ORIGINAL

0000056940

APS

A subsidiary of Pinnacle West Capital Corporation

Jack Davis
President and Chief Executive Officer

Tel 602/250-3529
Fax 602/250-3303

Mail Station 9080
PO Box 53999
Phoenix, AZ 85072-3999

RECEIVED

2006 JUL 19 P 4:55

AZ CORP COMMISSION
DOCUMENT CONTROL

Arizona Corporation Commission
DOCKETED

JUL 19 2006

DOCKETED BY

July 19, 2006

Commissioner Kristin K. Mayes
ARIZONA CORPORATION COMMISSION
1200 West Washington
Phoenix, AZ 85007

Re: Calculation of Above Market Cost for Wind Energy; APS General Rate Case, Docket No. E-01345A-05-0816; Renewable Energy Standard & Tariff Rules, ~~RE-00000C-05-0030~~

Dear Commissioner Mayes:

I am writing to you in response to your letter dated June 28, 2006 concerning the calculation of above market cost for wind energy. For ease of response, I have grouped the specific questions or requests for information in your letter and provided a response.

Provide the Commission information on the Company's calculation of ancillary service costs.

Ancillary Services are network services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of APS' transmission system. Ancillary Service charges are imposed in accordance with the APS Open Access Transmission Tariff (OATT) as directed and approved by the Federal Energy Regulatory Commission (FERC). Ancillary Service charges are imposed on all transmission service that occurs over the APS transmission system and are accounted for collectively and paid for within the transmission service taken on behalf of APS native load customers.

There are no Ancillary Service charges applied or assessed to individual generation projects designated as network resources to the system. A Network Resource is any designated generating resource owned, purchased, leased, or scheduled by a Network Customer under the Network Transmission Service Tariff. The renewable generation projects that were the subject of Decision No. 68486 were evaluated as Network Resources; therefore, the APS bid evaluation team did not calculate or assess Ancillary Service charges for those projects and did not quantify or apply Ancillary Service charges to the projects.

Provide the Commission specific information on how APS calculates imbalance penalties for wind energy. Please describe APS's imbalance penalty policy and describe how it would be applied to a hypothetical wind project.

Imbalance refers, in the case of a generator, to the difference between what is scheduled to be produced and what is actually produced in any given hour. For an APS network resource, no imbalance charge is imposed under the APS OATT because the aggregate generation of APS's

network is managed to match the aggregate load. This is accomplished by operating the generation resources to match the total APS load at any given time with available generation. Implicitly, the costs are inherent in the system aggregate operating cost, so they do not need to be recalculated and separately assessed. APS evaluated the renewable projects subject to Decision No. 68486 as network resources; therefore, APS did not quantify or apply imbalance OATT charges.

APS calculates a wind resource's impact on system operating cost as part of its project evaluation. The cost impact is primarily the result of increased need for spinning reserves to offset the intermittency of the wind energy. The cost of spinning reserve for intermittent generating resources is a function of three main factors: 1) the utility's cost to provide spinning reserves based on its generation mix and fuel cost; 2) the variability or intermittency of the generation, which drives the amount of spinning reserves required by the renewable project; and 3) the productivity of the intermittent resource, expressed as a capacity factor (typically 20%-40%).

Combined, these factors result in an added cost to the economics of the wind project for spinning reserves in a range from $10/MWh to $20/MWh. Many intermittent projects proposed to APS will likely result in spinning reserve cost estimates at the higher end of this range. This reflects the relatively low capacity factor projected for wind generation available in Arizona and the cost of spinning reserve for APS, which provides spinning reserve from predominantly natural gas generators and some thermal coal units.

Other utility systems that provide spinning reserves with thermal coal and hydro resources would experience lower spinning reserve costs. Systems located in areas with better quality wind resources experience lower variability and higher productivity, which also results in lower spinning reserve costs. A system that can provide low cost spinning reserves and acquire high quality wind resource may achieve significantly lower effective spinning reserve costs, possibly as low as $3/MWh and $6/MWh.

The cost of spinning reserves for the wind renewable projects is calculated by APS utilizing a production cost simulation model. System fuel, O&M, and purchased power costs for a reference case are compared to a case in which the spinning reserve requirement is increased by a specified amount. The results are then incorporated into the overall analysis. APS provided the details of these analyses confidentially to the Commission in January 2006 in support of the Company's out-of-state renewable resources filing, Docket No. E-01345A-05-0675.

Provide additional information on APS's calculation of imbalance charges and how this relates to FERC's NOPR.

There are two Notice of Proposed Rulemakings (NOPRs) related to the subject of renewable energy integration. However, they deal with imbalance charges assessed to non-network resources under the OATT (i.e., that are interconnected to a transmission system but are

delivering their capacity and energy outside of that system). As I indicated above, no network service charges are applied or assessed to individual generation projects providing network resources to the system and APS did not quantify or apply imbalance charges in our assessment of the projects that were the subject of Decision No. 68486.

On May 19, 2006, the FERC issued a NOPR titled "Preventing Undue Discrimination and Preference in Transmission Service." This NOPR contains proposed amendments to regulations adopted in Orders 888 and 889. Additionally, a 2005 NOPR entitled "Imbalance Provisions for Intermittent Resources: Assessing the State of Wind Energy in Wholesale Electricity Markets" proposed changes to generator imbalance provisions for intermittent resources. Under the proposed changes to the imbalance pricing for wind generators, the FERC has proposed instituting a wider dead band than for conventional generation before penalties are applied. Both of these NOPRs are proposed rules only and subject to public comment.

Please tell the Commission whether the Company charged an ancillary service fee and/or an imbalance penalty against the projects that were subject of Decision No. 68486.

APS did not assess an Ancillary Service charge nor an Imbalance charge against the projects that were subject of Decision No. 68486. APS assessed the integration costs associated with these projects and incorporated that information into its economic analysis for these projects in order to capture the total cost of adding these resources to the APS system and to quantify the overall cost to APS customers. APS provided the details of these analyses confidentially to the Commission Staff and Commissioners in January 2006 in support of the out-of-state renewable resources filing, Docket No. E-01345A-05-0675.

If you have any questions regarding this information, please contact me or Patrick Dinkel at (602) 250-2016.

Sincerely,

Jack Davis

JED/pd

cc: Chairman Jeff Hatch-Miller
Commissioner William A. Mundell
Commissioner Marc Spitzer
Commissioner Mike Gleason
Brian McNeil
Ernest Johnson
Heather Murphy