

Before the Public Utilities Commission of the State of California

Docket No. R.98-12-015

**Distributed Generation and Competition in Electric Distribution
Service**

II. Discussion

In general, DG may provide considerable integrity, reliability, and efficiency benefits to the existing T&D system by alleviating congestion and facilitating stronger competition between existing and new sources of generation. Although we focus here on selected system effects, the CPUC also may wish to consider potential environmental and service reliability benefits of DG to consumers.⁽¹²⁾ One of the strongest aspects of DG from an efficiency perspective is its ability to be sited in a wide variety of locations close to the point of demand for electric power, and, through multiple units, at a wide range of capacity levels. DG units could be located (or moved) quickly to alleviate transmission congestion or other circumstances that raise costs or threaten system integrity, reliability, and efficiency. DG's ability to respond quickly to system problems could reduce the investment in T&D and generation required to meet projected demand growth. Like present co-generation arrangements, the presence of customer-owned DG units should cause demand to be more elastic as customers can turn to self-supply rather than do without electric power in periods when reducing load is required to maintain system integrity. Thus, widespread availability of DG is likely to help the system reduce load in peak periods in a more efficient manner -- through the price system rather than through arbitrary cutoffs and rationing.⁽¹³⁾

DG also may enhance security of supply, an aspect of reliability. Because DG units are much smaller and are likely to be more dispersed, the loss of any individual DG unit to the system would be almost immaterial compared to the significant contingency planning required to deal with unanticipated outages of large units. The smaller size and greater dispersion of DG units also would reduce the system's vulnerability to natural and manmade disasters.⁽¹⁴⁾ Each major generator and transmission line would become much less important for system integrity with a significant presence of DG units.

Although DG is likely to provide electricity system benefits as described above, the shift to DG could increase the importance of reliability of natural gas supplies. To the extent that DG is fueled predominantly by natural gas,⁽¹⁵⁾ growth of DG could shift the overall fuel mix of California toward natural gas. Consequently, disruptions in natural gas supplies could have broader implications for disruptions of electricity supplies than heretofore.

D. Describe the potential costs of promoting competition in distribution and/or DG? What are the potential stranded costs? What are the benefits? How should the potential costs and benefits be analyzed and quantified? (Appendix Question #11)

There are a variety of potential scenarios about the role of DG in supplying electric power and the effects of this increased competition on existing suppliers. In one scenario favorable to consumers and easy to implement from a regulatory viewpoint, a fair market test of DG could result in widespread use of DG to meet increases in projected demand for electricity in California. This would likely bring efficiencies to transmission and distribution functions as described in Section II.C of this comment, and may reduce the need for additional generation, transmission, and distribution investment to meet projected future growth in demand. Widespread adoption of DG could reduce system costs accordingly. In this scenario, generation technologies already used by incumbents would generally maintain

transmission and distribution facilities. Further, to the extent that DG offers material advantages to customers in terms of prices, reliability, or other factors, areas presently without access to natural gas distribution might be expected to request service so that they too may benefit from access to DG. The ability of DG to utilize other fuels could reduce these incentives to extend natural gas distribution.

More generally, widespread adoption of DG would place the natural gas grid in increasingly direct competition with the electricity grid. With DG fueled by natural gas, price changes in electricity delivered through the T&D network could be constrained by rapid entry or shifting of DG generating capacity. Whether the degree of such competition would eventually be sufficient to consider lifting regulation of the electric T&D network is uncertain, and the CPUC may wish to periodically revisit this question rather than seek a "once and for all" solution at this time.

F. What procedural steps should be pursued? (Appendix Question #13)

Because DG is likely to be at a critical stage of development and particularly vulnerable to discriminatory behavior by incumbent utilities in connecting to the T&D grid, the CPUC may wish to first establish conditions for a fair market test of DG. Both the New York Public Service Commission and the Texas Public Utility Commission have established (or are in the process of establishing) technical interconnection rules so that DG can be implemented before resolving the broader competition issues implicated by DG.⁽¹⁷⁾

After the CPUC has conducted a fair market test and evaluated DG's initial rate of market acceptance, it may then wish to address the longer-term questions of distribution competition that may arise if DG is adopted extensively. Whatever the CPUC's ultimate determination regarding distribution competition, it is unlikely that allowing incumbent suppliers of generation and T&D to raise the development and implementation costs of this technology will serve the interests of consumers.

III. Conclusion

Like co-generation and generation from alternative energy sources, DG faces potential discrimination from incumbent suppliers in connecting to the grid. Because of DG's unique ability to be sited close to demand centers, DG has the potential to increase competition in generation, transmission, and distribution. DG's siting flexibility also means that it can provide substantial efficiencies and enhance system integrity and reliability.

12. For a discussion of the projected system, environmental, operational, and safety benefits of DG extending beyond those described here, and focused particularly on photovoltaic cells,