February 25, 2014

Brenda Biddle
Iowa Utilities Board
1375 E. Court Avenue, RM 69
Des Moines, IA 50319-0069

RE: Inquiry on Distributed Generation (Docket No. NOI-2014-0001)

Dear Ms. Biddle:

We are grateful for the opportunity to comment on the benefits and challenges of distributed generation, particularly relating to combined heat and power (CHP) and waste heat to power (WHP). I am writing on behalf of the Alliance for Industrial Efficiency, a diverse coalition that includes representatives from the business, environmental, labor and contractor communities. The Alliance for Industrial Efficiency is committed to enhancing manufacturing competitiveness, improving electric reliability, and reducing carbon emissions through the greater use of CHP and WHP. Our national membership includes roughly 200 electrical, mechanical and sheet metal contractors in Iowa. For this reason, we are very encouraged by the Iowa Utility Board's (IUB) efforts to expand opportunities for distributed generation in the state.

Though there is tremendous potential for greater CHP and WHP deployment in Iowa, there are several barriers to achieving this full potential. These barriers require smart policy choices to overcome. By opening this docket on distributed generation, the IUB is taking an important first step to overcome these policy barriers. As requested in your January 7 Order, our comments discuss the benefits of CHP and WHP for utilities and ratepayers and note policies that the state legislature and IUB can support to overcome potential challenges and encourage increased deployment.

I. Benefits and Challenges of CHP and WHP

Conventional power generation is woefully inefficient. Nationwide, more than two-thirds of energy inputs are lost as wasted heat. By generating both heat and electricity from a single fuel source, CHP turns that inefficiency on its head – producing energy from more than 70 percent of fuel inputs. Because electricity can be used on site, CHP and WHP also eliminate losses

associated with the transmission and distribution of electricity, leading to additional savings.[1] In these ways, CHP and WHP offer substantial economic and environmental savings. CHP is also increasingly being recognized as a critical tool to enhance grid resilience, especially in the wake of events like Superstorm Sandy, during which CHP-powered facilities were able to remain fully operational despite the loss of grid power.[2] These reliability benefits will exist in the case of other extreme weather events such as ice storms, tornadoes, severe thunderstorms, and wildfires.[3] The economic, environmental and reliability benefits of CHP and WHP have been recognized by a wide array of stakeholders, as reflected in recent reports by the State and Local Energy Efficiency Action (SEEAction) Network,[4] the National Association of State Energy Officials,[5] and the American Council for an Energy-Efficient Economy (ACEEE),[6] among others. The IUB can help realize these benefits by developing policies that encourage greater use of distributed generation.

There are currently 35 CHP projects in Iowa, totaling 630 megawatts.[7] However, the last installed unit came online in 2010, and the potential for CHP deployment is far greater. In fact, according to a 2010 report by ICF Consulting, nearly three times this amount of energy (1,675 MW) could be produced at the states' manufacturing facilities, hospitals, and universities.[8] Such projects would generate enough electricity to power more than 725,000 homes.[9]

Despite their myriad benefits, CHP and WHP deployment has fallen short of potential. This can be attributed to three broad categories of obstacles: (1) lack of markets supporting development, (2) up-front costs, and (3) unfavorable utility policies.

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[1] Energy Information Administration, "How much electricity is lost in transmission and distribution in the United States?" July 2012 (http://www.eia.gov/tools/faqs/faq.cfm?id=105&t=3).
[2] For a comprehensive review of CHP and energy resilience, *see* ICF International, "Combined Heat and Power: Enabling Resilient Energy Infrastructure for Critical Facilities," March 2013 (http://www.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_critical_facilities.pdf). *See also* Hurricane Sandy Rebuilding Task Force, "Hurricane Sandy Rebuilding Strategy," August 2013, (http://portal.hud.gov/hudportal/documents/huddoc?id=HSRebuildingStrategy.pdf).
[3] Executive Office of the President, August 2013, "Economic Benefits of Increasing Electric Grid Resilience to Weather Outages," at 4, 14-15 (http://energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf).
[4] SEEAction, March 2013, "Guide to the Successful Implementation of State Combined Heat and Power Policies" (https://www1.eere.energy.gov/seeaction/pdfs/see_action_chp_policies_guide.pdf).
[5] National Ass'n of State Energy Officials, 2013, "Combined Heat and Power: A Resource Guide for State Energy Officials" (http://www.naseo.org/data/sites/1/documents/publications/CHP-for-State-Energy-Officials.pdf)
[6] Anna Chittum, July 2013, An ACEEE White Paper: "How Electric Utilities Can Find Value in CHP" (http://aceee.org/files/pdf/white-paper/chp-and-electric-utilities.pdf).
[7] DOE-ICF CHP Installation Database, "Combined Heat and Power Units Located in Iowa" (http://www.eea-inc.com/chpdata/States/IA.html).
[8] ICF-WADE-USCHPA, "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power," Tables 3 and 4, on pp. 11 and 12, respectively (available online at http://www.uschpa.org/files/public/USCHPA%20WADE_ITC_Report_FINAL%20v4.pdf).
[9] Assuming a typical household uses 11,280 kWh/year / 8,760 hours/year = 1.29 kW/ hhld. (2011, http://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3).

II. Actions the IUB, other State Agencies and the Iowa General Assembly Can Take to Increase Deployment

As noted above, the remaining potential for clean and efficient CHP and WHP deployment in Iowa is great. Below, we highlight several policies the IUB, other state agencies and the General Assembly should consider to improve the environment for CHP and WHP and help increase deployment.

1. Creating Markets for CHP and WHP

Developers are often wary of investing in CHP projects because it is not clear that there will be a market for the energy that they produce. The IUB should support policies that stimulate demand for CHP by signaling that "Iowa is open for business" to distributed generation.

As an initial matter, the State Energy Office should support efforts to develop a state energy plan. Iowa was one of five states that participated in the National Governor's Association Policy Academy on Enhancing Industry through Energy Efficiency and Combined Heat and Power,[10] reflecting the state's growing interest in increasing CHP deployment. By developing a state energy plan, the Energy Office can reaffirm Iowa's support for distributed generation. Such a plan should also identify the best opportunities for economically feasible projects and set a statewide deployment goal.

To date, there are 42 states with either a renewable portfolio standard (RPS) or energy efficiency resource standard (EERS); half (21) allow CHP or WHP to be used for compliance.[11] Doing so fosters greater support for these technologies and a similar approach could be adopted in Iowa. Notably, Iowa long ago achieved the modest renewable targets in the state's Alternative Energy Law. As a consequence, the standard is no longer driving investments. The standard should be strengthened and expanded to include CHP. After including CHP in its Alternative Energy Portfolio Standard, Massachusetts saw a 275 percent increase in annual installations of CHP units; with 74 units installed over the period 2008 through 2012, once the AEPS went into effect, compared to only 45 installations the previous decade.[12] Last year, Ohio identified CHP and WHP among a class of technologies termed "advanced energy resources," the use of which directly contributes to achieving the state's advanced energy goal of 25 percent by 2025. Ohio's Renewable Portfolio Standard classifies WHP systems, known as waste energy recovery systems in the state, as "renewable energy resources," which may be counted

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[10] NGA Center for Best Practices, November 2013, "Policy Academy on Enhancing Industry through Energy Efficiency and Combined Heat and Power" (http://www.nga.org/cms/home/nga-center-for-best-practices/meeting--webcast-materials/page-eet-meetings-webcasts/col2-content/main-content-list/academy-enhancing-industry-all.html).

[11] EPA Combined Heat and Power Partnership, "Portfolio Standards and the Promotion of Combined Heat and Power" (http://www.epa.gov/chp/documents/ps_paper.pdf).

[12] DOE-ICF CHP Installation Database, "Combined Heat and Power Units Located in Massachusetts" (http://www.eea-inc.com/chpdata/States/MA.html).

toward the state's 25 percent renewable energy goal.[13] The Public Utilities Commission of Ohio is currently undertaking a rulemaking to provide guidance to utilities that seek to satisfy their clean-energy commitments by investing in CHP and WHP projects.[14] Last year, Minnesota approved legislation that adds CHP and WHP to the state's energy efficiency portfolio standard, allowing these technologies to be included in utility's Conservation Improvement Plans.[15] While Interstate Power and Light and MidAmerican Energy Company offer modest WHP incentives through their energy efficiency plans, these incentives are limited and not well advertised. To stimulate greater investment, the existing incentives should be strengthened and better promoted.

Beyond strengthening the existing standards. the General Assembly can help create a market for CHP and WHP by establishing a separate CHP portfolio standard or distributed generation target. A similar effort is underway in New Jersey, where a bill was recently introduced requiring utilities to purchase a proscribed amount of electricity from CHP systems annually.[16]

EPA's forthcoming greenhouse gas rules for existing power plants under section 111(d) of the Clean Air Act will also create an opportunity to expand the market for CHP and WHP in Iowa. EPA is expected to release a proposed rule in June 2014. Under that rule, states will be given two years (until June 2016) to develop compliance plans.[17] Such plans may provide an opportunity for states to offset emissions from affected power plants through clean distributed generation. Iowa policymakers should urge EPA to provide such flexibility in the greenhouse gas rule and the Department of Natural Resources should be encouraged to include policies that support CHP and WHP deployment in its compliance plan.[18]

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[13] DSIRE, Nov. 8, 2012, "Ohio Alternative Energy Portfolio Standard" (http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=OH14R&re=0&ee=0).

[14] Public Utilities Commission of Ohio, Jan. 29, 2014, "In the Matter of the Commission's Review of its Rules for Energy Efficiency Programs Contained in Chapter 4901:1-39 of the Ohio Administrative Code." (http://dis.puc.state.oh.us/TiffToPDf/A1001001A14A29B40935B65143.pdf).

[15] Minnesota State Legislature, HF 729 (https://www.revisor.mn.gov/bills/text.php?number=HF729&session_year=2013&session_number=0&version=latest).

[16] State of New Jersey, Assembly Bill A-1410, (http://www.njleg.state.nj.us/2014/Bills/A1500/1410_I1.HTM).

[17] EPA, September 2013, "Considerations in the Design of a Program to Reduce Carbon Pollution from Existing Power Plants" (http://www2.epa.gov/sites/production/files/2013-09/documents/20130923statequestions.pdf).

[18] *See* Letter from David Gardiner, Alliance for Industrial Efficiency to Joe Goffman, EPA, Nov. 22, 2013 (identifying successful policies to increase CHP deployment, which could be incorporated into state plans) (http://www.dgardiner.com/wp-content/uploads/2013/11/Alliance-Comments-on-Design-of-111d_Nov_2013.pdf) and Letter from David Gardiner, Alliance for Industrial Efficiency to Joe Goffman, EPA, Nov. 22, 2013 (addressing considerations related to inclusion of CHP and WHP in compliance plans) (http://www.dgardiner.com/wp-content/uploads/2014/02/AIE-111d-White-Paper_Final_2_5_2014.pdf)

2. Removing Financial Barriers.

High installation costs present another significant barrier to CHP and WHP deployment. A 2011 report by the American Council for an Energy-Efficient Economy (ACEEE) dubbed these upfront costs "staggering."[19] A 2012 analysis by ICF Consulting reports installed cost of a CHP system ranging from $1,170 to $2,450 per kilowatt, depending on system size.[20] Long-term energy savings, however, eventually allow users to recoup their investment and offer significant economic benefits. Favorable financial policies can help reduce upfront costs required from developers to deploy CHP and WHP facilities, shrink the payback period, and encourage manufacturers in the state to develop projects. Though Iowa has several loan programs, tax credits, and tax exemptions in place that support CHP growth,[21] the IUB should work with the General Assembly to expand these credits. It should also explore other financial incentives to promote greater CHP development.

The IUB need look no further than Illinois for an emerging example of such a policy. The Illinois Commerce Commission recently approved a pilot program allowing the state's Department of Commerce and Economic Opportunity to provide a set of incentives during various phases of CHP facility construction and operation. The draft proposal provides a $75 per kilowatt incentive at the completion of the design phase; a $175 per kilowatt incentive at the commissioning of the system; and an $0.08 per kilowatt-hour incentive for electricity produced by the CHP unit, to be paid at the end of the first year of operation.[22] New York State has likewise adopted financial incentives to promote CHP growth. After investing $100 million over the past few years in CHP projects[23]—and generating more than 150 megawatts of new CHP capacity as a result[24]—the state has committed another $100 million to programs to support additional deployment through 2015.[25] These programs can serve as useful models in Iowa.

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[19] American Council for an Energy-Efficient Economy, September 2011, "Challenges Facing Combined Heat and Power Today: A State-by-State Assessment," at iv and 6 (http://aceee.org/node/3078?id=3933).
[20] ICF International, February 2012, "Combined Heat and Power: Policy Analysis and 2011-2030 Market Assessment," Table 40 (http://www.energy.ca.gov/2012publications/CEC-200-2012-002/CEC-200-2012-002.pdf).
[21] Great Plains Institute and American Council for an Energy-Efficient Economy, 2013, "Iowa Combined Heat and Power Factsheet" (http://www.betterenergy.org/sites/www.betterenergy.org/files/Iowa.pdf).
[22] Illinois Department of Commerce and Economic Opportunity, 2014, "Combined Heat and Power Program Template."
[23] New York State Energy Development and Research Authority (NYSERDA), May 2013, "Governor Cuomo Announces $40 Million for Large-Scale, Clean-Energy Power Systems to Guard Against Outages" (http://www.nyserda.ny.gov/About/Newsroom/2013-Announcements/2013-05-02-Governor-Cuomo-Announces-40-Million-for-Large-Scale-Clean-Energy-Power-Systems.aspx).
[24] NYSERDA, October 2013, "$100 Million Budget for CHP Incentives in New York State," *USEPA CHP Webinar*, at 4 (http://www.epa.gov/chp/documents/wbnr103113_levy.pdf).
[25] Ibid at 35.

3. Overcoming Utility Barriers

While CHP and WHP projects can often function independent of the grid, they may rely on the utility grid for supplemental, standby, and backup power services, and in some cases for selling excess power. Because of this interdependence, distributed generation projects are still influenced by utility policy. The Iowa Utilities Board can address a number of utility barriers that would otherwise impede CHP and WHP deployment in the state, including include expanding net metering, streamlining the interconnection process, reducing unfavorable standby rates, and ensuring that avoided costs accurately reflect the cost of electricity generation.

First, IUB should expand its net metering policies to include CHP and WHP among eligible technologies. Currently, only certain distributed generation resources (solar PV, wind, biomass, hydroelectric, and municipal solid waste) are eligible for net metering in Iowa.[26] Net metering is critical because it allows CHP units to sell excess electricity that they generate on site, improving the economic viability of the project.[27] The state should explicitly include CHP and WHP among those technologies that can sell electricity back to the grid, and it should further lift the eligibility limits to allow for CHP and WHP systems of all rated capacities to participate.

Second, the IUB should improve its interconnection standards. Being able to safely, reliably, and economically interconnect with the existing utility grid is a key requirement for the success of a CHP project. Complicated or costly requirements for connecting to the electric grid can make CHP and WHP projects uneconomical or too burdensome to undertake.[28] The IUB should ensure its fees are appropriate and that costs are apportioned between the applicant and utility.[29] The IUB should also provide more guidance for interconnection with non-rate-regulated utilities. Finally, the state should update its current interconnection rules to reflect the latest Federal Energy Regulatory Commission best practices.

High standby rates present another utility barrier to CHP and WHP. While standby rates are needed to allow utilities to recover costs they incur to provide supplemental, backup and maintenance service, many utilities have historically erected undue hurdles by assessing standby rates that far exceed actual costs and by imposing penalties (or "ratchets") that remain long after an outage. Such unfavorable rates undermine the potential economic savings that would otherwise accrue to CHP and WHP producers who are largely avoiding electricity purchases from the grid. MidAmerican Energy recently proposed a rider that addresses these issues by tying a generator's standby reservation rate to its forced outage rate, assessing daily demand charges for scheduled outages with additional energy charges for unscheduled

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[26] Database of State Incentives for Renewables and Efficiency, February 2013, "Iowa Net Metering" (http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IA02R&re=0&ee=0).
[27] Center for Clean Air Policy, "Combined Heat and Power for Industrial Revitalization: Policy Solutions to Overcome Barriers and Foster Greater Deployment," July 2013, at 20 (http://ccap.org/resource/combined-heat-and-power-for-industrial-revitalization/).
[28] *Ibid* at 15.
[29] SEEAction, supra note 4, at 14-15.

outages, allowing customers to contract for standby capacity that is less than the facility's nameplate capacity, and eliminating ratchets.[30] We support this approach and previously filed comments commending MidAmerican for taking these steps. IUB should encourage other utilities to do likewise.

Inadequate and opaque avoided cost calculations represent a fourth utility barrier that discourages CHP and WHP deployment. The IUB should investigate rate-design options that ensure CHP and WHP facilities are fairly compensated for the benefits they provide to the grid and assessed reasonable fees for the services they use. We understand that utilities in Iowa have historically underestimated the cost of electricity production when determining avoided costs, offering distributed generators roughly 2 cents per kWh of generation. This is far less than what it would cost a central utility to produce electricity. Instead, the IUB should adopt a transparent methodology that ensures avoided costs are calculated based on a utility's levelized cost for new generation. This proxy unit approach would ensure that compensation to distributed generators actually represents the "avoided costs" of central power generation.

Thank you for your consideration of these comments. We are encouraged by the foresight the Iowa Utilities Board is demonstrating in gathering information regarding distributed generation and are hopeful that CHP and WHP can play an increasing role in helping the state achieve its energy goals moving forward. We would be happy to provide additional background about any of the policy recommendations contained herein and look forward to continued engagement in this docket.

Sincerely,

David Gardiner
Executive Director
Alliance for Industrial Efficiency

[30] Iowa Utilities Board docket RPU-2013-0004