Layton, Kimberly

From: Patricia Sharkey [psharkey@environmentallawcounsel.com]
Sent: Tuesday, June 10, 2014 3:41 PM
To: Comments, Urc
Subject: IURC's EE/DMS Recommendations - Midwest Cogeneration Association Comments -Revised
Attachments: MCA - IN - IURG Comments - Rev 6-10-14.pdf

Dear Ms. Krogel Roads:

In reviewing our Midwest Cogeneration Association comments after submittal yesterday, I noticed a few typos and misstatements that I thought could be confusing. Please use the attached version in your review instead of the version submitted yesterday. I apologize for any inconvenience this may cause.
Thank you.

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From: Patricia Sharkey [mailto:psharkey@environmentallawcounsel.com]
Sent: Monday, June 09, 2014 3:46 PM
To: 'urccomments@urc.in.gov'
Subject: IURC's EE/DMS Recommendations - Midwest Cogeneration Association Comments

Dear Ms. Krogel Roads:

Please find attached for filing with the Commission the Comments of the Midwest Cogeneration Association in the above referenced matter.

Thank you.

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June 9, 2014 –Rev 6/10/14

General Counsel Beth Krogel Roads
Indiana Utility Regulatory Commission
101 West Washington Street
Suite 1500 E
Indianapolis, Indiana 46204

Re: IURC's EE/DSM Recommendations;
Comments of the Midwest Cogeneration Association

Dear Ms. Krogel Roads:

Please accept for filing with the Indiana Utilities Regulatory Commission (Commission) the following Comments of the Midwest Cogeneration Association (MCA) responding to the Commission's request for public comment on Indiana's demand side management (DSM) and energy efficiency policies and programs.

COMMENTS OF MIDWEST COGENERATION ASSOCIATION

INTRODUCTION

The MCA is a not-for-profit professional association dedicated to promoting clean and energy efficient "combined heat and power" (CHP) and "waste heat-to-power" (WHP) technologies in eight Midwest states, including Indiana. MCA members include representatives of CHP and WHP technology manufacturers, distributors, and project developers, energy efficiency analysts, and energy and environmental consultants and attorneys – many of whom have major manufacturing facilities and business operations in Indiana. Our members have expertise in CHP and WHP technologies, as well as project financing and development. We have "boots on the ground" in Indiana and throughout the Midwest and know the reasons CHP and WHP projects get built or don't get built.

MCA members have closely followed Indiana's Senate Enrolled Act 340 and were disappointed that the General Assembly voted to curtail the Commission's DSM programs. We applaud Governor Pence's continuing support for energy efficiency

measures as an important part of Indiana's energy strategy and stated intent to introduce comprehensive energy legislation in the 2015 Session. We appreciate the opportunity to present comments on this important topic and specifically how CHP and WHP technologies can contribute energy and cost savings to Indiana's energy mix. We look forward to continuing participation in the Commission's and Governor's stakeholder process for the development of a new legislative framework for Indiana energy efficiency programs.

WHAT ARE CHP and WHP?

CHP and WHP technologies offer an energy efficient alternative to conventional centralized power generation, transmission and distribution systems. Centralized power systems waste roughly two-thirds of their energy inputs, meaning only one-third of the energy potential is actually delivered to customers. Ratepayers subsidize this inefficiency by paying for power that never reaches the end user. The unfortunate results are high costs for Indiana businesses and consumers, lost competitiveness and jobs, as well as increased pollution.

CHP and WHP technologies squeeze more energy out of each increment of fuel by capturing wasted energy. CHP systems simultaneously generate heat and electricity from a single fuel source. WHP captures process heat or energy that would otherwise be wasted and converts it to electricity. Moreover, because CHP and WHP technologies can generate power on-site at Indiana's factories, hospitals, universities, large government and commercial buildings, they can recoup the 7% of electric energy that is lost in transmission from centralized systems.

By doing so, CHP and WHP projects can dramatically *reduce energy costs* for the host facility, making Indiana businesses more competitive, and reduce demand on the centralized power grid, reducing costs for all Indiana consumers. By lowering energy use, CHP/WHP systems also cut greenhouse gases and other power plant emissions in half.[1] At the same time, CHP/WHP projects increase the reliability of the state's power sector by allowing manufacturers, universities and hospitals to "keep the lights on" during extreme weather events that compromise the electric grid.

There are currently 38 CHP and WHP projects in Indiana, producing nearly 2,300 megawatts of clean and efficient power.[2] In fact, Indiana is the home of several premier CHP/WHP projects, such as the ArcelorMittal CHP/WHP projects producing over 450 MW of electricity, the BP Amoco Whiting Refinery, producing over 665 MW of electricity, and the Alcoa Smelting plant in Newburgh producing 755 MW of electricity. The potential, however, is far greater. ICF consulting estimated that there are *more than*

[1] U.S.EPA, "Environmental Benefits: Conventional Generation vs. CHP: CO_2 Emissions" (graphic) (http://www.epa.gov/chp/basic/environmental.html).
[2] DOE and ICF, Combined Heat and Power Installation Database (http://www.eea-inc.com/chpdata/States/IA.html).

3,000 additional megawatts of unrealized potential CHP/WHP projects in the state's commercial, institutional and industrial sectors.[3]

The following is a list of the many *benefits* that distributed CHP and WHP generation offer:

- Energy savings system-wide, resulting in lower costs to Indiana consumers;
- Reductions in peak demand, resulting in fewer "black outs" and "brown outs" and less need to build new and expensive power plants to meet consumer requirements;
- Reduction in "line losses" due to the "distributed" nature of CHP and WHP systems (Line losses average 7 percent and can be higher during periods of peak demand.);
- Reduction in load on existing transmission and distribution lines and reduced need to repair and build new lines, again due to the distributed nature of CHP and WHP systems;
- Lower emissions of greenhouse gases, criteria pollutants (such as NOx, SO2 and PM), and hazardous air pollutants;
- Job creation and increases in Indiana's manufacturing competitiveness[4]; and
- Increased energy resiliency during natural disasters and other emergencies.

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[3] "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power," ICF, Inc. (USCHPA-WADE ITC Study), Table 3 and Table 4 http://www.uschpa.org/files/public/USCHPA%20WADE_ITC_Report_FINAL%20v4.pdf. N.B.: "The estimates of CHP technical potential are based on thermally loaded CHP systems sized to serve on-site electrical demands at target facilities and do not include export capacity." Note that the potential would be even higher if CHP and WHP projects with sales to the grid were factored in.

[4] According to Oak Ridge National Laboratory, if CHP were to provide 20 percent of U.S. generation capacity in 2030, it would result in $234 billion in new capital investment. (Shipley et al., 2008, p. 4)

WHAT ARE APPROPRIATE ENERGY EFFICIENCY GOALS FOR INDIANA?

Governor Pence, in his March 27, 2014 letter to Chairman Atterholt, cited the Indiana State Utility Forecasting Group's 2013 Forecast estimate that electricity demand in Indiana will increase by 1,450 MW in the short term and 3,600 MW in the long-term. Maximizing energy efficiency in the production of energy, capturing wasted energy, and reducing line losses is one of the most cost-effective ways to address this growing demand. As mentioned above, Indiana has 3,000 MW of untapped potential for energy efficient CHP and WHP generation in its industrial, institutional and commercial sectors that can play a key role in meeting Indiana's future energy demand. [5]

Indiana's energy efficiency goal of 2% by 2019 is on par with neighboring Midwestern states. But, given the high cost-effectiveness of energy efficiency, as discussed below, the forecasted significant increase in future energy demand, and the unrealized energy efficiency potential in Indiana industrial sector, Indiana would be wise to further incentivize energy efficiency with an even higher goal. CHP and WHP technologies can significantly assist Indiana in meeting its energy efficiency goals.

WHAT ARE THE COSTS AND BENEFITS OF CHP/WHP TECHNOLOGIES FOR INDIANA?

Energy efficiency, in general, is a highly cost effective means of meeting Indiana's energy goals. A recent ACEEE study found that every 2-3 cents spent on energy efficiency displaces 8-12 cents that it would otherwise cost to generate the same kW from conventional centralized coal or natural gas power plants. [6] Moreover, the industrial sector, where CHP and WHP have great potential in Indiana, has been found to be the most cost-effective candidate for generating energy efficiency. In the industrial sector energy efficiency costs are pegged at just 1-2 cents/kWh.

What does this mean for the Indiana economy?

Clearly, energy efficiency measures at industrial facilities, such as CHP/WHP, are excellent investments that can allow the State and Indiana rate payers to avoid the high costs associated with new power plant construction.

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[5] Commercial and Industrial CHP Potential from ICF's "Effect of a 30 Percent Investment Tax Credit on the Economic Market Potential for Combined Heat and Power (USCHPA-WADE ITC Study), Table 3 and Table 4
http://www.uschpa.org/files/public/USCHPA%20WADE_ITC_Report_FINAL%20v4.pdf. N.B.: "The estimates of CHP technical potential are based on thermally loaded CHP systems sized to serve on-site electrical demands at target facilities and do not include export capacity", so the potential would be even higher if that were factored in.

[6] Maggie Molina, American Council for an Energy-Efficient Economy, March 25, 2014, "The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs." See http://aceee.org/research-report/u1402 .

Creating policies to incentivize CHP and WHP projects will not only help Indiana reduce its energy demand, it will also *create jobs* in Indiana. According to Oak Ridge National Laboratory, if CHP were to provide 20 percent of U.S. generation capacity in 2030, it would result in $234 billion in new capital investment.[7] Indiana is uniquely situated to benefit from this new investment. Indiana is the home of major CHP and WHP technology manufacturers and of a large industrial base that can host CHP and WHP projects. Notably, Cummins, Inc., a global leader in the manufacturing of engines used in CHP systems, has its corporate headquarters Columbus, Indiana and multiple production facilities located in Columbus and Seymour, Indiana. Caterpillar, Inc. also has significant manufacturing operations in Indiana, with its largest manufacturing facility for CHP power generation equipment located in Lafayette, Indiana. Indianapolis is the Regional Headquarters for Rolls Royce, a major CHP manufacturer, which also has manufacturing operations in Indianapolis and Plainfield, Indiana. Rolls-Royce is currently building a new $42 million advanced manufacturing facility in Indianapolis to produce engine components for Rolls-Royce engines that are assembled around the world. When it is fully operational in 2014, it is expected to create more than 100 jobs. These are just a few examples of significant CHP and WHP technology manufacturers and suppliers of components and related equipment located in Indiana.

Furthermore, many construction jobs and supply chain jobs are created when CHP and WHP systems are installed. A recent study of one Indiana WHP installation at the ArcelorMittal steel plant in Indiana Harbor illustrates the energy and economic impacts of even a single WHP project.[8] The system is expected to reduce the facility's annual energy costs by nearly $20 million[9] and generate 38 MW of electric capacity (333,000 MWh) – enough energy to power 30,000 homes. It will also save 4.6 trillion Btu annually and reduce CO2 emissions by 340,000 tons – equivalent to taking 62,000 cars off the road. [10] ArcelorMittal reported that the project installation involved 15 construction companies and 280,000 person-hours, with 175 workers on site daily at the peak of construction, including pipefitters, electricians, ironworkers, boilermakers, operating engineers, carpenters, laborers, millwrights, cement masons, engineers, sheet metal workers, pile drivers, insulators and painters. Sixteen U.S. manufacturers made all of the components.[11]

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[7] "Combined Heat and Power: Effective Energy Solutions for a Sustainable Future," Oak Ridge National Laboratory, Anna Shipley *et al.*, 2008, p. 4
https://www.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_report_12-08.pdf

[8] "Combined Heat and Power: An Opportunity for U.S. Workers," March 2014.

[9] "Combined Heat and Power Systems: Improving the Energy Efficiency of our Manufacturing Plants, Buildings, and Other Facilities," Vignesh Gowrishankar *et al.*, Natural Resources Defense Council
http://www.nrdc.org/energy/files/combined-heat-power-ip.pdf

[10] "Final Scientific/Technical Report: Recovery Act: ArcelorMittal USA Blast Furnace Gas Flare Capture;" John Seaman, 2013 DOE Grant Award Number DE-EE0002729; Chicago, IL, ArcelorMittal USA LLC
http://www.osti.gov/scitech/servlets/purl/1082429

[11] Tom Dower, Senior Director of Government Relations, ArcelorMittal USA, Inc., Oct. 29, 2013.

What are the cost savings from a CHP/WHP system for an Indiana host facility?

In short, the near-term and long-term operational savings due to energy savings are substantial. Although energy cost savings vary depending on the CHP/WHP technology utilized, the host facilities thermal load, and differences in gas and electricity prices, as a rule of thumb, $0.01/ kWh reduction in electricity cost for a host facility generates $100 in annual savings per kW of CHP installed. For example, for a 1,000 kW CHP system saving 1 cent in its energy costs, the annual savings for an Indiana facility is $100,000.[12] But, in fact, with current and projected "spark spreads" in Indiana, the energy cost savings for a CHP/WHP system is projected to average 4 cents through 2020. [13]

HOW EFFECTIVE HAVE CURRENT DSM PROGRAMS BEEN IN ENCOURAGING CHP/WHP?

ACEEE, in its State Energy Efficiency Scorecard for 2013, found that Indiana scored 1.5 out of 5 points for its CHP/WHP policies. It noted that Indiana has not pursued policies to encourage CHP development and that no new CHP installations came on-line in 2012.[14]

Notably, CHP and WHP are not included in the Energize Indiana CORE programs. Energizing Indiana includes five CORE programs – including a Commercial and Industrial Prescriptive Rebate Program. This program only provides prescriptive rebates to commercial and industrial facilities based on the installation of specified energy efficiency equipment and system improvements, such as lighting, variable frequency drives (VFDs), HVAC, and efficient ENERGY STAR commercial kitchen appliances.[15]

The 2012 Energizing Indiana Programs EM&V Report (June 20, 2013) examining the effectiveness of the Energizing Indiana programs found that the C & I Prescriptive Rebate Program came in furthest from its program spending target at only 34% and achieved only 63% of its energy savings target.[16] This indicates that this very limited C & I program is not effectively spurring energy efficiency in the commercial and industrial sector. Including a targeted CHP/WHP option, as described later in our comments, in this CORE program could quickly ramp up the effectiveness of the Energizing Indiana C&I program.

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[12] "Heating Up in the Hoosier State: The Emerging Opportunity for CHP in Indiana," GEM Energy – Capstone and MacAllister Power Systems – Caterpillar; Power Point Presentation to the Indiana Chamber of Commerce, August 13, 2013; http://www.indianachamber.com/media/media/energy-materials/F.pdf

[13] *Id.*

[14] www.http: aceee.org/state-policy/scorecard.

[15] https://energizingindiana.com/programs/commercial-industrial-rebates/

[16] http://www.aceee.org/files/pdf/2012-indiana-emv-report.pdf

Energizing Indiana also provides guidelines for additional Core Plus Programs that the utilities may, but do not have to provide. These include:

- Appliance Recycling
- Multi-Family Direct Install
- Residential HVAC
- Residential New Construction
- Residential Behavioral Savings
- Small Business Energy Solutions
- Commercial & Industrial New Construction
- Commercial & Industrial Custom

While CHP and WHP are eligible technologies that could and should play a major role in the Energize Indiana CORE Plus commercial and industrial programs, this unfortunately has not been the case.[17] MCA members believe this is because Indiana utilities have historically characterized CHP and WHP to be "fuel switching" projects and have discouraged CHP and WHP project proposals. This characterization of CHP/WHP technologies is outdated and inaccurate. According to the U.S. Department of Energy and U.S. Environmental Protection Agency CHP Partnership, CHP systems achieve overall efficiencies of 60-80%, compared to 30-35% for conventional electricity generation.[18] CHP reciprocating engines on the market today achieve effective electrical efficiencies of 70-80%, gas turbines 50-70%, and micro turbines 65-75% (all HHV). [19]

One example of a successful DSM utility program that has spurred biomass CHP development is the NIPSCO Experimental Rate Tariff 665 – Renewable Feed-In Tariff. We understand that this Tariff, which includes a purchase rate of up to $0.106/ kWh for energy generated by biomass CHP projects, has generated 7,465 kW of biomass CHP capacity and there is now 6,885 kW more such capacity "in queue," and 7,290 kW more in pending applications. This Experimental Tariff offers a substantially higher purchase price than does NIPSCO's Tariff 678 for cogeneration and small power production which offers a maximum of $0.04218/kWh. While Tariff 665 is currently limited to renewable energy projects, it does not include CHP or WHP projects, both of which are designated as "renewable" under Indiana's DMS programs.

MCA Members believe that Indiana DSM programs have not been robust for CHP and WHP because of the lack of Commission rules expressly targeting CHP and WHP and the fragmented approach taken by the utilities toward DSM programs in general. To remedy this, MCA recommends that any new legislation addressing energy efficiency require a review of Commission regulations and utility tariffs and programs to identify

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[17] MCA is aware of one CHP chiller project at Notre Dame University that received $81,000 in Energizing Indiana incentives through a Duke Energy CORE PLUS program in 2013.

[18] http://www.epa.gov/chp/basic/efficiency.html

[19] "Heating Up in the Hoosier State: The Emerging Opportunity for CHP in Indiana," GEM Energy – Capstone and MacAllister Power Systems – Caterpillar; Power Point Presentation to the Indiana Chamber of Commerce, August 13, 2013; http://www.indianachamber.com/media/media/energy-materials/F.pdf

changes and new measures that will spur new CHP/WHP projects and authorize Commission rules to establish appropriate standards and guidelines for these programs.

MCA RECOMMENDATIONS FOR IMPROVING INDIANA ENERGY EFFICIENCY PROGRAMS

Historically, a number of policies designed for a centralized power production model have acted as barriers to CHP and WHP deployment. Aligning Indiana's regulations and utility tariffs with best practices for CHP and WHP can play an important role in encouraging private and public investment in the energy savings potential of these technologies. Transparency and consistent application of costing principles to remove these barriers and level the playing field for CHP and WHP are essential.

A. Recognize Distributed CHP and WHP in All of Indiana's Energy Efficiency Programs

As an initial matter, for all of the reasons stated above, CHP and WHP should be considered a qualifying measure in all Indiana's energy efficiency programs. Failure to recognize and include CHP and WHP in these programs denies Indiana the opportunity to realize the energy savings these technologies can provide toward meeting the state's energy efficiency goals.

B. Eliminate Unjustified and Onerous Standby Charges

Standby rates, otherwise known as partial service rates, constitute a subset of retail electric tariffs that are intended for customers with on-site, non-emergency distributed generation. They are the rates utilities charge an operator of distributed generation to provide backup electricity during both scheduled and unscheduled outages in addition to the cost to reserve such service.

While standby rates are necessary to recover the fully allocated embedded costs that the utility incurs to provide backup and maintenance service, they can also be created in such a way as to financially burden distributed generation customers unfairly (including CHP and WHP customers), thereby erecting barriers to development. The goal of well-crafted standby rates should be to promote economic efficiency, fairness, simplicity, transparency, and system reliability while penalizing those generators that incur large costs to the utility.[20]

Utility standby rates cover some or all of the following services:

- *Backup power* during an unplanned generator outage

[20] National Regulatory Research Institute, *Electric Utility Standby Rates: Updates for Today and Tomorrow,* Report 12-11, by Tom Stanton (July 2012), Page 10.

- *Maintenance power* during scheduled generator service for routine maintenance and repair
- *Supplemental power* for customers whose on-site generation under normal operation does not meet all of their energy needs, typically provided under the full requirements tariff for the customer's rate class
- *Economic replacement power* when it costs less than on-site generation
- *Delivery* associated with these energy services.

Onerous, unjust and poorly designed standby rates (for back-up, maintenance, temporary or supplemental power) have been identified by MCA members as the *#1 barrier to CHP/WHP projects* in Indiana. While CHP/WHP systems are highly reliable and can function independently of the grid 96% of the time, most must rely on the utility grid for a small amount of standby services for scheduled maintenance, unscheduled outages, and supplemental power. [21]

In Indiana, some utilities are imposing unjustified demand charges on CHP/WHP projects for these standby services. For example, under it's "Rider 624: Rate for Electric Service – General Service – Large," NIPSCO imposes a "Monthly Minimum Charge" standby rates for CHP/WHP projects

> "The Customer's Monthly Minimum Charge under this rate shall be equivalent to the Monthly Demand Charge applicable to 80% of the highest Billing Demand of the previous twelve months, provided however, that in no case shall the Monthly Demand Charge be less than $913.50 and provided further that in the case of any Customer requiring capacity of 3,000 kilowatts or more, in consideration of the obligation of the Company to provide the necessary capacity to supply such Customer, the Customer's Monthly Minimum Charge shall be the amount determined by applying a rate of $11.61 per kilowatt to the Customer's estimated requirements as stated in the contract."

This approach is known as a "demand ratchet" because it imposes demand charges throughout a 12-month period based on the highest demand month even if much lower or even no standby power is used by the customer in the remaining 11 months. This approach is unwarranted, not based on costs actually incurred by the utility, and discriminates against all distributed generation. It is particularly unwarranted for a highly reliable technology such as CHP/WHP which is creating reduced demand on the grid 96% of the time.

NIPSCO does have standby rates for some customer classes that do not include "demand ratchets." See for example, Rider 676 for large industrial customers covered

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[21] "The Legal Case against Stand-By Rates", Casten and Karegianes, *The Electricity Journal*, November 2007, Vol. 20, Issue 9, pp. 37-38.
http://www.recycled-energy.com/_documents/articles/sc_electricity_journal11-07.pdf

under Tariff 632 or 633. Rider 676 is divided between backup service, maintenance service and temporary service and only assesses charges on an "as-used" basis. This structure allows standby customers to avoid all charges when not taking service which can help reduce the distributed generator payback period. Unfortunately, Tariff 676 unjustifiably excludes cogeneration system outages. Also, NIPSCO does not provide this same standby service to smaller customers that don't qualify for Rates 632 or 633. These CHP customers face demand ratchets under Tariff 624. These ratchets lock in for an entire 12-month period the higher demand placed on the grid during the very limited number of times (2-4%) in which the customer's generator is offline. These ratchets eat into the cost savings provided by a CHP or WHP project and can actually render a good CHP or WHP project unprofitable. This poses a significant financial barrier to these projects being built in Indiana. [22]

Unlike NIPSCO, Duke Energy issues standby charges on a fixed monthly basis no matter if a customer uses standby service or not. The service is largely demand based; however, the prices and conditions for service are opaque. The standby structure is neither transparent nor simple and burdens otherwise economically viable CHP projects.

MCA understands that standby rates are, in some instances, necessary for a utility to recover the costs incurred to serve customers with on-site generation, but these rates should be created in a way that justly allocates costs to customers based on the costs they create for the utility. The legitimate goal of any standby charge should be to encourage efficient operation and maintenance to avoid unintended outages and to encourage off-peak planned maintenance.

Transparent rates provide customers with clear signals on the cost of each aspect of electric service in order to allow customers to operate in a manner that lessens their burden to the utility. *Flexible rates* are those that allow the customer to avoid charges when not taking service. *Economically efficient rates* are structured in such a way as to penalize customers that use the grid inefficiently while also allowing customers to avoid or reduce charges when operating in a manner beneficial to the utility.

Notably, the issue of unjust and discriminatory utility standby rates in Indiana was recognized and directly addressed in Indiana House Bill 1423, enacted this past Spring. That bill provides relief – but only for certain "private generation projects", defined as cogeneration facilities with a capacity of 80 MW or more and in existence as of July 1, 2014. For those facilities, HB 1423 provides:

> *"(e) Upon the request of the owner of a private generation project, an electric utility shall provide the generation project with back up, maintenance, and supplementary power. The electric utility shall charge rates that:*
>
> *(1) are based on the electric utility's costs;*

[22] This approach is backwards. Lower standby demand charges should be applied to smaller energy users for whom an outage creates a smaller impact on the grid.

(2) do not discriminate against:
(A) the private generation project; or
(B) other customers of the electric utility with load characteristics similar to the private generation project; and
(3) do not create subsidies for:
(A) the private generation project; or
(B) retail customers of the electric utility."

This bill provides a possible template for legislation creating reasonable, non-discriminatory standards for standby charges for all cogeneration facilities – including new projects and smaller projects -- and, indeed, for all distributed generation.

C. Inequitable treatment of Non-Utility Owned Generation Resources

CHP and WHP, like many other non-utility owned generation resources, suffer a disadvantage in regulated power generation and transmission markets. While CHP and WHP offer myriad benefits to its owner, the transmission grid, Indiana ratepayers, and the environment, regulated utilities have no direct incentive to support a customer owned power generation, as it will offset power that the customer would otherwise buy from the utility.

In Indiana, the two major utilities have not developed rate structures or programs aimed at helping their customers and the environment realize the benefits that CHP and WHP projects can offer. Power buyback tariffs, which are set based on marginal generation costs of primarily coal power and do not reflect the avoided costs of future generation, are insufficient to incentivize small scale generation projects that sell power to the grid. This leaves CHP and WHP prospective owners with only the option to use their projects to offset their own power consumption.

D. Extend Indiana's Net-Metering Program to Distributed CHP and WHP Projects

CHP is not included as an eligible technology under Indiana's net metering provisions. Currently only certain renewable resources like solar PV, wind, biomass, and hydroelectric are eligible. In some instances, the ability to sell excess power back to the grid is critical to the economics of a CHP or WHP project. Net metering provides customers with a simplified mechanism in which to sell excess generation back to the utility and thus improve the viability of the project.

E. Include Utilities' Long-Term Costs in "Avoided Cost" Calculations

Commission rules should ensure against shortcomings in the calculation of PURPA avoided rates. PURPA requires utilities to purchase output from qualifying CHP facilities at the avoided cost of alternative power. The FERC rules implementing PURPA give much leniency to state regulators on the methodology used to determine avoided costs.

Oregon provides a good example for how avoided costs can be calculated using longer term capacity costs. Avoided cost rates adopted by the PUC of Oregon distinguish whether the utility is in a resource deficient or a resource sufficient position. When the utility is resource deficient, avoided cost rates reflect longer term resource decisions that are subject to deferral or avoidance due to power purchases from the Qualifying Facility. Thus, costs are based on the variable and fixed costs of a natural gas-fired, combined-cycle combustion turbine (CCCT). When a utility is resource sufficient, as may be the case in the early years of the contract term, avoided cost rates are based on projected monthly on- and off-peak prices as of the date of the utility's avoided cost filing.

Additionally, Oregon allows for long term avoided rate contracts up to twenty years and standardized contracts intended to reduce transactional costs.

F. Defray Upfront Capital Costs

If CHP/WHP systems are so cost-effective, why isn't the market working to maximize realization of the 3,000 MW potential in Indiana?

Notwithstanding the operational cost savings that can be achieved by CHP/WHP systems, the upfront capital cost of installing these systems are a major barrier for many businesses. For example, a 1 MW reciprocating engine CHP system may cost $1 million to purchase and install. As CHP/WHP projects are major capital projects for end-users, the timing of the return on investment or "payback period" is often a critical consideration -- particularly for industrial facilities, a sector where there is great unrealized CHP/WHP potential. End-user industrial facility owner/operators generally seek a return on major capital investments within 3-5 years.[23]

The question for Indiana policy makers is how to address this upfront capital cost barrier.

For CHP/WHP projects that interconnect and sell power back to utilities, an *increase in the purchase rate – particularly in the early years of operation* – can be an effective means of reducing the investment payback period and encouraging projects, as shown by NIPSCO's Experimental Rate 665 – Renewable Feed-In Tariff.

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[23] An October 2009 study by ICF International, prepared for the California Energy Commission, titled "Combined Heat and Power Market Assessment," found that where payback periods were in excess of 5 years, minimal CHP project development took place, reflective in the acceptance curves utilized in the study. The aversion to longer payback projects has had a significant impact on CHP project development, especially in the industrial sector which faces greater competition for capital funds. When discussing the acceptance rates with MCA members, many stated similar rates (less than 4 years) would typically be viewed by managers of industrial facilities as a favorable return on major capital investments, such as CHP/WHP, confirming the values presented in the ICF International study.

But for projects that don't sell electricity to the grid, but rather use the electricity generated on site, this approach doesn't help. The avenue that has been taken in a number of states for these projects is to create *targeted incentive programs* that subsidize initial design and construction costs and help off-set capital costs with incentives paid in the first year based on actual operating efficiency.

MCA believes the key elements of a successful targeted CHP/WHP program are:

1) Significant overall incentives that help defray the high capital costs of these projects;

2) Split incentives, with some up-front incentive payments during the design and construction stages and the lion's share of the incentive paid based on demonstrated production and energy savings over the first 12- 18 months of system operation;

3) Transparent eligibility requirements, incentives and program parameters, including:

   a. A stated method for determining and crediting energy savings that can be readily and consistently used by prospective project developers and evaluators;

   b. Stated system efficiency requirements, such as the 60% efficiency and 20% useful thermal energy; and

   c. Express timeframes for required actions and payments.

5) A robust outreach program to end-users.

A prominent example of a successful targeted CHP/WHP program is Baltimore Gas & Electric's (BGE) Smart Energy Savers CHP Program for the 2012-2014 EmPower Maryland energy efficiency program. [24] One year after program startup in August of 2012, the BGE CHP program was over-subscribed, with 16 applications and 11 projects likely to go forward with an estimated energy savings of 81,000 MWh and demand reduction of 10.5 MW produced. In 2013, BGE requested that the program funding be doubled to allow another 12 projects to proceed and to allow it to more extensively market the program to increase market awareness. Maryland Commission staff noted the programs "large amount of energy savings, as well as program cost effectiveness," and recommended that the program budget be increased and that the timeframe for eligible project completion be extended. [25] The Public Service Commission of Maryland

[24] www.bgesmartenergy.com/business/chp

[25] Recommendation of the Maryland Public Utility Commission Staff, August 6, 2013 in Case No. 9154, Re: Baltimore Gas and Electric Company's Request to Increase Budget and to Provide Incentives for

approved BGE's request for an additional $10 million for its CHP Program on Nov. 12, 2013, Order No. 85987.

The BGE program offers a production incentive package which is equivalent to $750/kW of the system's capacity. This incentive is split between upfront incentives to be paid during the project construction and design phases, and a $0.07/kWh production incentive based on the system's first 18 months of production.

Massachusetts' Mass SAVE program also offers a successful targeted CHP/WHP program with rebates of $750/kW of capacity and funds 50% of the cost of feasibility studies. [26] That program has resulted in generating CHP/WHP projects that meet over 30% of the Massachusetts commercial and industrial energy efficiency targets and at the lowest cost per kWh saved of all Mass SAVE energy efficiency measures. [27], [28]

Here in the Midwest, the Illinois Commerce Commission in December 2013 approved a similar targeted CHP /WHP program with split incentives equivalent to $750/kWh for the public sector incentive programs run by the Illinois Department of Commerce and Economic Opportunity. That program includes a $0.08/kWh production incentive based on the first 12 months of operation, as well as 1/3 of the incentive payments made upfront for design and construction. The program template for that Illinois is attached here as *Attachment A*.

We note that creating a Targeted CHP /WHP Program would allow Indiana utilities to actively market their programs' parameters to CHP/WHP end-users. BGE makes publicly available on its webpage a Manual with details on the technical parameters for qualifying projects. See http://www.bgesmartenergy.com/chp. BGE also has an aggressive marketing campaign to end-users, including advertising in trade publications, email blasts to stakeholders, and seminars. MCA believes such outreach, coupled with readily available, transparent technical guidance, is critical to increasing applications for CHP projects. With a transparent target program, businesses that are considering CHP projects can evaluate project engineering requirements and feasibility as well as compare the energy savings and financial merits of various CHP/WHP systems against each other and against traditional separate heat and power technologies.[29]

Projects Completed after 2014 for BEG's Combined Heat and Power Program; Approved by the Public Service Commission of Maryland, Nov. 12, 2013, Order No. 85987.

[26] http://www.epa.gov/chp/policies/incentives/mamasssaveutilityenergyefficiencyprogramchp.html

[27] http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/chp_california_2009.pdf

[28] http://aceee.org/files/pdf/white-paper/chp-and-electric-utilities.pdf

[29] Some examples of Targeted CHP Incentive Programs that have made their program parameters readily available to developers are the Baltimore Gas & Electric Smart Energy Savers CHP Program and the New York State Energy Research and Development Authority (NYSERDA) CHP Acceleration Program. The BG&E webpage provides extensive information on the program parameters, including a Fact Sheet and CHP Program Manual. The NYSERDA program provides a catalogue of pre-qualified CHP units which are eligible for incentives.

MCA appreciates the opportunity to present comments on this important topic and looks forward to continuing participation in the Commission's and Governor's stakeholder process for the development of a new legislative framework for Indiana energy efficiency programs.

Respectfully Submitted,

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