

4/20/05 DRAFT

Comments from the DG Cluster¹ on DG/Distribution Planning Situations

Comments on Economic Analysis of “Situations”

The DG Cluster appreciates the distribution companies’ effort to identify and analyze the DG/Distribution Planning “situations”. The DG Cluster does not agree with all the assumptions in the economic analysis. Most notably, revenue loss should not be included as a basis to determine the attractiveness of DG for Distribution Planning. Protecting against lost revenues will block innovation in the electric utility industry, in general, and DG benefits for all stakeholders, in particular. Notwithstanding concerns over some assumptions, it is clear that from this analysis that DG would provide significant economic value to the distribution system. The annual savings for avoided carrying charges for the 8 examples range from \$14/kW-yr to \$535/kW-yr².

The examples that the distribution companies have provided are a major step forward. However, the examples are a limited sample and it is not clear if the results of the analysis are more broadly applicable. A more in-depth analysis of the utility filings for distribution planning would be helpful to better understand if the 8 situations evaluated represent a large portion of distribution planning investments or are special cases with limited applicability. The DG Cluster re-iterates its interest in gaining access to these filings as the distribution companies already agreed to share.

It has not been explicitly stated, however, it would appear that the economic analysis and the discussions, so far, assumes a Request for Proposal (RFP) process as the means to deploy DG for distribution planning. Based on the experience in other states (California and New York), an RFP-process would not be the preferred approach. It is unlikely that this approach would lead to long-term success since it is doubtful that:

- A customer in the specific areas would allow utility controlled dispatch or interruptibility for the value offered;
- A new customer would install cogen that would ramp up output during an event (CHP would have to be in use during other hours to be economic)

¹ These comments reflect discussions between Gerry Bingham (Mass DOER), Scott Albert (GDS Associates), Steve Hogan (Spire), Rudy Stegemoeller (Plug Power), Sean Casten (Turbosteam), Mary Smith (Energy Consortium, Harvard University), Kenji Takashi (Synapse), Matt Lazarewicz (Beacon Power), Steve Cowell (CSG), Wes Shuster (American DG), Chuck Berry (GTI), Fran Cummings (MTC), Caroline Conway (MTC), Stan Blazewicz (Navigant Consulting), Gene Shlatz (Navigant Consulting), Steven Tobias (Navigant Consulting)

² Defined in the distribution company situations spreadsheet as Annual Cash Flow for Avoided Carrying Charge divided by Capacity Shortfall by year

If the above limitations are required by the utilities in order for "DG to play a role in system planning," and the benefits passed on to the customer are limited to distribution upgrade deferrals, then it is unlikely that DG can play an increased role in distribution planning over the role that it already does.

Other alternatives should be considered, such as offering incentives or alternative rate structures to customers in geographic areas, or on specific feeders that have distribution issues. An approach that encourages a larger number of DG units would increase diversity and would reduce the distribution companies need for direct control. It also needs to be stressed that distribution system needs are temporal as well as locational. The needs of the distribution system that DG could satisfy may be limited to a small number of hours in the year (<50 hours). This could further reduce the distribution companies need for control since it would be limited to just a few days each year and could offer more flexibility in structuring a successful DG/Distribution Planning program.

Answering the Department's question bluntly, DG plays a role in distribution planning today in the same way that other customer characteristics play a role; the utilities plan for load growth, increases and decreases in demand, various load shapes from circuit to circuit. All of these things can be positively influenced by DG with the proper economic incentives.

Comments on Discussions to Date

Scope

To date, the DG Collaborative's discussions have been limited to a narrow set of DG benefits and costs. The DTE direction to the Collaborative on this matter³ is sufficiently broad enough to begin including *all* the DG benefits and costs. Distribution benefits are likely to account for a small (<10%), although important, share of the overall value of DG. Only in extreme cases, would distribution benefits be enough to justify the installation of DG solely for this application. Other benefits and, of course, the attendant costs must be considered. Confining the scope of the discussion limits the overall impact of DG and, incidentally, limits the interest of many non-distribution company stakeholders in this process. Recognizing and monetizing all DG values and allowing these value streams to be combined will unlock the DG benefits for all stakeholders and is crucial to DG playing a meaningful role in our energy future.

³From DTE 02-38, p2 "Identification of these issues, however, focuses but does not limit the scope of this proceeding. The Department also seeks comment regarding what other issues may be appropriate for consideration as part of our investigation of distributed generation: for example, fuel source and storage; adequacy of natural gas pipeline supply and distribution infrastructure to support widespread reliance on distributed generation; siting; zoning; and environmental questions about both particular location (point source) and generalized reliance (area source). From DTE 02-38B, p41 "The Department is interested in exploring whether the Collaborative could, initially, consider the role of DG in distribution company planning. The Department requests that recommendations on this issue be included in the Collaborative's annual report, with adequate supporting documentation."

Other jurisdictions have concluded that any discussion of DG include *all* DG benefits and costs.⁴ The California Energy Commission has completed a wealth of research in DG (over \$94MM over the past 5 yrs). In a recent white paper⁵, the CEC concluded, “Traditional regulatory approaches (e.g., incentive programs, customer class ratemaking) that are average-based or technology specific are not sufficient to encourage benefits. To understand the net benefits, benefits and costs need to be analyzed on a holistic basis across all stakeholders (e.g., a benefit to one will likely be a cost to another). Some benefits/costs are distributed (i.e. depend on location and time), others are central (i.e. independent of location). Locational benefits are independent of customer class. Benefits are mostly technology neutral and driven by application.”

What are the Benefits?		What are the Costs?	
1	Support of RPS Goals	1	Utility Revenue Reduction
2	Mitigation of Market Power	2	Standby Charges
3	Airborne or Outdoor Emissions	3	Incentives for Clean Technologies
4	Reduced Security Risk to Grid	4	Noise Disturbance
5	Reliability and Power Quality (Distribution System)	5	Indoor Emissions
6	Voltage Support to Electric Grid	6	Maintain System Reliability and Control Distributed Resources
7	Enhanced Electricity Price Elasticity	7	Emissions Offsets
8	NIMBY Opposition to Central Power Plants and Transmission Lines	8	Airborne or Outdoor Emissions
9	Land Use Effects	9	DER Fuel Delivery Challenges
10	Avoided T&D Capacity <i>“D” only</i>	10	Equipment
11	System Losses	11	Interconnection (system studies and upgrades)
12	Combined Heat and Power/ Efficiency Improvement	12	Fuel
13	Consumer Control	13	Maintenance
14	Lower Cost of Electricity	14	Insurance
15	Consumer Electricity Price Protection	15	Exemptions from Cost Responsibility Surcharges
16	Reliability and Power Quality (DG Owner)		
17	Ancillary Services		

Limits of discussion to date

Source: California Energy Commission Public Interest Energy Research Program: DG WORKING GROUP: DG DEFINITION AND COST-BENEFIT ANALYSIS – POLICY INVENTORY Report (July 9, 2004)

Table 1: List of Benefits and Costs

There is a wide range of DG benefits and costs that must be considered. So far, the Collaborative’s discussions have been limited to just a few (See table 1). Massachusetts needs to consider what steps can be taken to recognize that the use of DG will lead to numerous other benefits. The more pertinent question would be: "What role does/can DG play in providing system, customer, environmental and ratepayer benefits and how can owners be compensated for providing those benefits?"

4 The Cluster believes a precedent for this exists in the treatment of system benefits in testing the cost-effectiveness of utility demand side management programs (DTE 98-100).

5 California Energy Commission Public Interest Energy Research Program: DG WORKING GROUP: DG DEFINITION AND COST-BENEFIT ANALYSIS – POLICY INVENTORY Report (July 9, 2004)

The DG Collaborative needs to expand the discussion to also include Cost/Benefit models⁶ and the Department should direct the utilities to share distribution planning filings as has been agreed to by the utility parties (with non-disclosure agreements if necessary).

Pathway Forward

Massachusetts needs to keep up with other states in its treatment of the deployment of clean, affordable DG. Other states⁷ are taking a more aggressive approach and have formally recognized the important role that DG can play in addressing current and future energy challenges. Many alternative approaches⁸, some that will become more readily available over time, must be considered. Evaluating, selecting and executing the preferred options will take time. Massachusetts needs to develop a vision, with aggressive goals on an attainable timeline, that will guide these discussions and allow all stakeholders to participate in a meaningful and thoughtful way.

6 “A major challenge for DG costs and benefits is to gain acceptance for available models and to make available the data needed for those models. High priority benefits all have available models, but all stakeholders do not accept these models. Most data needed for these models are not publicly available.” California Energy Commission Public Interest Energy Research Program: DG WORKING GROUP: DG DEFINITION AND COST-BENEFIT ANALYSIS – POLICY INVENTORY Report (July 9, 2004)

7 For example, DG is the third preferred resource option (behind energy efficiency/demand response and renewables) in California’s preferred loading order. See website,

8 “Unlocking full potential of DG will require an evolution of market mechanisms over time as better C/B methods are developed and data becomes available. There are many costs and benefits to consider and the ability to analyze these benefits varies widely. Project-specific methods (i.e., brute force) can be implemented now. More sophisticated methods, based on a system-wide approach, are under developed and should be implemented as they become available. Regulatory activity should be prioritized based on the most important benefits and costs.” California Energy Commission Public Interest Energy Research Program: DG WORKING GROUP: DG DEFINITION AND COST-BENEFIT ANALYSIS – POLICY INVENTORY Report (July 9, 2004)