Assessing Opportunities for Industrial CHP through EPA's Clean Power Plan

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ABSTRACT

The Environmental Protection Agency (EPA) Clean Power Plan (CPP) represents a strong driver for improving industrial energy efficiency and increasing combined heat and power (CHP). While air quality has not historically driven CHP projects, that will likely change in many states around the country as the framework of the CPP encourages more favorable conditions for investing in industrial energy efficiency and CHP. This paper explores the value proposition of CHP in the context of the 111(d) rule. CHP can generate valuable emission reductions and energy savings that, depending on how states structure their compliance plans, could provide revenue opportunities for industrial CHP system owners. This paper looks at how different compliance plan structures would encourage the use of CHP and considers compliance scenarios with CHP in two states, Mississippi and Pennsylvania. This analysis is intended to assist industrial energy users in assessing the potential benefits of installing CHP in the context of EPA's Clean Power Plan.

Introduction

Combined heat and power (CHP) is an energy-efficient method of generating both electricity and useful thermal energy in a single, integrated system. The average efficiency of a fossil-fueled power plant in the US is currently 34%, meaning approximately two-thirds of the energy contained in the fuel input is lost as wasted heat (EIA 2014). By contrast, a CHP system recovers heat that would otherwise be wasted and puts this energy to use onsite, satisfying a facility's thermal energy requirements. Further, by reducing the purchase of electricity from the grid, energy losses that normally occur with transmitting and distributing electricity are reduced. With these savings, CHP systems regularly achieve energy efficiencies of 60% to 80%, which is significantly greater when compared to the 40% to 55% that is typically achieved by producing heat and power separately. These energy savings reduce emissions of greenhouse gases, and a properly designed CHP system may result in an emissions reduction of as much as 40% or more (EPA 2015a).

Because of CHP's increased energy efficiency, environmental benefits, and other advantages, efforts have been developed across the country to increase deployment. President Obama established a national goal of 40 gigawatts (GW) of new CHP capacity by 2020 (Executive Order No. 13, 624, 2012), and the Department of Energy is providing regional and state technical assistance to help achieve this goal (DOE 2015). The federal business energy investment tax credit (ITC) also incentivizes CHP systems by offering a credit for 10% of CHP project costs (EPA 2015b).

In addition to federal efforts, states have also developed innovative approaches to encourage energy savings and emissions reductions from CHP. Twenty-two states recognize CHP in one form or another as part of a clean energy standard such as a renewable portfolio standard or energy efficiency resource standard (Gilleo et al. 2014). Sixteen states offer some

form of tax credit, incentive, or grant program to encourage CHP deployment (Gilleo et al. 2014).

In spite of these efforts, CHP continues to face a number of barriers to increased deployment. CHP systems require large capital investments, and payback periods are often longer than many industrial energy users can easily justify. The existing business and regulatory structure governing many electric utilities can also discourage industrial energy users from investing in CHP since utility revenues are frequently tied to energy sales and CHP reduces energy use. This is evident in the challenges some CHP operators experience with grid interconnection and in burdensome standby fees that some utilities charge CHP system operators. Without state-level regulations and policies to address these barriers, CHP deployment remains challenging in many parts of the country.

Future carbon pollution standards could overcome many barriers to CHP deployment. On June 2, 2014, EPA issued a draft rule that utilizes Section 111(d) of the Clean Air Act to regulate CO_2 emissions from existing power plants (EPA 2014a). Also known as the Clean Power Plan (CPP), these air quality regulations will create demand for low-cost emissions reduction measures like CHP, providing a new justification for states and utilities to increase support for CHP projects. An opportunity exists for the industrial sector to be compensated for supplying 111(d) compliance solutions through the installation of CHP.

The CPP proposes to allow states to choose from a wide variety of strategies, including energy efficiency, to reach state-specific emissions reduction targets by 2030. In the draft rule, EPA did not provide a detailed description of how states could obtain credit for CHP policies and programs. More clarity regarding the treatment of CHP may become available in summer 2015 when EPA is expected to release its final rule. In the meantime, CHP is one of several energy efficiency measures that states should consider in planning for compliance. In a technical support document accompanying the proposed rule, EPA indicated it considers CHP as one of the energy efficiency measures for which evaluation, measurement, and verification (EM&V) procedures and protocols are most well established (EPA 2014b). States could view this as an indicator that CHP is an appropriate strategy because emissions reductions can be reliably measured and documented for compliance with the CPP.

This paper is intended to help industrial customers assess the opportunity for installing CHP in the context of 111(d). It discusses the potential energy savings from industrial CHP and document the role of CHP in different approaches to state compliance. The paper considers how revenue for industrial CHP owners could be earned and concludes with a brief consideration of each of these topics using examples from two different states, Mississippi and Pennsylvania.

Potential Energy Savings from CHP

CHP is a well-established resource with a long history of use in every state of the nation. Today, there are CHP installations at over 4,300 facilities in the United States (Hampson and Rackley 2014). About 86% of the current installed CHP capacity is in the industrial sector, with the most CHP capacity in the chemicals, refining, and paper industries (Hampson and Rackley 2014; DOE and EPA 2012). However the amount of CHP currently installed is below its estimated potential, making CHP an important option for achieving large energy savings in the future. EPA estimates the technical potential for additional CHP at existing industrial facilities is about 65 GW (DOE and EPA 2012).

The potential for industrial CHP varies widely by geographic region. ICF International conducted a study in 2013 that identified technical potential for new natural-gas-fueled CHP in

each state (ICF 2013). In this case, technical potential is an indicator of the potential size and distribution of CHP based on electric and thermal demand at existing facilities, but does not consider economic factors that impact the market penetration for CHP.

In a recent report, *Change Is in the Air: How States Can Harness Energy Efficiency to Strengthen the Economy and Reduce Pollution*, ACEEE adapted ICF's technical potential data to estimate how much energy savings new CHP could cost effectively contribute to compliance with the CPP (Hayes et al. 2014).[1] This analysis found that states could install more than 18 GW of CHP capacity by the year 2030 without any new policy incentives. ACEEE estimated these new CHP installations could result in more than 68 million MWh of energy savings, which would help states reduce greenhouse gas emissions by approximately 46 million metric tons by 2030.[2] About half of these energy savings—33.7 million MWh—come from CHP installations in the industrial sector.

Table 1 shows the potential contribution of industrial sector CHP to Clean Power Plan compliance in the years 2020 and 2030 by state. It is important to note that amounts presented here reflect a set of assumptions that constrain the scope of savings CHP can contribute. Only new natural-gas-fueled CHP systems sized under 100 MW were considered in ICF's analysis of technical potential. To limit savings estimates to only those that could be achieved economically, ACEEE applied a cost-effectiveness test. The test used average retail energy prices and the capital cost and operating characteristics of the potential CHP systems to screen out systems with a benefit–cost ratio of less than one.[3]

It is also important to note that this does not include any additional supportive state policies for CHP or the ability to export excess power production back to the grid. This explains why some states do not show any new potential energy savings from industrial sector CHP in the table. However factoring in existing and renewable-fueled CHP systems plus incorporating the economic impacts of additional state policies and programs to encourage CHP could substantially increase savings estimates across all states but was beyond the scope of this analysis.

The states with the highest amount of industrial CHP potential include California, New York, Texas, New Jersey, Massachusetts, Wisconsin, Louisiana, Connecticut, Kentucky, and Florida.

Table 1. ACEEE estimate of potential energy savings from CHP for Clean Power Plan compliance (MWh)

State	Industrial annual energy savings in 2020	Industrial annual energy savings in 2030	State	Industrial annual energy savings in 2020	Industrial annual energy savings in 2030
Alabama	0	0	Montana	0	0

[1] A detailed explanation of the key assumptions from that analysis is available in the Appendix of the report on p.50.

[2] See EPA's Greenhouse Gas Equivalencies Calculator: http://www.epa.gov/cleanenergy/energy-resources/calculator.html.

[3] Estimates of technical potential ignore economic considerations that impact the market favorability for CHP deployment. Factoring in average energy price assumptions and the capital cost and performance characteristics of potential CHP installations is one way to take economic considerations into account.

State	Industrial annual energy savings in 2020	Industrial annual energy savings in 2030	State	Industrial annual energy savings in 2020	Industrial annual energy savings in 2030
Alaska	63,290	203,933	Nebraska	46,270	149,093
Arizona	38,739	124,824	Nevada	0	0
Arkansas	52,068	167,774	New Hampshire	138,549	446,435
California	1,970,446	6,349,215	New Jersey	813,153	2,620,158
Colorado	91,473	294,747	New Mexico	24,277	78,224
Connecticut	429,933	1,385,338	New York	1,854,306	5,974,986
Delaware	0	0	North Carolina	0	0
District of Columbia	0	0	North Dakota	11,625	33,585
Florida	299,748	965,853	Ohio	190,688	614,440
Georgia	468,977	729,519	Oklahoma	0	0
Hawaii	31,191	100,505	Oregon	0	0
Idaho	0	0	Pennsylvania	0	0
Illinois	298,864	963,007	Rhode Island	56,648	182,532
Indiana	79,480	256,103	South Carolina	191,314	510,171
Iowa	0	0	South Dakota	2,636	2,636
Kansas	67,468	217,395	Tennessee	360,821	360,821
Kentucky	301,814	972,513	Texas	843,507	2,717,967
Louisiana	444,283	1,431,580	Utah	0	0
Maine	0	0	Vermont	63,609	204,963
Maryland	0	0	Virginia	205,148	661,033
Massachusetts	587,963	1,894,548	Washington	0	0
Michigan	181,949	181,949	West Virginia	80,193	258,401
Minnesota	169,943	547,595	Wisconsin	489,378	1,576,885
Mississippi	170,234	548,531	Wyoming	21,839	21,839
Missouri	0	0	**National**	**11,141,823**	**33,749,100**

Source: Adapted from Hayes et al. 2014

Translating Energy Savings to Emissions Reductions for Credit

According to the CPP draft rule, credit for compliance measures could represent avoided MWh of electric generation or avoided tons of CO_2 emissions (EPA 2014b). Translating the energy savings from CHP into pounds or tons of avoided emissions is a complex task. CHP reduces emissions by shifting electric load away from centralized power plants to the CHP unit (typically near the point of use) while moderately increasing on-site fuel consumption. Due to

the avoided transmission and distribution losses, and overall efficiency of cogenerating heat and power, CHP results in primary fuel savings. Greenhouse gas emissions reductions are determined by the net fuel savings that occur as a result of the CHP system.

In general, avoided emissions should be represented as the net emissions savings compared to what would have been emitted by the central power plant had the CHP system not existed. Similarly, an acceptable approach to crediting CHP for reducing electric generation at the central station should account for any incremental increase in onsite emissions. Active discussions on appropriate accounting methodologies for CHP in the CPP have taken place within the energy efficiency and CHP communities and ACEEE elaborated its recommendations in its comments to the EPA on the draft rule (ACEEE 2014).

It is also important to note that *new* CHP systems may not be the only systems to earn credit for emissions reductions under the CPP. An existing CHP system avoids emissions when it is dispatched to provide power to the grid in place of conventional power plants or when it switches to lower carbon fuels, such as from coal to natural gas. The different modalities for which CHP may be eligible for credit are also described in ACEEE's comments to EPA (ACEEE 2014).[4]

Approaches to State Compliance with CHP

A variety of approaches to compliance are available and states will choose different pathways depending on their existing regulatory structure. In its technical support document, EPA outlines two basic approaches—the direct emissions limit approach and the portfolio approach—that could accommodate a diverse set of measures states could include in their compliance plans (EPA 2014b). Under the direct emission limit approach, a state can rely solely on rate-based or mass-based CO_2 emissions limits that are enforceable against affected electric generating units (EGUs). Under a portfolio approach, a state can rely on those limits and other measures enforceable against other entities.

These two approaches result in four pathways to compliance: (1) rate-based emission limits, (2) mass-based emission limits, (3) state-driven portfolio approach, and (4) utility-driven portfolio approach (EPA 2014b). Emissions reductions from CHP can be utilized and verified in all four pathways and can be a strong component of a state's strategy for cost effectively reducing emissions from the power sector. For the purpose of demonstration, the following offers a brief description of how CHP might contribute to compliance in each of EPA's four pathways to compliance:[5]

Direct emission limit approach

- *Rate-based emission limits that apply directly to affected EGUs*. CHP provides emissions reductions by shifting electric load away from the EGU to the CHP unit. Avoided

[4] For more discussion on different categories of CHP in the context of the Clean Power Plan, see "Five Flavors of CHP: Recipes for State Clean Power Compliance Plans," by Mark Spurr, available at: http://www.districtenergy-digital.org/districtenergy/2015Q1?pg=74#pg70.

[5] Descriptions of how CHP might contribute to each pathway are the author's interpretation. In drafting this document, the author relied on provisions in the proposed CPP as well as on guidance on and past precedent for the treatment of energy efficiency and CHP under other provisions of the Clean Air Act.

generation and emissions from CHP could be used to adjust the emissions rate of the affected EGU.[6]

- *Mass-based emission limits that apply directly to affected EGUs*. CHP provides emissions reductions by shifting electric load away from the EGU to the CHP unit. Avoided generation and emissions would reduce the overall tonnage of CO_2 emitted by the affected EGU.

Portfolio approach

- *State-driven portfolio approach.* CHP provides emissions reductions by shifting electric load away from affected EGUs as part of a portfolio of programs in a state plan to achieve either a rate- or mass-based goal. The suite of measures in a state's portfolio may be enforceable against a mix of entities, including owners and operators of affected EGUs, electric distribution utilities, third parties, and state agencies.
- *Utility-driven portfolio approach.* CHP provides emissions reductions by shifting electric load away from affected EGUs as part of a portfolio of programs in a state plan to achieve either a rate- or mass-based goal. The suite of measures in a state's portfolio is enforceable only against the utility company.

End-use energy efficiency and CHP could be major components of state's strategy within all of the above approaches. A key distinction between the approaches is related to enforceability. The approach the state chooses will determine the entities against which the compliance plan will be federally enforceable in the case of noncompliance, failure to implement, or an emissions reduction shortfall. States should consider where they want this obligation to fall and should consult the final rule, which may contain additional guidance on the issue.

One option for states to consider is to shield CHP system owners from federal enforceability by agreeing to meet any shortfall in anticipated emissions reductions through other energy efficiency policies or measures as part of a larger portfolio. In a portfolio approach, the state could include a mix of strategies and make adjustments if one measure in the mix is underperforming. Such adjustments need not be specific to the CHP elements of the plan. For example, if a CHP measure does not deliver emissions reductions as expected, a different element of the mix of strategies could be adjusted to make up the shortfall.

If states choose a portfolio approach, EPA suggests that states with restructured electricity sectors are more likely to adopt a state-driven portfolio approach and states with vertically integrated electric utilities are more likely to adopt a utility-driven approach (EPA 2014b). This guidance is drawn upon in the state examples discussed later in this paper.

Revenue Opportunities for CHP Owners

Many states are considering new policy and regulatory frameworks to encourage emissions reductions for CPP compliance. In order to take full advantage of CHP as a compliance strategy, states may consider creating tradable crediting systems or a wide variety of

[6] EPA's technical support document also includes a discussion of approaches for adjusting EGU CO_2 emission rates. If adjustments or credits represent avoided MWh, they would be added to the denominator of a state's emissions rate (lbs. CO_2/MWh). If adjustments or credits represent avoided CO_2, they would be subtracted from the numerator.

other programs that would improve the return on investment or reduce payback periods for CHP installations.

Mechanisms for earning credit or accessing new revenue streams could look different depending on what approach the state chooses. For example, under a direct emission limit approach, states may develop a tradable crediting system that rewards generation from industrial CHP systems. System owners could generate credits and sell them to power plants for reducing power or avoiding emissions. Under a portfolio approach, states may develop state- or utility-run energy efficiency programs that are designed to encourage emissions reductions from CHP. It could also offer access to a market-based trading system. Under any approach, states may allow credit for CHP delivered from the private sector. For the purpose of demonstration, the following proposes three possible frameworks within which an industrial CHP owner might access new revenue streams.[7]

Revenue from state- or utility-run programs. A CHP system owner might earn revenue through state- or utility-run programs. Financial support could be provided through traditional ratepayer funded programs offered by utilities and overseen by state agencies. Similarly, financial incentives could be earned through nonratepayer programs that are managed directly by the states. State- or utility-run programs could be designed to provide direct financial support or reduce regulatory costs for CHP projects. Many states and utilities have experience implementing CHP programs and have established methodologies for estimating, measuring, and verifying energy savings from CHP. These frameworks could provide the groundwork for crediting CHP systems under 111(d).

Revenue from a state or multistate tradable crediting system. A CHP system owner might earn revenue through credits allocated through a state or regional emissions trading system. Trading programs would be authorized through individual state legislation and implemented through state regulations (EPA 2014b). The Regional Greenhouse Gas Initiative (RGGI), which includes participation from nine northeast and mid-Atlantic states, is one example of an existing market-based trading program. California's emissions trading program established under AB 32 is another example. Program designs include different features, but generally, facilities or sectors covered by the trading program are required to obtain a certain number of emission allowances and demonstrate compliance at specific time periods. Industrial CHP owners could earn and sell allowances, verified through a tracking or registry system, to sources seeking to lower their emissions. Trading programs may also work in conjunction with the state- or utility-run programs described above.

Revenue from bilateral contracts. A CHP system owner might earn revenue through a bilateral contract with a third party. In this scenario, an affected EGU with a 111(d) compliance obligation might enter into a contractual agreement with an industrial CHP facility to purchase more efficient and lower carbon electricity generation. Energy savings through bilateral contracts can be tracked and verified for 111(d) compliance through a registry system to ensure savings are real and to avoid double counting. Each contractual agreement will include different stipulations and specifications depending on the parties involved, but contracts for generation from CHP could provide a revenue stream to a system owner.

All of these options could be viable strategies for incorporating CHP in a state compliance plan and each framework includes a revenue mechanism that benefits CHP system

[7] Descriptions of how CHP may earn revenue are the author's interpretation. In drafting this document, the author relied on provisions in the proposed CPP rule as well as on guidance on and past precedent for the treatment of energy efficiency and CHP under other provisions of the Clean Air Act.

owners. A state's existing regulatory structure is likely to influence which approach to compliance the state chooses and other structures beyond those listed here are possible. With access to new revenue streams and other incentives, industrial energy users can more easily justify the upfront cost of installing CHP and take full advantage of the reduced operating costs, increased productivity, and greater business competitiveness that CHP provides.

State Examples

The business case for CHP varies widely and depends on many factors, including the system size, sector, and state within which a CHP system is installed. The CPP could impact the CHP market differently in each state, and the following section offers a snapshot of how industrial CHP owners could contribute to CPP compliance in two states, Mississippi and Pennsylvania.[8] The first step is to consider the potential emissions reductions industrial CHP could provide in the state. The second step is to consider the state's existing regulatory structure and infer what path the state may choose for compliance. The last step is to propose how revenue might be earned for CHP hosts.

Mississippi

Mississippi has 796 MW of technical potential for CHP in its industrial sector (ICF 2013). However few state policies or utility programs to encourage CHP deployment have been implemented in the state. No new CHP installations were completed in 2012 and 2013. While the market for CHP in Mississippi has not historically been favorable, the CPP could create a greater incentive for industrial energy users to pursue CHP.

The electric sector in Mississippi is mostly vertically integrated, with the western portion of the state falling within Midcontinent Independent System Operator (MISO) territory. The Mississippi Public Service Commission regulates investor-owned and cooperative utilities, many of which own and operate electric generation, transmission, and distribution systems. Mississippi may choose a direct emission limit or a portfolio approach to compliance with a rate-based or mass-based emissions target. The portfolio approach may provide the state with greater flexibility in meeting its compliance obligation. If Mississippi chooses a portfolio approach, it is most likely to be utility driven since its electricity sector is vertically integrated. This approach would mean the compliance obligation is likely to be enforceable against the utility companies in the state.

In vertically integrated states, policies to increase energy efficiency are usually evaluated and established through a utility resource planning process. The adoption of *Rule 29: Conservation and Energy Efficiency Programs* by the Mississippi Public Service Commission in July 2013 established Mississippi's first statewide utility energy efficiency programs for all customer classes. The basic framework established by the commission, supported by the Mississippi Development Authority (MDA), and implemented through utility programs could provide a starting point for incorporating CHP into a utility-driven portfolio approach to 111(d) compliance.

[8] This is not intended to provide a definitive representation of what a state should or will do. Rather, it offers a best guess at a scenario that any state may consider. The purpose of this exercise is to envision how industrial energy users and CHP system owners may contribute to state compliance through CHP.

There are various ways in which CHP could help Mississippi achieve its emissions standard. One simple approach might be to expand upon its existing utility programs. CHP is currently eligible for a low-interest loan through the Energy Efficiency Revolving Loan Fund, an MDA-administered program to encourage the implementation of a broad list of energy efficiency measures, including CHP. No CHP project has applied for a loan through the program to date, but this program could be improved and expanded to more effectively encourage CHP deployment. Another approach might be for Mississippi to develop and seek credit for a new program or initiative that results in CHP deployment. The state might consider establishing an energy efficiency resource standard (EERS) or another portfolio standard that defines CHP technology as an eligible resource, which is a good framework for ensuring long-term energy savings and emissions reductions. As noted earlier, 22 states already support CHP to varying extents through portfolio standards.

Either approach could allow industrial CHP systems owners in Mississippi to access new revenue streams for CHP project financing. The state's existing loan program could be improved and expanded to provide direct financial assistance to increase the business case for investing in CHP. An EERS in Mississippi could be designed to allow CHP projects that meet certain standards of performance to earn credits for generation and system owners could sell credits to sources seeking to lower their emissions. Other market-based trading programs and/or bilateral contracts may also offer CHP system owners access to new revenue streams and work in conjunction with the state- and utility-run programs described above.

Pennsylvania

Pennsylvania has 3,196 MW of technical potential in its industrial sector (ICF 2013). Some policies are in place to support CHP deployment, including an alternative energy portfolio standard (AEPS) that recognizes CHP and a statewide net metering policy that applies to CHP and allows generators to be compensated at the full retail rate (Gilleo et al. 2014). Eleven new CHP installations were completed in 2012 and 2013. The large manufacturing sector in Pennsylvania is well suited for CHP, but additional policies are needed to improve the business case for industrial CHP to contribute significantly to CPP compliance.

The electric sector in Pennsylvania is restructured and the state participates in the competitive wholesale electricity market coordinated by PJM Interconnection. The Pennsylvania Public Utility Commission (PUC) oversees utilities, which are largely divested of generation assets. Pennsylvania may choose a direct emission limit or a portfolio approach to compliance with a rate-based or mass-based emissions target. The portfolio approach may provide greater flexibility for Pennsylvania in meeting its compliance obligation. If Pennsylvania chooses a portfolio approach, the approach is most likely to be state driven, meaning that a mix of entities—electric distribution utilities, third parties, and states agencies—could have obligations to meet under the state's compliance plan.

In restructured states, policies to increase energy efficiency are most often established through state regulations that apply to utilities, such as clean energy portfolio standards. Since the governor of Pennsylvania signed the state's EERS (Act 129) in 2008, Pennsylvania utilities have been offering successful energy efficiency programs to customers in the state. Act 129 required each of the seven major electric distribution companies (EDCs) to develop energy efficiency and conservation (EE&C) plans to reduce electricity consumption by a minimum of

1% by 2011, increasing to a total of 3% by 2013, and to reduce peak demand by 4.5% by 2013.[9] This existing framework provides a starting point for incorporating CHP into a state-driven portfolio approach to 111(d) compliance.

There are various ways in which CHP could help Pennsylvania achieve its emissions standard. One simple approach might be to expand upon its existing programs. The state might consider clarifying the role of CHP in meeting EERS goals by establishing an explicit definition of CHP as an eligible technology, setting appropriate energy savings targets, and adopting a methodology for counting savings based on best practices. Or, the state might consider increasing the role of CHP in its existing AEPS, which requires EDCs to obtain 18% of electricity from alternative energy resources by 2020. Another approach might be for Pennsylvania to develop and seek credit for a new program or initiative that results in CHP deployment. There are currently no state loan programs, grants, rebates, or other financial incentives that apply to CHP in Pennsylvania.

Either approach could allow industrial CHP systems owners in Pennsylvania to access new revenue streams for CHP project financing. The state's existing portfolio standards could be improved and expanded to allow eligible CHP systems to earn credits for generation that increase the business case for investing in CHP. Pennsylvania could also create new programs that provide financial incentives or technical assistance to reduce expenses and help industrial energy users overcome the high upfront costs of installing CHP. Other market-based trading programs and/or bilateral contracts may also offer CHP system owners access to new revenue streams and work in conjunction with the state- and utility-run programs described above.

Conclusion

As an underutilized resource with the potential for increased deployment in every state of the nation, CHP can be a component in a state's plan for cost effectively reducing emissions from the US power sector. Without any new policy incentives, approximately 33.7 million MWh of industrial electricity savings could be achieved by the year 2030, considering only new natural-gas-fueled CHP. Factoring in existing and renewable-fueled CHP systems, plus the impacts of additional policies and programs to encourage CHP, would substantially increase potential savings.

Depending on how a state chooses to approach CPP compliance, it may consider creating or participating in a tradable crediting systems or implementing a wide variety of other programs that would improve the financial outlook for investing in CHP. Increasing the use of CHP across a range of industries can reduce operating costs for industrial energy users and foster greater competitiveness for businesses. As an important stakeholder in the CPP process, industrial energy users should communicate with policymakers and other stakeholders about how they would like to see compliance plans structured. Incorporating CHP into state compliance plans maximizes the benefits of CHP for states and provides access to new revenue streams and annual operating savings for industrial energy users.

[9] The savings targets for the next phase (Phase III) of Pennsylvania's energy efficiency programs under Act 129 are currently being discussed in the PUC.

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