Arizona Corporation Commission
Distributed Generation and Interconnections Workgroup

ACCESS, METERING & DISPATCH COMMITTEE FINAL REPORT

December 15, 1999

EXECUTIVE SUMMARY

Objectives

As part of the overall ACC workgroup formed to investigate issues concerning distributed generation ("DG"), the Access, Metering, and Dispatch Committee ("Committee") was asked to

a. Assess the potential impacts of DG on the planning and operation of the utility distribution grid. and

b. Explore tariff, pricing, contract, and other business arrangements needed to facilitate the installation of DG.

Process

The Committee was represented by a variety of stakeholders of distributed generation including, the ACC Staff, RUCO, utilities ("UDCs"), competitive energy service providers, equipment manufacturers, distributors, contractors and other interested parties ("DG Providers").

The Committee discussed the issues, attempted to understand the concerns of other parties, and to reach a general understanding of the issues and potential solutions. However, the Committee did not strive to reach consensus on each issue or to vote for a particular policy recommendation. Instead, the Committee's goal was to educate the Commission and other interested parties about the key issues, and to articulate the concerns and viewpoints of the various stakeholders.

Background

While most of the UDCs are beginning to assess, test and pilot DG applications, the overall experience with DG in Arizona is low. Most UDCs report only a few existing customer DG installations, typically back-up emergency generators or small QF facilities.

Key Issues

1. Many of the potential impacts on the UDC distribution system will depend on several factors including the size of the DG or aggregate DGs relative to the size of the relevant distribution circuit, the location of the DG on the system, whether the DG is connected to the grid, and whether the DG is selling power back over the grid, the

timing of DG installations, and the operating characteristics and hours of operation of the DG.

2. UDCs are generally concerned that grid design and operation issues are adequately addressed as more DG units are installed and DG excess power is transmitted onto the distribution system. Potential impacts include adequate feeder capacity, minimum load issues, impacts on switching capabilities, emergency distribution operations, and impacts related to power being transmitted back to the grid. DG providers are concerned that UDCs planning processes adequately accommodate DG installations and that they are (1) forward looking, (2) streamlined, (3) reasonable and fair, and (4) not unduly costly to DG projects.

3. For emergency back-up applications, there would be low or no impacts on the design and operation of the distribution grid. UDCs could call upon emergency generation to be run to off load customers load during high peak times. For peak-shaving applications, if the DG goes down and load is not separated from grid, then the grid will have to pickup the load. If distribution facilities were designed to accommodate the total customer load, absent the peak shaving, then this impact becomes more of a cost recovery issue, rather than a design issue.

4. Adding baseload DG to an existing customer could cause load to drop below minimum level for a feeder, which could result in voltage regulation issues. This could be a design issue if the DG is a significant size relative to the circuit. (This is discussed below under size criteria section.)

5. The report outlines the UDCs potential planning actions that could be taken to address the DG concerns. This discussion is relevant to (1) DG units attached to the distribution grid and (2) for “substantial” potential impacts. The UDCs have recognized that the potential impact of DG increase with larger DG units, or with the number of units on a circuit. The point at which the DG comprises a "substantial" share of circuit capacity is still an open question.

6. Potential benefits that DG could provide to the distribution grid include voltage support, reliability, lower losses, power quality improvements, and potential deferral or avoidance of UDC distribution investments. The UDCs emphasize that these benefits were potential and not yet proven, and would likely be very specific to each DG installation. DG Providers stress that the UDCs should be actively looking for these types of benefits, whether the DG is owned by the utility, owned by the customer and “dispatched” by the UDC, or owned by the customer and incented by the UDC to operate in such a manner as to provide benefits to the grid.

7. UDCs are concerned over proper recovery of distribution assets; they believe that DG could cause assets to be under-recovered through commodity-based rates (kwh charges) as the DG decreases kwh purchases. UDCs generally desire to move towards fixed-charge vs commodity-based recovery. As an exception, SRP believes that they have addressed this concern through their unbundled tariff structure. DG

Providers are concerned that some UDCs have rate freezes or mandatory reductions in standard offer tariffs. Therefore, any changes to the design of distribution tariffs for DG, without changing the tariff design for all customers could be unfair and create a noncompetitive bias. Fixed-charge rates could also reduce price signals for energy efficiency, which is being emphasized by some ESPs.

8. UDCs emphasized that the under the current direct access tariff structure, the rates charged a direct access DG owner for any supplemental, backup, and/or maintenance power delivered are based on full requirements service. The installation of DG reduces the number of hours (or load factor) the distribution system is being used by a specific customer and reduces the amount of revenues collected by the distribution UDC under the provisions of the applicable direct access tariff. DG Providers stress that backup rates should be fair and reasonable and based solely on those costs actually incurred by the distribution UDC to provide the specific service. The rates should not act as a disincentive to the deployment and use of DG by customers nor should it be a direct subsidy for DG owners/operators. Again, SRP has approached backup power through a single set of unbundled tariffs, rather than separate standard offer and direct access rates.

9. The Committee concurs that UDCs should not be required to buyback excess generation from DG from either standard offer or direct access customers, except as required under existing PURPA rules. However, at their option, UDCs could elect to offer a DG buyback service as part of a standard offer service, with requirements, restrictions, and limits as determined by the distribution UDC. The Committee also believes that UDCs could also (at their option) buyback excess DG power from direct-access customers, as part of their generation procurement process.

10. The Committee believes that under the current Competition Rules, DG owners cannot sell excess power to other retail customers unless they become a licensed ESP or sell to an ESP. The legal requirements for such sales are currently being debated in other jurisdictions and are being reviewed by the legal staffs of Committee members. At this time no definitive conclusion has been reached, therefore, the Committee recommends additional follow-up on this issue. DG Providers further recommend that the current ACC rules should be reviewed to determine if modifications are necessary to allow sales of excess power to others, such as the distribution UDC or entities or properties under common ownership and/or control that are non-contiguous. The modifications may be necessary to allow increased customer choice and greater competition.