



KENTUCKY'S ACTION PLAN FOR COMBINED HEAT AND POWER

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ABOUT THE AUTHORS AND PROJECT PARTNERS

The Kentucky Department for Energy Development and Independence (DEDI) would like to thank all of the individuals, organizations, corporations and governmental entities (referred to generally as the “stakeholders”) that provided feedback throughout the Combined Heat and Power (CHP) stakeholder process. Without this dedicated group of individuals, the Action Plan would not have been possible. Collaboration is always a key component of market transformation and this diverse network of stakeholders was key to identifying the opportunities and barriers, and will be critical to helping Kentucky best utilize the efficiency of CHP as a resource. Appendix A provides a list of CHP stakeholders.

Kentucky Energy & Environment Cabinet (EEC) Department for Energy Development & Independence (DEDI)

DEDI’s mission is to improve the quality and security of life for all Kentuckians by creating efficient, sustainable energy solutions and strategies; by protecting the environment; and by creating a base for strong economic growth. DEDI is a department of the EEC.

Kentucky Pollution Prevention Center (KPPC)

Established in 1994, KPPC is a state-mandated technical assistance resource center. As part of the J.B. Speed School of Engineering at the University of Louisville, KPPC has the resources, expertise and experienced engineering and technical staff to help Kentucky’s businesses, industries and other organizations stay environmentally sustainable and competitive.

KPPC has been recognized at both state and national levels as a Center of Excellence. KPPC engineers work with clients to provide customized technical services that help lower operating costs by reducing waste and improving energy efficiency. The Center has conducted more than 800 workshops, seminars and training sessions, and more than 40,000 attendees have benefited from these learning opportunities. KPPC’s on-site assessments have helped nearly 800 Kentucky businesses and organizations improve environmental performance and lower operating costs.

Kentucky Association of Manufacturers (KAM)

Established in 1911, the Kentucky Association of Manufacturers is Kentucky's most effective advocate for manufacturers. KAM's mission is to create and protect a manufacturing-friendly environment in Kentucky. In addition to advocating, KAM educates, connects and provides cost-saving programs and products to members.

Southeast CHP Technical Assistance Partnership (SE CHP TAP)

The U.S. DOE Southeast CHP Technical Assistance Partnership (TAP) is one of seven regional CHP TAPs formed in 2003 by the U.S. Department of Energy to promote greater adoption of clean and efficient energy generation and use through CHP, district energy, and waste heat recovery. SE CHP TAP serves the Southeastern states of Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, Louisiana, North Carolina, South Carolina, and Tennessee. The Southeast CHP TAP educates prospective adopters on CHP technologies as viable technical and economic options, coordinates networks of stakeholders, works to remove policy barriers, and leverages existing and potential regional resources.

EXECUTIVE SUMMARY

The Kentucky Department for Energy Development and Independence (DEDI), in partnership with the Kentucky Association of Manufacturers (KAM), the Kentucky Pollution Prevention Center (KPPC) and the Southeast CHP Technical Assistance Partnership (SE CHP TAP), began an extensive stakeholder process in 2013. With direction from a Steering Committee of select industry, utility, and policy leadership within the Commonwealth, a Workgroup and four Sub-committees were formed, with emphasis in four key areas: Technical, Financing, Education/Outreach, and Policy issues. A total of 119 individuals and organizations participated in at least one meeting throughout 2013 and 2014. The overarching objective of this initiative was to develop programs and strategies that support the productivity and competitiveness of the state's industrial sectors by addressing specific policy, regulatory, or market barriers that deter businesses and public entities from achieving the economic and environmental benefits of investment in energy efficiency and Combined Heat and Power (CHP).

The stakeholder process was wide-ranging, but an attempt was made to focus on the opportunities and barriers related to CHP. Where possible, this Action Plan provides specific recommendations to allow Kentucky to take advantage of the benefits of CHP. The following is a summary of the Action Items put forth during this planning process.

Action Item Overview

Enhanced Education and Outreach

Phase One of the CHP initiative engaged stakeholders on topics that limit utilization of CHP to its fullest potential. Two workshops on CHP were held in November of 2014 and a webinar was hosted in early 2015. Going forward, outreach efforts shift to identifying direct CHP end users. Strategies will focus on the specific sectors most interested in qualification screenings and onsite feasibility assessments.

Reference and Guidance Documentation

Based on feedback from stakeholders, a number of technical and financial resources will be produced that will help potential end users navigate the myriad of issues involved in implementing a CHP project. Some of the key resources to be made available include:

- A vendor list will be produced that includes contact information for CHP related products and services available to facilities in Kentucky. A resource library that contains links to a variety of information related to CHP as well as topic specific presentations may be found on the DEDI CHP website.
- The Kentucky Division for Air Quality (DAQ) will publish a brief guidance document specifically for CHP air permits. This document will be made available through the DEDI CHP and DAQ web pages. DAQ will also take steps to streamline the CHP permitting process through the development of internal templates or other tools.
- An interconnection guidance document will be developed to provide an overview of the interconnection process. A utility will be asked to present a case study example at a public event. However, a singular Kentucky-wide interconnection policy is not available at this time. All technical and safety requirements are managed through individual utilities in accordance with applicable codes and standards such as Institute of Electrical and Electronic Engineers (IEEE)

1547, the National Electric Safety Code (NESC), Underwriters Laboratories (UL), and American National Standards Institute (ANSI).” Utilities have interconnection tariffs that apply to CHP facilities and any changes to these tariffs will be reviewed by the Public Service Commission. A guidance document for CHP financing options in Kentucky will be produced. This document will be available from the DEDI CHP website.

Direct Technical Assistance

The CHP Project Partners will provide ongoing technical services to prospective CHP end users, including qualification screenings and feasibility analyses. Phase one activities through the stakeholder process and 2014 education and outreach activities have helped to identify initial contacts for technical assistance, but the 2015 targeted outreach strategy is expected to identify and provide assistance to additional prospective end users.

Policy Initiatives

Stakeholders and the CHP Project Partners will continue to support policies favorable for CHP, including but not limited to: EPAD, tax credits, and industrial revenue bonds.

- **EPAD:** Energy Project Assessment Districts (EPAD) permit local governments to establish local programs that provide financing for energy efficiency projects such as CHP. HB 100¹ passed the state legislature in March 2015. The CHP Project partners will support implementation of this opportunity.
- **Tax credit:** HB 416², of the 2015 legislative session, included a manufacturer’s tax credit for installed energy efficiency measures, including heat recovery technology. The bill would modify KRS 154.34-010, 070, 080, and 110 of the Kentucky Reinvestment Act to create a separate tax incentive tier for industries that invest a minimum of \$100,000, applicable only to energy efficiency investments for small and medium sized industries previously ineligible.
- **Industrial revenue bonds**³: KRS 103 was amended in the 2014 General Assembly to require the development of rules for utilization of industrial revenue bonds for the purposes of improved energy efficiency at manufacturing facilities. An information clearinghouse is to be established per KRS 147A.032 where the Department for Local Government will host bond implementation guidance with support from Finance and Administration; Economic Development; and Energy and Environment Cabinets.
- **Standby Rates and Ratchet Charges:** Many utilities require standby charges for CHP installations to reserve back-up service in the event of planned or unplanned CHP outages. Standby charges can be over \$10 per KW per month. For example, a \$10 rate applied to a 10 MW system will amount to \$1.2 million per year. Some further apply a demand ratchet that may set an additional charge on the bill; ratchets are based on a new peak demand in any 15 minute operating window. This new peak will result in an elevated demand charge that is applied to the next 11 months of the billing cycle. In addition to other costs associated with implementing a CHP project, how these charges are structured can impact the economic viability of a project.

¹ EPAD – HB100. Sponsor James Kay. 2015.

<http://www.lrc.ky.gov/record/15RS/HB100.htm>. EPAD is sometimes more commonly known as Property Assessed Clean Energy (PACE) in other states.

² Tax Incentives – HB416. Sponsor S. Riggs. 2015.

<http://www.lrc.ky.gov/record/15RS/HB416.htm>

³ Industrial Revenue Bonds. Kentucky Revised Statutes 103.210. 2014.

<http://www.lrc.ky.gov/Statutes/statute.aspx?id=43473>

DEDI and other stakeholders will pursue an ongoing dialogue with utilities and the PSC on this topic.

Table 1. Summary of Action Items

	Action Item Topic	Next Action
Education and Outreach	Marketing	Promote CHP events, including workshops, networking events and webinars; develop outreach materials and messaging for targeted audiences.
	CHP Events	Plan and conduct end user workshops, webinars, networking events, and present CHP at various events, such as the KAM Energy Conference.
	Targeted Outreach	Connect potential end users with technical assistance (TA) services, utilizing heat maps, partner networks & other identification tools.
Reference/Guidance	Reference Library *	Identify relevant CHP references and post links and presentations to the web including waste heat to power, reliability, maintenance, thermal energy, fuels, electricity pricing structure.
	Permitting *	Develop guidance document, templates, and streamlined process.
	Electrical Interconnection *	Develop a process overview.
	CHP Vendor List *	Draft a Kentucky-specific vendor list.
	Financing *	Develop document on CHP financing options for Kentucky.
Technical Assistance	KPPC and SE CHP TAP	Conduct qualification screening and feasibility analysis for interested CHP candidates. Project partners and CHP stakeholders will support connecting potential end users for qualification screening or other TA services utilizing the targeted outreach strategy to engage manufacturing and commercial sectors.
Policy	Commercial EPAD	Identify funds to establish an implementation program.
	Tax Incentives	Support future proposed legislation, or other CHP-related incentives.
	Industrial Revenue Bonds	Support the Department for Local Government in establishing a bond program implementation clearinghouse.
	Standby Rates and Ratchet Charges	DEDI and other stakeholders will pursue an ongoing dialogue with utilities and the PSC on this topic

*Reference Documents will be posted to the DEDI website as available⁴

INTRODUCTION

[The Role of Kentucky's Action Plan for CHP](#)

Kentucky's Action Plan for Combined Heat and Power (Action Plan or Plan) was prepared by the Kentucky Energy and Environment Cabinet's (EEC) Department for Energy Development and Independence (DEDI) and the Kentucky Pollution Prevention Center (KPPC). This Action Plan is a key deliverable in the two-year Advancing Industrial Energy Efficiency (AIEE) process and meets a Phase One milestone under DEDI's cooperative agreement with the United States Department of Energy (U.S. DOE), Award No. DE-EE0006487.

The overarching objective of this initiative was to develop programs and strategies that support the productivity and competitiveness of the state's industrial sectors by addressing specific policy, regulatory, or market barriers that deter companies from achieving the economic and environmental benefits of investment in energy efficiency and Combined Heat and Power (CHP). The Action Plan for CHP will serve as a guidance document for future activities to stimulate the market for CHP. Over 100 stakeholders have provided input into the development of this plan, with at least half of those participating directly in Sub-committees activities (see **Appendix** for a complete list).

Kentucky's economy is heavily dependent on a robust industrial sector. Keeping Kentucky industries competitive globally will help to maintain and support future job growth in the state. Competitive energy rates have contributed to the recruitment and sustained success of Kentucky's industrial sector. To continue the success of industries in Kentucky, CHP provides an alternate to industries looking for greater control of their energy costs. As the demand for energy grows, the Kentucky CHP Action Plan can help identifies ways the Commonwealth can diversify its energy portfolio.

[The CHP Stakeholder Process](#)

The CHP Grant Partner team reached out to a core group of stakeholders in late 2013 to form a Steering Committee. The Steering Committee included representation from utilities, the Public Service Commission, advocacy groups, energy service providers, and state government. Under the guidance of the Steering Committee, an extensive Work Group was formed that began activities in March 2014. Over 20 stakeholder meetings were held in 2014.

Work Group members served on one of four sub-committees and reported back to the full Work Group throughout the year, with Work Group activities being guided by consensus. Sub-committees were organized to address four target work areas: policy and utility integration; education and outreach; finance; and technical application. The sub-committees were charged with identifying the challenges and opportunities to be outlined in this plan. Each sub-committee developed a charter document to guide committee activities. A primary goal of the stakeholder groups was to identify barriers and opportunities related to CHP and lend support to the creation of the Kentucky CHP Action Plan. Steering Committee, Work Group, and Sub-committee notes can be found on the DEDI CHP webpage.

⁴ State CHP Web Page. Department for Energy Development and Independence. 2014.
<http://energy.ky.gov/Programs/Pages/CHPactivities.aspx>

ACTION ITEMS

Kentucky has a goal of jump starting the CHP market through a stakeholder planning and outreach process that began in 2014. Individual stakeholders shared expertise as the opportunities, challenges and potential implementation strategies were explored. Stakeholder diversity provided for balanced discussion with participants representing utilities, government, environmental groups, the supplier base, manufacturing, education, and healthcare. Sub-committees in the areas of technical application, finance, policy, and education and outreach each met at least four times and discussed a wide array of topics. Although this report focuses on the topics where an action has been defined, many items, such as those listed as “also discussed,” may be re-visited or addressed at a later date. Action items are grouped according to sub-committee topic areas.

While there are many challenges to CHP implementation in the state, it is clear these projects can move forward, even under the current rules and energy landscape. That said, there are also a number of impediments. While there is no silver bullet for moving CHP forward in Kentucky, the following provides a list of action items where incremental progress can be made.

Education and Outreach

A key impediment to the adoption of CHP by commercial and manufacturing end users is awareness. Many simply have never heard of CHP, or are not aware of the benefits and opportunity that CHP offers. While others may have some familiarity with the technology, there may be a sense that they do not have the technical knowledge to approach such a project. Beyond the end users, there are others who play a role in the implementation of CHP, such as financial institutions, utilities, air and utility regulatory agencies, vendors and equipment providers, and design professionals. Each entity can play a role in helping the adoption of this energy and cost-savings technology. To that end, an outreach and education strategy is needed. Some of the key components of this strategy are outlined below in **Table 2**.

Six key target audiences and a corresponding CHP marketing message have been defined below.

Table 2. CHP Marketing Messages

Audience	Message
End users	<ul style="list-style-type: none">• Increased control of energy costs• Reduce risk to electric supply interruptions• Increased energy efficiency• Free unbiased qualification screenings and feasibility analyses available
Public policy makers	<ul style="list-style-type: none">• Provides Kentucky businesses with a greater competitive edge and preserves jobs

Audience	Message
Resource assistance providers	<ul style="list-style-type: none"> • Present simplified, unbiased solutions for issues • Legitimize concept • Opportunity to share information
Equipment/Plant designers	<ul style="list-style-type: none"> • Raise awareness • Consider including CHP in designs
CHP equipment manufacturers, service providers, architects, engineers, and energy service companies (ESCOs)	<ul style="list-style-type: none"> • Awareness of Kentucky initiatives • Make sure Kentucky CHP Partners message(s) are correct • Equip them with information about availability of free unbiased qualification screenings and feasibility analyses
Utilities	<ul style="list-style-type: none"> • Industry retention and attraction

Approach: The following provides the various means by which outreach and marketing will occur.

Outreach and Marketing Activities

- **Outreach Materials**

Various media to distribute information on CHP technologies and benefits are available including state resources in the form of presentations, a resource guide, case studies, and a state CHP website. The website includes information from the SE CHP Technical Assistance Partnership⁵ and the EPA CHP Partnership websites.⁶ These materials will be used to educate various stakeholders in the CHP community and as technical references for project implementation.

- **Marketing**

Workshops, networking events, webinars, and conferences are venues at which CHP information has been shared. Information about these events has been and will be marketed through various trade association contacts and via association publications, e-mail distributions list, call lists, mailings, and social media in order to maximize participation.

- **Events**

- End User Workshops

Two 6-hour workshops were conducted in November 2014. The workshops included presentations from the CHP sub-committees, equipment vendors, consultants, and a

⁵ Southeast CHP Technical Assistance Partnership, 2015, <http://southeastchptap.org/>

⁶ Environmental Protection Agency, 2015, <http://www.epa.gov/chp/partnership/partners.html>

roundtable/panel discussion. Total attendance for both workshops was 75. Presentations are posted on the DEDI website.

○ Site Visit/Networking Event

The CHP project held networking events in March of 2015 at Owensboro Grain and Domtar Paper, both of whom currently utilize CHP. The event included presentations on CHP topics and allowed opportunities for information sharing among industry professionals. It also allowed companies interested in CHP to see working units and ask questions from a CHP host-user.

○ Webinar

An on-line presentation was conducted for CHP-related topics January 29, 2015. Feedback was solicited from CHP workshop attendees and other stakeholders regarding topics they would like more in-depth information on. The webinar content was developed based on that feedback. Webinar topics included review of a sample qualification screening and air quality permitting tips. The content is available for viewing via the DEDI CHP website.

Targeted Outreach Plan

Given the total universe of manufacturers and commercial business in Kentucky, not all will be good candidates for CHP. Blanket emails and marketing approaches will be only marginally successful without a more targeted approach. The key is to identify areas with the greatest spark spread and the sectors with an energy use profile that can most benefit from CHP adoptions. (Spark spread is the difference between electricity price and the prospective CHP fuel price.) A greater spark spread can be a good initial indicator of the business case for CHP. Strategies that will be utilized to identify individual facilities interested in CHP are:

- Contacting industrial facility sectors known to be heavy users of CHP nationally, or have heavy thermal process demands, such as paper, chemical, food, or metals processing. These may be identified via means such as North American Industry Classification System (NAICS) codes listings available from the Economic Development Cabinet.
- Contacting full-time manufacturing facilities on a geographical basis based on spark spread. This information can be ascertained by GIS analysis to identify where heavy sector-specific industrial activity (referenced by NAICS code) is co-located with high electric rates.
- Initiating discussions with manufacturing representatives who have attended stakeholder meetings, workshops, conferences, webinars, or networking events to gauge interest in CHP qualification screenings and further leveraging appropriate member associations.
- Contacting facilities known to have specific energy efficiency or environmental goals which are identified through environmental associations such as the KY EXCEL leadership program.
- Engaging decision makers from government or institutional sectors such as hospitals and their associations, universities, local, state, or federal agencies through conferences or other training venues.
- Continuing to engage utilities in discussions on how Combined Heat and Power or district energy projects might be in line with utility goals in terms of environmental compliance, increasing industrial energy efficiency or reducing demand.

- Promoting all available opportunities to Kentucky through SE CHP TAP for technical services such as qualification screenings and feasibility analyses.

Metrics which may be tracked for upcoming CHP activities include: number of attendees at CHP events; contacts via e-mail, telephone, or face to face; website hits; number of qualification screenings; number of feasibility analyses; number of newsletter articles; or number of other forms of media releases related to CHP.

Status: Many of the activities identified above have already occurred. Namely, the workshops, webinar, and site visits. Going forward, activities will focus on more targeted outreach to individual end user candidates based on the selection criteria described above.

Reference and Guidance Documents

Through the stakeholder process, a number of financial, technical, and regulatory issues were identified. While a wealth of CHP implementation resources are available on the Internet, some of these resources are not fully compatible with Kentucky policy or regulations. Other information is scattered among various websites making it difficult to find what is needed. As a result, a number of key reference documents were identified as being useful for development or adaptation specifically for Kentucky. The following is a listing of reference materials that will be, or have been, developed.

Reference Library

A Technical Reference Library will be developed by compiling CHP articles, presentations, and other information to be posted on the DEDI website.

Approach: Information identified by various stakeholders or project partners is routed to DEDI to be included in the library. A compilation of “lessons learned” will also be developed by working with facilities currently producing CHP. The library will be updated as new information becomes available.

Status: Currently, a wealth of information exists on a number of websites, including EPA, and the regional CHP TAPs. Additional materials from the various sub-committees have been compiled on the DEDI website.

Permitting

An operating permit, or air permit, is required by the Commonwealth of Kentucky for any industrial or commercial facility with the potential to emit⁷ any substance which could be considered an air pollutant. The permit will document the maximum amount of any substance which may be emitted from the facility’s operation, including the burning of fuel. In Kentucky, the Division of Air Quality (DAQ) issues these permits, except in Jefferson County where the Jefferson County Air Pollution Control Board has the authority to regulate air emissions. Many stakeholders expressed concern that the permitting process is cumbersome and difficult. For this reason it was suggested there is a need for a much simplified process or guidance to facilitate CHP permitting.

⁷ DCA web page. Division of Compliance Assistance. 2015.
<http://dca.ky.gov/Pages/default.aspx>

Approach: The Technical Application Sub-committee has provided information on the different CHP technologies and fuels to the Kentucky Division for Air Quality (DAQ). DAQ will compile a list of the types of permits which may be required and the data needed for application. This information will be used to develop a “decision tree” and check list to aid permit applicants. DAQ is considering the development of templates to help with the permitting process as well.

Status: DAQ is working to provide the permitting guidance.

Electrical interconnection and integration

While a facility could, in theory, operate a CHP unit independent of electrical grid interconnection, most facilities will remain connected to the grid. There are several reasons for this. CHP systems are typically sized for a facility’s base load, with the remaining power needs being met from the utility. Additionally, some facilities may sell excess electricity to a utility. And most facilities will be in need of emergency or “standby” power services in the event the CHP has an interruption.

Once the decision is made to interconnect, a host of federal, state, and/or utility standards and requirements for safety and power quality will come into play. Kentucky has a mix of Generation and Transmission (G&T) utilities, distribution cooperatives, municipal utilities and investor-owned utilities. Cooperatives served by the Tennessee Valley Authority (TVA) and municipal utilities are not regulated by the Kentucky Public Service Commission. This mix of utility types creates a complex landscape of interconnection requirements, each with their own rules based on CHP capacity and whether a connection is made at the distribution or transmission level. Because of this, and barring rule-making by the Public Service Commission, no comprehensive set of interconnection standards is available at this time. This issue will continue to be monitored for potential future action.

Approach: The project should assess and summarize the basic interconnection requirements for various utilities in Kentucky, along with case study examples presentations.

Status: The 2015 KAM Conference CHP session will include an interconnection case study. As additional guidance documentations are developed they will be posted to the DEDI CHP website.

CHP Vendor List

CHP is not a new technology. As such, there are host of equipment and service providers that are already operating in this market space. In fact, there are a number of regional and in-state technical experts for cogeneration project implementation in Kentucky.

Approach: A listing of local CHP related product and service providers should be created as a resource for facilities interested in CHP. As a result of the CHP stakeholder process a network of energy service providers has already stepped forward, many of whom are eager to support activities associated with CHP outreach and project development.

Status: A vendor list has been developed and is posted to the DEDI CHP website; this will be revised as new information comes to light.

Financing Options by Candidate

The CHP Finance Sub-committee had a goal of identifying existing or potential financing measures which might work best under the financial structure of each end-user type.

Approach: Develop a menu of financing options for Kentucky businesses which identifies the unique characteristics of each financing mechanism and status of each. Information will be made available via the DEDI website, workshops, webinars, or through other education and outreach materials.

Status: An initial financing options list is available and will be updated periodically to reflect developments in additional resources such as ePAD and industrial revenue bonds.

Technical Assistance

It is understood that there is a fairly steep learning curve to the implementation of CHP – and not every business or institution has the technical expertise to evaluate the suitability of this technology for their individual circumstances. To address this barrier, the CHP Partners are providing technical assistance in the form of qualification screenings and feasibility analyses. Through a range of marketing and outreach activities (see above), institutions and manufacturers will be solicited to consider screening. Two levels of screening are being made available through the University of Louisville’s Kentucky Pollution Prevention Center or the South East CHP Technical Assistance Partnership Center:

- **Qualification Screening:** This spreadsheet-based tool provides a quick assessment to help companies or institutions determine if CHP could be economically viable. It requires the input of energy and heat demands, fuel prices, etc. by the entity considering CHP. If results of this screening are favorable, a feasibility analysis may be the next step.
- **Feasibility Analysis:** This process involves a more in-depth investigation of the facility and processes with a more thorough utility analysis, a site visit, ROI and IRR calculations, and “what-if” scenario analyses.

Approach: Potential clients for qualification screening will be recruited through various means described per the targeted outreach strategy. A feasibility analysis will be scheduled once a successful qualification screening has been completed and interest is expressed by the client in proceeding.

The goal of this project is for KPPC to conduct four qualification screenings and two feasibility analyses and for the SE CHP TAP Center to conduct an additional quantity of qualification screenings: 20 commercial and 30 manufacturing facilities annually.

Status: The qualification screening tool is available for the Kentucky CHP Program through KPPC and the SE CHP TAP with preliminary analyses having begun for some facilities. The tool is proprietary and not available for direct public use.

Policy

A primary concern of the business community, relative to the development of a CHP project, is the availability of capital, the means of financing projects, and potential incentives that may be available. A Finance Sub-committee spent considerable time researching various options, business models, and resources that could potentially support CHP project development. A reference guide will be developed (as noted above) to lay out the most common options. However, the following outlines the three most promising new options that can improve the economics of a CHP project.

Industrial Revenue Bonds

KRS 103.210 was modified in the 2014 General Assembly to allow for the issuance of Industrial Revenue Bonds for the purposes of improved energy efficiency in manufacturing facilities. The following is an excerpt from a bill:

103.210 Issuance of bonds.

(1) In order to promote the economic development of the Commonwealth, to Relieve conditions of unemployment, to encourage the increase of industry in this state, and to aid in the retention of existing industry through improved energy efficiency in manufacturing facilities, or through conversion of energy facilities to more readily available fuels, any city or county may borrow money And issue negotiable bonds for the purpose of defraying the cost of acquiring any industrial building or pollution control facility, either by purchase or construction. As such, this source of capital is available.

Guidance has not been developed to administer this bond authority nor have regulations for the issuance of these bonds been drafted .

Approach: The CHP Project Partners will stay abreast of rule development related to industrial revenue bonds and add this item to the education and outreach guidance for financing options of CHP projects once bonding capabilities are in place. The Finance and Administration Cabinet is responsible for the development of these regulations.

Status: An information clearinghouse is to be established at the Department for Local Government, per KRS 147A.032, to provide bond implementation guidance with support from Finance; Economic Development; and Energy and Environment Cabinets.

Tax Incentives

Approach: HB 416⁸, of the 2015 legislative session, was proposed to establish a manufacturer's tax credit for installed energy efficiency measures, including heat recovery technology. The bill would modify KRS 154.34-010, 070, 080, and 110 of the Kentucky Reinvestment Act to create a separate tax incentive tier for industries that invest a minimum of \$100,000, applicable only to energy efficiency investments. The credit is designed to incentivize investments by small and medium sized industries.

Status: There is currently a 10% federal corporate tax credit available for CHP installations. Many states offer tax credits as well; however, Kentucky does not at this time. HB 416 was introduced to the House February 2015 and then sent to appropriations and revenue. It failed to pass during the 2015 General Assembly.

Commercial EPAD

Another means by which CHP projects may be financed is through an approach that is taking hold in a number states across the nation, called Property Assessed Clean Energy (PACE).⁹ In an effort to make PACE available to businesses in Kentucky, legislation allowing local government to establish programs, called Energy Property Assessment Districts (EPAD) in Kentucky HB 100, was introduced in the 2015 General Assembly and was approved by both houses in March 2015. EPAD allows local public assessment district to offer full financing for energy saving measures, including heat recovery projects such as CHP. This type of financing is unique in that it is repaid as a line item on the property tax assessment for up to 20 years. Because it is tied to the property, the financing is

⁸ Tax Incentives – HB416. Sponsor S. Riggs. 2015.

<http://www.lrc.ky.gov/record/15RS/HB416.htm>

⁹ PACE has been authorized in 31 states, plus the District of Columbia. PACENow <http://www.pacenow.org/>.

more secure and often has a lower cost of capital; and because it is tied to the tax bill, it is considered off-credit and off-balance sheet – making it particularly attractive for businesses not wishing to enter into longer-term financing obligations.

Approach: The legislation does not require the development of regulations, nor does it compel any city or county to take action. Since there is presently no precedent for establishing an EPAD program in Kentucky, DEDI anticipates some initial hurdles in developing template ordinances, template contracts, financing documents, and other legal and educational framework to set up and administer an EPAD program. Furthermore, because both CHP and the EPAD concepts are new, lenders may be reluctant to finance these activities. Efforts should be made to support cities and counties to establish local EPAD programs and line up private capital to fund CHP projects. DEDI and partners will take the lead helping develop programs.

Status: HB100 passed the state legislature in March 2015 and was signed into law by the Governor. DEDI is pursuing funding, arranging partnerships, and investigating capital sources to help communities establish EPAD programs.

Standby Rates and Ratchet Charges

Many utilities require standby charges for CHP installations to reserve back-up service in the event of planned or unplanned CHP outages. Standby charges can be over \$10 per KW per month. For example, a \$10 rate applied to a 10 MW system will amount to \$1.2 million per year. Some further apply a demand ratchet that may set an additional charge on the bill; ratchets are based on a new peak demand in any 15 minute operating window. This new peak will result in an elevated demand charge that is applied to the next 11 months of the billing cycle. In addition to other costs associated with implementing a CHP project, how these charges are structured can impact the economic viability of a project.

Approach: DEDI and other stakeholders will pursue an ongoing dialogue with utilities and the PSC on this topic

Status: There is no uniform guideline for stand-by charges. For those utilities who do have published stand-by rates, the rates and rate structures vary widely. DEDI has met with and briefed PSC staff on the issues surrounding CHP, standby rates and ratchet charges, and how the current rate structures impact the economics and feasibility of CHP projects. DEDI will stay in contact with other state and national organizations to learn and share with CHP stakeholders new and innovative approaches to standby charges and ratchets.

APPENDIX: List of CHP KY Stakeholder Participants

Note: This list identifies organizations, and their representatives that participated in one or more phases of the CHP KY project's stakeholder series. It includes participants who provided both formal and informal feedback during one-on-one and/or small group meetings that took place in 2014-2015.

UTILITIES AND ASSOCIATIONS	REPRESENTATIVES
Owensboro Municipal Utility	Tim Lyons, Terry Naulty
Owen Electric	Mark Stallons, Jim Bridges
LG&E-KU	David Huff, George Siemens, David Friebert
East Kentucky Power Cooperative	David Crews, Jeff Brandt
Frankfort Plant Board	Travis McCullar
Kentucky Power	John Rogness, Ranie Wonhas
Tennessee Valley Authority	Gary Brinkworth
Kentucky Association of Electric Coops	Dennis Cannon, Eric King
Kentucky Municipal Utilities Association	Annette Dupont-Ewing
Delta Gas	Jeff Steele
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