations of the Company as on file with the Arizona Corporation Commission shall apply where not inconsistent with this pricing plan.

RELATED SCHEDULES

- REST-TS1 - Renewable Energy Program Expense Recovery

---

Filed By: Kentton C. Grant  
Title: Vice President of Finance and Rates  
District: Entire Electric Service Area

Tariff No.: REST-TS2  
Effective: March 12, 2013  
Page No.: 1 of 1

# **EXHIBIT 8**

## UNSE Exhibit 8

### UNS ELECTRIC, INC. 2014 REST IMPLEMENTATION PLANS CUSTOMER IMPACTS

2014 Company Proposal Plan A						
Customer Class	Total Revenue	Percent of Revenue	Average Bill	Monthly Cap	Percent of Customers at Cap	Percent of Load
Residential	\$2,826,476	47.4%	\$2.90	\$3.25	89.3%	47.8%
Commercial	\$2,776,845	46.6%	\$23.32	\$90.00	25.9%	34.8%
Lighting	\$6,027	0.1%	\$4.38	\$90.00	4.9%	0.0%
Industrial & Mining	\$351,970	5.9%	\$7,488.71	\$7,500.00	99.8%	17.38%
Total	\$5,961,318	100.0%				

# **EXHIBIT 9**

**Exhibit 9**

**UNS Electric, Inc.**

**Renewable Energy Credit Purchase Program**

**2014**

## TABLE OF CONTENTS

I.	Frequently Asked Question.....	1
II.	Project Funding .....	3
III.	Installer Qualifications.....	5
IV.	Net Metering .....	5
V.	Prohibition on System Removal .....	5
VI.	Community Solar .....	6
VII.	Up-Front Incentives .....	7
	A. Solar Electric Residential Projects 30 kW DC or Less and Non-Residential Projects 70 kW DC or Less.....	11
	B. Residential and Small Non-Residential Solar Water Heating and Space Heating Smaller than 400,000 kWh Equivalent Annual Production per Year .....	16
	i. Qualifications for Residential Solar Water Heating and Space Heating .....	17
	ii. Solar Hot Water Off-Angle and Shading Annual Energy Derating Chart.....	20
VIII.	Other Incentives .....	47
	A. Technologies without Technology Specific Criteria .....	47
	B. Non-Conforming Projects. ....	47
	C. Guidelines for Projects Electing to Not Receive Incentives .....	47
	Appendix 1: Incentive Summary Tables	
	Appendix 2: Glossary	

## **I. Frequently Asked Questions**

### **What is Distributed Generation?**

Distributed Generation (DG) is defined as electric generation sited at a customer premise, providing electric energy to the customer load on that site or providing wholesale capacity and energy to the local Utility Distribution Company for use by multiple customers in contiguous distribution substation service areas. The generator size and transmission needs shall be such that the plant or associated transmission lines do not require a Certificate of Environmental Compatibility from the Arizona Corporation Commission (ACC).

### **What are Distributed Renewable Energy Resources?**

Distributed Renewable Energy Resources are applications of appropriate technologies that are located at a customer's premise that displace conventional energy resources that would otherwise be used to provide electricity to Arizona customers.

UNS Electric, Inc. (UNSE or Company) provides programs consistent with these definitions and generally refers to these programs as DG programs. For more information on these and other definitions, please visit the ACC's Renewable Energy Standard and Tariff webpage at <http://www.cc.state.az.us/divisions/utilities/electric/environmental.asp>

### **What is Net Metering?**

Net Metering refers to the production of electricity from a qualifying renewable energy electric generator, such as photovoltaic (PV) panels, used to offset electricity provided by UNSE. Customers deemed eligible for participation in UNSE's Net Metering Tariff will be required to install a bi-directional meter capable of measuring the flow of electricity to and from the customer's premises. Net Metering customers may buy and sell electricity to and from UNSE under the applicable terms and tariff rate. In the event that a Net Metering customer carries a negative balance due to the over-production of electricity for the time period specified in the Net Metering Tariff, the customer's remaining credits will be transitioned to a payment at the applicable wholesale rate. This will occur once per year, in October. The customer's balance will then be reset to zero.

No system may exceed 125% of connected load for that meter, where connected load is defined as the maximum demand divided by 0.6. For more information on Net Metering, please visit <https://www.uesaz.com/customer/rates/pricing/>

### **Why is UNSE involved with DG?**

The ACC, which regulates UNSE and utilities like it in Arizona, enacted the Renewable Energy Standard and Tariff (REST) Rules in 2008. These rules require UNSE to replace a substantial portion of its retail sales with renewable energy by investing in a variety of projects, including both utility-scale and DG projects. In order to comply with a portion of the REST Rules governing DG projects, UNSE may purchase Renewable Energy Credits (REC) from eligible customers through their incentive programs. Under these programs, UNSE does not own or build the systems that generate these credits, but rather incents them by purchasing the resulting RECs. Pursuant to the REST Rules, one REC is equivalent to 1 kilowatt hour (kWh). For more information on the ACC's REST Rules, please visit the ACC's REST Rules webpage at <http://www.cc.state.az.us/divisions/utilities/electric/environmental.asp>

### **How does UNSE get involved with DG?**

One way in which UNSE supports DG projects is by providing residential and non-residential programs for customers with qualifying renewable energy generators to participate in. These programs include a variety of

ACC approved up-front and performance-based incentive payments by technology. These incentives are the method by which UNSE actually purchases a REC. For details, terms, and conditions regarding for each qualifying technology, please see the appropriate sections of this document. Please note that UNSE issues incentive payments for RECs; these payments are NOT REBATES. It should also be noted that not every renewable technology system is eligible to receive an incentive. UNSE will only incent technologies specifically outlined herein.

### **Who is eligible for the incentive and how do I apply?**

Any residential or non-residential customer currently connected to UNSE's electric service system that installs a qualifying renewable facility, in compliance with the terms and conditions described herein, may apply to participate in one of UNSE's DG programs. Alternatively, any UNSE-qualified installer may submit the required DG program application on behalf of a qualifying UNSE customer.

### **What is a UNSE-qualified installer?**

A UNSE-qualified installer is an installer that has been evaluated by UNSE personnel and deemed to have met the prerequisites for qualification. In order to become UNSE-qualified, each installer must meet certain UNSE requirements, including but not limited to annual submittal of the necessary paperwork contained within the "Installer's Packet". Each submittal must include, but is not limited to the following: an Installer's Agreement, a current and valid Registrar of Contractor's (ROC) license appropriate for the solar technology being installed, Arizona business license in good standing, and similar information regarding any sub-contractor(s), if applicable. UNSE will not, under any circumstances, issue or assign incentive payment(s) to an installer who is not UNSE-qualified.

### **Where can I find more information?**

For the terms and conditions of participation in any of UNSE's DG programs, please consult UNSE's Renewable Energy Credit Purchase Program (RECPP), which can be found online at [www.uesaz.com/Renewable/](http://www.uesaz.com/Renewable/). Questions may be directed to (520) 917-3673.

### **What else do I need to know?**

Each of the programs described herein, including incentive amounts and all terms and conditions, are subject to change as dictated by program need and any and all regulatory authorities. Nothing included in UNSE's RECPP is intended as a guarantee of funds or qualification for purposes of program participation.

UNSE's RECPP does not accommodate non-customer sited projects for any reason. "Solar Farms" or other utility-scale generation projects do not qualify under UNSE's RECPP. These projects may participate in UNSE's next request for proposals (RFP) for renewable energy. Information regarding UNSE's upcoming RFP may be found at [www.uesaz.com](http://www.uesaz.com).

UNSE's RECPP does not allow for any aggregated or virtual net metering of a customer's loads under any circumstance. The incentives described herein must meet the definitions of DG and Renewable Energy Resource as defined by the ACC and contained within the Frequently Asked Questions portion of this document.

## **II. Project Funding**

UNSE will allocate funds to all qualifying technologies applying for residential and non-residential incentives. Non-PV categories may be protected from over-spending in PV at the discretion of UNSE Program Managers. This may result in a 10% carve out for technologies other than PV for both classes of projects. No more than 25% of a single budget may be reserved for any single project.

### **Funding for the following is detailed below:**

- 1. Up-Front Incentive Levels for Solar Electric Residential Projects 30 kW DC or Less and Non-Residential Projects 70 kW DC or Less**
- 2. Residential and Small Non-Residential Solar Water Heating and Space Heating Smaller than 400,000 kWh Equivalent Annual Production per Year.**

Funds will be made available for reservations on a first-come, first-reserved basis, until annual funding is exhausted. If the incentive level has changed from the date of the original reservation to the date when the reservation is approved, the new incentive level shall be applied.

### **III. Installer Qualifications**

All systems receiving incentives under the RECPP must be installed by an installer properly licensed by the state of Arizona and qualified to install solar projects. UNSE will verify that the installer meets the following minimum qualifications prior to confirming a reservation request:

1. The installer must possess a valid license on file with the Arizona Registrar of Contractors (AZROC) with a license classification appropriate for the solar technology being installed. Alternatively, the installer must identify use of any sub-contractor(s) and ensure the subcontractor(s) maintain an appropriate license(s) on file with the AZROC for the solar technology being installed. Installers may not sub contract outside their scope of work per the AZROC rules; and
2. The installer must possess an Arizona business license that is active and in good standing.

Installers must have completed the UNSE Installer's Packet and have provided the above information to be retained on file with UNSE. The installer must certify that the information on file remains current with the submission of each reservation request. Information on file must be renewed by the end of the calendar year and resubmitted for participation in the upcoming program year.

### **IV. Net Metering**

RECPP incentives can be applied to systems designed to serve only 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. All projects must comply with ACC Net Metering rules.

### **V. Prohibition of System Removal**

Neither the Qualifying System nor any component thereof may be removed by any party, including but not limited to the applicant or future owners or occupants of the property until expiration of the Renewable Energy Credit Agreement or the last day of the final month of the final full calendar year of the applicable incentive payment term. If the Qualifying System or any component thereof is removed by any party in violation of this provision, the customer party to the Renewable Energy Credit Agreement shall immediately reimburse UNSE a prorated amount of the incentive amount paid by UNSE to customer or on behalf of customer to an authorized third party.

In addition, if a Qualified System is removed, UNSE shall monitor that specific customer site to ensure that an additional incentive is not provided for any new distributed renewable energy resource system on that site until the original Renewable Energy Credit Agreement's contracted operational life of the original system has expired.

UNSE shall attempt to monitor the number of missing or non-working distributed generation systems and shall summarize its observations in its annual Compliance Report.

## **VI. Community Solar**

For customers who do not wish to operate a DG system, UNSE offers the Bright Arizona Community Solar Program. The Bright Arizona Community Solar Program offers an easy and affordable way for UNSE customers to meet their electric needs with locally generated solar power by purchasing solar power in "blocks" of 150 kWh per month. A customer may buy some or all of their power through the program. For more information, please see UNSE's Green Energy webpage at [www.uesaz.com/renewable/business/bright/](http://www.uesaz.com/renewable/business/bright/).

## VII. Up-Front Incentives

*Up-Front Incentive (UFI) programs are limited to Residential and Small Non-Residential Projects only.*

### a. Qualifications

Qualifying Technology	Size Limit
Residential Solar Photovoltaics (PV)	30 Kilowatts (kW) Direct Current (DC) or Less
Residential Hot Water & Space Heating	
Small Non-Residential Solar PV	70 kW DC or Less
Small Non-Residential Hot Water & Space Heating	Less than 400,000 Kilowatt Hours (kWh) of Estimated Annual Savings

### b. Application Process

UNSE's UFI application process appears below. UNSE requires strict adherence to this process. Any deviation from the requirements below may result in your application being denied. If you are working with an installer or contractor, please ensure that they follow the required processes explained below. UNSE will assign payment under its UFI application process to the party that appears on the assignment of payment form or as designated by the UFI REC Purchase Agreement. Please work with your installer or contractor prior to beginning the process below to determine who payment should go to. **Once assignment of payment is decided and submitted to UNSE, modifications will not be allowed under any circumstances.**

**1<sup>st</sup> Step: Submittal of the Properly Completed UNSE Application.**

\*Please visit [www.uesaz.com/renewable](http://www.uesaz.com/renewable) for online application submission.

**2<sup>nd</sup> Step: Submittal of the Properly Completed Reservation documents to UNSE.**

The RECPP Reservation documents includes the following items:

1. Assignment of Payment Form (AOP) if applicable
2. IRS Form W-9, required from the UNSE main customer for cash purchase projects. For lease projects W-9 is required from the lessor.
3. Current UFI Renewable Energy Credit Purchase Agreement, signed by the UNSE main customer.
4. For Solar Water Heating Applications:
  - A recent copy of the Solar Rating and Certification Corporation (SRCC) OG300 schematic obtained from the SRCC website that includes in the printed view the annual kWh savings estimated.
  - In the event of a collector substitution both collectors must be SRCC OG100 rated. A recent copy of the SRCC OG100 Certification and Rating is required for both the collector named on the OG300 system and the substituting collector.
5. For Solar Space Heating Incentives:
  - A copy of an Energy-Modeling and Performance Simulation Report that estimates the energy savings that can be expected from the system. Report should include a system schematic/diagram.
  - A recent copy of the SRCC OG100 Certification and Rating obtained from the SRCC website.

**\* All Reservation paperwork must contain the associated project number that is provided upon successful completion of online application**

**3<sup>rd</sup> Step: Required program documents & other associated paperwork can be forwarded as follows:**

Mail may be forwarded to the following address regardless of program:

UNS Electric, Inc.  
Renewable Resources Department  
2498 Airway Ave  
Kingman, AZ 86401

Emails and Faxes may be sent to the following regardless of program:

[renewables@uesaz.com](mailto:renewables@uesaz.com) or faxed to 928-681-8999

**Paperwork sent directly to any specific employee Company email address may not be processed.**

**4<sup>th</sup> Step: Confirmation or Denial of Reservation.**

- Once received, UNSE will match the online application with the submitted Reservation Packet. It is the customer's and/or installer's responsibility to ensure that all forms are filled out completely and correctly. **Forms with missing and/or incorrect information will be placed in a "Missing information" status and will not be approved until corrected. Outdated forms will be rejected.**
- UNSE will evaluate each application for completeness and confirm whether or not reservation funds are available. **All applications are subject to the availability of program funds.** UNSE will also verify, where an installer is used, that the installer is a UNSE-qualified installer. Provided that the application meets UNSE's requirements, and that the installer, if any, is UNSE-qualified, and that program funds sufficient to fund the application are available, UNSE will issue the customer and installer a reservation confirmation letter and provisionally approve the application. **If no funds are available at the time UNSE processes the reservation, UNSE will notify the installer and customer and the application will be denied.**

**5<sup>th</sup> Step: Submittal of Jurisdictional Final Inspection.**

1. Residential Programs:

Within 60 days from the date of the reservation confirmation letter, customer or installer must submit an application to the appropriate jurisdictional entity (e.g., City of Kingman, Lake Havasu, Nogales or Mohave, Santa Cruz County) for a final inspection of the qualifying system. Failure to obtain a jurisdictional final inspection within 180 days of the date of the reservation confirmation letter will result in the revocation of a customer's incentive reservation. If this occurs, the customer or installer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.

2. Non-Residential Programs:

Within 60 days from the date of the reservation confirmation letter, customer or installer must submit an application to the appropriate jurisdictional entity (e.g., City of Kingman, Lake Havasu, Nogales or Mohave,

Santa Cruz County) for a final inspection of the qualifying system. Failure to obtain a jurisdictional final inspection within 180 days of the date of the reservation confirmation letter will result in the revocation of a customer's incentive reservation. If this occurs, the customer or installer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.

3. In the event that a jurisdictional final inspection is not completed within the required timelines and the customer or installer provides proof to UNSE that a correctly completed application for a jurisdictional final inspection was made within the timeline required. UNSE will neither process nor revoke the customer's reservation for 30 days to allow customer time to confirm with the inspecting jurisdiction when the inspection will occur. Provided that the customer provides UNSE with an inspection date within those 30 days, the customer's reservation will be honored. If 30 days elapses with no information from the customer, the reservation will be revoked and customer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.
4. For all PV, Solar Water Heating and other non-PV systems, the installer or customer must submit proof of a passed final inspection directly to UNSE that includes the installation address, scope of work, and inspection status.

**6<sup>th</sup> Step: Submittal of Certificate of Completion (COC) Form.**

For all program applications: once the jurisdictional final inspection has been approved, the installer or customer must submit the COC. For all systems, please submit this form electronically to [renewables@uesaz.com](mailto:renewables@uesaz.com) It is the responsibility of the installer to be sure that the COC contains the reservation Project Number, any COC's without a project number are considered incomplete and **will not be accepted**.

**7<sup>th</sup> Step: UNSE will inspect the system and set the appropriate meters if required (such as for PV).**

**8<sup>th</sup> Step: UNSE process of incentive payment.**

Upon receipt of the COC and the system passing inspection, UNSE will process the payment to the party indicated on the Assignment of Payment form or as designated by the UFI REC Purchase Agreement. In the case of solar leases where only the Lessor can be paid, see section 6.3 of the UFI REC Purchase Agreement. Assignment of Payment forms may only be submitted once as part of the RECPP Reservation Packet. UNSE will not accept changes to the AOP. UNSE will not pay incentives without complete and accurate receipt of the required documents.

**c. Restrictions/Important Notes:**

1. UNSE reserves the right to modify the business process to better serve customers or to increase efficiency. Please refer to [www.uesaz.com/renewable](http://www.uesaz.com/renewable) for the most up-to-date information.
2. With the exception of minor system modifications during the procurement process (panel wattage changes of less than 10 watts, alternative inverter, et cetera), any material changes to a system made after the application is processed will result in cancellation of the existing application and will require a new online application to be submitted. The reservation request may be denied because the request is not in compliance with program requirements (see specific technical sections below).

3. Project extensions will not be granted except as outline herein.
4. Receipt of the application is not valid until a properly completed RECPP Reservation documents and the installer's New Supplier Fact Sheet has been received by UNSE. Once the Reservation Packet is received and deemed complete, the application is validated and the reservation retained at the incentive level in place at time of validation. Any reservation packets submitted incorrectly will be cancelled as will their corresponding online application. Reapplication may result in a reduction of incentive or unavailable funding.
5. In 2014, UNSE will not purchase RECs from retroactive systems. "Retroactive" is defined as a renewable solar system installed before an application for incentive was received and approved by UNSE. UNSE must receive the required program documents; RECPP Reservation Packet and approve the application, and reserve the funds prior to the system being installed to receive the incentive ("installed" is defined as the date of the final clearance from the appropriate jurisdiction).
6. Incentives are not guaranteed.
7. No more than 25% of a single budget may be reserved for any single project.
8. In order to participate in the RECPP, installers must have on file with UNSE a completed Installer's Packet, including a New Supplier Fact Sheet.. This document is available in the Installer's Corner at [www.uesaz.com/renewable](http://www.uesaz.com/renewable).

## A. Solar Electric Residential Projects 30 kW DC or Less and Non-Residential Projects 70 kW DC or Less

The UFIs for eligible customers with residential projects 30 kW DC or less and non-residential projects 70 kW or less are paid in a one-time payment based on the system's designed capacity. Table 1 identifies the incentives available for eligible systems.

**Table 1. Dollar per Watt Incentive for On-Grid Residential Systems Smaller than 30 kW DC and On-Grid Non-Residential Systems 70 kW DC or Less**

YEAR	RESIDENTIAL	SMALL NON-RESIDENTIAL
2014	\$0.10	\$0.10

### a. Terms & Restrictions

- On-Grid Residential customers will receive a UFI up to a **cap of 30 kW DC**. If a residential system is installed larger than 30 kW DC, UNSE will only provide an incentive payment for the first 30 kW DC.
- Any residential project larger than 10 kW AC will be subject to Engineering review to determine if proposed project is on a shared transformer. Following UNSE's Service Requirements, customers may potentially be subject to a reduction in system size or upgrading of existing facilities at the expense of the customer should it be determined necessary by UNSE Engineering.
- On-Grid Small Non-Residential customers will receive a UFI up to a **cap of 70 kW DC**. The UFI may not exceed 50% of Total System Cost.
- The customer must pay at least 15% of the project cost, after other government incentives (e.g., tax credits) are considered. (See explanation of incentive calculation below.)
- Systems may not be eligible to receive RECPP incentives if other utility incentives are applied.
- As described later in this document, **these incentive levels may be decreased because of sub-optimal system positioning.**
- The incentive amount will be calculated at the time the application is approved for reservation. If federal or state incentives change after the system reservation is approved, the incentive amount reserved will not change as long as the reservation is not cancelled.
- For consumer protection, and in order to minimize program manipulation affecting legitimate solar development, no incentive applications will be accepted where the installed price per watt exceeds \$6.00, or where labor charges are in excess of 200% of the system component costs.
- In return for UNSE's payment of a UFI, UNSE will be given complete and irrevocable ownership of the Renewable Energy Credits until December 31<sup>st</sup> of the 20<sup>th</sup> 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. If a system size exceeds the incentive cap, UNSE will still be given complete and irrevocable ownership of the Renewable Energy Credits, within this timeline, for the full system size.

### Project Requirements after Installation

After completing the installation of a Residential Solar Electric project of 30 kW DC or less, or a Non-Residential Solar Electric project of 70 kW DC or less, the customer must continue to provide information to UNSE about the system's performance.

All customer systems receiving UFIs are obligated to include a UNSE-supplied production meter, which will report system production to UNSE in accordance with the regular meter-reading schedule. UNSE, at its option, may perform periodic inspections of the system for operation, metered production, and reporting purposes.

## **b. System Qualifications and Requirements**

All solar electric generating Customer Systems must meet the following system and installation requirements to qualify for UNSE's RECPP. Capitalized terms not defined herein shall have the meanings ascribed to them in the RECPP Agreement.

The following equipment qualifications listed are mandatory requirements which must be met at the time of project commissioning to receive an RECPP incentive. The installation guidance is intended to provide consumers with information on installation and operation practices which are most likely to support achieving the system's designed output. Installation guidance is mandated in order for a project to receive an RECPP incentive, as it does reflect both industry and UNSE concurrence with those practices which are important for a technology to best achieve the designed output. In the future, additional installation guidance items may be considered for inclusion as part of the equipment qualifications.

UNSE acknowledges that many regulations and site-specific requirements may apply to the installation of renewable energy technologies. UNSE agrees that no requirement imposed by these technology criteria shall be imposed in conflict with any other governmental requirements. Any RECPP-based requirement, which is in conflict with a site-specific governmental requirement, shall be detailed in the reservation request. All qualifying systems must adhere to the following requirements in addition to the RECPP program requirements:

### Required Equipment Standards

1. The Customer System components must be certified as meeting the requirements of IEEE-929 - Recommended Practice for Utility Interface of Photovoltaic Systems.<sup>1</sup>
2. Photovoltaic components must be certified by a nationally recognized testing laboratory as meeting the requirements of UL-1703 - Standard for Flat Plate Photovoltaic Modules and Panels Systems and be covered by a non-prorated manufacturer's warranty of at least 20 years.
3. The inverter must be certified as meeting the requirements of IEEE-1547 - Recommended Practice for Utility Interface of Photovoltaic Systems and it must be UL-1741 certified. Inverters must be covered by a manufacturer's warranty of at least ten years.
4. The Customer System design and installation must meet all requirements of the latest edition of the National Electrical Code (NEC), including Article 690 and all grounding, conductor, raceway, over-current protection, disconnect, and labeling requirements.
5. All other electrical components must be UL listed.

---

<sup>1</sup> Some technology-specific criteria reference third party standards. The requirements of those standards are fully applicable when referenced as part of technology specific criteria. UNSE recognizes that new standards are likely to develop in the near future for technologies included in the RECPP, and recommends that the new standards are examined for application in this program definition as they become available.

6. The Customer System and installation must meet the requirements of all federal, state, and local building codes and have been successfully inspected by the building official having jurisdiction. Accordingly, the installation must be completed in accordance with the requirements of the latest edition of NEC in effect in the jurisdiction where the installation is being completed, including, without limitation, Sections 200-6, 210-6, 230-70, 240-3, 250-26, 250-50, 250-122, all of Article 690 pertaining to Solar Photovoltaic Systems, thereof, all as amended and superseded.
7. The Customer System must meet Company and Arizona Corporation Commission interconnection requirements for self-generation equipment. See <http://images.edocket.azcc.gov/docketpdf/0000074361.pdf> for these requirements.

### Installation Requirements

1. A grid-connected Residential Customer System must have a total solar array nameplate rating of at least 1,200 watts DC and no more than 30,000 watts DC.
2. The Customer System installation must meet UNSE's Electric Service Requirements 2013 Edition, Section 1.22, as follows:

“As required by TEP/UES's Interconnection Requirements for Distributed Generation, the customer shall provide and install a disconnect switch to isolate all ungrounded conductors of the generating facility from the TEP/UES system. The switch shall be a gang-operated, load-break device with a visible air-gap in the open position. It shall be rated for the current and voltage requirements of the generating facility and shall be lockable in the open position”.
3. The DG utility meter and utility disconnect will be installed within 10' of the main service panel and in a location readily accessible by UNSE at all times.
4. Products must be installed according to manufacturers' recommendations.
5. The Customer System PV panels and modules must face within +/- 90 degrees of true south, and be substantially unshaded from 9 am to 3 pm. System arrays which are facing at an azimuth angle other than optimal as defined herein or shaded for more than one hour per day will be subject to a reduced incentive payment per Attachment B.
6. The Customer System PV panels and modules must be fitted at an angle of 0 degrees to 60 degrees from horizontal. System arrays which are fitted with an elevation angle other than optimal as defined herein will be subject to a reduced incentive payment per Attachment B.
7. For Residential Customer Systems, Company shall furnish a meter, DG meter socket, and AC disconnect switch in accordance with Section 1.22 of UNSE's Electric Service Requirements. Company shall install the meter. For Non-Residential customer systems, Company shall furnish and install DG meter only. The meter socket and AC disconnect shall be installed in accordance with Section 1.22 of UNSE's Electric Service Requirements. Installer must notify UNSE of wiring configuration so that Company may provide the appropriate 3-phase meter.
8. Total voltage drop on the DC and AC wiring from the furthest PV module to the AC meter will not exceed 2%.
9. PV panels and DC to AC inverter will be installed with sufficient clearance to allow for proper ventilation and cooling. At a minimum, manufacturer clearance recommendations will be observed. PV modules may be mounted less than 4 inches above any surface and an additional inch of clearance for each foot of

continuous array surface area beyond four feet in the direction parallel to the mounting support surface, only in cases when arrays are flush-mounted to roof pitch. Otherwise, the four-inch spacing and an additional inch of clearance for each foot of continuous array surface area minimum is required.

10. Storage Batteries are not allowed as part of the Customer System unless the inverter is a separate component and UNSE can locate the DG utility meter at the inverter's output. If configured otherwise, battery losses will adversely reflect in the annual AC metered energy output. Customer's solar energy generation and energy storage system must meet the requirements of 2 and 3 of this Attachment A.
11. The DC to AC inverter used must provide maximum power point tracking for the full voltage and current range expected from the photovoltaic panels used and the temperature and solar insolation conditions expected in Tucson, Arizona.
12. The DC to AC inverter must be capable of adjusting to "sun splash" from all possible combinations of cloud fringe effects without interruption of electric production.
13. UNSE reserves the right to modify standards as technology changes on a case-by-case basis, pending independent laboratory analysis, Professional Engineer (PE) stamp, or UNSE engineering analysis.

### General Requirements

1. All Customer System installations must be completed in a professional, workmanlike and safe manner.
2. The Customer must be connected to the Company's electric grid and be a net-metered customer.
3. Systems must be permitted and inspected by the jurisdiction having authority over construction projects in the customer's locale.
4. The project must comply with applicable local, state, and federal regulations.
5. Products must be installed according to manufacturer's recommendations.
6. Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
7. All major system components must be new and must not have been previously placed in service in any other location or for any other application.
8. All renewable electricity generation systems must include a dedicated performance meter (provided by UNSE) which allows for measurement of system energy production.
9. PV system components shall be properly labeled, including AC & DC disconnects, DG meter, service panel (outside cover), and breakers inside the service panel.
10. The system will in all cases have a material and full labor warranty of at least five years.

## Solar Electric off-Angle & Shading Annual Energy Derating Chart for Residential Systems of 30 kW DC or Less and Small Non-Residential Systems of 70 kW DC or Less

**Up-Front Incentive (UFI) Payment - PV Off-Angle/Azimuth & Shading Derating Chart**

**Array Azimuth Angle from Due South**

	East	80	70	60	50	40	30	20	10	South	10	20	30	40	50	60	70	80	West	
<b>Array Angle Above Horizontal</b>	0	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
	5	90%	90%	90%	90%	90%	90%	95%	95%	95%	95%	95%	95%	90%	90%	90%	90%	90%	90%	90%
	10	90%	90%	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	90%	90%	90%	90%	85%
	15	90%	90%	95%	95%	95%	95%	100%	100%	100%	100%	100%	100%	95%	95%	95%	95%	90%	90%	85%
	20	85%	90%	95%	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	95%	95%	95%	90%	85%	85%
	25	85%	90%	95%	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	95%	95%	95%	90%	85%	85%
	30	85%	90%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	95%	95%	90%	90%	85%	80%
	35	85%	85%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	95%	95%	90%	85%	85%	80%
	40	80%	85%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	95%	90%	90%	85%	80%	75%
	45	80%	85%	85%	90%	95%	95%	100%	100%	100%	100%	100%	100%	95%	95%	90%	85%	85%	80%	75%
	50	75%	80%	85%	90%	90%	95%	95%	100%	100%	95%	95%	95%	90%	90%	85%	80%	80%	75%	70%
	55	75%	80%	85%	85%	90%	85%	95%	95%	95%	95%	95%	90%	90%	85%	80%	80%	75%	70%	70%
	60	70%	75%	80%	85%	85%	90%	90%	90%	95%	90%	90%	90%	85%	85%	85%	80%	75%	70%	60%

0 degree kept at 85% to account for soiling  
3/12 roof pitch to be kept at 5% derate for higher cell temps of flush mount

**Array Shading**

If both off-angle shading conditions apply, multiply the off angle de rating factor with the shading de rating factor to obtain the array de rating factor for the Up-Front Incentive (UFI) payment Calculation.

Maximum Morning Shaded Hours	0	1	0	1	0	2	1	2	2	0	3	1	3	3	2
Maximum Evening Shaded Hours	0	0	1	1	2	0	2	1	2	3	3	3	1	2	3
Percentage of annual energy	100%	100%	100%	95%	90%	90%	85%	85%	75%	75%	70%	70%	70%	80%	80%

Qualifying PV systems using Building Integrated Photovoltaic (BIPV) modules of total array capacity of 5 kW DC or less shall receive 90% of the UFI incentive value. Systems using BIPV modules of total array capacity of greater than 5 kW DC shall be derated based on heating unless the applicant can demonstrate optimal performance.

## B. Residential and Small Non-Residential Solar Water Heating and Space Heating Smaller than 400,000 kWh Equivalent Annual Production per Year

Residential solar water heating and space heating in residential and small non-residential applications are eligible for up-front incentives (UFI). UFIs are those incentives where the customer receives a one-time payment based on the system's designed capacity.

**Table 2. UFIs for Residential Solar Water Heating and Space Heating**

Year	Residential Incentive Level**	Small Non-Residential Incentive Level**
2014	\$0.40/kWh (max \$1,750)	\$0.40/kWh (max \$200,000)
**Indicates estimated annual kWh production in first year.		

### a. Terms & Restrictions

- Energy savings rating is based on the Solar Rating and Certification Corporation (SRCC) OG-300 published rating or International Association of Plumbing and Mechanical Officials (IAPMO) rating to the OG-300 standard, Engineering Report or reputable Energy Modeling and Performance simulation Report. The rate applies to forecast/measured first year energy savings only.
- Small non-residential customers will receive a UFI up to the system size with output smaller than a 400,000 kWh equivalent.
- The UFI may not exceed 50% of total System Cost.
- The customer must pay at least 15% of the project cost, after other government incentives (e.g., tax credits) are considered. (See explanation of incentive calculation below.)
- Systems may not be eligible to receive RECPP incentives if other utility incentives are applied.
- The incentive amount will be calculated at the time the application is approved for reservation. If federal or state incentives change after the reservation has been approved, the incentive amount reserved will not change as long as the reservation is not cancelled.
- In return for UNSE's payment of a UFI, UNSE will be given complete and irrevocable ownership of the Renewable Energy Credits until December 31<sup>st</sup> of the 20<sup>th</sup> 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.

## **i. Qualifications for Residential and Small Non-Residential Solar Water Heating and Space Heating**

The following equipment qualifications listed are mandatory requirements which must be met at the time of project commissioning to receive a RECPP incentive. The installation guidance is intended to provide consumers with information on installation and operation practices which are most likely to support achieving the system's designed output. Installation guidance is mandated in order for a project to receive a RECPP incentive, as it does reflect both industry and UNSE concurrence on those practices which are important for a technology to best achieve the designed output. In the future, additional installation guidance items may be considered for inclusion as part of the equipment qualifications.

UNSE acknowledges that many regulations and site-specific requirements may apply to the installation of renewable energy technologies. UNSE agrees that no requirement imposed by these technology criteria shall be imposed in conflict with any other governmental requirements. Any RECPP-based requirement which is in conflict with a site-specific governmental requirement shall be detailed in the reservation request. All qualifying systems must adhere to the following requirements in addition to the RECPP program requirements:

### Equipment Specifications

1. Domestic Solar Water Heating systems will be rated by the Solar Rating Certification Corporation (SRCC) and or the International Association of Plumbing and Mechanical Officials (IAPMO) and meet the OG-300 system standard. Systems that include OG-100 collectors, but are not certified under OG-300, will need to be verified by submitting either a testing certification for a substantially similar system prepared by a publicly funded laboratory or by submitting an engineering report stamped by a registered professional engineer or a reputable Energy Modeling and Performance Simulation Report detailing annual energy savings.
2. Solar Space Heating systems will utilize OG-100 collectors and systems will be sized appropriately in conformance with the building design review. Annual energy savings will be determined by submitting an engineering report stamped by a registered third-party professional engineer or a reputable Energy Modeling and Performance Simulation Report.
3. Active, open-loop systems are not eligible for RECPP incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection and prevents stagnation temperatures that exceed 250 degrees Fahrenheit (F) under all conditions at the location of installation. Details disclosing conformance with this exception shall be submitted as part of the manufacturer's verification documentation.
4. The 'high' limit on all Domestic Water Heating controllers shall be set no higher than 160 degrees F.
5. Active thermal storage for solar space heating systems shall use water as the storage element.
6. Contractors must provide a minimum of a ten year collector warranty as provided by the system manufacturer, including a minimum warranty period of five years for repair/replacement service to the customer.
7. Domestic Water Heating systems that are installed as an addition to an existing system or are submitted as a customer designed system or not certified to OG-300 must be specifically reviewed and approved by the utility.

8. The solar collector shall have an equipment warranty of at least 10 years to qualify for a UFI
9. The heat exchangers, and storage elements shall have an equipment warranty of at least 5 years to qualify for a UFI

### Installation Guidance

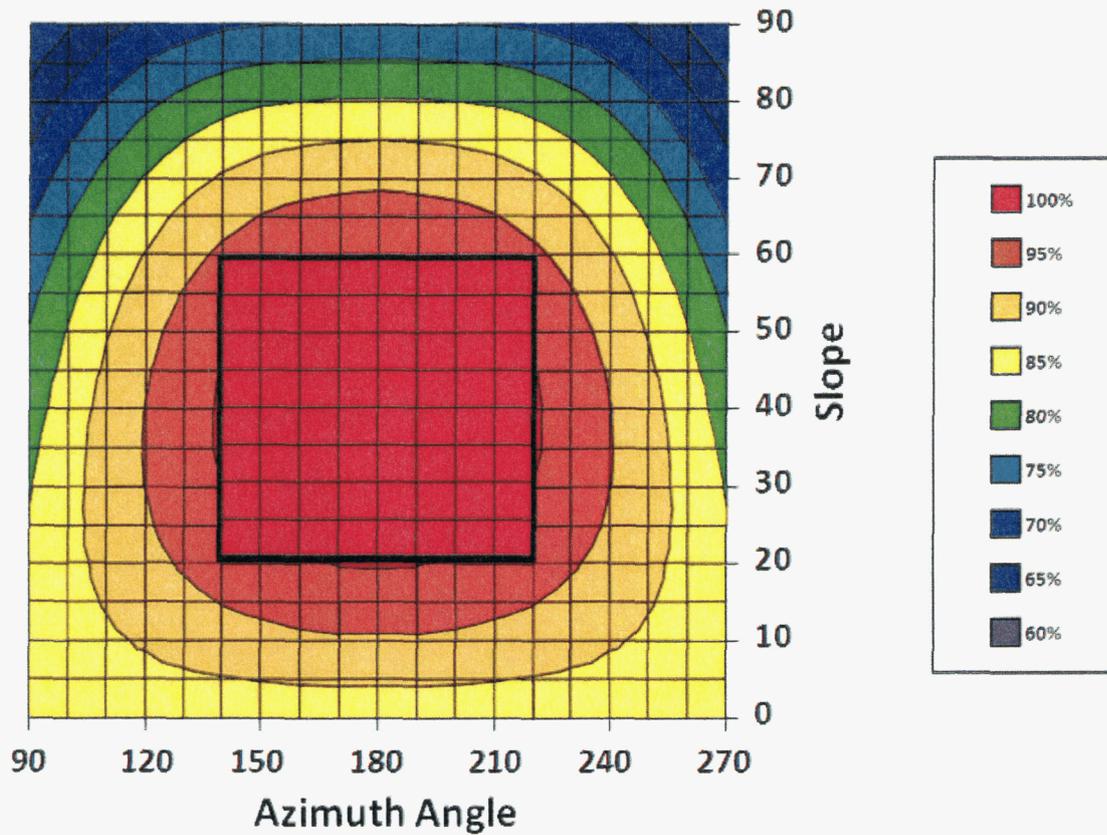
1. The system shall be installed with a horizontal tilt angle between 20 degrees and 60 degrees (40 and 60 degrees for space heating applications), and an azimuth angle of +/- 60 degrees of due south (+/- 20 degrees for space heating applications). It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation. Azimuth or tilt angles outside these parameters may be reviewed and approved by the utility, at their discretion. Solar Hot Water de-rating chart, contained herein, may be used to adjust incentive level based upon affected output.
2. All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9:00 a.m. and 3:00 p.m. Solar Hot Water derating chart may be used to adjust incentive level based upon affected output due to shading.
3. Heat exchange fluid in glycol systems should be tested, flushed and refilled with new fluid as necessary or at a minimum every five years or sooner per manufacturer's recommendations.
4. The anode rod should be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
5. For optimal system performance; a timer, switch, and a temperature sensor on the backup element of the storage tank is recommended.
6. The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
7. It is recommended that in areas where water quality problems are reported to have reduced the expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that through interaction with the materials of the proposed solar water heating system may reduce the expected operational life of the system components.
8. In areas subject to snow accumulation, sufficient clearance will be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
9. Ball valves shall be used throughout the system. Gate valves shall not be used in any new installation systems.
10. Pipes carrying heated fluids shall be insulated for thermal energy conservation as well as personal protection when exposed to ambient conditions, although this is highly recommended in either situation.
11. UNSE reserves the right to modify standards as technology changes on a case-by-case basis, pending independent laboratory analysis, Professional Engineer (PE) stamp, or UNSE engineering analysis.

### General Requirements

1. The project must comply with applicable local, state, and federal regulations.

2. Products must be installed according to manufacturers' recommendations.
3. Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
4. Systems must be permitted and inspected by the jurisdiction having authority over construction projects in the customer's locale on new installations.
5. All major system components must be new and must not have been previously placed in service in any other location or for any other application.

**ii. Solar Hot Water Off-Angle and Shading Annual Energy Derating Chart**



If the SHW system falls outside of the 95-100% performance band, then the UFI for the system will be derated. The incentive will be derated based on the decrease in annual energy output anticipated by this chart.

## **IX. Other Incentives**

### **A. Technologies without Technology Specific Criteria**

Technology specific criteria have not yet been developed for the following qualifying technologies:

- Fuel Cells
- Other

For applicants requesting incentives for these technologies or for applicants requesting installation of a technology with specific project technology criteria, but where some criteria cannot be met, the applicant will need to submit design and output documentation.

Applicants installing these systems will, at a minimum, need to provide an energy savings and designed output report for the system. The report must include either a testing certification for a substantially similar system prepared by a publicly funded laboratory or an engineering report stamped by a qualified registered professional engineer. The engineering report and/or testing certification shall provide a description of the system and major components, design criteria and performance expectations, applicable standards and/or codes, and a brief history of components in similar applications. Additional information may be required as part of the RECPP requirements.

### **B. Non-Conforming Projects**

Non-conforming projects will be identified as the Program evolves. Incentive levels for such projects will be calculated based on UNSE engineering analysis, independent laboratory analysis, and/or professional engineering (PE) stamps. Non-conforming projects that prove combined economic and renewable energy value will be allowed appropriately calculated incentives within the RECPP.

### **C. Guidelines for Projects Electing to Not Receive Incentives**

If a customer chooses not to receive incentives from UNSE in exchange for the RECs, the customer shall still notify UNSE that a renewable energy generator is being connected to UNSE's grid and complete any associated interconnection processes. The process for non-incentive utility interconnection will be available at [www.uesaz.com/renewable](http://www.uesaz.com/renewable).

## Appendix 1: Incentive Summary Tables

### RECPP – CONFORMING PROJECT INCENTIVE MATRIX

2014 Program Year

Technology/Application	UP FRONT INCENTIVE <sup>1</sup> 20-Year REC Agreement	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)
SOLAR ELECTRIC:				
RESIDENTIAL (GRID-TIED) 30 kW DC or less	\$0.10/Watt DC <sup>8</sup>	NA	NA	NA
NON-RESIDENTIAL (GRID-TIED) 70 kW DC or less	\$0.10/Watt DC <sup>8</sup>	NA	NA	NA
NON-RESIDENTIAL SOLAR WATER HEATING/SPACE HEATING <sup>5,9,10</sup> (400,000 annual kWh output production equivalent or less)	\$0.40/kWh	NA	NA	NA
RESIDENTIAL SOLAR WATER/SPACE HEATING <sup>6,9,10</sup>	\$0.40/kWh	NA	NA	NA

Notes:

- 1) Residential projects are eligible for an up-front incentive (UFI). UFI payments cannot exceed 50% of the cost of renewable energy equipment.
- 2) Non-residential systems 70 kW AC or less are UFI only.
- 3) The solar space heating and cooling incentives may be used in combination for the appropriate components of one system.
- 4) This category includes both traditional water heating and those systems combined with residential solar water heating used for space heating. Space heating applications require a report detailing energy saving for the complete system.
- 5) Some UFI based installations will require an adjustment of the incentive as detailed in the PV Incentive Adjustment Chart.
- 6) Energy savings rating is based on the SRCC OG-300 published rating or the UNSE-RECPP Space Heating Calculator. The customer contribution must be a minimum of 15% of the project cost after accounting for and applying all available Federal and State incentives.

## Appendix 2: Glossary of Terms

**ACC** – Arizona Corporation Commission.

**AZROC** – Arizona Registrar of Contractors.

**Applicant** – Utility customer of record for the Utility Revenue Meter located at the installation site; a builder of the structure (residential or non-residential) who will reserve and install the Qualifying system; or for an off-grid Qualifying System, the property owner for the installation site located within a Utility's service territory.

**Arizona Business License** – A business license issued by the ACC.

**Cancelled** – Reservation Status indicating that a Reservation has been terminated, funding is no longer allocated, and the utility has removed the reservation from the funding queue.

**Cancellation** – The termination of the Reservation.

**Commissioned** – Qualifying System certified to be in operation.

**Commissioning Package** – Written verification signed by the installer and the customer confirming that the system has been installed in conformance with the approved reservation and that the system is ready for operation.

**Conforming Project** – Any project utilizing a renewable technology listed in Attachment D.

**Conformance Inspection** – Inspection performed by the utility to verify that the system has been installed and operates in conformance with the Reservation application.

**Customer** – Utility customer of record for the Utility Revenue Meter located at the installation site or a builder of the structure (residential or non-residential) who will reserve and install the Qualifying System.

**Extension** – The extension of the Reservation Timeframe.

**Installer** – The entity or individual responsible for the installation of a qualifying system.

**Installed** – The date of the final clearance from the appropriate jurisdiction

**Interconnection Inspection** – Inspection performed by the utility to confirm that the system can be safely interconnected to the power grid.

**Non-Conforming Project** – Non-conforming projects include, but are not limited to, projects with staged completion dates, multi-customer or multi-system projects, projects involving more than one technology, projects requiring new or unique agreement terms, projects with technologies for which qualification standards have not been developed or projects requiring non-standard timeframes.

**Performance Based Incentive ("PBI")** – Incentive based on a rate per actual kWh output or on equivalent kWh of energy savings.

**Project Costs** – System Costs plus financing costs.

**Proof of Project Advancement** – Documentation demonstrating that a project is progressing on schedule and is staged for Commissioning on or before the end of the Reservation Timeframe.

**Qualifying System** – Distributed renewable energy systems meeting the qualifications for production of qualified Renewable Energy Credits in Arizona acceptable to the Arizona Corporation Commission as they may be defined for affected utilities to meet any renewable energy standards.

**Renewable Energy Credit (“REC”)** – One Renewable Energy Credit is created for each kWh, or kWh equivalent for non-generating resources, derived from an eligible renewable energy resource. RECs shall include all environmental attributes associated with the production of the eligible renewable energy resource.

**Reservation** – A dollar amount committed by the utility to fund a project if all program requirements are met.

**Reservation Status** – Indicator relating to approval or denial of a Reservation request. If a Reservation is approved, the Reservation Status is Reserved. If a Reservation request is denied, the Reservation Status is either Cancelled or Wait Listed.

**Reserved** – Status indicating the acceptance of a Reservation request.

**Reservation Timeframe** – The duration of the utility’s funding commitment for a Reservation.

**Retroactive System** – A Renewable solar system installed before an application for incentive was received and approved by UNSE.

**System Costs** – Costs associated with the Qualifying System components, direct energy distribution, system control/metering, and standard installation costs directly related to the installation of the Qualifying System.

**Up Front Incentive (“UFI”)** – One time incentive payment based on system capacity or estimated energy kWh production rather than on measured system output.

**Wait List** – Status indicating Applicant has met program requirements, but the Utility has insufficient funding to commit to funding the project.