

MEMO

To: KCAPC

From: Jeff Wennberg, ES TWG Facilitator

Date: July 26, 2010

RE: Outstanding Policy Questions in ES TWG

Two “versions” of ES-5 and ES-7 have been reviewed by the Energy Supply (ES) Technical Work Group (TWG). The versions garnering the greatest TWG support are included in the Policy Option Document; however, there are some key policy design and “tone” questions that divide the members. Below I have attempted to identify the most important policy issues and have provided alternative text in the policy templates that follow, reflecting the views of other members. Guidance from the Kentucky Climate Action Plan Council on any of these questions would be helpful as we move through the policy development and quantification process.

ES-5 Pricing Strategies to Promote Efficiency and Renewables:

Cost recovery: Regulators “must” or “should” allow utilities to recover excess costs associated with various pricing strategies through customer charges?

Net Metering: Guarantee generator compensation at a retail electricity rate?

Feed-in Tariff: Additional language under policy description?

Prepay Meters: Study prepay meters as part of the policy design?

Net Metering: Recommend amendment of law or “consideration”? Eligible system size “lifted from 30 kW” (undefined) or raise to 2 MW? At a minimum, raise the cap on net metering generation from 1% to 5% of peak? Allow utility ownership of renewable distributed generation, storage solutions, and/or energy conservation devices “behind” the customer meter? Should Kentucky adopt Interstate Renewable Energy Council’s model interconnection procedures? Program enacted by state legislature in 2011?

Feed-in Tariff: Will it apply to all hydro or just “low-impact hydro”? Limit availability to residential and small commercial, or open to utility-scale renewables without limit on size? Call for adoption in 2011 legislature?

ES-7 Renewable Energy Incentives and Barrier Removal:

Renewable Portfolio Standard (RPS) – Energy Efficiency Inclusion: Will energy efficiency be recommended for “inclusion” or “consideration”?

RPS – Carve-Outs: Should there be a single RPS inclusive of multiple technologies, or should certain technologies (solar, wind, biomass, etc.) have technology-specific standards?

RPS – Low Carbon Sources: Will non-renewable but low-carbon sources be included in some fashion (nuclear, coal with carbon capture and storage or reuse)?

CHP: Added text in Policy Description?

Barrier Removal: Added text in Policy Description?

Financial Barriers: Added text in Policy Description? Added text under “Third-party partnership model”?

Educational Barriers: Added text in Policy Description?

Regulatory barriers: Added text in Policy Description?

Combined Heat and Power (CHP) – Standby Charges: Exempt CHP systems using renewable resources from utility standby charges?

ALTERNATIVE ES-5. Pricing Strategies to Promote Efficiency and Renewables Including Net Metering, Feed-In-Tariff, Interconnection Rules, Inclined Rates and Examination of the Standard Rate Structure

Policy Description

Pricing Strategies: Pricing strategies should be developed to encourage both energy efficiency and conservation. Such strategies can take many forms and are best implemented by individual utilities working in concert with regulatory bodies to best address the needs of its particular customer group. Generally, whatever strategies are adopted, the rate structure should be based on the cost of providing service with the objective to send the proper price signal to the customer. Budget billing requirements which erase the price signals provided by all rate designs in responding to either seasonal or time-of-use consumption patterns should be reviewed to evaluate their ability to achieve the goal of consumption cost awareness. Similarly, since a tariff contains many rate structures, the over-all design should eliminate subsidization of groups of customers within a class as well as subsidization of one rate class by another. The overall goal should be to isolate as much of the variable cost of providing service as possible. Opportunities exist for utilities to employ more sophisticated rate structures than have been available in the past due to advanced metering but it must be recognized that such metering has a higher cost, necessitates aggressive customer education and acceptance, and the recovery of these costs through customer charges must-should be allowed by the regulatory agency.

Interconnection Rules and Net Metering: The purpose of interconnection rules and net metering policies is to facilitate the cost effective interconnection of renewable or distributed energy resources onto the power grid, supporting the expansion of the supply of renewable electricity.

The development of renewable energy sources is one of many avenues that should be considered toward the goal of reducing greenhouse gas emissions as new renewable capacity replaces existing fossil fuel sources and avoids the generation of power from fossil fuels in the future. The rules for interconnecting new renewable power generators onto the electricity grid can either be a hindrance, a support, or neutral on the development of these new generators.

Net metering is an important aspect of interconnection which has played a critical role in the development of distributed renewable energy. Under net metering, the retail electricity supplier credits renewable power supplied to the grid by an eligible generator at the retail electricity rate. This guaranteed minimum credit may be crucial to the financial viability of most renewable electricity projects. A net metering law may also establish es a standard procedure for interconnecting renewable energy systems, thereby removing significant administrative barriers.

It should be noted that net metering is distinctly different than the Qualifying Facilities rules which govern the interconnection of facilities intending to sell power to the grid. The distinction is important because net metering exists to serve facilities aiming to meet some or all of their annual electricity demand, rather than those built for the purpose of selling power. Interconnection under net metering is more financially attractive to the customer-generator than the Qualifying Facilities tariffs. Under net metering, the customer's renewable generation is credited at the retail rate. Under Qualifying Facilities, the generator is paid the avoided cost rate, which is less than the retail rate, making net metering a more favorable policy for renewables.

It should also be noted that numerous organizations dedicated to advancing the deployment of renewables have identified net metering and supporting interconnection standards as key facilitating policies. These include (but are not limited to) the Interstate Renewable Energy Council, the Solar Energy Industries Association, and the US Department of Energy.

Feed in Tariff. A Feed in Tariff (FIT) establishes rates for renewable power and mandates electric utilities to purchase that renewable power under long term contracts at these above market rates (which would be established by the Public Service Commission). FITs are considered by many to be the most effective policies for driving the rapid, large-scale development of renewable energy. They were the key policy used in Germany, Spain, Ontario, and Italy to launch their renewable energy sectors and are now in use in many countries. They led Germany to become the world leader in solar photovoltaics, until they were surpassed by Spain in 2008 following passage of Spain's FIT law.

Ontario established its FIT law in 2009 and now has 2600 MW of renewable power under contract. Italy established its FIT law in 2007. By 2008 their total installed capacity of solar photovoltaics was 408 MW, nearly half that of the USA. By the end of 2010 Italy is expected to surpass the USA in total installed capacity of solar PV, reaching 2,648 MW.

According to Powering the Green Economy: The Feed in Tariff Handbook (Mendonca, Jacobs, and Sovacool, 2009), feed in tariffs are superior to all other policies for driving rapid, large scale development of renewable energy. Feed in tariffs:

- are more cost-effective than other policy mechanisms
- promote investment stability
- use simple frameworks with low administrative barriers and costs
- tend toward favorable grid access conditions
- operate quickly
- cause a faster shift to distributed resources
- drive down capital costs
- promote a diversified portfolio of technologies and industrial sectors
- minimize electricity costs
- encourage market competition
- encourage investment of a large number of power producers, ranging from homeowners to businesses to large utilities.

Feed in Tariffs are also known as “Production Based Incentives” because the payments are based on the amount of electricity generated by the facility and recorded on a meter. Many incentive programs, such as tax credits and rebates, pay people for purchasing and installing equipment, but there is no verification that the systems actually generate power. Under Feed in Tariffs, payments are only made for electricity generated onto the grid.

Pros and cons: Arguments in favor of the FIT have been detailed above. An argument against FIT will be that it will drive up the cost of electricity in the state. However, studies have found

that FITs are the most cost-effective long-term strategy for developing renewable energy, including RPS and Renewable Energy Credit schemes.

Policy Design

Pricing Strategies: Specific pricing strategies have both positive and negative attributes.

- Inclining block rates as they refer to energy charges are mainly employed for smaller consumers, residential and general service, where the customer group is fairly homogenous and only basic kWh metering is available. Inclining block rates are not effective in encouraging conservation unless the higher use blocks are much more expensive and at that level they are not cost based. This has an adverse impact on low income customers who often lack the resources to reduce consumption by replacing energy consuming devices with high efficiency units or by housing modifications. Based upon the above this pricing structure is not recommended.
- Prepay Meters: The use of prepay meters has shown it to be an effective pricing strategy to reduce energy consumption. With this type of arrangement customers pay to “load up” their electric meter for the amount of money they want to budget for electricity. They utilize an in-home display to monitor their usage and money left on the meter. There continues to be a valid concern that this type of service would disadvantage low income customers and result service termination during critical periods of heat or cold. These concerns would have to be addressed in a prepay meter tariff or policy.
- Flat block rates as they refer to energy charges are mainly employed for smaller consumers, residential and general service, where the customer group is fairly homogenous and only basic kWh metering is available. This rate design utilizes only a customer charge and energy charge with the fixed demand component bundled within the energy charge at an average load factor. Although a better alignment of costs with pricing, flat block rates offer no incentive for the customer to modify consumption patterns either improving efficiency or conserving energy. This rate structure is not recommended unless used as a transitional rate to a more effective time-of-use rate or when combined with a demand charge. This pricing scheme is not recommended for rates with only a customer charge and an energy charge but is appropriate for rates which also include a demand component.
- Time-of-use rates are currently directed at larger customers because of the historically higher cost of the required metering. However, with the availability of advanced metering at lower prices, this rate structure may be appropriate for use by a larger number of customers. With a customer charge, a flat energy charge, and a demand charge divided into sufficient tiers, the customers the flexibility to modify consumption patterns reducing both billing and contribution to system peaks such a rate structure fulfills all goals. This pricing structure is the most advantageous for all types of customers in aligning price with cost, sending the appropriate signal to the customer, and modifying consumption patterns to maximize system efficiency and conservation. Time-of-use rates are recommended when combined with an aggressive and robust customer education plan, involving all stakeholder groups and innovative tools for the customer to manage their energy usage. To date these tools are in the development stage consequently the use of alternative transitional rate structures may be helpful while the utility is developing the educational information and tools to assist the customer in taking full advantage of time-of-use rate structures. Critical peak pricing ~~may~~ can also be effectively combined with traditional time-of-use rates to ~~possibly~~ deliver an excellent cost based price signal to encourage energy efficiency.

- Real time rates require advanced metering and communication with the customer with real time price signals on a real time basis of minutes, hours, or next day. Directed at larger customers because of the sophistication needed to monitor the pricing and react operationally they have not been readily accepted by customers. Typically electric energy billings account for a relatively small portion of commercial/industrial total expenses, hence customers do not believe the proposed savings justify the effort. While the rate structure is appropriate, it is not recommended since customer acceptance is low.
- Cost of service rates may take several forms and are dependent on the proper classification of fixed and variable costs into customer, energy, and demand components. Properly identifying fixed and variable costs and assigning them to the customer classes as customer, energy, or capacity is the starting point. Whatever rate design is chosen and approved by the Kentucky Public Service Commission, it should then follow cost of service as closely as possible. Customer charges must fully reflect customer cost. Energy charges must be limited as nearly as possible to only reflecting variable cost. Demand charges must be comprised of fixed cost in sufficient detail so as to incent consumption modification. Cost of service rates can be used very effectively to transition to time of use rates described above.
- Other rate considerations include seasonal differentials and power factor recognition. Seasonal differentials are useful in assigning cost but have little impact on consumption patterns unless used in conjunction with other techniques such as time-of-use pricing. Power factor recognition either through kW correction or kVA billing are vital for providing larger customers an accurate price signal.

Goals: Time of use rates should be implemented by 2012. Modification of consumption patterns resulting in increased system efficiency may be measured through decreased system peaks, increased system load factors, and increased system power factors. Even without a reduction in kWh sales, these impacts may will result in a reduction of GHG since losses are related to load exponentially.

Timing: See above. Prepay meter rates should be offered to customers by 2012.

Parties Involved: Utilities, Public Service Commission, and Attorney General. Customers, community action groups, and other interested parties.

Other: None.

Interconnection Rules and Net Metering:

Goals: Kentucky's net metering law and interconnection guidelines were graded in the Interstate Renewable Energy Council's (IREC) report "Freeing the Grid – 2009 Edition." The net metering law received a grade of B and the interconnection guidelines received a grade of F. The goal of this policy is to establish the most supportive net metering and interconnection rules to most effectively facilitate the connection of renewable or distributed energy resources to the grid.

Net Metering: Kentucky's net metering law ~~could~~ should be amended in the following ways:

1. Consider changing the cap on the size of eligible systems or at least increase the cap from 30 KW to 2 MW. This will enable large industrial and commercial customers to participate in net metering.

2. ~~Adjust~~ Remove the cap on the aggregate total of net metering generation, or at least raise it from 1% to 5% of peak demand.
3. Allow third-party ownership of systems eligible for net metering. This will enable customers to lease renewable energy equipment or enter into Power Purchase Agreements for the purchase of renewable power and utilize net metering.
4. ~~Allow utility ownership of renewable distributed generation, storage solutions, and/or energy conservation devices ‘behind’ the customer meter with recovery equal to the cost of new generation capacity.~~

Interconnection Rules: Kentucky’s interconnection rules should be modified as follows:

1. “Freeing the Grid – 2009 Edition” recommends that Kentucky adopt IREC’s model interconnection procedures. IREC’s model rules are based on best practices from across the nation and are used as a model in many states.

Timing: The measures to amend the net metering guidelines should be considered enacted by the Kentucky Legislature in 2011 and incorporated into revised Net Metering and Interconnection Guidelines by the PSC within 12 months thereafter.

Parties Involved:

- Kentucky Retail Electric Suppliers and their customers and assume any cost shifting that would occur.
- Renewable Energy Companies would have a direct stake in this and would financially benefit from the implementation of these policies.
- Environmental groups to the extent they support renewable energy development.
- Attorney General—is typically involved in cases before the PSC.

Other: None.

Feed in Tariff:

Kentucky’s Feed in Tariff ~~should~~ would apply to the following renewable energy technologies: solar, wind, low-impact biomass/biogas, and low impact hydroelectric. Feed in tariffs are only successful if well-designed.

The rates paid to renewable energy producers would be established by the Kentucky Public Service Commission for each technology and would be based on the total cost for generating the power allowing a reasonable payback period. Utilities would be mandated-obligated to purchase power from any renewable energy generator within the state who meets the technical requirements. Residential, ~~and~~ small commercial and utility-scale systems would all be eligible to participate.

Feed in tariffs would be established for each eligible technology and different rates would be allowable within a class of technology based on size or other factors, where the PSC finds that these differences significantly affect the cost of generating power.

Every two years the PSC would review the tariffs for each technology and adjust the rates and interconnection guidelines as appropriate. The amount paid for the renewable power is recovered by the utilities through a surcharge on the customer's monthly bill.

~~The rates established by the PSC would be binding on Municipal utilities but not on TVA distributors. No cap on the size of eligible systems will be allowed and no cap on the aggregate amount of renewable electric capacity installed will be imposed.~~

Goals: See above.

Timing: None set at this time.

The PSC shall establish an administrative case to establish the guidelines for the FIT within 180 days of the enactment of FIT legislation, at which point project development could begin and contracts initiated. The necessary legislation could be passed by the Kentucky Legislature in the 2011 General Session.

Parties Involved: Electric utilities, industrial customers, Attorney General, renewable energy companies, environmental and public interest organizations.

ALTERNATIVE ES-7. Renewable Energy Incentives and Barrier Removal Including CHP

Policy Description

Renewable Portfolio Standard (RPS):

Renewable Portfolio Standards (RPS) require utilities to meet a portion of their electricity demand with electricity generated with renewable resources. Twenty-nine states and the District of Columbia have enacted some form of portfolio standard. The Governor's energy strategy, Intelligent Energy Choices for Kentucky's Future, sets a target of 16% efficiency and 1000 MW of renewable electricity by 2025.

An RPS, with an energy efficiency component, will create demand for ~~mandate the use of~~ renewable sources of electricity and may will stimulate energy efficiency programs. It is extremely difficult to increase the use of renewable electricity to the state energy profile without a legislative mandate. The cost of generating electricity from renewable resources is typically higher than from conventional resources such as coal. The levelized energy cost (LEC) of a coal-fired power plant may be as low as \$.03/kwh whereas the LEC for solar electricity could be as high as \$.30/kwh. This is important because the Public Service Commission must approve the procurement of renewable electricity and cost recovery for utilities within its jurisdiction. If a utility can generate or purchase the electricity at a lower cost, the PSC must approve the acquisition of electricity above this cost.

RPS policies vary across the states that have adopted them and Kentucky should review its own renewable opportunities and craft an RPS that best suits the state. The Energy Strategy cited that residential electricity use was 24% above the national average in 2006. The opportunity exists to use electricity more efficiently. A Kentucky Portfolio Standard ~~could~~ should incorporate efficiency mandates.

Kentucky has an opportunity to develop energy crops and a supply chain which will facilitate their development and use. Further, some RPS policies make use of carve outs or set asides. These are used to emphasize certain renewables. For example a state with a strong wind resource may make use of a wind set aside. In this case electricity generated from wind is guaranteed to contribute to the standard and overall electricity portfolio. Kentucky can make use of the set aside for solar, which typically costs more and does not compete well with other renewables, and for biomass. Kentucky has a strong potential for growing energy crops and developing forest resources for energy.

Distributed generators of renewable electricity can provide benefits. Distributing solar throughout a region which has adequate sun could reduce the demand for electricity at the source. Distributed renewable systems can sometimes make use of existing transmission and distribution lines. A Kentucky portfolio standard should allow for deployment of distributed sources of renewable electricity.

In addition to establishing demand for renewable electricity through a portfolio standard, Kentucky must also ensure local supply of ~~should consider support for locally or at least~~

~~regionally supplied~~ renewable resources. Building local supply chains for biomass has the capacity to increase the amount of dollars available to qualify in localities. Since Kentucky has significant potential to grow biomass for energy, policies could be derived that ensure supply is available to meet the standard set by the legislature. A portfolio standard is just one part of the equation; supply must also develop.

Kentucky may also want to incorporate low carbon sources of electricity into the standard such as electricity derived from nuclear power and coal with carbon capture and sequestration. States such as Ohio and Pennsylvania have adopted comprehensive portfolio standards that include low carbon resources.

It is important to note that replacing a kilowatt hour in Kentucky with a more expensive kilowatt hour will increase the cost of generation. It is the rate payers that will pay for the increase. Phase two of this policy analysis will include an explanation of the cost of this option.

Hydroelectric Development:

There are three primary barriers associated with the development of hydroelectric power plants. FERC licensing can take 2-5 years. Siting is specific to the resource and the availability of dams since constructing new dams is controversial. Kentucky currently has 783 MW of installed hydroelectric capacity in the state. The potential according to the Hydroelectric Assessment for Kentucky prepared by Idaho National Lab in 1998 is just under 900 MW. Within this potential is 105 MW of power associated with the Meldahl hydroelectric plant which is already under construction. Construction of Smithland and Cannelton plants are also underway.

It is possible to address the economic barrier that exists. Currently the Incentives for Energy Independence Act already include hydroelectric facilities as eligible projects for tax incentives provided they generate 1 MW of power or more and incur a \$1 million investment.

New hydro capacity and improvements to existing hydro plants that result in added capacity should qualify as a renewable energy resource under a state portfolio standard.

Combined Heat and Power (CHP):

Combined heat and power (CHP) and waste heat recovery are systems that enable a consumer to make better use waste heat or thermal energy associated with industrial processes or power production. Several barriers exist to increasing these systems. One of the biggest barriers that exist is the spark spread. Spark spread is the difference between the cost of fuel for the CHP system to produce power and heat on site and the offset cost of purchased grid power. A second barrier is the use of standby charges. ~~Standby charges are set to reflect the costs associated with generating the electricity if a CHP system fails to generate its agreed upon amount of electricity.~~

Standby charges are important to utilities in that they are required to stand by to deliver power if, for example, a CHP system is not operating. However, there are benefits to a utility when the system is operating. The MWhs not needed by the consumer can be sold off system at potentially higher rates. Further these systems can reduce the utility's peak demand as they can be taken offline for routine maintenance during non-peak times. These benefits should equate to incentives for the consumer.

There are two opportunities for these systems to contribute to a Kentucky Portfolio Standard. First they can contribute to MWh reductions through efficiency. For example a CHP system can increase efficiency and energy utilization by up to 85 percent as compared to conventional generation. Second if the feedstock is an eligible renewable resource the consumer can qualify as a distributed generator and will generate renewable energy certificates that can be sold to a utility seeking compliance. A portfolio standard should adequately define these systems so that there is flexibility in how they contribute to meeting the standard (i.e. used to meet the efficiency, renewable or low carbon portion of the standard.) Further the utilization of waste heat should not require actual electricity production since the use of the thermal energy for heating, cooling or hot water will reduce demand for fossil fuel-derived electricity.

Additionally, CHP systems powered with renewable resources should be eligible for distributed generator status and receive any preference that is given to distributed generators in the portfolio standard legislation.

Barrier Removal:

The large-scale development (1 MW and greater) of grid-based and distributed renewable energy resources ~~could potentially~~ offers many benefits and opportunities for Kentucky. Distributed generation may provide numerous benefits to the power grid and society. If developed at a large scale and in response to existing renewable electricity standards, these resources would establish new economic sectors, creating new wealth and employment for thousands of Kentuckians. Unless the distributed generation is least cost the new wealth will be a transfer from the energy consumers in Kentucky to the developers of the distributed generation. If energy costs are increased overall state employment will likely go down. By being distributed across the state, the economic costs and benefits, if any, could likewise be distributed.

Financial, educational and regulatory barriers exist to the large scale development of renewable energy resources in Kentucky. Effective policies are needed to remove these barriers and provide adequate incentives.

Financial Barriers – Our current energy system has externalized many significant societal costs associated with the production of energy from fossil fuel and nuclear energy resources. These conventional industries have also profited from decades of subsidies and other forms of government support. Renewable technologies entail high capital costs, but for some (wind, solar, hydro) no recurring fuel costs. Financial incentives are needed to offset low cost of the current conventional energy system and to the investor the financial return to invest in the higher capital costs of renewable technologies.

Renewable resources are competing against prices based on electricity generated from coal. Power from Kentucky's existing coal plants is relatively inexpensive, if carbon regulation comes to pass, the cost of power from those plants will increase. It will take a very substantial carbon price to make some forms of distributed renewable electricity cost effective. Taking action in anticipation of the federal government setting a price on carbon should be done carefully. Premature action would increase the cost of electricity for Kentucky consumers. The relative price of renewables changes when one considers what the cost of building a new coal or nuclear power plant will be in the future provided that a new plant is planned to meet base load generation. That is only a relevant comparison if new base load generation is planned. Appropriate policies are needed to ensure that the costs of renewable power are compared to the

full societal costs of conventional power and also to the realistic future costs of conventional power and new conventional power plants. The full cost of making distributed generation comparable to base load generation should also be used. Since solar is never available at night and wind is only available when the wind blows at the right speed these types of distributed generation must be backed up by conventional generation if they are to exceed a very small portion of the generation mix.

Another financial barrier that exists is the upfront cost of large scale, distributed renewable electricity systems and the cost to finance those systems. Specifically related to solar, a financing model—third party partnership model—developed to address this barrier and to make efficient use of Federal tax credits available for solar power. An entity such as a school hosts a 1 MW or above solar system and purchases the electricity from that system. A solar developer serves as the middle man and receives the solar Renewable Electricity Credits. The third party receives income from the electricity sales as well as reduced tax liability associated with the tax credits in exchange for upfront capital. This arrangement exists for at least 5 years and then the host is able to purchase the solar system at a much lower cost. A problem arises in Kentucky whenever a utility under the jurisdiction of the Public Service Commission serves the area. The host is required to purchase electricity from that utility and not from the solar project. This barrier could be removed by allowing a consumer to purchase the electricity from a 1 MW renewable system that is attached to the consumer. This financing model is especially important when financing distributed solar projects for entities without tax liability such as schools.

Educational Barriers – There is a great lack of education among the public and decision-makers about renewable energy and its availability in Kentucky. The large-scale development of distributed renewable energy must engage a much larger segment of the population in the generation of power than is presently the case. The potential to create thousands of new jobs in the renewable energy sector also calls for the need to properly educate people to participate in this new work force. There is also a risk that existing jobs in the industrial/ mining sector will be lost by this policy and rising energy costs. A broad, intensive and long-term educational campaign is needed to educate the citizenry about energy fundamentals and renewable energy.

Regulatory Barriers – The Kentucky Public Service Commission is presently acting as a barrier to the development of renewable energy. In recent cases, it has rejected proposals from utilities to purchase wind power on the basis that the utilities must provide the “least-cost” power to their customers, and the wind energy was presented at a higher cost than current electric rates. The PSC is erecting barriers by failing to recognize two critical realities: (1) The PSC fails to account for the full societal costs (externalized costs) of the energy options it is evaluating, an analysis which would reveal renewables to be much more cost-competitive if not the least cost option; and (2) the PSC is failing to look to the future and anticipate the forces which will drive up the costs of fossil-fuel generation.

Regional Renewable Energy Planning Group:

Kentucky presently has very little renewable energy generation and the question of the state’s true potential for generating renewable power remains a subject of debate. Each state has its own unique, local resources (natural, human, infrastructural, economic) and its own particular needs. A Regional Renewable Energy Planning Group would invite each of Kentucky’s neighboring states (and perhaps others from the region) to work together to find opportunities to solve

common problems, to share resources and knowledge, and to cooperate in the common goals of cutting GHG emissions and developing a thriving renewable energy economy.

Policy Design

RPS:

The group could not reach consensus on specific percentages and timetables for an RPS, but agreed to study the following for investigative purposes and suggested EE analysis using the 2 major federal initiatives as scenarios for assessing cost/benefits.

Goals: Enact a portfolio standard that incorporates efficiency and renewable electricity resources. To assess a range of RPS targets the following are to be quantified as follows: For the upper target, starting at the end of 2014 require a renewable contribution of 2%, and every 4 years thereafter increase the contribution by 4%, so that in 2018 the standard would be 6%; 2022, 10%, 2026, 14% and 2030, 18%. The lower target would be exactly half of these standards in each year.

Modeling of efficiency targets will use the national targets proposed by the Waxman and Bingaman as sensitivity targets.

Timing:

- Congress is debating a national RPS. Kentucky must be prepared to enact policies that ensure development of renewable resources within the state if a national standard is enacted. Developing renewable energy projects within the state to meet the mandate ~~may~~ will yield a more positive economic impact since importing renewable electricity from out of state will result in loss of wealth from the state.
- This policy along with policies that ensure local supply of renewable resources must be timed to coincide in such a way that the local resource is available to meet the standard at each benchmark year. If local resources are not available, renewable electricity ~~will likely~~ can be purchased from other states.

Parties Involved: Public Service Commission will oversee compliance with the mandate; customers will be affected by the cost of the mandate; energy developers will be impacted by the demand for renewable and low carbon resources; energy auditors and contractors will be affected by the growth in efficiency programs.

Hydroelectric Generation:

Properly define hydroelectric resource within the state portfolio standard to ensure efficiency improvements that increase capacity are included despite the fact that changes are being made to an existing plant.

Goals: None.

Timing: See RPS above.

Parties Involved: Existing permit holders, potential hydroelectric developers, utilities, Public Service Commission, Cabinet for Economic Development provided changes are made to the existing incentives.

Other: It is important to note that FERC gives preference to municipally owned utilities when awarding hydro licenses. An investor owned utility that is required to comply with a portfolio standard may not have access to potential hydroelectric capacity.

CHP:

Properly define combined heat and power AND waste heat recovery within the state portfolio standard to ensure that the systems could contribute to a utility's compliance with any part of the standard (efficiency, renewable-if powered by a renewable resource). Require utilities that enforce a standby charge to also account for the benefits the CHP or waste heat recovery system has on the utility system such as through a discounted rate that is associated with interruptible service. Alternatively, exempt entities with CHP systems that rely on renewable resources, such as biomass from standby rates.

Goals: None.

Timing: See RPS above.

Parties Involved: Utilities, Public Service Commission, consumers with CHP or waste heat recovery systems.

Other: Kentucky has a strong industrial base that has developed around the state's lower cost electricity. Increasing electricity prices because of a portfolio standard could drive certain industries out of the state. If the consumption of electricity by the industrial sector is exempted from the portfolio standard requirements, efficiency improvements due to CHP and waste heat recovery could not be used to achieve compliance. However, changes could be made to utility tariffs to incentivize industrial CHP applications in addition to establishing a portfolio standard. An industrial consumer would however generate renewable electricity certificates provided it generates electricity with a renewable energy resource. These credits could be sold thereby creating a second revenue stream that decreases the investment payback. None

Barrier Removal:

Three strategies are called for to address the barriers described above:

1. Feed In Tariffs - Feed In Tariffs have been found to be a mechanism for promoting the development of renewable energy.
2. Enable the benefits of the Third Party Partnership Model for distributed solar systems 1 MW and above by allowing the host entity to purchase the generation from onsite systems.
3. Renewable Energy Education Program - A well-funded, long-term statewide education program needs to be developed to educate the general population and decision-makers about energy fundamentals and renewable energy. This program would also address conservation and energy efficiency and enable customers to better understand where their energy comes from, what their options are for using less energy, lowering energy costs and how to become renewable energy generators. This Program could be funded by a Systems Benefit Charge on the utility bills of all residential, commercial and industrial electric customers (\$0.0001/KWH (or 0.1mil)) would generate approximately \$10 million per year for the Program.

Goals: See above.

Timing: See RPS above.

Parties Involved: These policies would be implemented through an act of the Legislature. Electric utilities, Public Service Commission, Center for Renewable Energy Research and Environmental Stewardship, the Conn Center at the University of Louisville (which manages CRERES), Attorney General, Kentucky's Industrial and manufacturer's associations (they would have positions on any changes to the PSC and creation of the Systems Benefit Charge and the Feed In Tariff), renewable energy businesses, environmental and public interest organizations. All energy consumers including residential, low income, seniors, commercial and industrial.

Other: None.

Regional Renewable Energy Planning Group:

1. Identify opportunities for interstate collaboration to meet needs for renewable energy and GHG emission reduction.
2. Identify barriers to transmission of renewable power across the region (and into/ out of Kentucky)*(FERC Issue).
3. Identify opportunities for sharing economic benefits/costs of renewable energy development.
4. Develop solutions to common problems related to renewable energy development and GHG emissions reductions.

Goals: This sub policy does not have specific quantifiable goals at this point.

Timing: The Planning Group would be initiated in 2011 and continue meeting so long as its activities were fruitful.

Parties Involved: Parties involved explain interest and role States invited: Kentucky, Ohio, Indiana, Illinois, Missouri, Tennessee, North Carolina, Virginia, West Virginia State Energy Office personnel (Renewable Energy staff), Representatives from electric utilities, local and regional renewable energy businesses, Local and regional environmental and public interest organizations, Energy consumer organizations, the AG, KIUC etc.

Other: None.