DG Background Information from December 3, 2001 Comments

"Distributed Generation" *is defined as electrical generation facilities of 10 MW of capacity or less connected to a utility through a Point of Common Coupling.*

There are many similarities between individual distributed generation applications, but there are also many differences. For example, there are many different types of generating units and fuels used in distributed generation applications. Among the more common are:

- Combustion turbines (natural gas, diesel, oil);
- Internal combustion reciprocating engines (gasoline, diesel, propane);
- Micro-turbine (natural gas, propane, landfill gas, methane from digestors);
- Various storage technologies;
- Fuel cell (natural gas, propane);
- Hydro (water);
- Photovoltaic (solar); and
- Wind turbine (wind).

These distributed generation applications can be owned by a customer, utility, alternative energy supplier, independent power producer or any combination thereof. In many cases, customers will install distributed generation to address specific needs. These customer needs can be operational (including a need to provide some level of on-site power supply during emergencies or for enhanced reliability) or financial. Examples of customer-owned distributed generation include the following:

- Generation sufficient to support critical end uses during emergencies;
- Generation to improve power quality or reliability;
- Generation capable of meeting a portion or all of the customer's electrical requirements for peaking or base load; and
- Generation of power for sale.

Ownership may also vary from:

- Customer-owned;
- Utility-owned;
- Alternative energy supplier (AES) or independent power producer (IPP) owned; or
- Any combination of the above.

Beyond fuel source and applications of distributed generation, the mode of operation is perhaps most important as it relates to the application of interconnection standards. Regardless of fuel source, technology or application, all generation (whether central station or distributed) operates in the following three modes:

- Continuous parallel operation with the utility grid;
- Momentary parallel operation (ranging from a few seconds up to a few minutes) to facilitate transfer of customer load from the utility grid to the distributed generation unit or vice versa; and
- Isolated operation (the distributed generation unit is never operated in parallel with the utility grid).