

OPEN MEETING AGENDA ITEM

Docket No. E-01345A-11-0264



December 2, 2011

ORIGINAL
RECEIVED



Chairman Gary Pierce
Commissioner Brenda Burns
Commissioner Sandra Kennedy
Commissioner Paul Newman
Commissioner Bob Stump
Arizona Corporation Commission
Commissioners Wing
1200 West Washington
Phoenix, AZ 85007-2996

2011 DEC -2 P 4:00

ARIZONA CORPORATION COMMISSION
DOCKET CONTROL

Re: Comments regarding APS 2012 RES Implementation Plan, Docket No. E-01345A-11-0264

Arizona Corporation Commission Dear Chairman Pierce and Commissioners:

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Natural Power and Energy ("NPE") notes the Staff's comments on, and counter-proposals to, APS' 2012 REST Implementation plan, docketed on October 25, 2011. NPE would like to commend the Commission's Staff for its careful and diligent work on APS' proposed plan, and would like to raise a handful of issues for the Commission's further attention and consideration.

Non-residential Solar PV Incentive Funding

- We support the Staff's finding that APS's plan for non-residential Production Based Incentive ("PBI") systems proposed in APS Options 1, 2 and 3 could have a damaging impact on the non-residential solar industry in Arizona.
- **We strongly support the increase in incentive funding for Non-residential PBI projects made available in Staff's recommended Option A, and support a vibrant non-residential market in 2012 and beyond.**
- We believe the distributed generation ("DG") market that this funding will support is critical to the overall development of Arizona's renewable energy portfolio, and that it brings significant benefits to overall industry employment and the growth of competitive small businesses. See Appendix I for further analysis.

Non-residential Solar PV Incentive Caps

- **We believe the percentage cap based on total system cost proposed by Staff for the Non-residential PBI program should be revised upwards from 40% to 45%.**
 - **This would allow more projects to be financed at lower PBI levels as installation costs decline over time, and would encourage installers to accelerate cost declines given the competitive PBI auction model. See Appendix II for further analysis.**
 - In general the percentage cap punishes providers which offer low-cost installation solutions, as their customers are eligible for lower lifetime incentives than less economical competitors. The lower this cap is pushed in percentage terms the more pronounced this effect becomes.



- We agree with Staff's concerns over significant lifetime PBI costs, therefore we have a proposed a compromise reduction from the current 50% level, to 45% of total system costs.
- **We believe the kilowatt-hour incentive caps proposed by Staff for the Non-residential PBI program should be revised upwards from \$0.08 to \$0.09 per kWh for the 20 year contract.**
 - The incentive levels proposed could deter projects or result in higher PPA rates than may be appropriate for the end customer.
- We also believe more of an incentive differential should be established between contract terms than the \$0.002 per kWh proposed. We believe a premium of \$0.02 per kWh for each five-year term reduction, per the Staff's proposal for the Schools and Government Program, would more appropriate.

For the reasons noted above and in the supporting sections, we encourage the Commission to adopt Staff's Option A with our minor suggested amendments with respect to the Non-residential Solar PV incentive Program.

Residential Solar PV Incentive Funding

With respect to the Residential Solar PV Incentive Program, we would encourage the Commission to consider the potential negative effects of a disruptive change in anticipated funding for 2012. Without reference to the effectiveness of Staff's proposal for \$18 million in residential PV incentives, in general we believe the Commission should set consistent policies which bring about certainty for sustainability companies for at least a medium-term horizon, so those companies are empowered to make better informed and more efficient strategic and employment decisions. The Staff's proposed funding level represents a significant reduction from the level re-affirmed by Decision No. 72022, and NPE is concerned about the potential employment and investment effects of reversing this commitment.

We value the Commission's leadership in fostering a vibrant solar industry in Arizona to date, and sincerely hope it will continue to engage in consistent market signalling and setting medium and long term policies supportive to the industry's growth.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Dallal", is written in a cursive style.

Rob Dallal
Director
NATURAL POWER & ENERGY



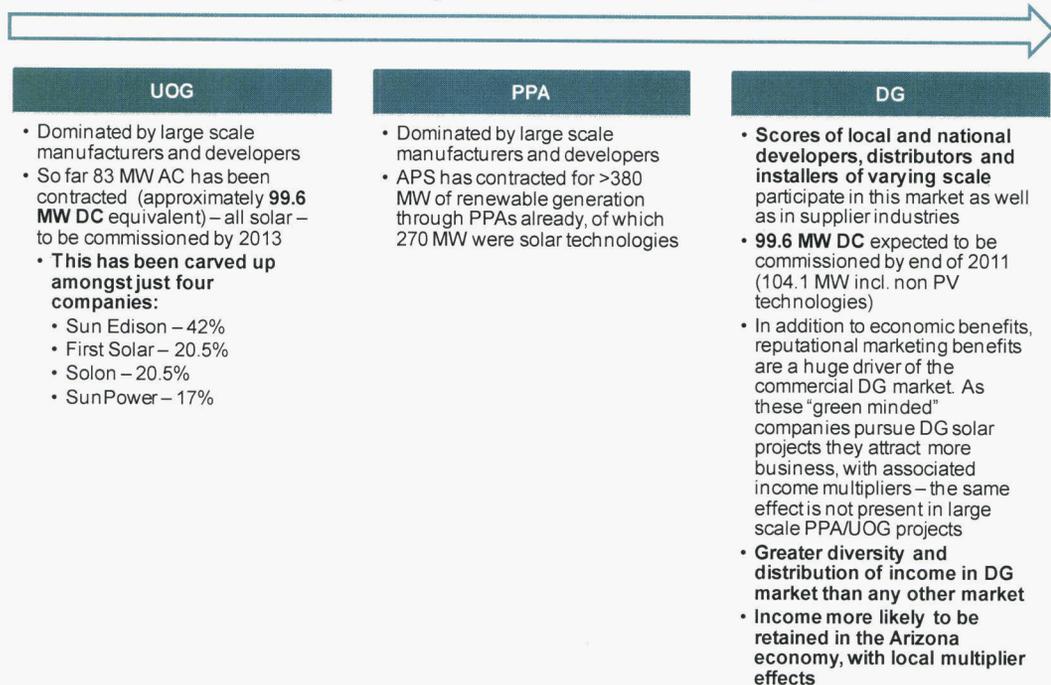
APPENDIX I

Overview and Benefits of Distributed Generation

- Decentralized and modular power close to its point of consumption
- DG technologies can minimize normal transmission losses because they generate electricity close to the end user
- Help utilities reduce peak-time demand and congestion on the transmission network
- In contrast to the traditional use of a few large-scale generators distantly located from load centers, DG technologies can help defer costly transmission upgrades and expansions
 - For example, Pacific Gas & Electric (PG&E) – the largest investor owned utility in California – planned to expand their transmission and distribution system near San Francisco in the early 1990's. They proposed a conventional upgrade of the 230 kV and 60 kV lines that served seven substations in the area, estimated to cost them \$355M (in 1990 dollars). However, they subsequently discovered that a cheaper alternative was to strategically deploy distributed 500 kW solar photovoltaic plants connected to distribution feeders. By investing in locally sited DG projects, PG&E deferred a significant number of its transmission upgrades and ultimately saved \$193M (>50% of the present value of the expansion plan) by installing DG.

Impact of Vibrant Distributed Generation (DG) Market on Arizona Economy: Greater Diversity, Broader Distribution of Income and Higher Employment

Increasing Diversity and Broader Distribution of Income





Increasing Employment Effects



PPA	UOG	DG
<ul style="list-style-type: none">Jobs created by developers, financing and installation companies which develop, construct, operate and maintain renewable PPA projects	<ul style="list-style-type: none">More jobs than PPA projects, as the utility must employ additional personnel to oversee the project on behalf of the utility during construction and for the life of the generation assetsThis is in addition to the developer and construction personnel that oversee development, construction and commissioning of the project (as they would in a PPA scenario)	<ul style="list-style-type: none">More jobs than UOG or PPA projects, driven mainly by smaller project sizesDevelopment and financing employment is more closely associated with the number of projects rather than project sizeThe income generated by the same number of MWs is spread over a far greater developer base in the DG market, driving significantly greater employment in the development and financing sectorsMore construction labor is also required per MW for small projects due to economies of larger projectsDG market allows host customers to save money versus their existing utility bill. This creates jobs, particularly at non-profits where additional income is necessarily re-allocatedMarketing benefits for companies that pursue DG projects can result in employment expansion



APPENDIX II

Detailed Analysis of Impact of Staff Proposal on Non-residential Solar PV Market

Appropriate Level of PPA Pricing in APS Territory

In Arizona APS's commercial electricity rates are such that PPAs structured much above \$0.10 per kWh and a 3% annual escalator are unlikely to generate significant savings for the host client. This was noted in some detail in a recent report by the Auditor General in its analysis of the Gila Bend USD PPA. This is because demand charges and transmission charges are unlikely to fall significantly following the installation of a solar system, which means that net metering bill savings generated by a solar system will be less than APS' average energy cost per kilowatt-hour. The actual cost saving generated by a solar system will typically be \$0.10/kWh or lower for an APS commercial customer, particularly for systems greater than 200 kW.

Thus PPA rates should target \$0.10/kWh starting rates or lower, and should typically not escalate at more than 3-4% per year, in order to generate long term savings for the end-purchaser of the solar energy.

Impact of the 20-Year \$0.08/kWh and 40% of Installed System Cost Caps

The Commission should be aware that any reduction in PBI incentive rates will result in higher PPA rates to the end user, at any given installation cost. The non-residential solar market currently charges approximately \$3.75-\$4.25 per DC Watt installed.

The analysis in Table 1 highlights that solar projects will be difficult to finance successfully at PPA rates below the desired \$0.10/kWh target, with 20 year PBIs below \$0.08/kWh based on current market costs and a 40% payment cap. The Table depicts project terms which may be financeable with a '✓'.

Of course, project costs are expected to continue their decline, assuming a final decision in the pending Solar World trade case doesn't drive up panel pricing in 2012. However, the rate of project cost decline is slowing, as rapidly falling panel costs constitute a lower percentage of overall costs, the balance of which are remaining constant or even rising (panels constitute approximately 25% of project costs currently). Even a drop to the \$3.25/W installation cost level could only fund \$0.09/kWh PPA rates using a \$0.07/kWh PBI with a 40% cap, according to our estimates.

We understand the Staff's desire to reduce PBI caps both on kilowatt-hour and percentage of gross cost basis, in order to drive the best value for ratepayers. **However, we believe upper limits for non-residential PBIs set at \$0.09 per kWh for 20 year contracts would be more appropriate and in keeping with the current market momentum.** This level would allow more projects to be financed at economical PPA rates based on current installation cost levels, and would remain consistent with (i.e. lower than) Staff's proposed upper limit for the Schools and Government Program PBI of \$0.10/kWh for 20 year contracts. Thus economically challenged participants in the Schools and Government Program will have access to preferential PPA pricing compared to projects funded by the Non-residential program (all else being equal), which we understand to be the intent of the program.



Furthermore we believe the Commission should consider setting the percentage cap at 45% of total project costs including financing costs (as currently defined by APS), rather than 40%. This would allow more projects to be financed at lower PBI levels as installation costs decline over time, and would encourage installers to accelerate cost declines given the competitive PBI auction model.

The analysis in Table 1 demonstrates that more projects can be financed economically at lower PBIs at our proposed cap of 45% than the 40% cap, ensuring better PPA rates to host customers.

We have focused on twenty year PBIs in the analysis. We would be willing to conduct similar analysis for the 10 and 15 year PBIs, but in principle we believe the premium for shorter PBI terms should be greater than the \$0.002/kWh suggested by Staff for each five-year differential, as the cash flow to project investors is significantly less for shorter PBI terms, which should be better compensated through higher rates than the premium suggested. For example, we believe the \$0.02/kWh premium suggested by Staff for 15 year contracts versus 20 year contracts under the Schools and Government Program is appropriate.

Table 1: Solar Project Financeability Analysis – 20-Year PBI vs Install Cost @ 40% and 45% Payment Caps

PPA Rate	40% Payment Cap						45% Payment Cap																										
	Payments Capped at 40% of System Installed Cost												Payments Capped at 45% of System Installed Cost																				
	Installed Cost per Watt (\$/W)												Installed Cost per Watt (\$/W)																				
		\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25																	
\$0.10 / kWh Starting PPA Rate +3% annual escalation	Production Based Incentive (\$/kWh)	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	x	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	
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\$0.09 / kWh Starting PPA Rate +3% annual escalation	Production Based Incentive (\$/kWh)	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	x	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	x
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\$0.08 / kWh Starting PPA Rate +3% annual escalation	Production Based Incentive (\$/kWh)	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	x	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.10	x	x	x	x	x	x	x	x	x
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Assumptions

The solar project financeability analysis is based on several underlying assumptions:

- Target equity investment IRRs of 9.5%
- 35% of funding structured as 20 year long term debt @ 7% fixed interest rate
- 20 year PPA term
- PPA starting rates of \$0.08-\$0.10 per kWh plus 3% annual escalation
- Inverter replacement year 10 @ \$0.25/W
- Annual operations, maintenance and insurance costs of \$0.02 per Watt installed per year (plus 3% annual cost inflation)