ORIGINAL

0000147626

ARIZONA SOLAR THERMAL SUPPORT
10645 N. Tatum Blvd., 200-306
Phoenix, AZ. 85028

RECEIVED
2013 AUG 27 A 10: 01
AZ CORP COMMISSION
DOCKET CONTROL

August 26, 2013

Chairman Bob Stump
Commissioners Gary Pierce, Brenda Burns, Bob Burns, Susan Bitter Smith
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, 85007

Re: In the Matter of the Application of Arizona Public Service Company for Approval of Its 2014 Renewable Energy Standard Implementation Plan for Reset of Renewable Energy Adjuster Docket No. E-01345A-13-0140

Dear Chairman Stump and Commissioners:

The Arizona Solar Thermal Support Group is pleased to provide the following information that is intended to:

- Highlight the benefits of solar water heating (SWH) systems and commercial solar thermal (CST) systems to APS residential and commercial ratepayers
- Compare the level of incentives received by the PV Industry and the SWH Industry since 2008 and the growth in Arizona of the two industries
- Stimulate discussion on how Arizona can quickly grow into being a world leader in the use of SWH systems and how the APS 2014 RES Plan can support this growth

Thank you for your consideration of this information. Please contact Milton M. "Mike" Masson (480/699-1910 m3masson@gmail.com) or myself if you need additional information.

Best Regards,
ARIZONA SOLAR THERMAL SUPPORT GROUP

H. John Ellers, Supporter
(602) 418-9293
hjohnellers@solidsolar.com

Arizona Corporation Commission
DOCKETED
AUG 27 2013
DOCKETED BY nr

Solar Water Heating (SWH)

An Opportunity to Provide
Rooftop Solar to
Hundreds of Thousands of Arizonans
Submitted by
Arizona Solar Thermal Support Group

August 26, 2013

Docket No. E-01345A-13-0140

In the Matter of the Application of Arizona Public Service Company for Approval of Its 2014 Renewable Energy Standard Implementation Plan for Reset of Renewable Energy Adjuster

INFORMATION ON THE ARIZONA SOLAR THERMAL SUPPORT GROUP

Subject: Support Group for Increasing the Installation of Solar Thermal Systems in Arizona

Dear Sir/Madam:

Solar thermal is the solar technology that is accessible to all Arizonans. You are receiving this email because the undersigned individuals and companies believe that you understand the significant value that Arizona's citizens would receive from having a large number of solar thermal systems installed on homes and commercial properties in Arizona.

The Arizona Solar Thermal Support Group (the Group) is an unincorporated nonprofit association that was formed to provide information to the Arizona Corporation Commission and others with the goal of having Arizona become a world leader in the use of solar for heating water for homes, businesses and industry. You may or may not be aware of the following:

Due in part to its tremendous solar resource, Arizona ranks among the top locations in the world for the potential use of solar thermal. However, Arizona's number of installed solar thermal systems is far behind areas of the world that receive much less annual solar radiation. For example, approximately 15% of all homes in Austria have solar thermal systems while fewer than 1% of the homes in Arizona have a solar water heating system.

In the early 1980's Arizona was a world leader in residential solar water heating (SWH) with over 100,000 systems installed. The SWH industry in Arizona included manufacturers and installers and supported tens of thousands of jobs in addition to providing Arizonans with low cost, clean, renewable energy. The Group believes that Arizona can quickly reclaim its position as a world leader in solar thermal.

In addition to using solar thermal for heating water for homes, businesses and industry, it is also being used to cool commercial buildings. Future development may result in cost effective systems for solar thermal cooling of homes.

Hundreds of millions of dollars have been spent in recent years to support the installation of solar electric systems ("PV") on homes in Arizona. The average cost of a residential PV System is over $30,000 and only a small number of Arizonans have chosen to install these systems. The Group believes that most Arizonans want a solar system on their home and that strong support for residential SWH would allow a large number of Arizonans to have access to solar energy in the near future.

The Group requests that you respond to this email and give us permission to include your name with the names of the supporters below as we present information to the Arizona Corporation Commission and others supporting and encouraging the expanded use of solar thermal technology in Arizona.

Thank you for your consideration of this request.

Best Regards,
Arizona Solar Thermal Support Group
H. John Ellers, Supporter

ARIZONA SOLAR THERMAL SUPPORT GROUP SUPPORTERS:

H. John Ellers, SOLID Energy, Mike Masson, Desert Consulting, Michael Neary, Desert Sun Solar, Jim Combs, John Combs, Conservative Energy Systems, Kent Pulido, General Solar, Tom Bohner, Integrated Solar, Kelly Dancer, Hybrid Solar Green Energy, Inc., Peter Reed, Pacific West Solar, Meg McKeon, Larry Hosletter, Michael Burgett, P.E., Henry Ellers, Dr. Karlee' Heffner, Sam Heffner, Scarlett Ellers, Chris Dunham, Craig Masson, Brynn Ellers, Natalie Ufnal, Diane Graham, Valerie Raulik, Venture Catalyst, Inc., Lyndacille Lamb, Steve Noeding, Solar Wholesale, Inc., Robert Danielson, Sun Earth, Inc., Kent Petzold, Marni Patterson, Joseph Glenn, J.D., Charlie Miller, Tom Schaefer, Heather Shemel, Charmonique Tims, Melissa Hosp, Schuyler McHenry, Ann Watwood, Kimberly Baker, Dina Ki, Tammy Griffin, Jessica Mitchell, Michelle Knight, Kelly Clauss, Missy Williams, Meaghan Boland, Jason Snyder, Jeff Hernandez, J.D.

What SWH Can Provide to Arizonans

- Studies show that Arizonans want to install solar on their homes. PV, at $30,000+, is too large of an investment for most Arizonans. SWH allows ownership of solar at a much lower cost.
- Millions of SWH systems have been installed worldwide since the 1980's. Arizona has a long history of SWH systems. The systems have proven to operate reliably over a long life.
- SWH system owners do not need to worry about issues associated with PV systems such as net metering or changes in rate structures.
- Arizonans depend on healthy utilities and the electric grid. SWH is good for both.

Why Support SWH in 2013

- Arizona Citizens Want Solar on Their Roofs
- SWH is Solar That Can Quickly Give Citizens What They Want
- SWH Avoids the Negative Issues Currently Associated with PV
- The Platform for a Dynamic SWH Industry Currently Exists, but Will Fade if Not Supported
- Arizona has the Opportunity to be a World Leader in SWH

SWH Fundamentals For Arizona

- The "solar fraction" is the percentage of hot water that a system can produce from solar energy. According to a paper published by NREL, SWH systems in Arizona produce the highest solar fraction in the USA
- Installed system costs range from $5000 to $10,000
- Based on the AZROC database, approximately 1,985 companies are licensed to install SWH systems. There are three manufacturers of solar panels in Arizona
- The economic return for SWH systems is better for homes that have electric water heaters. Approximately 60% of Arizona homes have electric water heaters

Arizona SWH Vision Equation

Strong Leadership + Deep Industry Experience + Ideal Climate + Strong Federal & State Incentives for a Well Defined & Limited Period + Exposing Citizens to SWH + Long Term Commitment

=

Hundreds of Thousands of Arizonans Happy to have Rooftop Solar and Tens of Thousands of People Happy to have Jobs in Manufacturing, Contracting and Servicing Related to SWH

What SWH Needs to Support Strong Growth in the Number of Installations

- The emphasis on residential PV needs to shift to an emphasis on residential SWH
- Providing strong State incentives during the next 3 years while Federal incentives are strong will energize the SWH industry
- Arizona is "SWH friendly", however, improvements in local rules will help increase system installations
- Prospective buyers will benefit from readily available financing options

Goals for SWH in Arizona

- 2013 – Approve a SWH plan in the RES that will make it possible for AZ to experience dramatic growth in SWH system installations in 2014-2016
- 2014 – 10,000 SWH Installations. Strong incentive programs at SRP and SWG in addition to the RES programs
- 2015 – 20,000 SWH Installations
- 2016 – 40,000 SWH Installations
- 2017 and Beyond – Strong in-State SWH industry that can support growth leading to SWH systems installed on 15% or more of all homes

Arizona Solar Thermal Support Group's Request for The 2014 RES Implementation Plan in APS Service Territory

Summary of APS Proposed 2014-2018 RES Plan

$0 for Residential Solar Water Heating Systems

$0 for Commercial Solar Thermal Systems

Example SWH Net System Cost in 2012 in APS Service Territory

System Price	$7000
30% Federal Tax Credit	(2,100)
Arizona Tax Credit	(1,000)
APS Incentive (System Rated at 2,800 kWh/Yr x $0.50 per kWh)	(1,400)
Net Cost	$2,500

Annual Savings - $280

Simple Payback - $2,500/$280 = 8.9 Years

Result if the 2014-2018 RES Plan Submitted by APS is Approved

Example System Net Cost - $3,900

Simple Payback - $3,900/$280 = 13.9 Years

Impact:

- **Simple Payback Increases by Five Years**
- **Loss of the Proven, Powerful Marketing Tool of Offering a State Approved Cash Incentive**

Massive Decline in the Number of SWH Installations and Related Jobs Resulting in the Lost Opportunity for Ratepayers to Own a Cost Effective Source of Renewable Energy

Request for Residential SWH in 2014 RES Implementation Plans

Incentive Payment

$0.75/kWh

Funding Level to Generate 5000 Installations

Based on the Results for 2010 in the APS Service Territory, a Funding Level of $9,273,000 Would Achieve 5000 Installations in 2014

Request for Commercial Solar Thermal in 2014 RES Implementation Plans

Incentive Payment

$0.50/kWh

$1,500,000 Cap

Funding Level to Generate 100,000 Ft2 Installed Collectors Based on an Average Installed Price of $100/ft2 and 50% of System Cost From RES Incentives

$6,250,000

EXHIBIT 2C in the APS 2014 RES Implementation Plan has been modified to show the impact of SWH installations as per the plan proposed by Arizona Solar Thermal Support Group

DE Requirement (MWh):	335,331	381,879	430,054	524,716	623,716	725,076

Historical Comparison of Residential PV and Residential SWH Incentives and Installations

Residential PV vs Residential SWH Funding & Installations

PV Funding & Installations APS Service Territory (1)

Year	Funds Spent	Installations
2008	$ 6,211,584	421
2009	$ 24,365,713	1,448
2010	$ 44,647,159	2,943
2011	$ 48,280,457	4,212 (2)
2012	$ 29,057,286	6,082
Totals	$158,562,199	15,106

(1) Source: APS RES Compliance Reports filed with ACC in 2009-2013

SWH Funding and Installations APS Service Territory (1)

Year	Funds Spent	Installations
2008	$ 756,213	407
2009	$ 3,328,083	1,559
2010	$ 3,748,150	2,021
2011	$ 2,768,681	1,771 (2)
2012	$ 1,993,304	1,340
Totals	$ 12,594,431	7,098

(2) The APS RES Compliance Report for 2011 reported the Number of Applications not Installations

SWH Installations Given Funding Comparable to PV Funding

PV - $158,562,199/15,106 Systems = $17,595/System

SWH - $12,594,431/7,098 Systems = $1,774/System

SWH with PV Level Funding

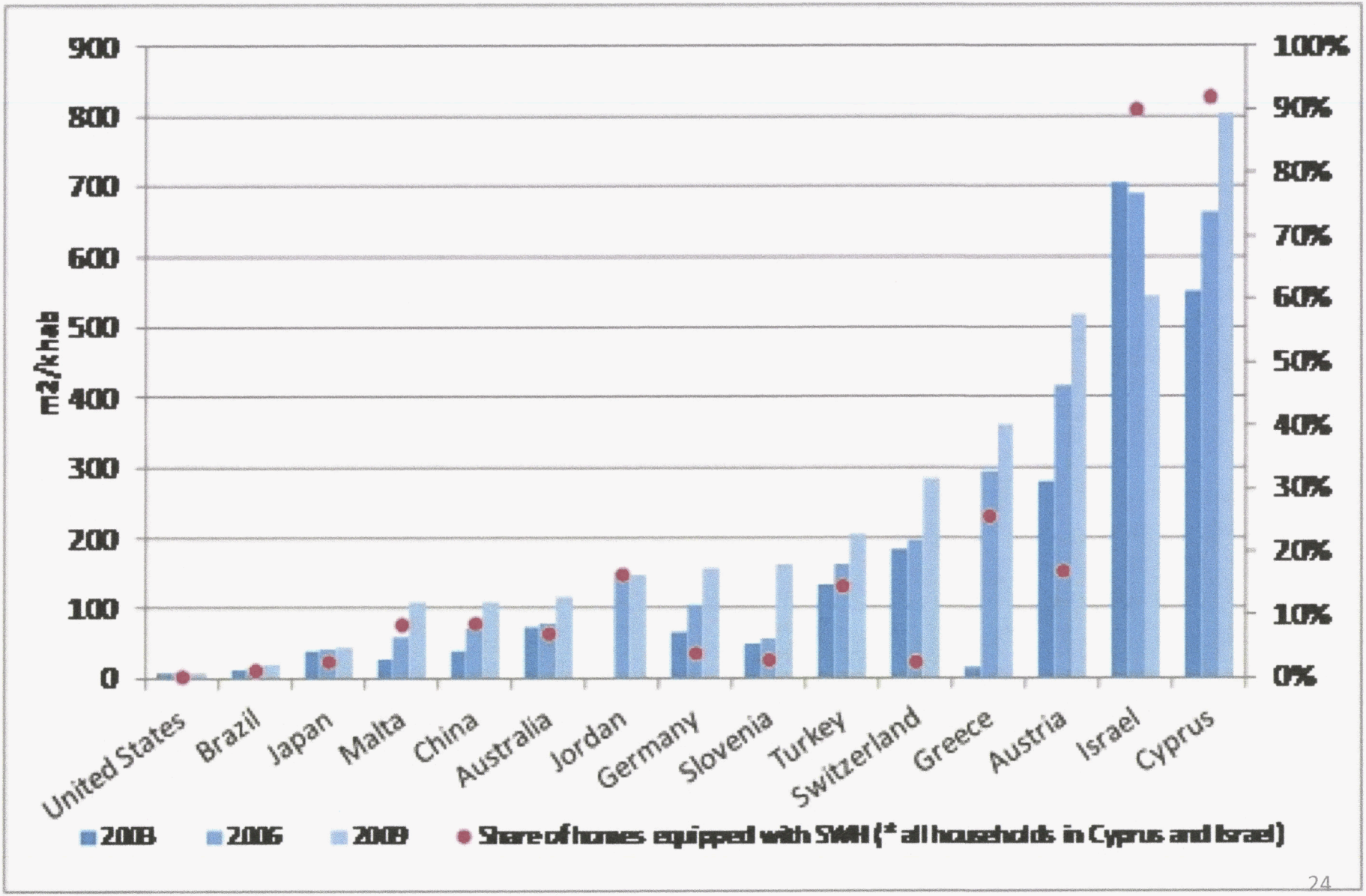
$158,562,199/$1,774 = 89,381 Rooftop Systems for Arizonans

Historical Development of Solar Thermal in Arizona and State of the Industry

- In 70's and 80's Arizona was a Nationwide leader in the number of SWH installations and in industry development.
- ASU, UA, APS and SRP have been leaders in supporting the development of SWH.
- With the expiration of tax credits in 1986, SWH installations decreased by 90% Nationwide. A handful of solar companies in Arizona survived this decline by servicing existing installations and selling solar pool heating systems.
- With the return of Federal tax incentives in 2005 and the RES, Arizona's solar thermal industry grew steadily through 2012. Growth of SWH was slowed due to the emphasis on residential PV.
- There are currently 3 collector manufacturers in the State, approximately 1,985 contractors are licensed to install SWH systems and there are dozens of companies active in distributing and installing SWH systems and components.
- The SWH industry in Arizona is experienced and is well positioned to support rapid growth.

Overview of Solar Thermal in Other States and Countries

- **California** - On January 21, 2010, the CPUC approved a Decision creating the CSI-Thermal Program, which allocates $350.8 million to promote solar water heating (SWH) through a program of direct financial incentives to retail customers, training for installers and building inspectors, and a statewide marketing campaign.
- **Oregon** - Energy Trust provides funding to reduce the upfront cost of installing a qualified home solar water or pool heating system. In addition to Energy Trust's cash incentives, your project may be eligible for a state energy tax credit from the Oregon Department of Energy.
- **New Jersey** - $1200 solar domestic water heater rebate.
- **Florida** – FPL $1000 per installed water heater. As part of a five-year pilot program authorized by the Florida Public Service Commission, this rebate is available to any existing FPL residential customers with electric or gas water heating. The rebates are not available for new construction, pool heating systems or solar water heating systems that are already installed.
- **New York** – Goal of 45.54 MW of solar thermal installations between 2010 and 2015. Incentive starts at $1.50 per kWh and is capped at $4,000 per meter.

Installed capacity of solar water heaters per thousand inhabitants and share of homes* equipped

Source:* [Global Energy Data](#) - [Enerdata](#), *from EurObserv'ER and the International Energy Agency