Draft Policy Option

CRE-1 Education

Policy Description

Explicitly articulated education and outreach can support GHG emissions reduction efforts at all levels in the context of emissions reduction programs, policies, or goals. Education and outreach can foster a broad awareness of climate change issues and effects related to Energy Supply (including co-benefits, such as clean air and public health). Such awareness engages citizens both in direct actions to reduce GHG emissions and in support of actions by government, industry or civil society. Education and outreach efforts should integrate with and build upon existing outreach efforts involving climate change and related issues in the state.

Policy Design

Goals: Qualitative.

Develop, implement and execute a state wide climate change control awareness education program that;

- Provides a specified environmental education curriculum to primary, secondary, and post-secondary audiences within the state.
- Provides continuous public exposure through a variety of communications channels for the explicit purpose of providing environmental education and awareness to the state's masses.
- Provides a platform that along with imparting knowledge encourages a bias for action on the part of all state citizens.
- Specifically supports technical job training in support of the growing need by the state's renewable energy industries for skilled workers.
- Develops state wide environmental literacy. The outcome of a successful environmental education program is one in which the learner progresses to deeper knowledge, can apply it to address complex environmental issues, and make wiser decisions based on that knowledge.

Timing: To begin with the 2010 academic year

Implementing Parties: Elementary and secondary school districts; municipal governments

Other: TBD

Implementation Mechanisms

TBD

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option

CRE-2 Technology Initiatives, including Renewables

Policy Description

States can undertake initiatives focused on developing, promoting, and/or implementing one or more specific technologies that show promise for reducing GHG emissions. Technologies could include, among others, fuel cells (to increase efficiency, create markets for hydrogen, etc.), energy storage such as compressed air systems (to enable greater penetration of intermittent renewable technologies such as wind), or biomass co-firing. This policy would support providing state government and other private and public parties with resources and incentives for analysis, targeted R&D, market development, and adoption of GHG-reducing technologies that are not covered by other policies. The policy should target landfill gas combustion for power generation, use of biomass co-firing in existing coal fired units, energy storage and use of fuel cells.

Policy Design

Goals:

- Achieve 10% emission reductions from investments in clean/renewable technologies.

Timing: 5% reduction starting in 2009 with 10% realized by 2015.

Implementing Parties: State government. Private and public partners on a voluntary basis.

Other: TBD

Implementation Mechanisms

Biomass co-firing can be a low-cost, near-term means of converting biomass to electricity and displacing coal use by adding up to 15% biomass in high-efficiency coal boilers.

A standard interconnection rule will ensure that distributed power products meet minimum requirements for performance, safety, and maintenance and will significantly advance the commercialization of these new technologies. Standardized interconnection rules, which are generally developed and administered by a state's public utility commission, establish clear and uniform processes and technical requirements for connecting DG systems to the electric utility grid. Interconnection standards will reduce barriers to connection of DG systems to the grid identified by policy options 2.3, 2.5, and 2.6. Connecting to the grid enables the facility to: a) purchase power from the grid to supply supplemental power as needed, for example, during periods of planned system maintenance, b) sell excess power to the utility, c) maintain grid frequency and voltage stability, as well as utility worker safety. This topic is of particular interest as the Energy Policy Act of 2005 (EPAct 2005) directs states to consider upgrading their

standards for interconnecting small generators within one year of enactment. (http://www.epa.gov/chp/pdf/interconnection_factsheet.pdf)

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option

CRE-3 Cap and Trade, Including Offsets to Promote Renewable Energy

Policy Description

A cap-and-trade system is a market-based compliance mechanism in which greenhouse gas emissions are limited to a specified amount (i.e. the cap), and entities subject to the cap can buy and sell (i.e. trade) emissions allowances. In theory, a properly designed cap-and-trade system of sufficient market size can lower the cost of compliance of meeting the emissions cap to all entities involved. This is possible because participants with a lower cost of compliance can reduce emissions below their allocation and sell their additional allowances to a participant with a cost of compliance that is otherwise higher than the market allowance price.

Policy Design

Goals: The goals of this policy are will be developed by the SC after broader discussion during ICCAC meeting #4

Timing: TBD

Parties Involved: TBD

Other: Governor Culver has announced his policy intention of incorporating Iowa into a regional cap-and-trade system proposed by the Midwest Governors Association.

Implementation Mechanisms

Many variables can be incorporated into a cap-and-trade system, including the greenhouse gasses covered, the sectors covered, up-stream or down-stream coverage, banking, safety valve prices, tie-ins with regional or international trading systems, offsets, early action credits, technology incentives, auctioning, triggers for on and off ramps, and the glide path of the cap. Each factor can have a significant influence on the market price of allowances, and thus the cost of compliance and impacts to ratepayers.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-4 Carbon Tax

Policy Description

A carbon tax is a effectively tax on greenhouse gas emissions. It is often called a "carbon" tax because when multiple greenhouse gases are included in the program, the global warming potentials of the covered gasses are normalized into "carbon dioxide equivalents". Thus, a carbon tax provides a market signal to reduce emissions of GHGs, proportional to their impact on climate change..

Policy Design

Goals: The goals of this policy are will be developed by the SC after broader discussion during ICCAC meeting #4

Timing: TBD

Parties Involved: The Iowa Legislature, Iowa Utilities Board, and potentially any entity, public or private, with a significant quantity of greenhouse gas emissions or emissions offsets.

Other: Carbon taxes have been utilized by countries in the European Union and Canada.

Implementation Mechanisms

A carbon tax can have many variables, including the greenhouse gasses covered, the sectors covered, up-stream or down-stream coverage, offsets, early action credits, technology incentives, triggers for on and off ramps, and changes to the tax rate over time. Each factor can have a significant influence on the cost of compliance and thus the impact on ratepayers.

Furthermore, the revenue generation potential of a tax on each ton of greenhouse gas emissions can be significant. Given this, the monies derived from a carbon tax can provide a strong incentive toward greenhouse gas emission reductions if focused on the challenge at hand. Thus, the most effective carbon tax designs include both the front-end variables (i.e. the covered greenhouse gases, amount taxed per ton of emissions) and the back-end variables (i.e. where revenue is housed, how revenue is utilized).

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-5 Performance Standards

Policy Description

A generation performance standard is an emissions rate hurdle that must be met for compliance. Typically, a generation performance standard is expressed in pounds of carbon dioxide per megawatt hour and is calculated as an average for all generation in a year for a regulated entity, which may have multiple generating units. Generation performance standards can be applied to new generation only or include existing units as well. The theory of a generation performance standard is to lower the emissions rate over time to obtain a desired end-point, but allow flexibility for compliance.

Policy Design

Goals: Achieve a 10% reduction in CO2 emissions from electric generation

Timing: Beginning in 2012

Parties Involved: all in-state and out-of-state suppliers of electricity to IA customers.

Other: Various forms of generation performance standards have been utilized by many states and countries to encourage zero and low emitting generation while providing regulatory flexibility in the compliance pathway.

Implementation Mechanisms

A generation performance standard can have many variables, including coverage of generating units or load serving entities, offsets, the inclusion of energy efficiency programs, technology incentives, trading of renewable energy credits, penalty rates for non-compliance, emissions from purchased power, triggers for on and off ramps, and the rate of change to the emissions standard. Each factor can have a significant influence on the cost of compliance and thus the impact on ratepayers.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-6 Voluntary GHG Commitments

Policy Description

Numerous U.S. companies and organizations, including many utilities, have taken on voluntary GHG reduction commitments. Often through participation in various programs, these companies are voluntarily addressing global climate change through proactive and innovative measures including: setting targets for GHG emissions reductions; implementing innovative energy supply and demand solutions; improving waste management practices; participating in emissions trading; and investing in carbon sequestration opportunities and research.

This option focuses on encouraging voluntary GHG commitment. These commitments can be based on total GHG emissions in a given year, specific voluntary projects or can be defined on an intensity basis (tCO2e per MWh generated or delivered.)

Policy Design

Goals: The goals for a Iowa Voluntary GHG program include:

1. Encouraging Iowa business and citizens to voluntarily begin reducing GHG emissions immediately, without waiting for mandatory Iowa or national GHG reduction program measures.

2. Provide a means for Iowa voluntary GHG emission reductions to be quantified and recognized by applying Iowa approved GHG quantification methods.

3. Allow rate-regulated utilities assurance of cost recovery for voluntary GHG reduction measures that are previewed and approved by the IUB.

4. Provide documentation that supports voluntary measures receiving full credit under a future Iowa or national mandatory or voluntary GHG reduction program (e.g. credit for early action).

5. Enable Iowa voluntary GHG emission reduction measures to receive credit as certifiable CO2 offsets for use within and outside of the United States.

Timing: Beginning in 2010

Parties Involved: All sectors and sources that wish to provide for voluntary GHG reductions or offsets, including: government, utilities, industry, business, commercial building owners and homeowners.

Other: TBD

Implementation Mechanisms

An example of a voluntary program is the U.S. EPA's Climate Leaders program. Others include participation in Power Partners and the EIA 1605(b) Voluntary GHG Emission Reduction Program. Forty two companies, including some of the world's largest; GE, Dupont, IBM and Duke Energy; have joined together as the Business Environmental Leadership Council (BELC) of the Pew Center on Global Climate Change. Thirty-seven of these BELC companies have established greenhouse gas (GHG) reduction targets. Some of these companies have achieved their targets and are currently evaluating new goals, while other companies are considering first-time targets.

Some entities with voluntary commitments also transact through the Chicago Climate Exchange (CCX), a pilot program for reducing and trading GHG emissions in North America.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-7 Policies Related to Nuclear Power

Policy Description

The focus of this policy is to consider the feasibility of nuclear power in a carbon-constrained environment in the context of state legislative and regulatory actions to facilitate licensing, financing, and construction of new nuclear power plants. Options include constructing new facilities, or relicensing or uprating the one nuclear power plant in Iowa.

Policy Design

Goals: Increase generation from nuclear power by 10%

Timing: relicense Duane Arnold Energy Center in 2015

This policy would become effective with action by the Iowa Legislature and implementation by the Iowa Utilities Board, Iowa Department of Natural Resources and other state agencies.

Parties Involved: Iowa Utilities Board, Investor-owned utilities

Other: TBD

Implementation Mechanisms

Nuclear power has potential as an alternative source of electricity for meeting greenhouse gas reduction goals. During operation, nuclear plants generate no greenhouse gases (GHGs), although, as with any new structure, there are GHG emissions associated with the construction of the facility. Nuclear power generation is classified as base load generation and designed to operate at high capacity factors. It is also the largest single source of non-carbon emitting electric generation. As a result, it is a potential energy supply alternative, in large scale, to meet Iowa's growing electric needs and for possible long-term replacement of base load coal-fired generation.

As of the end of the last year, there were 104 commercial nuclear generating units licensed by the U.S. Nuclear Regulatory Commission (NRC) with an electric capability of 97,400 MW. The most recent reactor came on line in 2007. The current administration has been supportive of nuclear expansion, emphasizing its importance in maintaining a diverse energy supply and its potential for producing electricity with negligible greenhouse gas emissions operation.

Other means of incorporating nuclear generation include relicensing and uprating of existing plants. Nuclear relicensing allows a nuclear power plant to extend the life of the facility for twenty years past its original 40-year license term. The NRC considers the relicensing program one of its major cornerstones of current regulatory activity. A nuclear power plant uprating is a

technical review process whereby a licensee may receive approval from the NRC to operate a plant at a higher power level than the level authorized in the original license. Relicensing and power uprates typically require some capital investment for upgrades and rebuilding of plant subsystems.

Iowa's only nuclear plant is the Duane Arnold Energy Center, which is owned by the FPL Group, through its subsidiary FPL Energy (70 percent ownership), Central Iowa Power Cooperative (20 percent ownership) and Corn Belt Power Cooperative (10 percent ownership). Duane Arnold received approval for a power uprate in 2001, and currently has a license from the NRC to operate until 2014. In acquiring its ownership share in 2005, FPL committed to relicensing the plant for an additional 20 years, until 2034. MidAmerican Energy Company is a 25% owner of the Quad Cities Nuclear Power Station near Cordova, Illinois, which also completed a power uprate, and has received relicensing approval from the NRC to operate until 2032.

It is currently estimated that it would take approximately 10 to 12 years to design, permit, and construct a new nuclear power plant. Therefore, steps should be taken today if Iowa chooses to employ nuclear power as part of a balanced and diversified energy portfolio[1] that achieves Iowa's long-term carbon emission reduction goals.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

[1] Including, among others, renewable energy, conservation and energy efficiency measures

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option

CRE-8 Support for grid-based renewable energy and development

Policy Description

This policy option reflects financial incentives to encourage investment in renewable energy resources by businesses and individuals that sell power commercially.

Policies can be developed to help overcome financial barriers and increase incentives for renewable energy development. Barriers such as low market prices, the inability of the market to assign values to the public benefits of renewables and the social costs of fossil fuel technologies, high transaction costs relative to smaller project sizes, high financing costs because of lender unfamiliarity and perceived risk, and other institutional barriers, can be overcome through a suite of financial and regulatory incentives for renewable energy development.

Policy Design

Goals: Increase grid-based renewable electric production in Iowa to by 5 MWs of generation each year.

Timing: beginning in 2012; continuing through 2020.

Parties Involved: Grid-based renewable generation developers.

Implementation Mechanisms

These policies and incentives can include:

- Direct subsidies for buying or selling renewable generation equipment.
- Tax credits or exemptions for buying or selling renewable generation equipment; such as:
    - The property tax exemption for methane gas conversion available under Iowa Code § 427.1(29);
    - The property tax exemption for renewable energy facilities available under Iowa Code § 441.21;
    - The local option special assessment for wind generation facilities available under Iowa Code § 427B.26;
    - The replacement generation tax exemption for renewable energy facilities available under Iowa Code § 437A.6; and

  - The sales tax exemption for wind and solar generation equipment available under Iowa Code §§ 423.3(54) and 423.3(90).

- Government-sponsored or facilitated loan programs for buying renewable generation equipment, such as:

  - The alternate energy revolving loan program under Iowa Code § 476.46, and

  - The Iowa Energy Bank loan program under Iowa Code § 473.19.

- Tax credits or direct subsidies for each kWh generated or sold from renewable generation facilities, such as:

  - The wind and renewable energy tax credits available under Iowa Code chapters 476B and 476C.

- Government-sponsored or facilitated loan programs supporting the manufacture of renewable generation equipment.

- Direct subsidies supporting the manufacture of renewable generation equipment.

- Tax credits or exemptions supporting the manufacture of renewable generation equipment.

- Regulatory policies that provide incentives and/or assurance of cost recovery for utilities that invest in renewable energy systems, such as:

  - The advance ratemaking principles available for utility-owned renewable generation under Iowa Code § 476.53, which are determined in advance of plant construction and before the utility's next rate case.

- Regulatory policies that streamline certification requirements for renewable generation plant, such as:

  - The Iowa Utilities Board (IUB) chapter 24 rules for "Location and Construction of Electric Power Generating Facilities" (199 IAC 24), and the "25 MW per gathering line" exemption for wind generating facilities described in IUB Docket No. DRU-03-2.

- Iowa regulatory support for federal transmission cost allocation policies that are equitable and promote the cost-efficient siting of renewable generation resources.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-9 Transmission System Upgrading

Policy Description

This option focuses on improving both the regional transmission system and local distribution system in order to diminish bottlenecks, enhance throughput, and reduce line losses.

Policy Design

Goals:

- Achieve 5% emissions through increased transmission and distribution system capabilities.

Timing: Compliance with established goal achieved by 2013.

Timing: This policy would become effective with action by the Iowa Legislature and implementation by the Iowa Utilities Board and other state agencies.

Parties Involved: Iowa Utilities Board, Investor-owned utilities, generation and transmission electric cooperatives, municipalities, representatives of environmental and economic development organizations and the Office of Consumer Advocate, the FERC, Midwest ISO and transmission owners (such as ITC).

Implementation Mechanisms

Opportunity exists to significantly increasing transmission line carrying through the implementation of new construction methods and retrofit activities on the transmission grid including incorporating advanced composite conductor technologies, reactive compensation technologies, and grid management software. Siting new transmission lines can be a difficult process given their cost and perceived impact on health, the environment, and the use, enjoyment, and value of property. Future development of renewable energy facilities will require the addition of new or the upgrade of currently existing transmission lines which must be integrated into the regional transmission grid. Policy measures in support of this option could provide incentives to utilities and transmission owners to upgrade transmission systems and reduce barriers to siting of new transmission lines. This option could also include reductions in the use and leakage of SF6 from electrical equipment, plus use of efficient transformers and other advanced materials and equipment. Given the long lead time (between 4 and 7 years) for large transmission line planning, permitting and construction, current distribution line capacity should be evaluated immediately as a "quick start" measure to get carbon free distributed generation on the grid.

There are several energy efficiency measures that can be implemented to reduce the transmission and distribution line losses of electricity. Utilities use a variety of components throughout the transmission and distribution system to reduce losses. Increasing the efficiency of these components can further reduce losses. Vermont, for example, offers a rebate to encourage users to install energy efficient transformers. Regulations, incentives, and/or support programs can be applied to achieve greater efficiency of transmission and distribution system components.

The goals of this policy are:

- To quantify the costs and identify the benefits and implementation timeframes for alternatives that increase transmission and distribution system capabilities. The analysis should take into account reductions in GHG emissions that would result from energy saved due to lower line losses.

- To research how implementing modern grid technologies would enable a more efficient and intelligent transmission system.

- To identify specific legislative and regulatory actions that would be needed to support long-term, cost effective alternatives that increase transmission system capabilities.

- To commission a study that would identify areas in Iowa's transmission system where upgrading and/or expanding transmission would enable our state's wind resources to be developed for use for Iowa users and for potential exports to other states. The study would focus on both identifying areas where large expansions are necessary to catapult Iowa's wind production as well as areas where smaller upgrades would enable wind installations for local area purposes.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-10 R&D for Emerging Technologies and Corresponding Incentives

Policy Description

This option focuses on research and development (R&D) of emerging technologies to develop demonstration projects and eventual commercialization of reasonable cost generation technologies with low or zero greenhouse gas emissions. Technology areas often cited as requiring such reasonable cost developments are carbon capture and storage (e.g. in deep saline aquifers or coal seams) for fossil fuel facilities, and large-scale base-load renewable energy or technologies that can transform intermittent renewables into base load generation (e.g. batteries, compressed air storage).

Policy Design

Goals: The goals of this policy are unquantifiable, but include:

- To identify the likely funding mechanisms and policy tools that would provide further stimulus for the development of new, reasonable cost, low and zero greenhouse gas emitting electricity generation in Iowa.
- To analyze the costs and benefits of a research and development program scenarios to help reach the 50% and 90% reductions from 2005 emissions levels.

Timing: implementation asap

Parties Involved: Iowa Legislature, Iowa Utilities Board, electric utilities, and potentially other appropriate state government entities such as the Office of Energy Independence, Iowa Power Fund, Iowa Department of Economic Development and State Regents Institutions.

Other: The Iowa Power Fund is an example of a new state government board designed to help stimulate the research, development, and commercialization of new clean energy sources in Iowa.

Implementation Mechanisms

Given the magnitude of the task, an Apollo-like research program to create and field-test such technologies that are commercially viable is needed. Presently, such funding is not a significant portion of a rate-regulated utilities budget or the budgets of federal and state government agencies. Nonetheless, even a small fee per kilowatt-hour of electricity could generate significant funding. However, funding is only one-half of the equation, and strategies to use such funds to implement a focused program to commercialize generation technologies with low or zero greenhouse gas emissions must also be developed.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Option
CRE-11 Distributed Generation/Co-generation

Policy Description

This option focuses on encouraging investment in small-scale distributed generation through incentives or subsidies and the prevention of barriers.

Policy Design

Goal: 3 MW per year of new distributed renewable generation

Timing: New distributed renewable generation beginning at in 2010 and continuing each year thereafter.

Parties Involved: All utilities serving customers in Iowa; state agencies with jurisdiction; other interested stakeholders.

Other: A funding source to cover any financial incentive would need to be determined. The level of credit or funding should be consistent for all utilities (IOUs, municipals and cooperatives). The cost of the incentive should be shared among all end users so that no one is overly burdened.

Implementation Mechanisms

Distributed generation can be encouraged by ensuring access to the grid under uniform technical and contractual terms and charges for interconnection, including mandatory insurance coverage and amounts, that are based on economic costs so that owners know in advance the requirements for parallel interconnection and manufacturers can design standard packages to meet technical requirements. Changes that generally facilitate the integration of customer-owned distributed generation with the grid could encourage the adoption of specific renewable energy and high-efficiency technologies, including solar photo-voltaic systems, fuel cells, and microturbines. In addition, prices should be established that owners of distributed generators both pay and receive for electricity at levels consistent with utilities' costs. Uniform requirements for emissions, land use, and building codes should be established that are based on the technology of electricity generation so that manufacturers can design suitable units and owners of distributed generators are not restricted in their siting and operating decisions relative to other new sources of generation.

Incentives for distributed renewables should include: (1) direct subsidies for purchasing/selling renewable technologies; (2) tax credits or exemptions for purchasing/selling renewable technologies; (3) feed-in tariffs, which provide direct payments to renewable generators for each

kWh of electricity generated from a qualifying renewable facility (feed-in tariffs should take into consideration and recognize all the attributes of energy including carbon impact to the purchaser and the "green impact"); (4) tax credits for each kWh generated from a qualifying renewable facility; (5) rebates to the customer from utilities for the installation of residential renewable energy system, similar to rebates for energy efficient appliances.; (6) State assistance for Iowa's utilities to implement a Smart Grid, which would more easily enable utility customers to be both a user and a producer; (7) Hiring a DG point-person that would work within the Office of Energy Independence to assist utilities and customers to implement this policy, its incentives and regulatory requirements in order to fully utilize the benefits from DG and reach the ICCAC's goal of 90% reduction of carbon emissions by 2050.

Distributed generation can be encouraged by ensuring access to the grid under uniform technical and contractual terms for interconnection, that are based on best practices so that owners know in advance the requirements for parallel interconnection and manufacturers can design standard packages to meet technical requirements. Changes that generally facilitate the integration of customer-owned distributed generation with the grid could encourage the adoption of specific renewable energy and high-efficiency technologies, including solar photovoltaic systems, fuel cells, and microturbines. Uniform requirements for emissions, land use, and building codes should be established that are based on the technology of electricity generation so that manufacturers can design suitable units and owners of distributed generators are not restricted in their siting and operating decisions relative to other new sources of generation.

Funding mechanisms and incentives. Regulatory policies that support utility investments in small-scale distributed renewable energy.

Related Policies/Programs in Place

Wind production tax credits. Tax exemptions on residential wind, solar (PV) panels, and solar hot water systems.

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Options
CRE 12 – Combined Heat & Power

Policy Description

Combined heat and power is a term used to describe scenarios in which waste heat from energy production is recovered for productive use. Combined heat and power scenarios most commonly occur at base load generating stations so that a reliable source of thermal energy can be provided to the users of the reclaimed thermal energy. The reclaimed thermal energy, while sometimes not of significant energy value for the base load generating station, can potentially be used by other nearby entities (e.g. within an industrial park or district steam loop) for productive purposes. The theory of combined heat and power is to maximize the energy use from fuel consumed and to avoid additional greenhouse gas emissions from entities near a base load generating station via additional fossil fuel combustion.

This option focuses on providing adequate incentives for the development of infrastructure to capture and utilize the waste heat. Such incentives could come in many forms, such as recruiting suitable end users to the area, tax credits, grants, zoning, and offset credits for avoided emissions.

Policy Design

Goals: Reduce use of fossil fuel from large industrial sources by 10%

Timing: Beginning in 2010

Parties Involved: Major industrial sources of electricity in the state; i.e., sources with on-site generation

Other:

Implementation Mechanisms

TBD

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD

Draft Policy Options
CRE 13 – Pricing strategies to promote renewable energy and/or CHP

Policy Description

This option focuses on creating pricing and metering strategies that can encourage consumers to implement energy efficiency, CHP, renewable energy, and overall reductions in greenhouse gas emissions. Pricing strategies provide electricity consumers with a greater opportunity to manage their electricity consumption and adjust demand (e.g. turning off lighting or appliances when the price reaches a threshold set by the consumer). Net metering is a policy that allows owners of grid-connected distributed generation (generating units on the customer side of the meter, often limited to some maximum kW level) to generate excess electricity and sell it back to the grid, effectively "turning the meter backward."

Pricing and metering strategies can provide consumers with a market signal to implement energy efficiency, CHP, renewable energy, and overall reductions in greenhouse gas emissions. Pricing strategies provide electricity consumers with a greater opportunity to manage their electricity consumption and adjust demand (e.g. turning off lighting or appliances when the price reaches a threshold set by the consumer).

Policy Design

Goals: Achieve 10% emissions reductions through implementation of various pricing strategies.

Timing: 1% reduction achieved in 2010, with linear growth through 2019

Parties Involved: All industrial, commercial, and residential electricity customers in Iowa, utilities, representatives of environmental & economic development organizations, Iowa Utilities Board, Office of Consumer Advocate, Office of Energy Independence.

Other:

Implementation Mechanisms

Encourage net metering of renewable energy systems by:

1. Creating a centralized net metering program that is a one-stop shop for net metering. Staff would work with customers and utilities to assist the process of net metering.
2. Provide incentives to utilities to net meter with their customers
3. Provide incentives to customers to net meter with their utilities
4. Establish uniform standards and requirements for utilities and customers
5. Require all Iowa's utilities to net meter with interested customers who meet the minimum requirements

6. Award utilities that show leadership in net metering measured by the number of customers who are net metering and the amount of energy net metered.

Related Policies/Programs in Place

TBD

Type(s) of GHG Reductions

Estimated GHG Reductions and Costs (or Cost Savings)

TBD

Data Sources: TBD

Quantification Methods: TBD

Key Assumptions: TBD

Key Uncertainties

TBD

Additional Benefits and Costs

TBD

Feasibility Issues

TBD

Status of Group Approval

TBD

Level of Group Support

TBD

Barriers to Consensus

TBD