State of Illinois

Energy Efficiency

Technical Reference Manual

Combined Heat and Power

New Measure

John Cuttica, Stefano Galiasso, Shraddha Raikar,

Energy Resources Center

at the

University of Illinois, Chicago

~~11/21/2014~~12/5/2014

TABLE OF CONTENTS

Table 1 Work Paper Revision History

#	MM/DD/YY	Author, Company	Summary of Changes
1	10/08/2014	John Cuttica, Stefano Galiasso, Shraddha Raikar, Energy Resources Center	Include new measure in the TRM
2	11/21/2014		Reflects resolved comments and open issues from 11/18/2014 SAG Meeting
3	12/5/2014		Reflects resolved comments and new comments post 12/2 SAG Meeting

1 Overview

The Combined Heat and Power (CHP) measure is intended to provide electric and natural gas savings within the state of Illinois by the development and operation of CHP projects. This measure is applicable for Conventional CHP (Topping Cycle) systems as well as Waste Heat-to-Power (WHP) CHP (Bottoming Cycle) systems. Both electric and natural gas savings can be associated with this measure.

2 New Measure Characterizations

DESCRIPTION

The Combined Heat and Power (CHP) measure is intended to provide electric and natural gas savings within the State of Illinois by the development and operation of CHP projects. This measure is applicable for Conventional or Topping Cycle CHP systems, as well as Waste Heat-to-Power (WHP) or Bottoming Cycle CHP systems. This measure will reduce the total Btu of electricity and natural gas required to meet the end use needs of the facility. Depending on the application, the saved Btu can be converted into a combination of kWh and therms saved. In all cases the saved energy will account for any additional natural gas utilized at the site, required to operate the CHP system.

This measure was developed to be applicable to the following program types: Retrofit (RF), New Construction (NC). If applied to other program types, the measure savings should be verified.

DEFINITION OF EFFICIENT EQUIPMENT

Conventional or Topping Cycle CHP is defined as an integrated system that is located at or near the building or facility (on-site, on the customer side of the meter) that utilizes a prime mover (reciprocating engine, gas turbine, micro-turbine, fuel cell, boiler/steam turbine combination) for the purpose of generating electricity and useful thermal energy (such as steam, hot water, or chilled water) where the primary function of the facility where the CHP is located is not to generate electricity for use on the grid. An eligible system must demonstrate a minimum total system efficiency of 60% (HHV)[1] with at least 20% of the system's total useful energy output in the form of useful thermal energy on an annual basis.

Measuring and Calculating Conventional CHP Total System Efficiency:

CHP efficiency is calculated using the following equation:

$$CHP_{\ Efficiency}(HHV) = \frac{\left[CHP_{thermal}\ \left(\frac{kBtu}{yr}\right) + E_{CHP}\ \left(\frac{kWh}{yr}\right) * 3.412\ \left(\frac{kBtu}{kWh}\right)\right]}{F_{totalCHP}\left(\frac{kBtu}{yr}\right)}$$

Where:

$CHP_{\ thermal}$ = Useful annual thermal energy output from the CHP system, defined as the annual thermal energy output of the CHP system that is actually recovered and utilized in the facility/process.

[1] Higher Heating Value (HHV): refers to the heating value of the fuel and is defined as the total thermal energy available, including the heat of condensation of water vapors,resulting from complete combustion of the fuel versus the Lower Heating Value (LHV) which assumes the heat of condensation is not available

E_{CHP} = Useful annual electricity output produced by the CHP system, defined as the annual electric energy output of the CHP system that is actually utilized to replace purchased electricity requires to meet the requirements of the facility/process.

$F_{totalCHP}$ = Total annual fuel consumed by the CHP system

For further definition of the terms, please see "Calculation of Energy Savings" Section below.

Waste Heat-to-Power or Bottoming Cycle CHP is defined as an integrated system that is located at or near the building or facility (on-site, on the customer side of the meter) that does one of the following:

- Utilizes exhaust heat from an industrial/commercial process and converts that heat to generate electricity (except for exhaust heat from a facility whose primary purpose is the generation of electricity for use on the grid); or
- Utilizes the pressure drop in an industrial/commercial facility to generate electricity through a backpressure steam turbine where the facility normally uses a pressure reducing valve (PRV) to reduce the pressure in their facility; or
- Utilizes the pressure reduction in natural gas pipelines (located at natural gas compressor stations) before the gas is distributed through the pipeline to generate electricity, provided that the conversion of energy to electricity is achieved without using additional fossil fuels.

Since these type of systems utilize waste heat as their fuel, they do not have to meet any specific total system efficiency level (assuming they use no additional fossil fuel in their operation – if additional natural gas is used onsite, it should be properly accounted for). These systems may export power to the grid.

DEFINITION OF BASELINE EQUIPMENT

Electric Baseline: The baseline facility would be a facility that purchases its electric power from the grid.

Heating Baseline (for CHP applications that displace onsite heat): The baseline equipment would be the boiler/furnace operating onsite, or a boiler/furnace meeting the minimum standard defined in the boiler/furnace measures of the this TRM.

Cooling Baseline (for CHP applications that displace onsite cooling demands): The baseline equipment would be the chiller (or chillers) operating onsite, or a chiller (or chillers) meeting the minimum standard defined in the chiller measures of the this TRM Facilities that use biogas or waste gas: facilities that use (but are not purchasing) biogas or waste gas that is not otherwise marketable, whether they are using biogas or waste gas only or a combination of biogas or waste gas and natural gas to meet their energy demands are also eligible for this measure. If additional natural gas is purchased to fuel the CHP system, then the additional natural gas should be taken into account in the fuel savings calculations. Consumption of any biogas or waste gas that would not otherwise being wasted (*e.g.,* flared) will be accounted for in the overall net BTU savings calculations the same as for purchased natural gas.

DEEMED LIFETIME OF EFFICIENT EQUIPMENT

Measure life is a custom assumption, dependent on the technology selected and the system installation.

Deemed Measure Cost

Custom installation and equipment cost will be used. These costs should include the cost of the equipment and the cost of installing the equipment. Equipment costs include, but are not limited to: prime mover, heat recovery system(s), exhaust gas treatment system(s), controls, and any interconnection/electrical connection costs.

The installations costs include labor and material costs such as, but not limited to: labor costs, materials such as ductwork, piping, and wiring, project and construction management, engineering costs, commissioning costs, and other fees.

Measure costs will also include the present value of expected maintenance costs over the life of the CHP system.

It is recognized that CHP system design and configuration may be complex, and as such the calculation of energy savings may not be reducible to the equations within this measure. In such cases a more comprehensive engineering and financial analysis may be developed that more accurately incorporates the attributes of complex CHP configurations such as variable-capacity systems, and partial combined-cycle CHP systems. Where noted, the use of values that are determined through an external engineering analysis may be substituted by agreement between the participant, the program administrator and independent evaluator.

Comment [EC1]: Added per R.Baker email on 12/5/2014

Loadshape

Use Custom Loadshape. The loadshape should be obtained from the actual CHP operation strategy, based on the On-Peak and Off-Peak Energy definitions specified in Table 3.3 of "Section 3.5 Electrical Loadshapes" of the TRM.

Coincidence Factor

Custom coincidence factor will be used. Actual value based on the CHP operation strategy will be used.

Algorithm

Calculation of Energy Savings

i) Conventional or Topping Cycle CHP Systems:

Step 1: (Calculating total annual source fuel savings in Btu)

The first step is to calculate the total annual source fuel savings associated with the CHP installation:

$S_{FuelCHP}$ = Annual fuel savings (Btu) associated with the use of a Conventional CHP system to generate the useful electricity output (kWh, converted to Btu) and useful thermal energy output (Btu) versus the use of the equivalent electricity generated and delivered by the local grid and the equivalent thermal energy provided by the onsite boiler.

$= (F_{grid} + F_{thermalCHP}) – F_{total\ CHP}$

Where

F_{grid} = Annual fuel in Btu that would have been used to generate the useful electricity output of the CHP system if that useful electricity output was provided by the local utility grid.

$= E_{CHP} * H_{grid}$

Where

E_{CHP} = Useful annual electricity output produced by the CHP system, defined as the annual electric energy output of the CHP system that is actually utilized to replace purchased electricity required to meet the requirements of the facility/process.[2]

Comment [EC2]: Added per R.Baker email 12/5/2014

$= (CHP_{capacity} * Hours) - E_{Parasitic}$

$CHP_{capacity}$ = CHP nameplate capacity

= Custom input

Hours = Annual operating hours of the system

= Custom input

$E_{parasitic}$ = The electricity required to operate the CHP system that would otherwise not be required by the facility/process

= Custom input

H_{grid} = Heat rate of the grid in btu/kWh, based on the average fossil heat rate for the EPA eGRID subregion and includes a factor that takes into account T&D losses.

For systems operating less than 6,500 hrs per year:

Use the Non-baseload heat rate provided by EPA eGRID for RFC West region for ComEd territory, and SERC Midwest region for Ameren territory. Also include any line losses.

For systems operating more than 6,500 hrs per year:

Use the All Fossil Average heat rate provided by EPA eGRID for RFC West region for ComEd territory, and SERC Midwest region for Ameren territory. Also include any line losses.

$F_{thermalCHP}$ = Annual fuel in Btu that would have been used on-site by a boiler or heater to provide the useful thermal energy output of the CHP system.[3]

Comment [EC3]: Added per R.Baker email 12/5/2014

[2] For complex systems this value may be obtained from a CHP System design/financial analysis study.

[3] For complex systems this value may be obtained from a CHP System design/financial analysis study

= $CHP_{thermal} \div Boiler_{eff}$

$CHP_{thermal}$ = Useful annual thermal energy output from the CHP system, defined as the annual thermal energy output of the CHP system that is actually recovered and utilized in the facility/process.

= Custom input

$Boiler_{eff}$ = Efficiency of the on-site boiler OR heater that is displaced by the CHP system or if unknown, the value stated in the boiler measure TRM.

= Custom input

$F_{total\ CHP}$ = Total fuel in Btus consumed by the CHP system

= Custom input

Step 2: (Allocating the Btu savings between electricity and natural gas)

This step assigns the percentage of the Total Annual Fuel Savings ($S_{FuelCHP}$) calculated in Step 1 to either Electric Btu and/or Natural gas Btu savings. Step 3 will then provide the method to convert the allocated Btu savings to either kWh or therms.

- If a CHP application is serviced by both participating Electric and Natural Gas IOU[4], the CHP application will allocate the percent of the Total Annual Fuel savings to electricity ($\%_{Elec}$) and the percent to gas ($\%_{Gas}$) using the algorithms provided below.
- If a CHP application is serviced by a participating Electric IOU but is not serviced by a participating Natural Gas IOU, the CHP application will be able to claim only the Electric portion ($\%_{Elec}$) of the annual fuel savings calculated in Step 1 to electricity. Similarly, if a CHP application is serviced by a participating Natural Gas IOU but is not serviced by a participating Electric IOU, the CHP application will be able to claim only the Natural Gas portion ($\%_{Gas}$) of the annual fuel savings calculated in Step 1 to natural gas.

Determining the percentage allocated to electric versus gas:

$$Source_{fuels} = F_{grid} + F_{thermalCHP}$$

Where

$Source_{fuels}$ = Total electric and thermal source fuels displaced by the CHP system in Btu

F_{grid} = As defined above

$F_{thermalCHP}$ = As defined above

We can now calculate the % allocation of electric and gas savings:

[4] Investor Owned Utility. Electric Utilitities include ComEd and Ameren Illinois. Natural Gas Utilitites include Nicor, NorthShore, Peoples and Ameren Illinois

$$\%_{Elec} = F_{grid} \div Source_{fuels}$$

Where

$\%_{Elec}$ = % of total annual fuel savings ($S_{FuelCHP}$) allocated to electricity

And

$$\%_{Gas} = F_{thermalCHP} \div Source_{fuels}$$

Where

$\%_{Gas}$ = % of total annual fuel savings ($S_{FuelCHP}$) allocated to gas

Step 3: (Converting the allocated Btu Savings to equivalent kWhs for electric and equivalent Therms for natural gas)

ELECTRIC ENERGY SAVINGS:

Once we have calculated the electric allocation percentage ($\%_{Elec}$), we can calculate the electric kWh savings (ΔkWh):

$$\Delta kWh^{5} = \%_{Elec} * S_{FuelCHP} \div H_{grid\,eff\,CHP}$$

Where

$\%_{Elec}$ = % of total annual fuel savings ($S_{FuelCHP}$) allocated to electricity

$S_{FuelCHP}$ = Annual fuel savings (Btu) associated with the use of a Conventional CHP system to generate the useful electricity output (kWh, converted to Btu) and useful thermal energy output (Btu) versus the use of the equivalent electricity generated and delivered by the local grid and the equivalent thermal energy provided by the onsite boiler.

$H_{eff\,CHP\,grid}$ = Heat rate of the grid in btu/kWh, see definition above ~~Effective heat rate of the CHP system~~

~~$= (F_{total\,CHP} - F_{thermal\,CHP}) \div E_{CHP}$~~

Comment [EC4]: While Hgrid has been resolved, I am not sure if there is total agreement on this value. Based on the email trail, I have edited this heat rate refect Hgrid. But this should be confirmed by the group at the next SAG

Where

$F_{total\,CHP}$ = Total fuel in Btus consumed by the CHP system

$F_{thermalCHP}$ = Annual fuel in Btu that would have been used on-site by a boiler or heater to provide the useful thermal energy output of the CHP system

E_{CHP} = Useful annual electricity output produced by the CHP system, defined as the annual electric energy output of the CHP system that is actually utilized to replace purchased electricity required to meet the requirements of the facility/process.

NATURAL GAS ENERGY SAVINGS:

Once we have calculated the gas allocation percentage ($\%_{Gas}$), we can calculate the gas therms savings

[5] Electric savings, cannot exceed the useful electric output of the CHP system

(ΔTherms):

$$\Delta Therms = \%_{Gas} * S_{fuel\ CHP} \div 100{,}000$$

Where

$\%_{Gas}$ = % of total annual fuel savings ($S_{FuelCHP}$) allocated to gas

$S_{FuelCHP}$ = Annual fuel savings (Btu) associated with the use of a Conventional CHP system to generate the useful electricity output (kWh, converted to Btu) and useful thermal energy output (Btu) versus the use of the equivalent electricity generated and delivered by the local grid and the equivalent thermal energy provided by the onsite boiler.

100,000 = Conversion factor for Btus to therms

ii) **Waste-Heat-to-Power CHP Systems :**

ELECTRIC ENERGY SAVINGS:

$$\Delta kWh = E_{CHP}$$

Where

E_{CHP} = Useful annual electricity output produced by the CHP system, defined as the annual electric energy output of the CHP system that is actually utilized to replace purchased electricity required to meet the requirements of the facility/process.

= Custom input

NATURAL GAS ENERGY SAVINGS:

$$\Delta Therms = F_{thermalCHP} \div 100{,}000$$

Where

$F_{thermalCHP}$ = Net savings in annual purchased fuel in Btu, if any, that would have been used on-site by a boiler or heater to provide some or all of the useful thermal energy output of the CHP system[6].

100,000 = Conversion factor for Btu/hr to therms

SUMMER COINCIDENT PEAK DEMAND SAVINGS

$$\Delta kW = CF * CHP_{capacity}$$

Where

CF = Summer Coincidence factor. This factor should also consider any displaced Chiller

[6] In most cases, it is expected that waste to energy systems will not provide any new net useful thermal energy output, since the CHP system will be driven by thermal energy that was otherwise being wasted. If additional natural gas or other purchased energy is used onsite, it should be properly accounted for.

capacity[7]

= Custom input

$CHP_{Capacity}$ = CHP nameplate capacity

= Custom input

WATER IMPACT DESCRIPTIONS AND CALCULATION

N/A

DEEMED O&M COST ADJUSTMENT CALCULATION

Custom leveled Maintenance costs that will be incurred for the life of the measure will be used**.** Maintenance costs vary with type and size of the prime mover. These costs include, but are not limited to:

- Maintenance labor
- Engine parts and materials such as oil filters, air filters, spark plugs, gaskets, valves, piston rings, electronic components, etc. and consumables such as oil
- Minor and major overhauls

For screening purposes, the US EPA has published resource guides that provide average maintenance costs based on CHP technology and system size[8].

COST-EFFECTIVENESS SCREENING

For the purposes of screening ~~the~~ a CHP measure application for cost-effectiveness, changes in site energy use – reduced consumption of utility provided electricity ~~(i.e. E_{CHP})~~ and the net change in consumption of natural gas ~~(i.e. $F_{total\ CHP}$ – $F_{thermal\ CHP}$)[9] – impacts on the local IOUs service territory~~ should be used~~evaluated~~ instead of source savings. ~~Each utility is responsible for cost-effeteness screening however, at a minimum the following components should be considered. Definitions for each term may be adjusted based on the screening methods deployed by a specific utility.~~

Where

Benefits: E_{CHP} + ΔkW + $F_{thermal\_CHP}$

Costs: F_{total_CHP} + CHP_{COSTS} +$O\&M_{COSTS}$

Hours: CHP hours of operation

~~ΔkWh = E_{CHP}~~

[7] If additional natural gas is used onsite, it should be properly accounted for.
[8] "EPA Combined Heat and Power Partnership Resources" Oct 07, 2014, http://www.epa.gov/chp/resources.html
~~[9] This is typically a positive number – i.e. an increase in on-site gas consumption.~~

Comment [SG5]: I think we can use the previously defined Delta(kW)= CF * CHP_capacity OR we could use a definition with hours of use, such as Delta(kW)=CF/Hours*E_CHP. The two could be different depending on how the system is operated. Also, it doesn't include Chiller offset kW / kWh --- wouldn't those be savings too?

Comment [EC6]: Regarding part one – kw definition - SAG to discuss and decide – both are technical correct

Comment [EC7]: Regarding part 2- chiller offset, the only time you need to add the chiller benefit is when you have added a new absorption chiller . If you keep electric chillers, you catch the savings in the existing kw calc, if you displace the thermal generation for an existing absorbption chiller you catch the savings in the Fthermal. If you add a brand new absorption chiller that you did not have before and retire the existing electric chiller and you use all the CHP electric out put as well, than, the kw savings would be: TONS * ((IPLVbase) – (IPLVee)) * EFLH wher eIPLVbase would be the displaced electric chiller and IPLVee would be the new absorption chiller. (this is from the commerical chilller TRM).

$\Delta therms = (F_{total\ CHP} - F_{thermal\ CHP})/100{,}000$

Can VEIC add in something about coincidence factor (custom) and kW savings? Not sure how that should fit within the workpaper format. Not only coincidence factor, but also how to include kW and kWh savings from displaced chiller usage in summer months (obviously if there is any displaced chiller, and if there's an easy way to estimate the amount of chiller capacity offset ---- could be its own custom coincidence factor).

Comment [SG8]: I don't understand why we are changing the formula. We agreed to remove the avoided costs components and separate the benefits and costs (like Ted separated but I think it requires better characterization to define benefits and costs)

Comment [EC9]: There are already listed above (page 10 so not needed here)

Comment [EC10]: This is already included on page 10 of the measure so not sure what additiona infmraiton is needed here.

$$TRC = \frac{(E_{CHP} * A_{Energy}) + (\Delta kW * A_{Capacity}) + (F_{thermalCHP} * A_{Gas})}{CHP_{Costs} + O\&M_{Costs} + (F_{Total\ CHP} * A_{Gas})}$$

Where

TRC = Total Resource Cost Benefit Cost Ratio

E_{CHP} = Useful annual electricity output produced by the CHP system, defined as the annual electric energy output of the CHP system that is actually utilized to replace purchased electricity requires to meet the requirements of the facility/process.

A_{Energy} = Avoided electric energy costs (these would be an aggregate value that includes delivery, ancillary and T&D marginal line losses, actual calculation will use time-differentiated avoided costs by appropriate periods and impacts from the CHP system for each period)

ΔkW = Summer coincident peak demand savings

$A_{Capacity}$ = Avoided electric capacity costs (these would be an aggregate value of hourly costs based on the loadshape of the CHP system, aggregate values will include generation, transmission and distribution capacity costs, and account for marginal line losses)

$F_{thermalCHP}$ = Annual fuel in Btu that would have been used on-site by a boiler or heater that is fired by natural gas to provide the useful thermal energy output of the CHP system.

A_{Gas} = Avoided costs of natural gas

CHP_{Costs} = CHP equipment and installation costs as defined in the "Deemed Measure Costs" section

$O\&M_{Costs}$ = CHP operations and maintenance costs as defined in the "Deemed O&M Cost Adjustment Calculation" section

$F_{TotalCHP}$ = Total fuel in Btus consumed by the CHP system

3 Proposed Changes to Existing Measures

N/A

4 References

Please refer to the Chicago style for variances on format citations. Please upload any new references or calculation sheets to the Tracker item.

http://www.chicagomanualofstyle.org/tools_citationguide.html

EXAMPLES:

Paper presented at a meeting or conference (Including internal work papers)

Author Name, "Paper title" (paper presented at the annual meeting for the Organization Name, City, State, Month Day, Year).

Website

"Title," last modified Month Day, Year, URL

E-mail

Author Name, e-mail message to author, Month Day, Year.

Item in a commercial database

Author Name. "Source Title" Publisher, Year. Database Name

Book: Chapter or other part of a book

Author Name, "Chapter," in Title, City: Publisher, Year, page range

Book: Published electronically

Author Name, "Chapter," in Title, City: Publisher, Year, Accessed Month Day, Year. URL.

Journal Article in a print journal (Use this for program evaluations.)

Author Name, "Article Title," Journal Name edition (Year): page

Author Name, "Evaluation Title," Utility Name, Program or Measure Name (Date): page

Journal Article in an online journal

Author Name, "Article Title," Journal Name edition (Year): page, accessed Month Day, Year, dio:xx.xxxx/xxxxxx.

5 Stakeholder Comments

If adding comments to an existing work paper, add note in "Progress Notes" section of the tracker item stating *"(Author, Company) added comments to workpaper, (date)*". This will send an alert to VEIC and others that a new comment has been added.

Stakeholder Comments to Revision 1Author, Company and Date: Philip Mosenthal, Optimal Energy on behalf of the Eric Robertson and Ali Al-Jabir, Illinois Attorney General's Office, 10/30/Industrial Energy Consumers (IIEC), October 24, 2014.

Comment:

See above redline and comments.

General Comment: The AG continues to oppose crediting a utility with savings that count toward meeting goals if the actual utility system sales will increase. We agree generally with the math, the issue is really one of allocation.

Also, we believe that some circumstances are not fully or properly covered regarding when either the thermal output is offsetting a different fuel than Natural Gas or the CHP system is fired by a different fuel. It appears even if a CHP system was oil fired and offsetting oil thermal load that the above proposal would still provide savings credit to the gas utility. We acknowledge with today's economics we may not see any oil fired systems, but it is possible and should be addressed.

IIEC's revisions to Section 2 of the proposed CHP measure are designed to recognize that large industrial customers are sophisticated users of electricity who possess the economic incentive, resources and expertise to adequately assess and analyze CHP opportunities at their sites. While the use of generic inputs and the formulas specified in the proposed CHP measure may be appropriate for smaller customers, such inputs and formulas may not be appropriate for large customer facilities with peak loads of 3 MW or more at an individual site or peak loads of 5 MW or more at the aggregate company level within a utility's service territory. Such large customers should be afforded maximum flexibility to customize all of the measure formulas and the variable inputs that are used to evaluate CHP opportunities at their sites, as long as the customers can adequately document the engineering studies and cost-benefit analyses conducted to justify the implementation of a CHP project at their sites.

Large industrial customers operate in very competitive business environments and are actively pursuing energy savings opportunities where such opportunities are cost-effective. As a matter of good business practice, such customers will not pursue a CHP project unless it is thoroughly analyzed through engineering and cost-benefit studies and unless the project can clear the internal return on investment hurdles that the customer has established within its company. Consequently, the requirement of using a more rigid, formulaic approach to the evaluation of CHP projects for such customers, as set forth in the proposed CHP measure, is inappropriate, unnecessary and may inhibit the implementation of many cost-effective CHP projects.

IIEC's other revision to Section 2 is to include within the scope of the CHP measure generation from process gases that may not otherwise fit into the category of "biogas," but similarly constitute lower BTU content gas that otherwise has no marketable value and may be disposed of onsite, i.e. flared.

Also, the CHP measure should provide examples of the application of the proposed efficiency algorithm to prime movers to provide TRM users with a better understanding of the algorithm and to provide a means of testing the algorithm.

Stakeholder Comments to Revision 2

Stakeholder Comments to Revision 2

Authors: Eric Robertson and Ali Al-Jabir on behalf of the Illinois Industrial Energy Consumers (IIEC)

IIEC has modified its previously submitted comments regarding the applicability of the CHP measure to clarify that IIEC is not requesting a blanket exemption from all aspects of the CHP workpaper for large customers. Rather, IIEC simply seeks to clarify that large customers should be able to substantiate the costs and energy savings associated with their CHP projects using the data and analysis they prepare in-house, with the understanding that this data and analysis would be subject to review by the local electric or natural gas utility for sufficiency. The purpose of IIEC's proposed language is to ensure that large customers will not be required to prepare two separate sets of analyses to support a CHP project (one analysis to meet the customer's internal corporate requirements and a separate analysis to conform to the requirements of the CHP workpaper). IIEC's suggested approach would be equivalent to approval of a customized measurement for an energy efficiency measure. IIEC's revised proposed language can be found under the heading "Deemed Measure Cost."