Memorandum

To: Energy Mandates Study Committee

From: Combined Heat and Power Coalition

Date: September 9, 2015

Re: Policy Recommendations for Combined Heat and Power—
Improving Ohio as a CHP Deployment State

Chairman Balderson and Chairman Roegner,

Thank you for your leadership in working to address the difficult issues surrounding Ohio's energy policy, specifically its renewable portfolio standard and energy efficiency mandate. The time spent gathering information helped draw out some key information on issues involving combined heat and power (CHP) in Ohio. As you know, Energy Systems Group, IGS Energy, Hull & Associates, SOLAR/Caterpillar, and General Electric formed the coalition to act as a resource to the committee and provide education about the benefits of CHP as well as the barriers to greater development in Ohio.

Combined Heat and Power is an underutilized resource in Ohio and Ohio policymakers can encourage its deployment by removing existing barriers to deployment and encourage the utilization of CHP as a distributed generation resource. Combined heat and power encourages economic development, electric grid reliability and resilience, as well as energy cost control for large energy users.

This memo is a follow up summary of the issues we believe are important for consideration, and ultimately inclusion, in any legislation to follow as a result of this committee's work. We specifically lay out some items that would be immediately helpful, as well as some other considerations for the committee and the General Assembly to evaluate in its deliberative process.

1. Clarify scope. The energy industry uses the terms CHP and cogeneration synonymously which should be defined as such in Ohio law. Senate Bill 315 established that waste heat-to-energy recovery (WER) could be accounted for as a renewable energy technology and also permitted, CHP to be treated as renewable energy on a very limited basis. It also established that the treatment of these technologies preclude double counting (*i.e.* efficiency or renewable, but not both). Clarification of CHP eligibility as a renewable energy technology is warranted. Any changes made to current law should apply in the same manner to WER and CHP and allow CHP to be treated as a renewable energy technology prospectively.

2. Enhance reliability and resiliency. Incentivizing CHP deployment to ensure grid reliability should be a priority. When Hurricane Sandy struck the northeast, Princeton University remained "islanded" and able to keep their lights on and function apart from the grid which had been largely destroyed by the storm. The deployment of CHP at sites like Princeton, local hospitals, and other micro-grids allowed the areas impacted by the power outages to "disconnect" from the grid and generate their own power during the outage impacting the larger grid.

For greater detail on how CHP helped keep lights on during significant storm events, see the attached links:

http://www.ase.org/resources/chp-kept-schools-hospitals-running-amid-hurricane-sandy;

http://aceee.org/blog/2012/12/how-chp-stepped-when-power-went-out-d;

http://news.harc.edu/November2012/HARCpromotesCHP/tabid/2644/Default.aspx

While Ohio is not situated where hurricanes the strength of Sandy impact the grid, Ohio's experience with the "Derecho" summer storm that knocked out power for more than a week in parts of southeast Ohio during the summer of 2012, and the wind storm from Hurricane Ike that knocked out power also highlight the vulnerability and opportunity for CHP deployment. By specifically incentivizing critical infrastructure (*e.g.* hospitals, universities, municipalities, etc.) deployment of CHP Ohio can improve grid reliability. Policymakers can help ensure key resources remain available even in times of weather emergency (*e.g.* El Derecho or Polar Vortex). Whether this is done through tax incentive programs, utility efficiency programs (should they continue to exist), or a combination of all existing and/or future options it will only serve to strengthen and improve grid resiliency while modernizing the existing grid.

3. Create consistency. There is a strong need for consistency across the utilities in addressing issues involving interconnection. While each system is unique, there are many commonalities that make a more systematized approach to interconnection possible. Many operators find that byzantine process employed by the utilities a challenge when trying to make projects work, both from timing and cost perspective. This should be done through the PUCO, and a specific directive to the commission to make this happen would be helpful to both the PUCO and developers. The process to file an interconnection application is highly technical and requires a certain degree of expertise. Even so, the utility can determine interconnection costs based on the application and determine that required system upgrades to accommodate the CHP system will cost $XX. At least one CHP coalition member has had the experience of analyzing utility costs and discovering an error that increased project cost by nearly 20 percent and would have made the project uneconomic. The estimated costs are not reflective of actual costs or are arbitrarily high impacting the financial viability

of the CHP project. Interconnection processes between developers and utilities should be collaborative. Training for developers should be required and members of the CHP coalition are willing to engage in such a process. At a minimum, a review process that evaluates cost implications by a neutral party to ensure costs are realistic and rational is one possible solution.

4. Stand-by charges and net metering. Issues surrounding the topic of stand-by charges and net metering are also critical. Net metering in particular is an especially challenging subject to get parties to agree on, even among coalition members. Even so, there are some readily agreed upon areas of consensus on these two issues. First, there should be explicit confirmation that reciprocating engines qualify for net metering and the definition is not limited to micro-turbines. Second, stand-by charges are a barrier to deployment when the charges are exceedingly high. There are various approaches taken by utilities with some reducing or eliminating stand-by charges. Other utilities continue to charge what seem to be exceedingly high fees which effectively shut out CHP as an option for customers. The result is a customer of the utility remaining a full requirements customer of the utility instead of availing themselves of a more efficient option of their choice. More generally, encouragement of all forms of distributed generation should be a critical element of a comprehensive energy policy in view of its positive impact on system reliability and capacity potential. Efficacious net metering processes are essential to enable development of distributed generation alternatives. Pricing differentials for inflow and outflow can be a tool to either promote or discourage this development. Conceptually, at a minimum payment to customers for energy placed on the grid should be market based, ultimately on a time of day basis. Additionally, the utilization of bi-directional smart meters which can record time of day inflow and outflow is necessary to maximize customer benefits as is supplier access to the customer data recorded.

Also, the PUCO should commence with a deliberate study on the rules surrounding stand-by charges and consider addressing them in the next distribution rate case filed by the electric distribution utilities, much the way the PUCO did concerning straight-fixed variable rate design in a recent ESP proceeding.

5. Assist in the development of a financially viable landscape: Utilization of CHP technology clearly serves a public benefit. Beyond adding additional generation capabilities, CHP projects demonstrate the type of investments in Ohio facilities that have been sought by public policymakers for years. An Ohio plant with a CHP facility is far more efficient than plants outside of Ohio without a CHP facility. Clearly, as businesses make investment and job placement decisions, the facility that is most efficient will be a front runner.

Presently, the economic model for CHP facilities presents a financial challenge when looking at an internal rate of return. In order to overcome this challenge, the state should develop and implement a financial incentive for CHP projects. Specifically, a tax credit program should be developed for CHP projects. Much like the job creation tax credit, this program should be scalable dependent upon the size of the CHP facility. For instance, a 1

MW project should garner a credit that is a smaller amount than a 10 MW project. Again, similar to the job creation tax credit, these credits should be refundable.

Understanding that not all CHP facility owners are taxpayers e.g. hospitals and public universities, this credit should be available for syndication. Despite the discount of a syndicated tax credit, the financial upside of applying such a credit will assist in developing the economic model needed to rationalize this type of an investment.

In the alternative, should there be resistance to tax credits the legislature could affirmatively state that CHP projects should be eligible for energy efficiency rebates or incentive programs. Based on the inherent efficiency of CHP systems compared to traditional utility power distribution, the rebates, or incentive payments could also be a means to encourage deployment.

Additionally, the CHP coalition will also be working directly with Ohio Environmental Protection Agency Director Craig Butler on specific items that are exclusively within the purview of that agency. Specifically, the process for approval of replacement turbines and the undue delay associated with securing EPA approval for installation and operation among other technical issues. The deployment of CHP can be a part of the state implementation plan for compliance with the US EPA Rule 111(d). Ultimately, the CHP coalition can be a key participant in educating state policymakers in the benefits of greater CHP deployment for environmental goals, greater grid resiliency, and growth of distributed generation resources.