



American Council for an Energy-Efficient Economy
WASHINGTON, DC

Comments of the American Council for an Energy Efficient Economy
on
Federal Energy Regulatory Commission
Docket No. RM02-1-000
Standardization of Generator Interconnection Agreements and Procedures
Notice of Proposed Rulemaking

Introduction

The American Council for an Energy Efficient Economy (ACEEE) is a nonprofit, independent research and policy analysis organization dedicated to advancing energy efficiency as a means of promoting both economic prosperity and environmental protection. Our work addresses all major sectors of the energy economy: buildings, utilities, transportation, industry, and human dimensions. In the intersection of the utility and industrial sectors, we have done extensive analysis and policy development on distributed generation (DG) technologies and combined heat and power (CHP) systems.

ACEEE is pleased to comment on the proposed rule for standardizing generator interconnection agreements and procedures issued April 24, 2002. We commented on the ANOPR earlier this year, and wish to expand on those comments. We strongly support the Commission's effort to standardize the rules and procedures for interconnection, which is a crucial nexus in accelerating the use of advanced, high-efficiency technology such as CHP. We believe these procedures are especially vital for small generators (smaller than 20 Megawatts), for whom the costs in time and money for interconnection can prove fatal to the success of many projects.

Benefits of Distributed Generation

Currently, about two-thirds of the primary energy used in the utility sector is wasted as unused heat. Central generation efficiencies for the utility thermal generation fleet has not improved since 1965¹. Distributed technologies such as CHP are achieving overall efficiencies at least twice as high as conventional generation². Clearly, the potential to improve overall energy efficiency in the power generation sector is enormous.

There were roughly 52,000 megawatts (MW) of CHP capacity installed in the United States as of 1997, providing about 9 percent of total electricity production³. There is enormous

¹ Hall, Mark. Trigen Corporation. Personal communication.

² Shipley et al. *Certification of Combined Heat and Power Systems: Establishing Emissions Standards*. 2001. American Council for an Energy Efficient Economy.

³ Elliott and Spurr. *Combined Heat and Power: Capturing Wasted Energy*. 1999. American Council for an Energy Efficient Economy.

potential to expand the use of CHP in the United States due to the large pool of suitable sites and because CHP technologies are rapidly improving. However, a variety of barriers, including hostile interconnection practices, have hobbled the development of CHP and other beneficial DG technologies.

We estimate that reducing barriers such as interconnection procedures would unleash a tremendous amount of CHP implementation by the private sector, resulting in an additional 50,000 MW of installed capacity by 2010 and 144,000 MW by 2020⁴. This is consistent with the goal of doubling CHP capacity in the United States by 2010, established by DOE and EPA in December 1998. Most of this capacity would be natural gas-fired, with an average overall efficiency of around 70 percent assumed.

Improving efficiency in the power sector through CHP and other DG technologies will create substantial benefits for the environment. By reducing waste heat by at least half compared to separate combustion facilities for electric and thermal energy production, CHP reduces air pollutant and greenhouse gas emissions commensurately. A study by the Center for Clean Air Policy (CCAP), for example, showed that for every ton of NO_x emitted by CHP facilities modeled in the New York and Baltimore areas, seven to sixteen tons were offset from other sources⁵. And by displacing local, smaller boiler emissions, CHP can further improve local air quality.

DG technologies can create substantial efficiencies in transmission and distribution systems in the following ways⁶:

- By locating more generation closer to demand centers, DG can dramatically reduce transmission losses that currently range from 5% to 20% in the U.S.
- DG can reduce transmission congestion by providing generation in load pockets. This can reduce the need for new transmission and distribution facilities, thus reducing base electricity prices to all customers. The CCAP study, for example, showed that just 330 MW of CHP facilities in the New York and PJM power pools would reduce annual average prices by up to 3%⁷.
- DG can reduce peak demand and thus improve system reliability. The availability of additional dispatchable units in a system making robust use of DG gives system operators more flexibility in responding to peak loads. Where CHP uses thermal energy for cooling, it reduces peak electricity demand during heat spells, reducing the risk of outages.

⁴ Geller et al. *Meeting America's Kyoto Protocol Target: Policies and Impacts*. 1999. American Council for an Energy Efficient Economy.

⁵ Morris, Catherine. *Promoting Clean Power, Clean Air, and Brownfield Development*. 2001. Center for Clean Air Policy.

⁶ Shipley et al. op. cit.

⁷ Morris, op cit.

Comments on NOPR Issues

Of the issues the Commission raises in the NOPR, ACEEE wishes to focus its comments on the following:

- Accelerated construction of network facilities
- Small generator issues, including:
 - Specific interconnection agreement
 - Conditions for exemption from interconnection studies
 - Specific size classifications
 - Scope, timing, and cost of interconnection study procedures
 - Limitation of costs based on net export levels
 - Acceleration of interconnection with respect to queuing rules
 - Metering requirements
 - Defining alternative dispute resolution procedures
- Pricing issues
- Environmental standards

Interconnection Construction Acceleration

We agree with the Commission's position that transmission providers must bear the costs of accelerated construction undertaken for their own benefit or the benefit of other parties. The generators' proposal allows transmission providers to accelerate construction for their own reasons, while giving generators fair compensation for accelerated construction undertaken at the generator's request. Where generators are expected to bear such costs, however, transmission providers must undertake prior consultation with generators, based on reasonable lead times.

Small Generator Issues

We agree with the Commission's statement that the Federal Power Act gives the Commission clear authority over interconnection of all generators who either connect to the transmission grid or make wholesale sales in interstate commerce, regardless of whether the interconnection occurs at the transmission or distribution voltage levels. We strongly urge the Commission to reject the position advanced by transmission providers and others that states alone have jurisdiction over interconnection at distribution voltage levels. For a national market to exist, nationally-consistent policies and procedures must be established for all generators. Small generators need this more than others, because their size limits the time and resources they can devote to the many transactions needed to get their facilities on line.

We also support the Commission's proposal to expedite small generator interconnection via a streamlined process. This will serve to reduce network congestion, moderate wholesale prices, and improve system reliability in the near term. Accelerating small distributed generation could be important in several regions over the next few years.

We also note that the details of interconnection procedures for small generators are not sufficiently defined in the NOPR, partly because of the limitations on consensus reached in

earlier stakeholder meetings. However, we do not accept the implied reasoning that this lack of consensus ties the Commission's hands in setting policy on this issue. Certain parties, transmission and large generation owners in particular, have deeply held interests that run counter to those of small generators, and may never agree to a consensus document. Given the enormous benefits small generators bring to the electricity system and to the nation as a whole, it is the Commission's responsibility to serve the broader public interest by ruling on these issues when some parties do not agree.

Other commenters have noted, and we agree, that parties representing transmission and large generation owners have been able to maintain a massive presence at the time-consuming stakeholder discussions on these issues. Because of resource limitations, small generator interests have been less well represented. The Commission should rule based on the merits of the issues, not based on the number of people who are able to attend meetings or the number of pages of commentary they are able to generate.

Fortunately, the Commission need not plow much new ground in this area. Because transmission providers have developed experience on these issues, there is a body of precedent, tested by the market, on which the Commission can draw. Our observation of what has worked in the market leads us to conclude that the Commission should use the experience of PJM and ERCOT as effective guidance on these issues.

Specifically, for small generators between 2 and 20 Megawatts, we recommend the Commission adopt interconnection standards based on the PJM process as described in the PJM Tariff (Fifth Revised Volume, No.1, Original Sheet No. 97). PJM's process provides for a simplified feasibility study agreement and simplified Interconnection Service Agreement. This process is working today in one of the best-run and most-reliable networks in the U.S., and there is no better example for the Commission to follow.

We also wish to respond individually to issues raised in the NOPR. Because the NOPR lacks specificity on certain key issues, we offer the following additional comments to help the Commission define interconnection procedures for small generators.

Specific Interconnection Agreement. The interconnection agreement attached to the NOPR imposes unreasonable costs on small generators. By imposing the same level of transaction costs to small and large generators, this "one-size-fits-all" agreement discriminates against smaller generators. Small generators should be afforded a separate and simpler interconnection agreement, reflecting their relative simplicity and limited impact on the transmission system. ACEEE recommends that the Commission use the adapted PJM agreement proposed by the U.S. Combined Heat and Power Association (USCHPA) and the International District Energy Association (IDEA). For small generators under 2 Megawatts, we recommend the Commission use the agreement form proposed by Solar Industries Association et al.

Conditions for exemption from interconnection studies. While we agree that all generators should pay for study costs that are demonstrated to be necessary, interconnection study requirements should be waived for small generators under specified conditions. We recommend the following conditions as appropriate for waiving study requirements:

1. No significant impact on the transmission system. If initial analysis indicates that the generator's interconnection will have no significant impact, study requirements should be waived and the interconnection should be expedited.
2. Existing studies are sufficient. Since most small generators will impact only a small portion of the transmission system, transmission providers should be required to demonstrate that existing data and studies are not sufficient or cannot be adapted before the generator is required to pay for new studies.
3. Units less than 2 MW and less than 15% of load on affected circuits. The PJM interconnection rules allow waivers for small units that constitute less than 15% of the peak load on the affected circuit. We recommend the Commission specifically incorporate this standard in its interconnection rules.

We urge the Commission to place the burden on transmission providers to show that interconnection study requirements should *not* be waived for small generators. Experience has shown that hostile entities will use any ambiguity or discretion in their purview to inhibit interconnection. The Commission's rules should reverse that kind of anti-competitive practice by requiring that transmission providers demonstrate affirmatively that small generators will have a significant impact, and if so that existing studies are not adequate to address that impact.

Specific size classifications for small generators. We agree with the classification system proposed by USCHPA and IDEA. The four classes, with accompanying interconnection requirements, are:

1. **10 Kilowatts or less.** These facilities should be granted automatic interconnection, consistent with IEEE Standard 1547 and ERCOT standards. We recommend the Commission use the specifics offered by the Joint Comments of the Solar Industries Associations et al.
2. **10 to 250 Kilowatts.** These facilities should be granted expedited interconnection, consistent with IEEE Standard 1547 and ERCOT standards. We recommend the Commission use the specifics offered by the Joint Comments of the Solar Industries Associations et al.
3. **250 Kilowatts to 2 Megawatts.** These facilities should be granted expedited interconnection, consistent with IEEE Standard 1547 and ERCOT standards. We recommend the Commission use the specifics offered by the Joint Comments of the Solar Industries Associations et al.
4. **2 Megawatts to 20 Megawatts.** These facilities should be granted expedited interconnection consistent with the rules adopted by PJM, as further elaborated in the joint comments of USCHPA and IDEA.

Scope, timing, and cost of interconnection study procedures. The Commission's procedures must be specific and detailed on the scope, timing and cost of interconnection studies. For small generators, where waivers are not appropriate per the recommended conditions stated above, these procedures should limit the scope, timing, and cost of these studies more narrowly than for larger generators. In particular, small generator studies should be limited as follows:

1. The scope of small generator studies should be limited to the specific area of the transmission system affected by the facility.

2. Transmission providers must be required to complete studies within specified timeframes.
3. Cost guidelines should be developed by the Commission based on a review of recent national experience in PJM, ERCOT, and other regions that have dealt proactively with small generation interconnection. If the Commission does not set cost guidelines, some transmission providers will charge unwarranted costs for the studies as a defensive measure.

Limitation of costs based on net export levels. Many small generators use a portion of their output for onsite needs, exporting the remaining portion to the grid. Small generators should only be required to submit this net export portion of their capacity to interconnection studies. To ensure that the net export limit is not exceeded, small generators should be required to agree to appropriate operating restrictions.

Acceleration of interconnection with respect to queuing rules. We agree with the Commission's proposal that all generators requesting interconnection be handled in the same overall queue. However, to the extent that requirements for interconnection studies and other procedures are waived for small generators, their requests should be expedited with the result that they may wind up interconnecting sooner than larger units that are nominally ahead in the queue. Small generators, given all the benefits they can bring to the system, should not be held out of service arbitrarily because of bureaucratic details like this. We concur with the additional comments of USCHPA and IDEA on this issue.

Metering requirements. Small generators should not be arbitrarily required to meet the same metering standards as large generators. These requirements can too easily be used to create barriers to small generators. For small generators less than 2 MW, metering requirements should be limited to hourly integrated meters that measure generation output. This is the approach PJM uses and it has proved workable there.

Defining alternative dispute resolution procedures. Until truly independent system operators are in place across the country, generators cannot be assured that requirements imposed by transmission providers are not arbitrary or predatory. For the interim, the Commission must provide for specific, simple, accessible, and low-cost dispute resolution. Many small generators often cannot afford to litigate on these issues; without specific avenues for dispute resolution in place, transmission providers can use the cost of litigation as an effective barrier to interconnection. We thus recommend that the Commission include a requirement that Commission alternative dispute resolution procedures be used, and that the results be made binding. Unless the Commission establishes clear, simple, low-cost dispute resolution methods, none of its streamlining policies will work as intended.

Pricing Issues

We agree with the Commission's general proposals on pricing, including the principles that:

- Network transmission facility costs cannot be assigned to generators
- Transmission providers cannot charge more for interconnection to independent generators than for interconnection to their own facilities or those of their affiliates
- Generators should pay for costs legitimately assigned to "sole-use" interconnection facilities

However, there are other pricing issues faced by generators that can pose major barriers to interconnection. The use of excessive standby charges, backup power rates, and insurance requirements have frequently been used to attempt to prevent new generators from interconnecting and competing in an equitable cost environment.

The Commission and other bodies must address these pricing issues if electricity markets are to be fully accessible. If not in this rule, we ask the Commission to take these issues on as soon as possible and as broadly as its jurisdiction allows. Specifically, we ask that incumbent utilities be required to sell backup power at firm and interruptible rates that are just and reasonable and non-discriminatory. Such rates must account for actual incremental power cost and non-discriminatory capacity charges. These same principles should be applied to standby charges, insurance requirements, and related pricing issues than can be used to block entry of new generators.

Environmental Standards

While not every distributed generation technology is automatically cleaner in terms of air pollutant emissions than the existing generation fleet, making such determinations and developing and enforcing the rules needed to ensure net air quality improvement is outside the Commission's purview. Therefore, the Commission should not subject small generators to any Commission-mandated environmental standards as part of this or other Commission proceedings. We hold that the Commission's process for adopting interconnection standards is not the appropriate venue to address the varying emissions issues with different types of small generators. There is already a well-developed system of laws, regulations, and processes by which federal, state and local governments regulate air pollutant emissions and air quality standards. The Commission need not and should not seek to inject itself into this arena.