Major Challenges of Distributed Generation for State Utility Regulators

Historically, distributed generation in most U.S. jurisdictions was a marginal issue that did not require proactive regulatory action. With the increased growth of DG, largely motivated by carbon concerns, improved economics and substantial subsidies, the issues associated with DG are no longer on the edge. They demand bold regulatory actions that are aligned with the public interest.

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I. Introduction

Distributed generation (DG) refers to small-scale generation largely devoted to self-consumption on the site of utility customers connected to the local utility distribution system for backup power and the sale of surplus power. Its rapid growth over the past two years – especially rooftop solar photovoltaic (PV) systems – together with the expectation of continuation through this decade has the potential to transform the U.S. electric industry.[1] It has stimulated a dialogue, sometimes of a spirited nature, on core topics that relate to both utility operations and state utility regulation. The recent narrative on the electric utility of the future includes the efficacy of the prevailing utility business model and current ratemaking and other regulatory actions in financially sustaining utilities and DG

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providers, in addition to advancing societal goals. A new business model, for example, could enable DG to compete on a more equal basis with utility generation. Alternatively, existing or newly erected regulatory barriers and obstacles could prevent DG from reaching its full economic potential. Another pertinent question in the current dialogue is whether and how utilities might go beyond simply accommodating DG, to becoming active participants in growing DG for long-term profitability.

Technology is driving the current dialogue on utility business models, price regulation, and governmental policies. One uncertainty is whether rooftop solar PV will have a disruptive effect or, instead, have a ''boutique'' or ''niche'' effect on retail electric markets. The prospects for solar PV may well fall short of the optimistic expectations being made today by solar advocates and others. Undoubtedly, solar has favorable attributes from both a customer and societal perspective, but like all other technologies it also has costs. From a public-interest perspective, regulators and other policymakers, and utilities should evaluate both the aggregated benefits and costs of DG to determine its desirability. Public policies on DG could, therefore, fail a cost-effectiveness or cost-benefit test (which some have) besides creating perverse incentives and adverse ''fairness'' consequences. The implication for state utility regulators is that they should examine, on a case-by-case basis, whether DG is in the public good.

Distributional effects (i.e. who gains, who loses) have become an integral part of the ongoing and often heated dialogue on solar PV. One interpretation of recent events is that solar advocates are rent-seekers who are motivated either by ideology or economic interests to promote this technology with little concern for taxpayers, utility ratepayers, or the public good; so far, these efforts have paid off handsomely for their pocketbooks.

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At this time, the future growth of DG is uncertain. States will vary in their efforts to exploit new technologies like DG and the smart grid. Some states will aggressively promote these technologies while others will perceive little or even negative benefits from fostering them. Each state faces unique economic and political conditions that would rationally lead them to pursue a different path for their electric utilities.

As we observe, the status quo in terms of utility functions and behavior, and regulatory practices is under scrutiny. Some stakeholders, for example, have criticized current ratemaking for (1) not allowing utilities sufficient revenues to cover the cost of serving DG customers (via grid services) and (2) deficiently compensating DG customers for the value they offer the grid. These are two issues that many state regulators will face soon if they have not already. Smart technologies are able to help support socially desirable DG. First, they can improve the ability of a utility to integrate DG into its distribution grid so as to achieve maximum value. Second, smart technologies can more accurately measure the benefits of DG to the distribution grid, and vice versa.

Another topic under discussion is whether utilities should take on a broader and proactive role in bolstering DG development. They could, for example, invest in DG systems and rate-base them to help offset the revenue losses from full-requirements customers converting to DG customers. Perhaps more fitting, utilities could redesign their distribution systems and operate them differently to accommodate third-party DG generation.[2]

In sum, the rapid growth of DG has sparked debate on a number of policy issues. They include:

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