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April 1, 2013

Docket Control  
Arizona Corporation Commission  
1200 W. Washington  
Phoenix, AZ 85007

RE: Arizona Public Service Company's 2012 Renewable Energy Standard  
Annual Compliance Report  
Docket No. E-01345A-11-0264

Pursuant to Arizona Administrative Code R14-2-1812(A), Arizona Public Service Company ("APS" or "Company") is required to file an annual report detailing its compliance with the Renewable Energy Standard ("RES") rules:

Beginning April 1, 2007, and every April 1st thereafter, each Affected Utility shall file with Docket Control a report that describes its compliance with the requirements of these rules for the previous calendar year. The Affected Utility shall also transmit to the Director of the Utilities Division an electronic copy of this report that is suitable for posting on the Commission's website.

Pursuant to Commission Decision No. 72022, APS is also required to submit a summary of the RES Compliance Report and a Power Point presentation. Excel work papers will be submitted to Staff under separate cover.

Attached please find the Company's 2012 RES Compliance Report, Report Summary, and Power Point presentation. Competitively confidential information contained in the Report will be submitted to Staff under separate cover. An electronic copy of the RES Compliance Report suitable for posting to the Commission website is also being provided to Commission Staff's Utilities Division Director.

If you have any questions regarding this information, please contact me at (602)250-2661.

Sincerely,

  
Jeffrey W. Johnson

JJ/cd

Attachment

cc: Steve Olea (w/CD containing Report)  
Terri Ford  
Ray Williamson  
Barbara Keene  
Brian Bozzo

# 2012 RES Compliance Report



# **2012 RENEWABLE ENERGY STANDARD COMPLIANCE REPORT**

**April 1, 2013**

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## I. Standardized Reporting Format

Decision No. 72737<sup>1</sup> required Arizona Public Service (“APS” or “Company”) to submit a report for Staff approval regarding the Company’s joint Renewable Energy Standard (RES) plan formatting efforts with Tucson Electric Power (TEP) and in consultation with other state utility representatives and industry stakeholders. On February 19, 2013, Commission Staff docketed its formal approval of the group’s standardized reporting format for use in subsequent RES Compliance Reports and Implementation Plans.

## II. 2012 Renewable Energy Standard Results

### A. Compliance with RES Requirements

For calendar year 2012, the Arizona Corporation Commission (Commission) established an annual RES requirement of 3.5 percent of the utility’s 2012 retail kilowatt-hour (kWh) sales, with 30 percent of the total requirement to be fulfilled with energy produced from Distributed Energy (DE) resources. This separate DE carve-out provision requires half of the total DE requirement to come from residential resources and half from non-residential resources. A summary of APS’s 2012 compliance requirements is shown in Table 1a. For the purposes of RES compliance tracking, a Renewable Energy Credit (REC) is defined as a kWh derived from eligible renewable resources or kWh equivalent of conventional resources displaced by distributed resources<sup>2</sup>; however, throughout the Compliance Report APS discloses its production in megawatt-hours (MWh).

Table 1a below discloses APS compliance with its 2012 requirements and Table 1b (see page 3) reports on total RES resources as of the end of 2012. In 2012, the Company’s total RES resources were 1,507,021 MWh, which is **5.3 percent** of APS’s total 2012 retail sales. Total DE energy production for the year reached 503,498 MWh. Total Residential performance was **131 percent** of the requirement for 2012 and Non-Residential was **206 percent** of the Non-Residential requirement.

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<sup>1</sup> January 18, 2012.

<sup>2</sup> Arizona. Administrative Code A.A.C. R14-2-1801(N).

**Table 1a - Compliance Summary**

Category	Metric	%	Compliance Measure (MWh)	RES Resources (MWh or Equivalent)	
Retail Sales	Actual MWh Sales for 2012		28,474,945		
Prior year carrying balance <sup>1</sup>				444,380	(F)
2012 Total RES Resources [From (E) in Table 1b]				1,507,021	(E)
2012 Total RES Requirement	% of Retail Sales	3.5%	996,623		
DE Requirement	% of RES Requirement	30%	298,987		
<i>DE Sub-Requirements:</i>					
Residential DE	% of DE Requirement	50%	149,493	196,232	(G)
Non-Residential DE	% of DE Requirement	50%	149,493	307,266	(H)
Non-DE Target <sup>2</sup>				493,125	(I)
Resources Used for 2012 Compliance ( G + H + I )				996,623	(J)
End 2012 carrying balance ( F + E - J )				954,778	(K)

*Notes to Table 1a:*

<sup>1</sup>The RES-eligible resource carrying balance is accounted for using First-In-First-Out (FIFO) methodology, wherein the entire carrying balance is applied to the RES requirement and the year-end carrying balance consists of current year remaining resources.

<sup>2</sup>Although there is no defined requirement for Non-DE Resources, the energy reported in this section reflects Non-DE resources applied towards the overall RES requirement.

Additionally, the Company's 2009 Settlement Agreement (2009 Settlement)<sup>3</sup> adopted provisions that exceed the requirements of the RES. The 2009 Settlement required, among other provisions, that "APS shall make its best efforts to acquire new renewable energy resources with annual generation or savings of 1,700,000 MWh to be in service by December 31, 2015..."<sup>4</sup> It further states that "These new resources shall be in addition to existing resources or commitments as of the end of 2008, as identified in APS's 2008 RES Compliance Report..."<sup>5</sup> As of the end of 2012, energy production is at approximately 48 percent of this requirement.<sup>6</sup>

## B. Installed Resources

An overview of APS's total installed portfolio as of the end of 2012 is provided in Table 1b. The table includes projects installed to-date from prior calendar years, accounting adjustments for RES eligibility standards including the subtraction of Green Choice sales, the expected annual production from installed DE systems, a multiplier applied to in-state solar installations completed by end of year 2005, and the inclusion of wholesale DE purchases.<sup>7</sup>

<sup>3</sup> Decision No. 71448 (December 30, 2009).

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> APS includes Green Choice sales towards meeting the 2009 Settlement Agreement obligations.

<sup>7</sup> Resources eligible to be counted as Wholesale Distributed Generation, as defined by A.A.C. R14-2-1802, include renewable resources owned by a third party and interconnected at 69kV or lower.

**Table 1b - Renewable Resources**

Resource	Technology	Ownership	MWac <sup>1</sup>	MWdc <sup>1</sup>	Production (Actual)	Production (Annualized) <sup>2</sup>	Multiplier Credits	Total MWh or Equivalent
<b>GENERATION:</b>								
Aragonne Mesa	Wind	3rd Party PPA	90		278,444			278,444
High Lonesome	Wind	3rd Party PPA	100		286,677			286,677
Perrin Ranch	Wind	3rd Party PPA	99		199,444			199,444
Snowflake White Mountain Power	Biomass	3rd Party PPA	14		112,017			112,017
Sexton (Glendale Landfill)	Landfill Gas	3rd Party PPA	3		16,531			16,531
Northwest Regional Landfill Gas	Landfill Gas	3rd Party PPA	3		8,208			8,208
Salton Sea/CE Turbo	Geothermal	3rd Party PPA	10		65,966			65,966
Ajo	Solar PV	3rd Party PPA	5		10,356			10,356
Prescott	Solar PV	3rd Party PPA	10		27,468			27,468
Saddle Mountain	Solar PV	3rd Party PPA	15		1,502			1,502
AZ Sun: Chino Valley	Solar PV	APS	19		6,292			6,292
AZ Sun: Cotton Center	Solar PV	APS	17		46,172			46,172
AZ Sun: Hyder I	Solar PV	APS	16		39,252			39,252
AZ Sun: Paloma	Solar PV	APS	17		42,843			42,843
Small Solar Projects	Solar PV	APS	4		7,345			11,017
<i>Gross Total</i>			422	-	1,148,517	-	3,672	1,152,190
<i>Adjustments</i>								
	Green Choice Sales				(118,768)			(118,768)
	Wholesale DE Allocation				(29,899)			(29,899)
<b>Subtotal Generation</b>			<b>422</b>		<b>999,850</b>		<b>3,672</b>	<b>1,003,523</b> (A)
<b>DISTRIBUTED ENERGY (DE):</b>								
<i>Residential:</i>								
UFI Installations <sup>4</sup>	Various	Customer-Sided DE	86	101		195,456		195,456
Flagstaff Community Power Project	Solar PV	Customer-Sided DE	0.4	0.5	775			775
								-
								-
<i>Gross Total</i>			87	102	775	195,456		196,232
<b>Subtotal Residential</b>			<b>87</b>	<b>102</b>	<b>775</b>	<b>195,456</b>		<b>196,232</b> (B)
<i>Non-Residential:</i>								
UFI Installations <sup>4</sup>	Various	Customer-Sided DE	13	15		31,304		31,304
PBI Installations <sup>4</sup>	Various	Customer-Sided DE	80	94		154,548		154,548
DE RFP	Solar PV	Customer-Sided DE	38	45	35,976	40,032		76,008
Schools & Government (3rd-Party Owned)	Solar PV	Customer-Sided DE	7	8		12,630		12,630
Schools & Government (Utility-Owned)	Solar PV	APS	7	8		1,660		1,660
Flagstaff Community Power Project	Solar PV	Customer-Sided DE	0.9	1.1	1,218			1,218
								-
<i>Gross Total</i>			146	171	37,194	240,173		277,367
	Wholesale DE		n/a	n/a	29,899			29,899
<b>Subtotal Non-Residential</b>			<b>146</b>	<b>171</b>	<b>67,093</b>	<b>240,173</b>		<b>307,266</b> (C)
<b>Subtotal Distributed Energy (B+C)</b>			<b>232</b>	<b>273</b>	<b>67,868</b>	<b>435,630</b>		<b>503,498</b> (D)
<b>Total RES Resources (A+D)</b>					<b>1,067,719</b>	<b>435,630</b>		<b>1,507,021</b> (E)
<b>Total MWac equivalent<sup>3</sup></b>			<b>654</b>					

Notes to Table 1b:

<sup>1</sup> Generation capacity is reported in MWac and DE is generally reported in MWdc.

<sup>2</sup> Assumes an average of 1,650 kWh per installed kW for non-metered or current year installed residential PV systems, and 1,500 kWh per installed kW for non-residential systems.

<sup>3</sup> Represents the total RES portfolio capacity in MWac. Assumes a 85% dc-ac conversion factor applied to MWdc capacity.

<sup>4</sup> Includes energy for all installations, but only notes capacity for solar electric and wind installations.

## 1. Renewable Generation Resources

The Company's portfolio of Renewable Generation (RG)<sup>8</sup> energy encompasses utility-scale renewable resources. Third-party owned Power Purchase Agreements (PPAs) totaling 117 MW reached commercial operation in 2012. These generation facilities include the Saddle Mountain solar facility (15 MW); Perrin Ranch Wind Farm (99 MW); and the Northwest Regional landfill gas facility (3 MW), the Company's second biogas facility.

The AZ Sun Program had two additional solar PV facilities reach commercial operation in 2012. These facilities were Phase II of the Hyder I solar plant (5 MW) and the Chino Valley solar plant (19 MW).

In total, APS added 141 MW of RG resources to its operating portfolio in 2012. An additional 280 MW of third-party solar PPAs and 49 MW of AZ Sun projects are expected to be placed in-service in 2013.

## 2. Distributed Energy Resources

In 2012, 111 MWdc of new DE systems were installed for 273 MWdc of cumulative installed DE capacity through the life of the program. Approximately 47 MWdc of residential and 64 MWdc of non-residential DE capacity was installed in 2012. A total of 7,621 residential installations (6,082 PV Grid-Tied, 1,340 Solar Water Heating, 145 for Solar Space Heating, and 54 for all other technologies) were completed in 2012, a 36 percent increase over 2011's previous record-high installed volume. For the non-residential UFI program, 98 systems were installed in 2012. Non-residential PV Grid-Tied PBI installations reached a new annual high (220 installations).

### *Schools and Government Program*

The 2011 Schools and Government Program (Tranche One) was developed in compliance with the 2009 Settlement in order to provide opportunities for schools and government facilities, particularly in rural or economically challenged areas of the state, with opportunities to deploy solar with no up-front costs.<sup>9</sup> Decision No. 72022<sup>10</sup> granted APS authority to own up to 25 percent of the total program capacity and the remaining 75 percent was available under APS's third-party incentive program. Added capacity from the program in 2012 included 13 third-party owned school systems totaling 3.5 MW, seven third-party owned government installations for over 2.1 MW, and 32 APS-owned school projects for a total of 8 MW. The third-party component of Tranche One is on track to meet a targeted 50,000 MWh produced by school projects.

Decision No. 72737<sup>11</sup> approved an additional 25 MW (Tranche Two) of school and government installations (18.75 MWac of third-party ownership and 6.25 MWac of APS ownership). By the end of 2012, APS had opened the initial nomination period

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<sup>8</sup> APS defines Renewable Generation as renewable resources interconnected on the utility side of the meter. Renewable Generation resources are generally utility-scale projects and apply to the RES total production requirement.

<sup>9</sup> Approved in Decision No. 72022 (December 10, 2010) Decision No. 72174 (February 11, 2011).

<sup>10</sup> December 10, 2010.

<sup>11</sup> January 18, 2012.

for third-party developed projects and initial candidates had been identified for APS projects.

*Community Power Project – Flagstaff Pilot*

In addition to APS's 125 residential rooftop PV systems already installed, APS completed development of the Community Power Project by commissioning the project's final PV installations in 2012, a 325 kWac ground-mount installation and a 75 kWac rooftop installation at the Cromer Elementary School.

A recent presentation on findings from the DOE High Penetration Photovoltaic Deployment Study is available publicly at:

[http://www1.eere.energy.gov/solar/sunshot/high\\_pen\\_forum.html](http://www1.eere.energy.gov/solar/sunshot/high_pen_forum.html)

### **III. 2012 RES Workplan**

Each year, APS develops a total renewable energy program budget based on estimated expenses for renewable generation and distributed energy programs and projects. Revenues to offset these expenses are collected through both the RES Adjustor and base rates. Revenue collected in a prior year that has been accrued and designated to offset expense in the current year is also available. As shown in the top section of Table 2a, total available funding in 2012 was approximately \$134 million.

The Renewable Energy Standard Adjustment Schedule (REAC-1) was set for collect a monthly cap of \$3.84 from residential, \$142.44 from non-residential, and \$427.33 from large non-residential customers during 2012. As a result of Decision No. 73183 regarding APS's 2012 Settlement Agreement, as of July 2012 the monthly adjustors were temporarily lowered to collect a maximum of \$2.78 for residential, \$103.44 for non-residential, and \$310.33 for large non-residential customers. In Decision No. 73636, the Commission approved \$7.1 million in prior year accrued revenue to be applied to offset 2013 budget expenses. Consistent with this recent decision, APS plans to propose in its 2014 RES Implementation Plan filing that future budgets be offset with remaining undesignated program funds.

**Table 2a:  
2012 RES Associated Revenues and Costs**

**Collected (Revenues)**

System Benefit Charge (SBC) Revenue <sup>1</sup>	\$	6,000,000
Renewable Energy Standard (RES) Revenue & Other <sup>2</sup>		<u>74,855,022</u>
<i>Subtotal: 2012 Collections</i>		<i>80,855,022</i>
2011 Committed Accrual <sup>3</sup>		26,443,919
Prior Years Collected and Unallocated Funds		<u>27,072,660</u>
<i>Subtotal: Prior Year Funds</i>		<i>53,516,579</i>
<b>Total: Available Revenue</b>	<b>\$</b>	<b>134,371,601</b>

**Expenses (Costs)**

<i>Energy/Incentives</i>		
Renewable Generation Purchased Power <sup>4</sup>	\$	10,579,205
Paid Distributed Energy Incentives <sup>5</sup>		57,333,631
Committed Distributed Energy Incentives <sup>6</sup>		<u>15,257,607</u>
<i>Subtotal: Energy and Incentives</i>	<i>\$</i>	<i>83,170,443</i>
<i>Non-Energy Costs</i>		
Administration & Implementation		9,974,588
Information Services		1,242,655
Research, Commercialization & Integration		601,229
Customer Outreach and Awareness Programs		<u>248,882</u>
<i>Subtotal: Non-Energy Costs</i>	<i>\$</i>	<i>12,067,354</i>
<i>APS Owned Program Costs</i>		
Flagstaff CPP Revenue Requirement		718,593
AZ Sun Revenue Requirement (net of PTC)		14,571,662
Schools and Government Revenue Requirement		994,327
<i>Subtotal: APS Owned Program Costs</i>	<i>\$</i>	<i>16,284,582</i>
<b>Total: Expenses</b>	<b>\$</b>	<b>111,522,379</b>

Net Balance	\$	22,849,222
2013 RES Program Offset <sup>7</sup>	\$	(7,100,000)
Future RES Program Offset <sup>8</sup>	\$	<u>(8,500,000)</u>
<i>Future Unallocated Balance<sup>9</sup></i>	<i>\$</i>	<i>7,249,222</i>

*Notes to Table 2a:*

<sup>1</sup> Collected from base rates.

<sup>2</sup> Collected as part of the environmental surcharge and other miscellaneous 2012 program related receipts.

<sup>3</sup> Balance of Up-front Incentives reservations issued but not yet paid as of year-end 2011.

<sup>4</sup> Includes \$18.7M in costs less \$(0.5M) Green Choice revenue collections and less \$(7.6M) transferred to PSA from January 1, 2012 to June 30, 2012.

<sup>5</sup> Incentives paid in 2012 (including installations before current program year but processed for payment in 2012).

<sup>6</sup> Balance of Up-front Incentives reservations issued but not yet paid as of year-end

<sup>7</sup> Includes \$4.5M 2012 rollover funds designated for incentives, \$1.6M 2011 rollover funds designated for AZ Sun revenue requirements and \$1M 2011 rollover funds designated for other non-energy costs.

<sup>8</sup> Remaining balance of prior year's underspend designated to offset 2014 budget. [see bottom of page 2]

<sup>9</sup> 2012 additional collected and unallocated funds based on YE 2012 reconciliations.

## A. Resource Costs

Pursuant to A.A.C. R-14-2-1812(b)(5), APS is required to report on any above-market, utility-scale power purchase expenditures as well as cash incentive payments by technology. Actual costs are competitively confidential and have been redacted, but will be provided to Commission Staff pursuant to a Protective Agreement in this matter. Table 2b reflects actual 2012 expenses for projects reaching commercial operation in multiple prior years and is not reflective of current market pricing.<sup>12</sup> The mid-year funding reclassification to the Power Supply Adjuster (PSA) is based on a July 1, 2012 reallocation in above-market costs as a result of APS's 2012 Settlement Agreement in Decision No. 73183 (May 24, 2012).

**Table 2b - RES Resource Costs <sup>1</sup>**

**2012 RES-Attributable Energy Costs (Above Market - Utility Scale)**

**COMPETITIVELY CONFIDENTIAL <sup>2</sup>**

<b>Technology</b>	<b>MW</b>	<b>MWh</b>	<b>RES Cost (\$/MW)<sup>2</sup></b>	<b>RES Cost (\$/MWh)<sup>2</sup></b>	<b>Total RES Cost<sup>2</sup></b>
Wind	289	764,565			
Biomass <sup>3</sup>	14	112,017			
Landfill Gas	6	24,739			
Geothermal	10	65,966			
Solar PPA <sup>4</sup>	30	39,326			
Solar (APS-Owned) <sup>5</sup>	73	145,576			
July 1, 2012 Reallocation of costs to PSA					(7,594,711)

**2012 RES-Attributable Energy Costs (Above Market - Utility Scale)**

**11,100,071**

*Notes to Table 2b:*

<sup>1</sup>Includes only 2012 program year costs incurred under new and legacy projects within the RES budget and is not comparable to a true levelized cost of energy.

<sup>2</sup>Redacted due to the competitively confidential nature of the information.

<sup>3</sup>Includes gross generation, and does not adjust for Wholesale DE allocations.

<sup>4</sup>Does not include Purchase Power Agreements from Distributed Energy sources.

<sup>5</sup>Includes RES multiplier for in-state solar installations prior to December 31, 2005. APS costs are at-market and therefore not included.

<sup>12</sup> Invoice costs do not include associated system integration costs for these resources.

**Table 2c - RES Cash Incentive Costs**

**2012 Distributed Energy Cash Incentive Program Costs**

	Up-Front Incentives						2012 Total Incentives Paid (\$)
	MW	MWh	(\$/MW)	(\$/MWh) <sup>1</sup>			
<b>Residential:</b>							
<u>Up Front Incentives</u> <sup>2,3</sup>							
Solar Electric <sup>4</sup>	45	74,141	\$ 646,671	\$ 392			\$ 29,057,286
Wind <sup>5</sup>	-	-	\$ -	\$ -			\$ 4,598
Solar Space Heating	N/A	238	N/A	\$ 1,428			\$ 339,976
Solar Water Heating	N/A	3,580	N/A	\$ 557			\$ 1,993,304
Geothermal	N/A	1,259	N/A	\$ 705			\$ 887,158
<i>Subtotal: Residential</i>	<i>45</i>	<i>79,217</i>					<i>\$ 32,282,322</i>
<b>Non-Residential:</b>							
<u>Up Front Incentives</u> <sup>2,3</sup>							
Solar Electric	3	4,442	\$ 976,576	\$ 651			\$ 2,891,678
Wind <sup>5</sup>	-	-	\$ -	\$ -			\$ 1,632
Solar Space Heating	N/A	42	\$ -	\$ 430			\$ 18,046
Solar Water Heating	N/A	74	\$ -	\$ 603			\$ 44,562
Geothermal <sup>5</sup>	N/A	-	\$ -	\$ -			\$ 36,557
Solar Pool Heating <sup>5</sup>	N/A	-	\$ -	\$ -			\$ 43,321
Solar Daylighting <sup>5</sup>	N/A	-	\$ -	\$ -			\$ 69,934
<u>Production Based Incentives</u> <sup>6</sup>							
Solar Electric	147	228,906			\$ 149,063	\$ 95	\$ 21,855,653
Combined Heat & Power	0.3	3,929			\$ 143,916	\$ 11	\$ 42,023
Solar Water Heating		6,953				\$ 6	\$ 41,301
Solar HVAC		3,396				\$ 2	\$ 6,603
<i>Subtotal: Non-Residential</i>	<i>150</i>	<i>247,743</i>					<i>\$ 25,051,310</i>
<b>Total DE Incentive Costs</b>							<b>\$ 57,333,632</b>

*Notes to Table 2c:*

<sup>1</sup>Reflects 2012 incentive payments divided by associated MWh. Does not reflect full levelized cost of energy.

<sup>2</sup>Includes capacity and energy installed in calendar year 2012 (annual system production).

<sup>3</sup>Includes payments made in calendar year 2012.

<sup>4</sup>Includes residential installations from Flagstaff Community Power Project.

<sup>5</sup>Installation from 2011 paid in 2012.

<sup>6</sup>Includes cumulative energy produced, as well as lifetime incentive payments. Total lifetime PBI authorization as of year end 2012 is \$765.8M.

**B. Residential and Non-Residential Incentive Program**

DE growth continues within the APS service territory as evidenced by the year's high level of installed resources. The Commission approved the 2012 program to have declining incentives based on increasing levels of program participation. High participation volume in 2012 led to an incentive decline from \$0.75/watt at the beginning of the 2012 budget year to \$0.10/watt in November 2012, as shown below in Figure A.<sup>13</sup> The average residential PV grid-tied incentive paid in 2012 was \$0.65/watt, down from \$1.45/watt in 2011. Additionally, winning PBI bid scores continued to decline over prior years. The results of market-clearing bid scores for 2012 funding cycles are shown in Figure B.

<sup>13</sup> 2012 incentive levels were approved as part of the Decision No. 72737 as well as Decision No. 73576 (November 21, 2012).

**Figure A**

**PV Grid Tied Incentive History**

Start Date	End Date	Incentive Level
11/16/2011	1/19/2012	\$0.75/watt
1/20/2012	3/21/2012	\$0.60/watt
3/22/2012	6/12/2012	\$0.55/watt
6/13/2012	7/23/2012	\$0.50/watt
7/24/2012	11/14/2012	\$0.20/watt
11/15/2012	-	\$0.10/watt

**Figure B**

**2012 Non-Residential Winning Bid Cutoff Scores**

Bidding Period	Incentive Type		
	UFI	PBI (Medium)	PBI (Large)
Jan/Feb	177	650	689
Mar/Apr	188	786	
May/Jun	209	745	
Jul/Aug	250	800	631
Sep/Oct	207	640	
Nov/Dec	214	617	

**C. Green Choice Rate Program**

In 2012, APS continued its three existing Green Choice<sup>14</sup> rate offerings which were approved by the Commission in Decision No. 71276 in September 2009. Participating customers pay a premium on their bills based on actual energy produced at Renewable Generation facilities that are part of the APS portfolio. GPS-1 provides a fixed level of renewable-generated power that the customer subscribes to each month in 100 kWh blocks. GPS-2 varies month to month by customer and is based on a percentage of a customer's monthly usage. Finally, GPS-3 is a single block of renewable-generated power that can be used for special events.

The revenue associated with the Green Choice rates ultimately supports the development of additional renewable resources. All Green Choice renewable energy sold under APS's GPS-1 and GPS-2 rate plans are certified through Green-e, a national certification and verification program for renewable energy. In 2012, 2,844 customers subscribed to these rates for 118,768 MWh of sales and a total of \$520,865 in revenue.

<sup>14</sup> Green Choice sales are subtracted from total Renewable Generation, and do not count toward compliance with RES targets.

Solar-3, the Total Solar Rate, was designed to offer customers the option to purchase 50 percent or 100 percent of their usage from solar resources.<sup>15</sup> In 2012, the rate collected less than \$1,000 in revenue.

#### IV. Additional Reporting

- Decision No. 72022 required APS to disclose whether its affiliates, employees, or directors have any financial or other interest in a renewable energy project. APS and its affiliates do not have any financial or other interest in any third-party owned renewable energy project within its portfolio.
- Decision No. 72022 required APS to list cases within the previous three calendar years where APS has received damages or other considerations as a result of non-compliance related to RES contracts. For reporting years 2010-2012, APS received payments for non-compliance by third parties under RES contracts as described below:
  - In 2011, APS received compensation and credited the RES budget for a one month delay in the Commercial Operation Date for the Prescott Generating Station.
  - In late 2012, certain contract terms were not fulfilled by a third party under a Distributed Energy Aggregator contract to provide up to 75,000 MWh of Credit Purchase Agreement contracts to APS. The contract was cancelled, and once a final accounting is complete, APS will credit the RES budget with all collected damages.
- In Decision No. 71958, APS was required to file in its annual REST reports, in the confidential materials provided to Staff, specific data associated with APS's Bagdad Solar Agreement. APS will be providing this information to Commission Staff pursuant to a Protective Agreement executed in the matter.
- In Decision No. 71646, APS was required to provide Community Power Project - Flagstaff Pilot progress reports with its annual compliance report. Please refer to the Community Power Project – Flagstaff Pilot summary provided on page 5 and Tables 1B and 2A.
- In Decision No. 73130, APS was required to report on its studies of solar hybrid resources as part of its RES compliance reports. In 2012, APS published a report on its completed solar thermal augmentation value study with CH2M Hill on APS's natural gas generation plants. The study is available at:  
<http://www.aps.com/files/renewable/APSSolarAugmentationReport.pdf>.

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<sup>15</sup> Approved by the Commission in Decision No. 69663 (June 28, 2007).

# Appendix

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## Appendix A: Schools Funded from 2009 UFI Funds – Total Production

In Decision No. 71275, APS was required to install a production meter at every school project that received an up-front incentive (UFI) pursuant to the Decision. Further, APS was required to monitor and report the actual metered production of school projects that received an up-front incentive these systems. Appendix A lists the in-service dates and 2012 actual energy production for all schools which received UFIs in 2009 as a result of this Decision. All schools installed photovoltaic (PV) systems.

School Funded from 2009 UFI Funds	
In-service Date	Energy Produced in 2012 (kWh)
11/16/2010	375,083
8/26/2010	1,328,328
9/27/2010	1,253,100
7/12/2010	864,459
10/22/2010	493,379
11/1/2010	222,208
11/3/2010	1,546,714
7/2/2010	238,149
8/31/2010	800,394
11/11/2010	492,577
2/18/2011	412,002
<b>TOTAL PRODUCTION IN 2012:</b>	<b>8,026,393</b>

## Appendix B: Independent Monitor Certifications

Pursuant to A.A.C. R14-2-1812(B)(6), APS is providing its Independent Monitor Certifications.

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*Merrimack Energy Group, Inc*

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September 4, 2012

David Metz  
Director, Resource Acquisition  
Arizona Public Service Company  
400 N. 5<sup>th</sup> Street, Mail Station 9674  
Phoenix, AZ 85004

Re: Certification Letter of Merrimack Energy Group, Inc. as Independent Monitor for Arizona Public Service Company's ("APS") 2012 Request for Proposals ("RFP") for the Arizona Sun ("AZ Sun") Program – Hyder II Project

Dear Mr. Metz:

Merrimack Energy Group, Inc. ("Merrimack Energy") has served as Independent Monitor ("IM") for APS' 2012 RFP for the AZ Sun Program – Hyder II project. This RFP is the fourth requisition in a series of solicitations designed to implement the AZ Sun Program. Through this RFP, APS seeks competitive proposals for the complete development, construction and startup of a 14 MWac utility-scale solar PV facility engineered, procured, and constructed in accordance with APS requirements as defined in the RFP and associated Engineering, Procurement, and Construction ("EPC") Agreement, to be owned and operated by APS on a site to be provided by APS. Merrimack Energy's role as IM began during the development of the solicitation process and associated documents and continued through the final selection of the preferred EPC contractor.

The role of the IM in this competitive procurement process is to ensure that APS' solicitation process for the AZ Sun Program – Hyder II project is conducted in a fair, transparent and unbiased manner in accordance with the APS Renewable Energy Competitive Procurement Procedure ("CPP") dated April 10, 2007, as well as the procurement provisions of the Arizona Corporation Commission's Resource Planning and Procurement Rules (Arizona Administrative Code R14-2-705 and R14-2-706). The CPP outlines the role of the Independent Monitor and also describes the requirements of the competitive bidding process, including the evaluation and selection process. The CPP applies only to the competitive procurement process for any solicitation to meet Arizona Public Service Company's renewable energy needs. The Commission's Resource Planning and Procurement Rules also identify the IM selection process and responsibilities. The tasks and services performed by Merrimack Energy are consistent with the requirements of the CPP, the Resource Planning and Procurement Rules and Scope of Work of the IM prepared by APS and agreed to and executed by both parties.

Merrimack Energy certifies that the procedures and processes followed by APS in implementing the 2012 AZ Sun Program – Hyder II solicitation process are consistent with the requirements of the CPP and the Resource Planning and Procurement Rules. The RFP contains a detailed description of the product(s) requested, provides a schedule for the entire process including the dates for bid submission, short list selection and final award, provides detailed instructions to bidders in terms of filing requirements, includes a description of the bid evaluation and selection process and evaluation criteria, and provides a copy of the proforma EPC Agreement. The bid evaluation and selection

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26 Shipway Place  
Charlestown, Massachusetts 02129  
Telephone: 781-856-0007

processes and methodologies represent a fair, consistent and unbiased evaluation and selection process. The procedures and processes were appropriately applied by APS and are consistent with industry standards. In summary, the information included in the RFP, the evaluation criteria, and evaluation and selection process are consistent with CPP requirements.

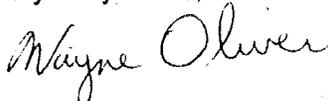
In addition, APS filed a written notice to the Commission indicating that it had retained Merrimack Energy as IM for the solicitation as required by the Resource Planning and Procurement rules.

The AZ Sun Program – Hyder II Project solicitation process was a very competitive process, with approximately fifty times the amount of capacity bid than the amount solicited. The significant response to the RFP by international and local EPC contractors, project developers, and installers led to a very robust and competitive process, with 49 proposals submitted by 28 different Respondents.

In the opinion of Merrimack Energy, the bid evaluation and selection process was undertaken by APS in a fair, transparent, consistent, and comprehensive manner. APS provided the detailed bid evaluation results to the IM for review and assessment and met with the IM to discuss the evaluation results. In addition, this process was a very thorough, rigorous and comprehensive evaluation and selection process. Both the quantitative and qualitative assessments of the offers were effectively undertaken, which should importantly result in competitive prices and viable projects. APS provided the IM detailed documentation of the evaluation process in a manner which was easy to review and verify. The implementation of the solicitation process was effectively managed by APS, was conducted in conformance to the schedule outlined in the RFP, and will lead to competitive benefits for customers.

In conclusion, it is the opinion of the IM that the 2012 AZ Sun Program – Hyder II Project solicitation process and assessment undertaken by APS was fair, consistent, comprehensive and unbiased. APS established procedures and rules which guided the evaluation and selection process, and consistently applied such procedures. The evaluation and selection process effectively conforms to the requirements of the RFP, reflects the practices of other similar utilities in conducting such a process, and represents good utility practice. The level of competition in the procurement process has led to continually lower prices and associated customer benefits which reflect recent market trends, which APS has been able to take advantage of in selecting the final EPC contractor. The final selected proposal is relatively low cost, supported by a highly experienced EPC contractor, and appears to be a very viable project.

Very Truly Yours,



Wayne Oliver  
Principal  
Merrimack Energy Group, Inc.  
26 Shipway Place  
Charlestown, Mass. 02129



3100 Zinfandel Drive  
Suite 600  
Rancho Cordova, CA 95670  
916.631.3200 phone  
916.852.1073 fax

January 15, 2013

VIA E-MAIL

Mr. David Metz  
Director, Resource Acquisition  
Arizona Public Service  
400 North 5th Street, M.S. 9674  
Phoenix AZ 85004  
david.metz@aps.com

Subject: CERTIFICATION OF THE ARIZONA PUBLIC SERVICE ("APS") 2012 AZ SUN REQUEST FOR PROPOSAL SOLICITATION

Dear Mr. Metz:

This letter serves as a certification by Navigant Consulting Inc. ("Navigant") concerning our review of the procurement process performed by APS (the "Solicitation") relative to the above mentioned 2012 AZ Sun Request for Proposals (the "2012 AZ Sun RFP").

For procurement of renewable energy, APS has developed the APS Renewable Energy Competitive Procurement Procedure (the "Procedure").<sup>1</sup> The Procedure identifies the policies and procedures that APS will use to procure renewable energy through both request for proposal and bi-lateral purchase approaches. The Procedure also identifies the scope of work for the independent monitor that is required under the RES Rules.

APS is also subject to Arizona resource planning rules that specify requirements for procurement and independent monitor selection and responsibilities (the "Resource Planning and Procurement Rules").<sup>2</sup> Section R14-2-705 of the Procurement Rules ("Section 705") allows APS to procure wholesale power through a wide variety of competitive procurement methods including purchase from a non-affiliated entity through an auction or an RFP process. Section 705 also requires APS to engage an independent monitor to oversee all RFP processes for procurement of new resources.

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<sup>1</sup> Arizona Public Service Company, Inc., Renewable Energy Competitive Procurement Procedure, dated April 10, 2007.

<sup>2</sup> Arizona Corporation Commission, Docket No. RE-00000A-09-0249, Decision No. 71722, Arizona Administrative Code ("A.A.C.") R14-2-705.

For the Solicitation, APS retained Navigant to serve as the independent monitor as required under the Procedure and the Procurement Rules. As independent monitor, we monitored and evaluated the Solicitation, including review of the solicitation materials and a sample of the evaluations performed by APS. We also prepared a summary report to APS (the "2012 AZ Sun Solicitation Report").<sup>3</sup>

As a result of this work, we certify to the items listed below. Capitalized terms not defined herein are defined in the 2012 AZ Sun Solicitation Report.

- The materials associated with the Solicitation were understandable, comprehensive and consistent with the requirements of the Procedure and with other request for proposals for renewable power supply that we have reviewed.
- The milestone dates, durations and sequencing described for the solicitation and evaluation processes were reasonable.
- The terms of the Confidentiality Agreement, and of the standard form EPC Agreement prepared by APS were reasonable and consistent.
- The type and level of information required for the Response Forms on PowerAdvocate was reasonable.
- The submittal instructions and non-refundable bid fee were reasonable and the description of the evaluation process was clear.
- The pre-bid webinar presentation was clear and consistent with the Procedure and the RFP, and the questions and answers made available on PowerAdvocate were also clear and consistent and valuable in further defining the solicitation.
- The evaluations associated with the Solicitation were performed in a logical, consistent, and comprehensive manner, and were consistent with the requirements of the Procedure and with other power supply offer evaluation processes we have performed or observed.
- The threshold and screening processes were performed on a consistent and fair basis. The determination of the avoided cost of each offer through the use of production cost modeling and the cost of a combustion turbine was consistent and reasonable. The selection of a shortlist from amongst the lowest cost proposals from a quantitative perspective, coupled with lowest risk proposals from a qualitative perspective was reasonable.
- APS achieved compliance with Section 705 of the Procurement Rules since the procurement was an RFP process and APS retained an independent monitor.

In summary, APS performed the Solicitation in compliance with both the Procedure and the Procurement Rules. The Solicitation was conducted in a fair, transparent and equitable manner. There is no evidence that any unfair advantage or disadvantage was given to any Respondent.

This Letter summarizes our review and conclusions concerning the Solicitation as of the date of this Letter. In performance of this review, we did not attempt to influence the preparation of the solicitation documents, nor the performance of the evaluation by APS, nor the discussions between

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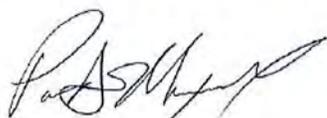
<sup>3</sup> Independent Monitor Report for the 2012 AZ Sun Solicitation, Navigant Consulting Inc., January, 2013.

Mr. David Metz  
January 15, 2013  
Page 3 of 3

APS and the Respondents, nor the selection of proposals by APS. We did not perform any independent alternate evaluation or selection of proposals. We did not review the detailed analyses of all the proposals, but rather only a representative sample of the proposals that we felt would indicate whether or not the evaluations were performed on a fair and reasonable basis (for example, fixed axis versus tracking, crystalline versus thin film). For some of our work, we relied on documents, correspondence, analyses and other information provided to us by APS. While we believe this information to be reliable, it has not been independently verified for either accuracy or validity, and no assurances are offered with respect thereto. Similarly, we were not a party to phone conversations, meetings or other communication that APS may have had with the Respondents, except for the Threads on PowerAdvocate and the introductory meeting that APS held after shortlist selection with each of the three (3) Shortlisted Respondents.

This Letter considers only the reasonableness and fairness of the Solicitation. It does not represent any endorsement of the offer selected by APS, nor any guarantee that the offer is valid or will be ultimately delivered, nor that the offer will satisfy the Annual Renewable Requirements of APS. We make no representations, warranties or opinions concerning the enforceability or legality of the laws, regulations, rules, agreements or other similar documents reviewed as part of this evaluation. We express no recommendation, opinion, or advice as to the wisdom, desirability, or prudence of contracting with the Respondents, or to the action any person should take in connection with the offer, issuance, purchase, or sale of securities or contracts related to APS or the Respondents. Navigant and its employees are independent contractors providing professional services to APS and are not officers, employees, or agents of APS.

Sincerely,



Paul D. Maxwell  
Director

# **2012 RES Compliance Report Summary**

**Arizona Public Service Company**  
**2012 Renewable Energy Standard Compliance Report**  
**Summary**

*Standardized Reporting Format*

Decision No. 72737<sup>1</sup> required Arizona Public Service (APS) to submit a report for Staff approval regarding the Company's joint Renewable Energy Standard (RES) plan formatting efforts with Tucson Electric Power (TEP) and in consultation with other state utility representatives and industry stakeholders. On February 19, 2013, Staff docketed its formal approval of the group's standardized reporting format for use in subsequent RES Compliance Reports and Implementation Plans.

*APS 2012 Renewable Compliance Requirements*

For calendar year 2012, the Arizona Corporation Commission (Commission) established an annual RES requirement of 3.5 percent of the utility's 2012 retail kilowatt-hour (kWh) sales, a total of 996,623 MWh. Additionally, 30 percent of the total requirement (298,987 MWh) is to be fulfilled with energy produced from Distributed Energy (DE) resources. This separate DE carve-out provision requires half of the total DE requirement (149,493 MWh) to come from residential resources and half from non-residential resources. For the purposes of RES compliance tracking, a Renewable Energy Credit (REC) is defined as a kWh derived from eligible renewable resources or kWh equivalent of conventional resources displaced by distributed resources<sup>2</sup>; however, throughout the Compliance Report APS discloses its production in MWh.

Additionally, the Company's 2009 Settlement Agreement (2009 Settlement)<sup>3</sup> adopted provisions that exceed the requirements of the RES. The 2009 Settlement required, among other provisions, that "APS shall make its best efforts to acquire new renewable energy resources with annual generation or savings of 1,700,000 MWh to be in service by December 31, 2015..."<sup>4</sup> It further states that "These new resources shall be in addition to existing resources or commitments as of the end of 2008, as identified in APS's 2008 RES Compliance Report..."<sup>5</sup> As of the end of 2012, energy production is at approximately 48 percent of this requirement.<sup>6</sup>

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<sup>1</sup> January 18, 2012.

<sup>2</sup> Arizona. Administrative Code A.A.C. R14-2-1801(N).

<sup>3</sup> Decision No. 71448 (December 30, 2009).

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> APS includes Green Choice sales towards meeting the 2009 Settlement Agreement obligations.

### *APS 2012 RES Performance*

In 2012, the Company's total RES resources were 1,507,021 MWh, which is **5.3 percent** of APS's total 2012 retail sales.<sup>7</sup> Total DE energy production for the year reached 503,498 MWh. Total Residential performance was **131 percent** of the requirement for 2012 and Non-Residential was **206 percent** of the Non-Residential requirement.

### *Renewable Generation Resources*

In total, APS added 141 MW of Renewable Generation (RG)<sup>8</sup> resources to its operating portfolio in 2012. This new capacity is derived from 117 MW of third-party owned Power Purchase Agreements (PPAs) and 24 MW of APS owned AZ Sun projects.

### *Distributed Energy Resources*

In 2012, 111 MWdc of new DE systems were installed for 273 MWdc of cumulative installed DE capacity through the life of the program. Approximately 47 MWdc of residential and 64 MWdc of non-residential DE capacity was installed in 2012.

A total of 7,621 residential installations (6,082 PV Grid-Tied, 1,340 Solar Water Heating, 145 for Solar Space Heating, and 54 for all other technologies) were completed in 2012, a 36 percent increase over 2011's previous record-high installed volume. For the non-residential UFI program, 98 systems were installed in 2012. Non-residential PV Grid-Tied PBI installations reached a new annual high (220 installations).

The Commission approved the 2012 program to have declining incentives based on increasing levels of program participation. High participation volume in 2012 led to an incentive decline from \$0.75/watt at the beginning of the 2012 budget year to \$0.10/watt in November 2012.<sup>9</sup> The average residential PV grid-tied incentive paid in 2012 was \$0.65/watt, down from \$1.45/watt in 2011.

### *RES Workplan*

For the 2012 budget year, the Company received authorization for a total RES budget of \$110 million. The Renewable Energy Standard Adjustment Schedule (REAC-1) was set for collect a monthly cap of \$3.84 from residential, \$142.44 from non-residential, and \$427.33 from large non-residential customers during 2012. As a result of Decision No. 73183 on APS's 2012 Settlement Agreement, as of July 2012 the monthly adjustors were temporarily lowered to collect a maximum of \$2.78 for residential, \$103.44 for non-residential, and \$310.33 for large non-residential customers. In Decision No. 73636, the Commission approved \$7.1 million in prior year accrued revenue to be applied to offset 2013 budget

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<sup>7</sup> Pursuant to Commission Decision No.70313, Green Choice Rate retail sales are not included in APS's RES-eligible energy for RES compliance purposes.

<sup>8</sup> APS defines Renewable Generation as renewable resources interconnected on the utility side of the meter. Renewable Generation resources are generally utility-scale projects and apply to the RES total production requirement.

<sup>9</sup> 2012 incentive levels were approved as part of the Decision No 72737 as well as Decision No. 73576 (November 21, 2012).

expenses. Consistent with this recent decision, APS plans to propose in its 2014 RES Implementation Plan filing that future budgets be offset with remaining undesignated program funds.

# 2012 RES Compliance Report PowerPoint

**Arizona Public Service Company  
2012 Renewable Energy Standard  
Compliance Report**

April 1, 2013



# Standardized Reporting Format

- Each year, APS files an **RES Compliance Report** with the ACC:
  - Detailing the company's renewable energy commitments for the prior year
  - Summarizing where the company stands in meeting the state's RES
- In February, a **new standard for reporting was approved** for use in subsequent:
  - RES Compliance Reports
  - RES Implementation Plans

# Regulatory Commitments

- **Arizona's Renewable Energy Standard (RES)**
  - Last year's requirement:
    - APS must have 3.5 percent of its 2012 retail kWh sales come from renewable resources, with 30 percent coming from Distributed Energy (DE)
- **2009 APS Rate Case Settlement Agreement**
  - Required APS to "make its best efforts to acquire" an additional 1.7 GWh above 2008 contracts and 2009 projects in-service
    - Projected to be approximately 12 percent of retail sales by 2015 (more than double the RES target for 2015)

# 2012 RES Compliance Summary

**Table 1a - Compliance Summary**

Category	Metric	%	Compliance Measure (MWh)	RES Resources (MWh or Equivalent)	
Retail Sales	<i>Actual MWh Sales for 2012</i>		28,474,945		
Prior year carrying balance <sup>1</sup>				<b>444,380</b>	(F)
2012 Total RES Resources [From (E) in Table 1b]				<b>1,507,021</b>	(E)
2012 Total RES Requirement	% of Retail Sales	3.5%	996,623		
DE Requirement	% of RES Requirement	30%	298,987		
<i>DE Sub-Requirements:</i>					
Residential DE	% of DE Requirement	50%	149,493	196,232	(G)
Non-Residential DE	% of DE Requirement	50%	149,493	307,266	(H)
Non-DE Target <sup>2</sup>				493,125	(I)
Resources Used for 2012 Compliance ( G + H + I )				<b>996,623</b>	(J)
<b>End 2012 carrying balance ( F + E - J )</b>				<b>954,778</b>	(K)

*Notes to Table 1a:*

<sup>1</sup>The RES-eligible resource carrying balance is accounted for using First-In-First-Out (FIFO) methodology, wherein the entire carrying balance is applied to the RES requirement and the year-end carrying balance consists of current year remaining resources.

<sup>2</sup>Although there is no defined requirement for Non-DE Resources, the energy reported in this section will be Non-DE resources towards the overall RES requirement.

# 2012 RES Performance vs Targets

- Total Renewable Energy  1,507,021 MWh  
5.3% of retail sales
- Total Distributed Energy  503,498 MWh  
168% of target
- Residential DE  196,232 MWh  
131% of target
- Non-Residential DE  307,266 MWh  
206% of target

*APS is exceeding compliance with all RES requirements*

# Renewable Generation

APS added 141 MW of renewable generation to its operating portfolio in 2012:

- Third-party owned Power Purchase Agreements (PPA)
  - Saddle Mountain Solar Facility (15 MW)
  - Perrin Ranch Wind Farm (99 MW) →
  - Northwest Regional Landfill Gas (3 MW)
- APS owned AZ Sun Program
  - Phase II of the Hyder I Solar Plant (5 MW) →
  - Chino Valley Solar Plant (19 MW)



Compliance Report - Energy

Table 1b - Renewable Resources

Resource	Technology	Ownership	MWac <sup>1</sup>	MWdc <sup>1</sup>	Production (Actual)	Production (Annualized) <sup>2</sup>	Multiplier Credits	Total MWh or Equivalent
<b>GENERATION:</b>								
Aragonne Mesa	Wind	3rd Party PPA	90		278,444			278,444
High Lonesome	Wind	3rd Party PPA	100		286,677			286,677
Perrin Ranch	Wind	3rd Party PPA	99		199,444			199,444
Snowflake White Mountain Power	Biomass	3rd Party PPA	14		112,017			112,017
Sexton (Glendale Landfill)	Landfill Gas	3rd Party PPA	3		16,531			16,531
Northwest Regional Landfill Gas	Landfill Gas	3rd Party PPA	3		8,208			8,208
Salton Sea/CE Turbo	Geothermal	3rd Party PPA	10		65,966			65,966
Ajo	Solar PV	3rd Party PPA	5		10,356			10,356
Prescott	Solar PV	3rd Party PPA	10		27,468			27,468
Saddle Mountain	Solar PV	3rd Party PPA	15		1,502			1,502
AZ Sun: Chino Valley	Solar PV	APS	19		6,292			6,292
AZ Sun: Cotton Center	Solar PV	APS	17		46,172			46,172
AZ Sun: Hyder I	Solar PV	APS	16		39,252			39,252
AZ Sun: Paloma	Solar PV	APS	17		42,843			42,843
Small Solar Projects	Solar PV	APS	4		7,345		3,672	11,017
<i>Gross Total</i>			422	-	1,148,517	-	3,672	1,152,190
<i>Adjustments</i>								
	Green Choice Sales				(118,768)			(118,768)
	Wholesale DE Allocation				(29,899)			(29,899)
<b>Subtotal Generation</b>			<b>422</b>		<b>999,850</b>		<b>3,672</b>	<b>1,003,523</b> (A)
<b>DISTRIBUTED ENERGY (DE):</b>								
<i>Residential:</i>								
UFI Installations <sup>4</sup>	Various	Customer-Sided DE	86	101		195,456		195,456
Flagstaff Community Power Project	Solar PV	Customer-Sided DE	0.4	0.5	775			775
								-
								-
<i>Gross Total</i>			87	102	775	195,456		196,232
<b>Subtotal Residential</b>			<b>87</b>	<b>102</b>	<b>775</b>	<b>195,456</b>		<b>196,232</b> (B)
<i>Non-Residential:</i>								
UFI Installations <sup>4</sup>	Various	Customer-Sided DE	13	15		31,304		31,304
PBI Installations <sup>4</sup>	Various	Customer-Sided DE	80	94		154,548		154,548
DE RFP	Solar PV	Customer-Sided DE	38	45	35,976	40,032		76,008
Schools & Government (3rd-Party Owned)	Solar PV	Customer-Sided DE	7	8		12,630		12,630
Schools & Government (Utility-Owned)	Solar PV	APS	7	8		1,660		1,660
Flagstaff Community Power Project	Solar PV	Customer-Sided DE	0.9	1.1	1,218			1,218
								-
<i>Gross Total</i>			146	171	37,194	240,173		277,367
	Wholesale DE		n/a	n/a	29,899			29,899
<b>Subtotal Non-Residential</b>			<b>146</b>	<b>171</b>	<b>67,093</b>	<b>240,173</b>		<b>307,266</b> (C)
<b>Subtotal Distributed Energy (B+C)</b>			<b>232</b>	<b>273</b>	<b>67,868</b>	<b>435,630</b>		<b>503,498</b> (D)
<b>Total RES Resources (A+B+C)</b>					<b>1,067,719</b>	<b>435,630</b>		<b>1,507,021</b> (E)
<b>Total MWac equivalent<sup>3</sup></b>			<b>654</b>					

Notes to Table 1b:

<sup>1</sup> Generation capacity is reported in MWac and DE is generally reported in MWdc.

<sup>2</sup> Assumes an average of 1650 kWh per installed kW for non-metered or current year installed residential PV systems, and 1500 kWh per installed kW for non-residential systems.

<sup>3</sup> Represents the total RES portfolio capacity in MWac. Assumes a 85% dc-ac conversion factor applied to MWdc capacity.

<sup>4</sup> Includes energy for all installations, but only notes capacity for solar electric and wind installations.

# Distributed Energy

- In 2012, APS achieved:
  - 111 MWdc new DE systems installed for 273 MWdc of cumulative installed DE capacity (through the life of the program)
  - About 47 MWdc of residential and 64 MWdc of non-residential DE capacity installed
  - A total of 7,621 residential installations:
    - 6,082 PV Grid-Tied
    - 1,340 Solar Water Heating
    - 145 Solar Space Heating
    - 54 all other technologies

**This is a 36 percent increase over 2011's previous record-high installed volume**

# Distributed Energy (continued)

- In 2012, APS achieved:
  - Non-residential UFI program - 98 installations
  - Non-residential PV Grid-Tied PBI – 220 installations (a new annual high)
  - School & Government added capacity included:
    - 13 third-party owned school systems (3.5 MW)
    - 7 third-party owned government installations (2.1 MW)
    - Third-party component of Tranche One is on track to meet a targeted 50,000 MWh produced by school projects.
    - 32 APS-owned school projects (8 MW)

# 2012 Incentive Program

- In 2012, APS paid approximately \$32 million in residential incentives and \$25 million in non-residential incentives.
- Approximately \$15 million in Up Front Incentive (UFI) commitments existed at the end of 2012 for project reservations to be installed.
- A total of \$765.8 million in lifetime Production Based Incentives (PBI) were authorized through the end of the 2012 program year.

# 2012 Incentive Program

- The Commission approved the 2012 program to have declining incentives based on increasing levels of program participation.
- High participation volume in 2012 led to an incentive decline from \$0.75/watt at the beginning of the 2012 budget year to \$0.10/watt in November 2012.

**PV Grid Tied Incentive History**

Start Date	End Date	Incentive Level
11/16/2011	1/19/2012	\$0.75/watt
1/20/2012	3/21/2012	\$0.60/watt
3/22/2012	6/12/2012	\$0.55/watt
6/13/2012	7/23/2012	\$0.50/watt
7/24/2012	11/14/2012	\$0.20/watt
11/15/2012	-	\$0.10/watt