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WESTERN RESOURCE
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ARIZONA CORPORATION COMMISSION
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Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Arizona Corporation Commission
DOCKETED

FEB 14 2014

RE: Value and Cost of Distributed Generation (Including Net Metering)
DOCKET NO. E-00000J-14-0023

DOCKETED BY

Western Resource Advocates (WRA) provides the following responses to Staff's requests for comments on the scope of workshops in this docket.

1. Add market dynamics to the list of topics.

In analyzing the costs and benefits of distributed renewable energy resources, the workshops should explicitly consider the dynamics of distributed energy markets. Static perspectives can be misleading by assuming that markets and costs and benefits will, over the next 20 years, remain much as they are today. As utility customers learn more about distributed solar energy and become better informed about how to shop for and compare solar energy options, adoption rates may increase. As suppliers of distributed renewable energy resources innovate, they may develop business models that are more attractive to potential customers, similar to what happened with leasing of solar facilities. As customers desire to exert more control over their energy supply and use, demand for distributed solar energy may increase. As supply becomes more routine, installed costs may decline, resulting in increased adoption of rooftop solar energy. As technology advances (for example, safe, affordable energy storage), distributed resources may offer more advantages to consumers. And as construction practices and building codes evolve, use of solar energy in buildings may increase. These types of dynamics should be factored into all cost benefit analyses.

2. Invite an expert to make a presentation on economic valuation of environmental benefits.

Economic valuation of environmental costs and benefits takes place within a set of assumptions and has limitations. If the Commission wishes to monetize environmental costs and benefits, it should understand what economic valuation entails. To provide this context, please invite Dr. **V. Kerry Smith, Professor of Economics at ASU**, to make a presentation. You should request that he provide an overview of measuring economic values of environmental costs and benefits.¹ Contact information: Kerry.smith@asu.edu. 480-727-9812.

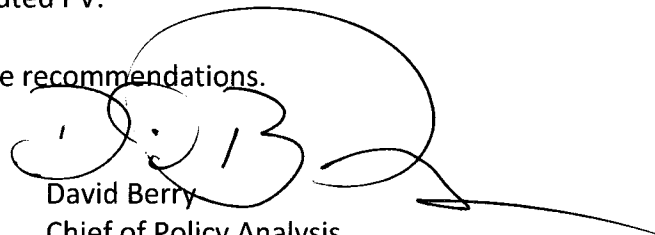
¹ An example of what a presentation might cover is contained in Nancy Bockstael, Myrick Freeman, Raymond Kopp, Paul Portney, and V. Kerry Smith, "On Measuring Economic Values for Nature," *Environmental Science and*

3. Review findings from the scientific literature for assigning monetary values to DG benefits.

Staff requested recommendations on the process and methodology for assigning monetary values to DG benefits. With regard to environmental benefits of DG, the following types of studies should be reviewed to identify the range of relevant environmental benefits of DG and, where possible, to monetize those benefits, recognizing that many monetized results will have to be “transferred” to Arizona and that monetized values will provide only rough estimates of economic benefits:

- Much of the health benefits of DG will come from reduced emissions of SO₂, NO_x and other pollutants from fossil fuel power generation. There is a recent study of the monetized benefits of reduced air emissions from individual power plants (primarily avoided health effects) prepared for the National Research Council.
- As DG displaces fossil-fuel power generation, releases of greenhouse gases (primarily CO₂ from burning fossil fuels and fugitive methane emissions from natural gas production) will decrease. Benefits of avoided greenhouse gases can be derived from recent reviews of the social cost of these gases.²
- As DG displaces generation from natural gas, water used in gas wells may be reduced, contamination of drinking water supplies by gas production may be reduced, and adverse impacts of gas production on wildlife may diminish.
- DG benefits partially manifest themselves in the sales prices of houses with PV systems. There are several studies of the effect of distributed PV on sales prices of houses and they indicate that the cost of PV systems is incorporated into the house value. There is also some evidence that the impact of DG on house prices may reflect buyers’ positive valuation of the environmental benefits of PV systems installed on the house over and above the value of electricity savings.
- House prices are lower in areas with worse air quality as indicated by several studies carried out over a decade ago. Thus, reducing air pollution from fossil fuel power plants may be reflected in higher property values, thereby indirectly measuring some environmental benefits of distributed PV.

Thank you for your consideration of these recommendations.



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Technology 34 (2000): 1384-1389.

<http://pages.uoregon.edu/harbaugh/Readings/Environmental/Economic%20values%20for%20nature.pdf>.

² To the extent that existing studies allow, it may also be possible to estimate life cycle impacts of DG and conventional generation on greenhouse gas emissions.