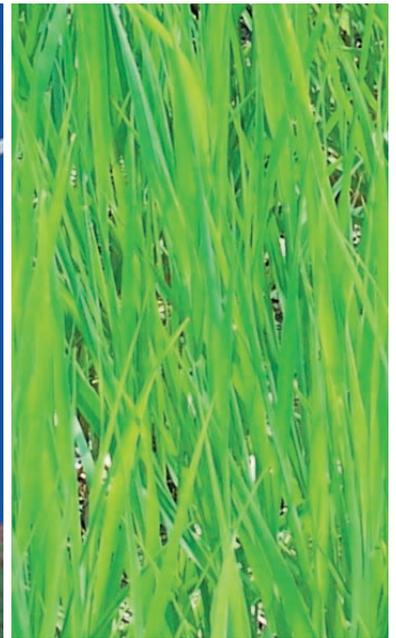




ENERGY SECURITY AND
CLIMATE STEWARDSHIP
PLATFORM
FOR THE MIDWEST

2007



MIDWESTERN ENERGY
SECURITY & CLIMATE
STEWARDSHIP SUMMIT



MGA
Midwestern Governors Association

ENERGY SECURITY & CLIMATE STEWARDSHIP PLATFORM FOR THE MIDWESTERN REGION OF THE UNITED STATES AND CANADA



PREAMBLE

Rising energy prices, increasing dependence on imported energy, growth in domestic and global demand for energy, and mounting concern over how to address climate change while sustaining and enhancing economic growth and job creation pose serious challenges to the Midwest's energy future. As Midwestern leaders, we recognize our region's obligation to provide leadership on these challenges, and the clear benefits of cooperating regionally to meet them.

To satisfy the energy needs of a rapidly growing world population, while significantly reducing carbon dioxide (CO₂) and other greenhouse gas (GHG) emissions, we must by mid-century produce twice as much low-carbon energy globally as all energy consumed in the world today. It will also require dramatic efficiency improvements in buildings, transportation, and technology and new production from every renewable and lower-carbon fossil energy resource and technology we can muster.

Midwestern states and our Canadian provincial partners can lead this global transition and prosper economically by manufacturing and exporting next-generation energy technologies and supplying lower-carbon energy. The U.S. Midwest depends heavily on electricity generated by traditional coal-fired plants and on largely imported petroleum to fuel our agricultural, transportation and industrial sectors, all of which presently represent major sources of GHG emissions. However, because of our vast base of energy resources, ingenuity and manufacturing prowess, the Midwest has the greatest potential of any region in North America to transform our present energy vulnerabilities into advantages. Through policy approaches adapted to the different needs of our individual jurisdictions, we will use these advantages to meet our region's energy security and climate stewardship challenges.

We have only begun to tap the world-class biomass, wind and other renewable energy potential that the farm belt and Great Lakes regions have to provide North America with home-grown energy. Our region's large and secure reserves of coal lie in close proximity to geologic reservoirs for permanent storage of CO₂, including partially depleted oil fields suitable for enhanced oil and gas recovery. Midwestern states are national leaders in energy efficiency, which is a critical component in reducing energy demand and keeping electricity costs affordable. Midwestern state universities are already national and world leaders in research exploring energy frontiers and in developing solutions for our energy future. Hundreds of Midwestern inventors and entrepreneurs, designers, architects, engineers and builders are hard at work designing and bringing to market a broad range of technologies needed to propel the transition to the world's low-carbon energy future. Lastly, we can build on strong relations with interested Canadian provinces to further develop transmission and clean renewable energy sources.



It takes a long time to influence the overall direction of the energy system. Power plants, biorefineries, wind farms and other energy production facilities and infrastructure will require major investments that will last 25 to 50 years and more. We need policies and programs in place now to encourage innovation and reinvention when energy infrastructure is replaced, upgraded or expanded in the future. We will aid in the transition through market-based deployment of new technologies and programs, thoughtful, far-sighted policy design and the prudent dedication of public resources and incentives. Through this transition, in addition to reducing GHG emissions our states will spur investment, create new jobs, and protect customers by stabilizing energy prices.

We have gathered at this Energy Summit to demonstrate our commitment to this long-term transition to a lower-carbon energy economy. Through the Midwestern Governors Association (MGA), we have brought together leaders from industry, agriculture, nongovernmental organizations, and the public sector to gather their ideas and collective wisdom in crafting goals, policy recommendations and practical cooperative initiatives to be undertaken jointly by our states. The Energy Security and Climate Stewardship Platform we announce today draws on that input and outlines a strategic blueprint and action plan to guide future development of the Midwest's energy economy.



TRANSITIONING TO A LOWER CARBON ENERGY ECONOMY

Following this summit, our respective states and interested Canadian provinces will continue to work through MGA to support implementation of the platform and help ensure economic prosperity, energy security and a healthy environment in the Midwest for decades to come.

GOAL

As part of our Energy Security and Climate Stewardship Platform, we commit to the following goal for the region:

- ▶ Maximize the energy resources and economic advantages and opportunities of Midwestern states while reducing emissions of atmospheric CO₂ and other greenhouse gases.

OBJECTIVES

Reaching this goal will require meeting the following objectives over time:

1. Achieve continuous improvement in levels of cost-effective energy efficiency across the economy;
2. Deploy lower-carbon renewable and fossil fuels and technologies comprehensively;
3. Implement geologic CO₂ storage, terrestrial carbon sequestration and other technological utilization of CO₂ on a large scale; and
4. Add economic value and high-paying jobs to the Midwest's energy, agriculture, manufacturing and technology sectors through the development and deployment of lower-carbon energy production and technologies.



KEY STRATEGIES

In order to achieve these objectives, we endorse and commit our respective states to implementation of a comprehensive, multi-pronged approach that includes the following integrated strategies:

1. **Maximize economy-wide investment in energy efficiency initiatives** that are less expensive than other energy options;
2. **Accelerate the commercialization of advanced coal and natural gas technologies and infrastructure** for the capture and geologic storage of CO₂ emissions, including for enhanced oil and gas recovery;
3. **Maximize the economic and reliable integration of wind energy**, both into the electrical grid and as a resource for energy applications that do not require the bulk transmission of electricity;
4. **Expand on existing biofuels production through the development of a bio-refinery industry** that minimizes GHG emissions and produces liquid fuels, biogas, electricity, heat and bio-products from cellulosic biomass;
5. **Establish a secure, domestic transportation fuel supply and infrastructure** that relies on the region's sustainable production of electricity, biofuels, hydrogen and other low- and zero-carbon fuels;
6. **Develop regional electric transmission and energy delivery capacity** sufficient to accommodate the substantial increases needed in low- and zero-carbon energy production; and
7. **Support the regional development and manufacturing of highly efficient and lower-carbon technologies** in vehicles and equipment, renewable and fossil energy production, consumer appliances and products, and other key energy sectors, both for use in the North American market and for global export.

AGREEMENTS BY PLATFORM THEME: GOALS, OBJECTIVES AND POLICY OPTIONS



To implement the Energy Security and Climate Stewardship Platform, the governors and premier of Illinois, Indiana, Iowa, Kansas, Manitoba, Michigan, Minnesota, Ohio, South Dakota and Wisconsin endorse the following specific objectives and goals by which to measure progress, and offer a menu of policy options to reach our common goals. We recognize that the geographic, economic and resource diversity of the Midwest calls for flexibility in the implementation of regional goals and objectives. Some jurisdictions may contribute more or less than others to the implementation of a given regional objective or goals, due to their particular resource advantages. Also, each jurisdiction will work to achieve these shared regional objectives and goals by implementing a mix of options from the policy menu that is best tailored to fit its needs.

Energy Efficiency 1

MEASURABLE GOAL

- ▶ Meet at least 2 percent of regional annual retail sales of natural gas and electricity through energy efficiency improvements by 2015, and continue to achieve an additional 2 percent in efficiency improvements every year thereafter.

OBJECTIVES

- Identify the technical and economically achievable energy efficiency potential for each MGA state and for the region as a whole.
- Establish a policy and regulatory environment that enables and encourages implementation of cost-effective energy efficiency investments and practices.
- Accelerate adoption of economically achievable energy efficiency measures by building greater awareness and facilitating financing and delivery.



- Measure and report, on a state-by-state and regional basis, annual progress on reaching these energy efficiency targets.

POLICY OPTIONS

1. **Establish quantifiable goals for energy efficiency.** Policy-makers need to determine what level of efficiency improvement is economically achievable for their jurisdiction to meet the regional goal. If each state identified targets for megawatt-hours and therms saved, it would be possible to determine what role each jurisdiction can play in achieving the region's overall 2 percent energy efficiency objective. Progress should be continually measured and evaluated, and adjustments should be made as necessary.
2. **Undertake state assessments that quantify the amount of energy efficiency that would cost less on a unit cost basis than new generation.** This analysis should include a cost-benefit analysis of pursuing this amount of efficiency.
3. **Require retail energy providers to make energy efficiency a priority.** Resource plans should begin with all cost-effective energy efficiency goals, targets and strategies before reliance upon any additional supply.
4. **Remove financial disincentives and enable investment recovery for energy efficiency program costs.** Regulatory practices and rate designs sometimes result in barriers to efficiency investments because efficiency reduces potential energy sales. Changes should be implemented to remove financial disincentives and provide appropriate incentives for prudent expenditures on energy efficiency.
5. **Strengthen building codes and appliance standards and requisite training, quality assurance and enforcement.** The experience of other countries and regions in developing progressive codes and standards should be a model for this region. For example, leading states have updated state building codes to keep up with technological advances in energy efficiency.

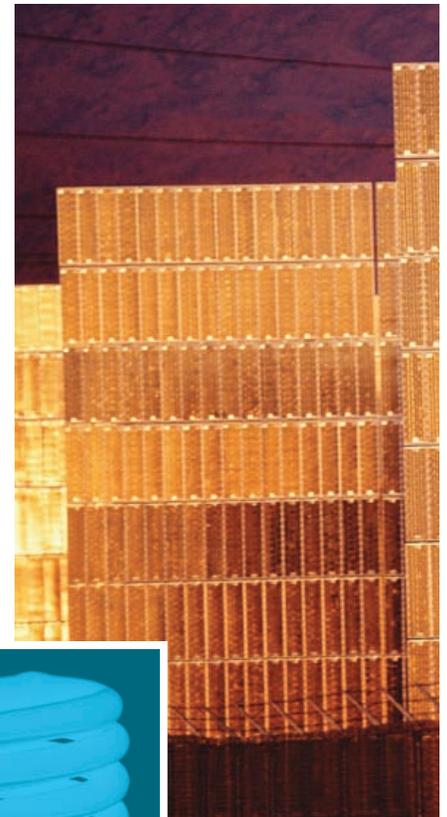


Other options for improving energy efficiency in buildings and appliances include:

- a. Adapt effective, market-based certification programs to buildings and appliances not now covered, so that energy efficiency becomes a visible selling point for a wider array of products.
- b. Automatically update building codes to reflect the latest in proven conservation and building technology.
- c. Automatically upgrade home and commercial building energy performance at the point of sale, while implementing financing mechanisms to aid in such upgrades, so that buildings will reflect the latest in proven, cost-effective techniques and practices for conservation and energy efficiency.
- d. Invest in training of architects, builders and local code officials in how to effectively and efficiently comply with new building energy codes in order to reap the full benefits of the codes.
- e. Establish incentives to exceed building codes. For example, if developers build an “Energy Star structure,” they might qualify for preferential and/or lower-interest financing.
- f. Encourage development of zero-energy building design and construction.

Energy Efficiency

- 6. Have the public sector lead by example.** The federal government and several states have taken the lead in establishing challenging energy-use reduction goals for state and federal buildings. These programs provide leadership and set an example for the private sector. Public initiatives also represent opportunities for testing more-effective energy management programs, shared savings contracts and other technical and programmatic plans that can help show the private sector how these programs can work and reduce per capita energy use. Recommissioning existing commercial properties is a good example of how the public sector can initiate these programs on public buildings and monitor results to show the payback for the private sector.
- 7. Accelerate adoption of energy efficiency technologies and best practices by commercial and residential customers.** This could start with using the “bully pulpit” by developing an education campaign (e.g., public service announcements), but could also entail changing local government aid to reward communities with specific energy efficiency goals. A great deal of progress could be made by building capacity to conduct more residential, commercial and industrial energy efficiency assessments and providing carefully targeted incentives for consumers to act on the recommendations. Whatever combination of “carrots and sticks” that policy-makers use to encourage greater efficiency, low-income customers will need programs to assist them with the front-end costs of efficiency improvements.



Biobased Products and Transportation 2

MEASURABLE GOALS



- ▶ **By 2012:** Advanced cellulosic and other low-carbon transportation fuels should be commercially produced in the region.
- ▶ **By 2015:** E85 will be offered at 15 percent of retail filling stations, or around 4,400 stations, approximately a five-fold increase. Currently, E85 is available at 3 percent of filling stations regionally.
- ▶ **By 2020:** E85 will be offered at 20 percent of retail filling stations, or around 5,900 stations, approximately a six-fold increase.
- ▶ **BY 2025:** E85 will be offered at 33 percent of retail filling stations, or around 9,700 stations, approximately a 10-fold increase.
- ▶ **By 2025:** Average fossil fuel inputs in the production of conventional biofuels in the region will be reduced by at least 50 percent.
- ▶ **BY 2025:** At least 50 percent of all transportation energy consumed in the region will be supplied by regionally produced biofuels and other low-carbon advanced transportation fuels, with the expectation that a significant and additional portion of the region's biofuel production will help the U.S. meet a national 25 x' 25 goal.

OBJECTIVES

- Develop the Midwest's capacity for production of biofuels and other low-carbon advanced transportation fuels to advance national energy independence, add value for consumers, revitalize rural economies and the region's manufacturing base, and decrease greenhouse gas emissions.
- Accelerate strategies for improving the efficiency of biofuels production and use, reduce fossil fuel inputs, minimize GHG emissions, decrease water use and strengthen the existing biofuels industry.
- Develop, demonstrate and commercialize a variety of biomass-utilizing technologies and other low-carbon advanced fuels covering a portfolio of energy products and biobased products.



- Pursue innovative opportunities to increase the biofuels supply while improving water quality, soil quality and wildlife habitat.
- Build the infrastructure to allow the bioeconomy to expand.

POLICY OPTIONS

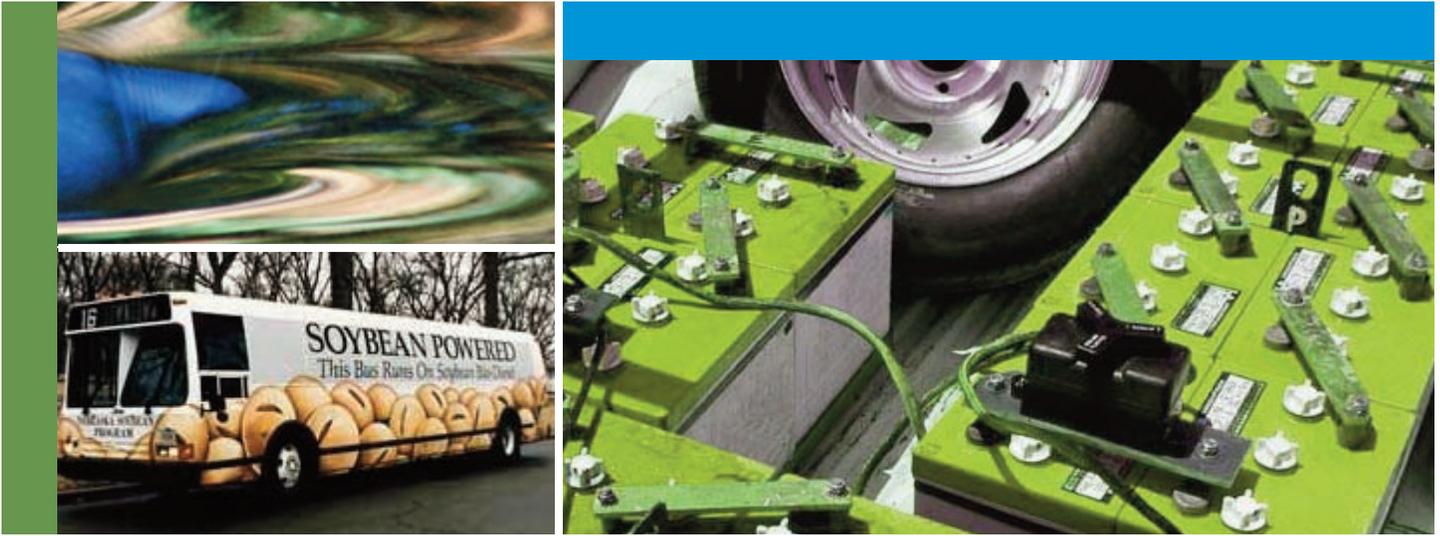
1. Provide market pull and the distribution infrastructure for biofuels and advanced transportation fuels by:

- Promoting broad renewable fuels standards that include specific carve-outs for lower-carbon advanced biofuels;
- Creating incentives for increased public demand for fuel-efficient, lower-carbon vehicles;
- Expanding state government's use of biofuels and advanced transportation fuels;
- Developing regional quality standards for biodiesel and other fuels; and
- Adopting retail tax incentives encouraging retailers to sell biofuels, advanced transportation fuels and biobased products.

2. **Advance conversion technology commercialization.** While the current ethanol and biodiesel industry continues to grow, it is crucial that action be taken to mitigate risk in developing next-generation technologies in order to speed the transition of new technologies to commercialization.

3. **Broaden existing bioenergy incentives and create new incentives that promote many uses of biomass,** including not only a range of different liquid fuels, but also natural gas, heat and electricity.

4. **Develop next-generation regulation.** New technologies can deliver environmental benefits, but often do not fit neatly into existing regulatory schemes. This can create challenges for regulatory agencies and industry. Collaboration is needed to develop permitting rules for advanced technologies, share information about the environmental impact of various advanced technologies, provide



regulatory exemptions for novel demonstrations to allow experimentation, and promote innovative regulatory strategies that seek to reward projects with good overall environmental characteristics.

5. **Provide technical assistance to advanced technology projects.** By funding front-end engineering and design studies and other feasibility studies, providing business planning and mentoring, and expanding technical capabilities, states can help develop advanced technology projects.
6. **Increase regional research collaboration.** Coordinate state and private research to develop an information clearinghouse on advanced bioenergy research and demonstration projects in the region; identify crucial research needs; organize and launch regional research and other initiatives addressing key challenges to development of the bioeconomy; and promote regional commercial-scale demonstrations of various biomass feedstocks.
7. **Develop the Midwestern infrastructure for the manufacture of biobased products.** A key to the advanced bioenergy complex will be the profitability of the manufacturing of biobased materials that are co-products of biobased fuels. This materials industry is in its infancy. Support research determining how the biomaterials supply chain can mature in conjunction with the biofuels sector and how new products can achieve economic viability.
8. **Develop Midwestern biobased products.** Adopt biobased product procurement rules at the state level, participate in a regional biobased product procurement program with a common list of products, and consider expanding the program further by creating a regional certification program and promoting it through education and incentives for business participation as a means to foster biobased product development.
9. **Overcome the difficulty of biomass feedstock logistics.** Employ technical assistance and incentives to projects that are seeking to develop a supply of cellulosic biomass for bioenergy projects.

Biobased Products and Transportation

10. **Create a uniform, regional low-carbon fuels policy – implemented at the state level as a standard, objective or incentive – and report annually on progress.** Convene affected stakeholders to develop the common policy, including reporting mechanisms and other details.
11. **Develop incentives for increasing vehicle fuel efficiency and reducing greenhouse gas emissions.**
12. **Create local wealth.** Recognizing that a diversity of financing models will be necessary to develop a new generation of advanced technologies, ensure that the benefits of biofuels, advanced transportation fuels and biobased product developments accrue to public and private entities in the communities where they are produced. Assure that cooperatives, municipal authorities, other local and community-owned entities, and small investors are not excluded from government incentive programs. Give bonding authority or access to bonding funds to co-ops, municipal utilities, and other local and community-owned entities to fund biomass projects. Wherever possible, make the opportunity available for local ownership in projects receiving public investments.
13. **Promote a perennial biomass supply.** Because of the synergies between farm economics, biofuel production and environmental objectives, support the development of a perennial biomass supply. Develop and expand programs and incentives that encourage landowners to grow perennial crops and supply products to a bioenergy plant in a way that targets improvements in soil/water quality, wildlife habitat, soil erosion and carbon sequestration.
14. **Create collaborative workforce development programs between industry, state governments and educational institutions.** Curriculum should be developed at all levels of the educational system on biofuels, advanced transportation fuels and biobased products.

Renewable Electricity 3



MEASURABLE GOALS¹

- ▶ **BY 2015:** 10 percent of electricity consumed in the region (equivalent to 103 million MWh of retail sales) will be from renewable resources.
- ▶ **BY 2020:** 20 percent of electricity consumed in the region (equivalent to 219 million MWh of retail sales) will be from renewable resources.
- ▶ **BY 2025:** 25 percent of electricity consumed in the region (equivalent to 293 million MWh of retail sales) will be from renewable resources.
- ▶ **BY 2030:** 30 percent of electricity consumed in the region (equivalent to 376 million MWh of retail sales) will be from renewable resources.

OBJECTIVES

- Maximize cost-effective renewable electricity production in the region and its integration on the grid.
- Make most efficient use of the existing transmission infrastructure and develop new infrastructure, as necessary, to accommodate the region's economical renewable electricity.
- Ensure retention of local economic benefits from wind and other renewable power development.
- Expand the region's domestic production of wind turbines, towers and blades, solar technologies, and other renewable energy technologies to provide high-paying manufacturing and operational support jobs.
- Create a stable regulatory environment for renewable energy development.

¹ For the purposes of these measurable goals, renewable electricity includes electric power generated from wind, biomass, solar and geothermal energy sources, from new hydroelectric facilities and new hydroelectric capacity obtained through re-powering of existing facilities, and from hydrogen produced from the preceding renewable energy sources.



POLICY OPTIONS

- 1. Implement appropriate policies for development of renewable electricity generation.** Enact, where appropriate, or enhance existing state renewable energy standards or objectives in the region to stimulate the development of new renewable electricity generation.
 - Promote a multi-year extension of the federal production tax credit (PTC) for renewable energy for up to eight years, effective once the current two-year extension expires on December 31, 2008. A longer extension will bring needed industry stability and help achieve more development than would otherwise be possible with repeated short-term extensions.
 - Promote expansion of federal Clean Renewable Energy Bonds to increase incentives available for development of renewable energy projects by entities that cannot utilize the PTC effectively, such as tax-exempt electric cooperatives, municipal utilities, and local and tribal governments.
- 2. Expand collaborative regional transmission planning and siting to enable future development of renewable electricity generation.** Inter-jurisdictional transmission planning and siting involving state regulators, utilities, regional transmission organizations, project developers, advocates, and others must be strengthened to optimize future transmission investments and ensure that the region's grid infrastructure enables robust development of renewable electricity generation and ensures broader system adequacy. In addition, state regulatory commissions need to be empowered to define the "public interest" more broadly to include regional benefits.
- 3. Incorporate transmission development requirements into existing state renewable energy objectives and standards.** Given the potential mismatch in timing between rapid wind farm development and the much longer time required to study, approve and construct electric transmission lines, adequate transmission needs to be coordinated with state renewable energy standards and objectives.



States should engage interested parties in integrated resource planning, including the identification of additional transmission resources needed to meet state renewable energy obligations. Approval for transmission improvements should be sought through the appropriate utility regulatory process, and construction should commence, to enable timely development of renewable generation facilities.

4. **Pursue a multi-state transmission initiative to facilitate construction and delivery to market of a large amount of new renewable electricity generation, together with power from other lower-carbon generation facilities.** Utility transmission planners have long identified bottlenecks in the transmission system that must be addressed in order to deliver to market large quantities of new wind energy as well as other renewable and low carbon electricity. Policy-makers and other stakeholders need to engage in regional integrated resource planning efforts to identify multi-state transmission and generation initiatives. In conjunction with this effort, a cost-benefit analysis and cost allocation issues must be addressed.
5. **Develop and implement comprehensive siting principles and policies for wind farms to encourage orderly development of the resource.** Achieving wind energy generation on a large scale will require sustained public acceptance of the siting and construction of wind farms. Wind energy must be deployed with a clear awareness of the need for appropriate siting that takes into account ecological, scenic, cultural and other concerns. In some parts of the Midwest, local opposition to wind farm construction already presents a barrier to development of the resource. Crafting adequate and consistent state siting policies and procedures should be done cooperatively and inter-jurisdictionally to ensure that wind development proceeds in ways that foster long-term public support for the industry and that avoid pitting states against one another or impeding a regional approach to wind development.
6. **Encourage a diversity of approaches to renewable electricity development, including projects that have significant components of local ownership.** Policy-makers should evaluate the experience with local ownership incentives in Minnesota, Iowa and elsewhere and consider further measures to foster local equity participation in wind and other renewable energy projects to enhance local economic returns. However, policy-makers should continue to support a diversity of ownership structures in the marketplace and avoid creating barriers to achieving significant levels of renewable electricity development and associated transmission expansion.

Renewable Electricity¹

7. Demonstrate technology, engineering and operating strategies for maximizing the total electricity generation from the region's wind resources.

Policy-makers should support the development and deployment of strategies and technologies to maximize wind energy's contribution to the region's electric power generation. Such efforts should focus on:

- Applying the findings of wind integration studies, such as the 2006 Minnesota Wind Integration Study. (These studies show that higher percentages of wind power can be incorporated reliably into the electric power system given the Midwest's tremendous wind resource.)
- Making better use of existing transmission infrastructure and capacity through next generation grid management;
- Commercializing all practical and economical energy storage options, such as advanced batteries and compressed air storage.
- Developing new uses of wind energy such as wind electrolysis to produce hydrogen or wind-to-ammonia for fertilizer production that do not require bulk transmission and readily substitute for existing GHG-emitting fossil energy sources.

8. Develop economic incentives and workforce development policies to attract renewable energy component manufacturers and service providers to the region.

Take steps to integrate state economic development and workforce development programs and incentives into renewable energy development policies and strategies with the goal of attracting manufacturers and service providers, both for regional economic benefit and to stem the rising capital and labor costs associated with all energy projects. The Midwest already benefits, for example, from the presence of major wind turbine blade and tower manufacturers, turbine assembly operations, engineering and wind farm construction firms, and operations and maintenance providers whose commercial success extends well beyond the region.

Advanced Coal and Carbon Capture and Storage 4

MEASURABLE GOALS



- ▶ **BY 2010:** A regional regulatory framework for carbon capture and storage (CCS) will have been implemented that enables permanent geologic storage of CO₂, provides regulators and industry clear direction with regards to CO₂ capture, injection, monitoring, verification and compliance, and addresses ultimate liability for stored CO₂.
- ▶ **BY 2012:** A multi-jurisdiction pipeline will have been sited and permitted to transport CO₂ captured from one or more new advanced coal plants and potentially biofuels plants to an appropriate reservoir for use in enhanced oil and gas recovery (EOR).
- ▶ **BY 2012:** The region will have operating at least one commercial-scale integrated gasification-combined cycle (IGCC) power plant with CCS that uses bituminous coal.
- ▶ **BY 2015:** The region will have:
 - Three or more commercial-scale IGCC plants with CCS operating with bituminous coals;
 - Operating at commercial scale at least two IGCC plants with CCS that use sub-bituminous and lignite coals, respectively;
 - Commercial scale post-combustion capture of CO₂ emissions at one or more pulverized coal plants; and
- ▶ **BY 2020:** All new coal gasification and coal combustion plants will capture and store CO₂ emissions.
- ▶ **BY 2050:** The region's fleet of coal plants will have transitioned to CCS.

OBJECTIVES

- Support development of a CO₂ management infrastructure and demonstration and commercialization of large-scale geologic carbon storage projects that take advantage of our region's EOR potential.
- Support research, development, demonstration and deployment of carbon capture technologies at existing plants and re-powering of existing facilities, where appropriate, and at biorefineries to increase efficiency and reduce CO₂ emissions.
- Create a policy and regulatory environment that advances new coal plants with CCS.
- Develop the commercial manufacturing, technical and operational expertise in our region to operate and export these technologies globally.
- Support the development and eventual deployment of technologies that enable effective commercial utilization of captured CO₂ as a feedstock for energy and for the manufacture of advanced materials and other useful products.

POLICY OPTIONS

Commercializing advanced coal-based generation technologies and CCS presents a classic chicken-and-egg challenge. Without a pipeline infrastructure and appropriate policy and regulatory framework in place, it is very difficult to justify the extra capital and operating expense of building a power plant capable of CCS. It is similarly difficult to contemplate financing a CO₂ pipeline without guaranteed availability of captured CO₂ and of commercial EOR opportunities to market that CO₂. Therefore, building capture-ready power plants and CO₂ pipelines and the development of commercial EOR opportunities must be pursued simultaneously.

MGA states should consider implementing the following menu of policy options so that integrated power generation and CCS operations can be deployed early in the next decade.

1. **Establish a regional CCS infrastructure for management of captured CO₂ through EOR and deep saline aquifer storage.** Safe, reliable and permanent injection of CO₂ into oil and gas formations for EOR is a fully commercial practice in the United States today. DOE estimates of CO₂ storage capacity in oil and gas formations suggest the ability to store at least two decades worth of U.S. stationary source emissions, while extending oil production from depleted domestic oil reserves. Storage over a much longer time scale will require demonstration of the cost-effectiveness and reliability of CO₂ storage in deep saline aquifer formations, which has yet to be accomplished at commercial scale.



Advanced Coal and Carbon Capture and Storage

- a. Develop a legal and regulatory framework for geologic storage of CO₂.** In order to set the stage for geologic storage projects to move forward in a five to 10-year timeframe, states must establish the necessary legal and regulatory framework in partnership with the federal government. State agencies should begin to develop the necessary permitting processes for geologic storage, including guidance on pipelines, drilling, storage, measurement, monitoring, verification and long-term liability.
- b. Provide state-based incentives for CCS, including projects that use captured CO₂ for EOR.** A number of states have made such credits available, and others should consider offering similar incentives.
- c. Provide EOR project development assistance.** The Midwest has a mature oil and gas industry with many small oil and gas producers that have not traditionally used EOR, in part because they are not large enough to develop projects. The public sector, companies and trade associations can play a useful role in helping to identify the specific mechanisms by which producers can band together to leverage cost-effective projects.
- d. Support comprehensive assessments of geologic reservoirs at the state and federal levels to determine the CO₂ storage potential and feasibility.** Governments should build on work of the U.S. DOE-funded regional sequestration partnerships to complete comprehensive, basin-level geologic assessments of storage potential and CO₂ injection rates. Regions with a history of oil and gas exploration tend to have better data available on geologic formations, making such assessments easier and less expensive. Detailed, accurate mapping of lesser known potential reservoirs for CCS will require continued federal and state investment.
- e. Fund sufficient large-scale geologic storage tests to prepare for future storage on a widespread commercial basis.** Congress and the president should support sufficient federal funding for the U.S. DOE to ensure a robust program of large-scale tests to demonstrate to the private sector, policymakers and the public the viability, efficacy and safety of widespread commercial geologic storage of CO₂. These tests should focus on a variety of geologic formation types, including reservoirs other than oil and gas bearing formations, and produce guidelines for appropriate measuring, monitoring and verification.



Advanced Coal and Carbon Capture and Storage

- f. **Evaluate the feasibility of CO₂ transport and “advanced sequestration” options for jurisdictions without documented geologic storage potential, such as Minnesota and Wisconsin.** This includes evaluating the cost and feasibility of CO₂ pipelines to geologically appropriate areas in neighboring states, CO₂ storage in nontraditional geologic formations and advanced sequestration options, such as mineralization, the use of carbon nano-fibers or algae.
2. **Provide financial and regulatory incentives to build advanced coal generation projects with CCS, using bituminous, sub-bituminous and lignite coals.**





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- a. **Provide state support for front-end engineering and design (FEED).**
FEED studies provide the cost estimates needed to secure private investment in power plant projects. State tax credits or grants can help offset FEED study costs and allow utilities and developers to recoup those initial engineering costs that are most difficult to finance. This approach has been effective in Illinois, North Dakota and Wyoming in spurring project development, and is under consideration in other parts of the Midwest.
 - b. **Provide direct state financial incentives (grants, tax credits, loan guarantees and performance wrap engineering/procurement/construction or EPC coverage).** States should establish the same or complementary incentives to those in the federal Energy Policy Act of 2005 to help reduce the financial cost of the overall project once engineering and cost studies are completed.
 - c. **Allow regulated utilities cost recovery for appropriate commercial projects.** Utilities committed to developing advanced technology coal plants with CCS should be ensured cost recovery, as long as they meet a state commission's standards for proper spending decisions. States should also consider a comparable process for merchant and independent power producers involved in request for proposal bidding processes.
 - d. **Enhance integrated resource planning (IRP) policies, where applicable, by using them to encourage low-CO₂ coal technologies.** Regional leaders should adopt well-designed IRP rules to weigh the full costs, benefits and risk characteristics of various resource options. Doing so would improve the accuracy of "least cost" planning for generation options, which currently penalizes advanced coal and CCS proposals because it does not fully address future regulatory and environmental costs. Future risks to be factored in should include fuel price fluctuation, carbon constraints, emission limits of criteria pollutants and mercury, and technology uncertainty.

Advanced Coal and Carbon Capture and Storage

- e. **Modify state policies and regulatory programs to favor advanced CO₂-limiting generation technologies with CCS over conventional pulverized coal units.** These policies could include:
- 1) A low-carbon electricity portfolio standard or objective that combines fossil electricity generation resources (such as IGCC with CCS) with traditional renewable resources;
 - 2) A CCS portfolio standard for electricity providers;
 - 3) A CO₂ performance standard for all new electric power plants;
 - 4) Innovative, long-term power purchase agreements to provide developers with higher rates of return and reduced risk in exchange for price stability that benefits ratepayers (allowing regulators to qualify more stable prices as a benefit);
 - 5) Specific incentives and financing assistance to replace or re-power existing coal plants in favor of advanced generation technologies with CCS;
 - 6) Market-based environmental regulatory programs to provide incentives to invest in low CO₂ emission technologies with flexibility and certainty for achieving reductions; and
 - 7) Three-party covenants in which the federal government provides credit, the state regulatory commission provides an assured revenue stream from the syngas to protect the federal credit, and a project developer provides equity and initiative to build the project.
- f. **Increase federal funding of incentives to accelerate deployment of advanced coal technologies with CCS at commercial scale.** Current federal funding is completely inadequate given the scale of the task and urgency of commercializing advanced coal technologies with CCS. Midwestern governors call on the region's congressional delegation to expand significantly the federal commitment of resources in this area.



- g. Provide incentives for deployment of innovative coal gasification technologies, including co-gasification of biomass and underground coal gasification, and the utilization of captured CO₂.** Co-gasification of biomass feed stocks with coal has been commercially demonstrated in Europe and, when combined with CCS, could provide CO₂-neutral or even CO₂-negative energy production. Underground coal gasification has entered commercial operation overseas and has the potential to bring the capital costs of CCS with coal to at or below that of conventional pulverized coal generation. Finally, research is underway to convert captured CO₂ into useful and advanced materials and other products.
 - h. Update workforce training, with a focus on the gasification and carbon storage industries.** A major barrier to development of IGCC technologies is the lack of trained personnel in the power industry familiar with the design, construction and operation of gasifiers and associated systems, which are operationally more closely associated with petroleum refining than traditional power generation. Similarly, the development of EOR operations is constrained by a lack of commercial experience in much of the oil and gas industry, especially among the smaller-scale companies that dominate production in the Midwest. The utility and oil and gas industries will need expanded workforce training in order to adopt IGCC and CCS on the scale required.
- 3. Develop incentives targeted at biorefineries that appropriately parallel those targeted at power plants.**

COOPERATIVE REGIONAL INITIATIVES

Establishing a Carbon Management Infrastructure Partnership

WHEREAS, the development and deployment of systems for capturing carbon dioxide (CO₂) emissions from power plants and other industrial facilities represents one critical component in a menu of options for reducing CO₂ emissions; and

WHEREAS, the effectiveness of such systems depends on the development of an infrastructure supporting the transportation and permanent geologic storage of the captured CO₂; and

WHEREAS, there are extensive coal reserves and a number of advanced coal plants with CO₂ capture already have been proposed to date in the Midwest; and

WHEREAS, large-scale ethanol plants also produce a pure stream of CO₂ suitable for capture and storage in the Midwest; and

WHEREAS, the Midwest contains many deep saline aquifers that are likely to provide extensive capacity for long-term CO₂ storage; and

WHEREAS, using the captured CO₂ to inject and pressurize aging oil and gas fields, a process known as enhanced oil and gas recovery (EOR), has become a fully mainstream commercial practice for extending oil production, involving the permanent geologic storage of tens of millions of tons of CO₂ annually in Texas, the Northern Plains states, Michigan, the North Sea and Algeria; and

WHEREAS, the market for CO₂ for use in EOR is currently robust because of high oil prices; and

WHEREAS, in our region, experience to date with CO₂ EOR projects operated in North Dakota and Michigan provides a high degree of confidence in the technical viability and safety of systems that capture, compress, and transport CO₂ for EOR purposes; and

WHEREAS, future CO₂ management on such a scale will require a major and coordinated investment in a supporting infrastructure specific to CO₂ capture, transportation, underground injection, and storage or sequestration, an infrastructure not unlike the current systems relied on for the collection, distribution and storage of natural gas and liquid fuels; and

WHEREAS, regional cooperation to develop such infrastructure for CO₂ capture, transportation, underground injection and storage will accelerate the implementation of CO₂ management; and

WHEREAS, regional cooperation on planning early CO₂ pipeline infrastructure will allow for a rational, cost-effective build-out of that infrastructure over time; and

WHEREAS, regional cooperation on the development of a regulatory framework for the siting, operation and monitoring of CO₂ capture, transportation, underground injection and storage facilities will facilitate the near-term coordinated development of such systems;

NOW THEREFORE BE IT:

RESOLVED, that the states of Illinois, Iowa, Michigan, Minnesota, Ohio and Wisconsin and province of Manitoba agree to establish a Carbon Management Infrastructure Partnership (hereafter Partnership) to promote the rational near-term development of a regional CO₂ transportation and storage infrastructure; and be it

RESOLVED, that the Partnership pledges to work in a cooperative and coordinated fashion that maximizes each member's particular strengths and assets; and be it

RESOLVED, that the Partnership agrees that specific deliverable products will result from its efforts, including, but not limited to:

1. a report that quantifies the potential costs and benefits of EOR; and
2. an expanded assessment of geologic reservoirs for CO₂ storage in Partnership states that lack oil and gas bearing formations known to be suitable for CO₂ injection and storage, notably Minnesota and Wisconsin; and
3. a state-by-state inventory of Partnership member's regulations governing or potentially relating to CO₂ capture, compression, pipeline transportation, and underground injection; and
4. a uniform regional model state regulatory framework specific to CO₂ capture, compression, pipelines, and underground injection and storage, informed by emerging federal approaches and the draft Interstate Oil and Gas Commission regulations due out in 2007; and
5. a study and proposed siting of a regional pipeline system serving more than one Partnership member (and possibly connecting Partnership members with other regions) that links one or more sources of captured CO₂ with appropriate geologic reservoirs (e.g. Illinois Basin and Michigan, Ohio and Northern Plains EOR formations) and injection and storage facility for EOR and deep saline aquifer storage; and
6. Partnership-wide commercial plan for CO₂ management that incorporates the above elements and emphasizes EOR as important steps toward deep saline aquifer CO₂ storage; and
7. coordinated Partnership FY 2009 request for federal investment in CO₂ capture and storage infrastructure build-out in the MGA region; and be it

RESOLVED, that the governors and premier, through the MGA, will establish a working group that shall develop and recommend to the governors and premier no later than February 15, 2008, a proposed structure, participation and process for the Partnership, as well as a work plan for achieving the deliverables set forth herein.

DONE, this 15th day of November, 2007, in Milwaukee, Wisconsin.

Establishing a Midwestern Bioproduct Procurement Program

WHEREAS, biobased products are an important aspect of the profitability of biorefineries, create new domestic demand for agricultural commodities, expand the industrial base through value-added agricultural processing and manufacturing, and enhance the nation's energy security by substituting domestically-produced biobased products for those made from fossil energy inputs; and

WHEREAS, the U.S. departments of Agriculture and Energy, following authorization in the 2002 Farm Security and Rural Investment Act, have created a system called the FB4P program under which federal agencies must purchase designated biobased products that are available and cost-competitive with fossil-based equivalents; and

WHEREAS, the U.S. departments of Agriculture and Energy have already contracted with Iowa State University to conduct life cycle testing on a list of products and has conducted a series of rule-makings to designate products "biobased"; and

WHEREAS, at least two Midwestern states, Illinois and North Dakota, have adopted biobased product procurement laws;

NOW, THEREFORE, BE IT:

RESOLVED, that the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin and province of Manitoba jointly establish a Midwestern Biobased Product Procurement System (hereafter System) to support growth of the region's bioeconomy; and be it

RESOLVED, that the System should create a common approach to listing biobased products consistent with the federal program, with System members adopting products based on their own procurement rules; and be it

RESOLVED, that System members agree to seek authorizing legislation, where necessary, to enable participation in the System; and be it

RESOLVED, that System members agree to form a regional task force of state procurement officials and others to design the rules of a regional biobased product system and make other recommendations as necessary to establish the System; and be it

RESOLVED, that the governors and premier, through the MGA, will appoint a regional task force of state procurement officials that shall work with the public and private sectors to oversee and implement the System and to develop and recommend to the governors and premier, no later than June 1, 2008, model rules for the System.

DONE, this 15th day of November, 2007, in Milwaukee, Wisconsin.

Establishing a Regional Electricity Transmission Adequacy Initiative

WHEREAS, the expansion of regional electricity transmission capacity and improvement of system reliability has been and continues to represent major infrastructure priorities for the Midwest; and

WHEREAS, six of the top 10 wind resource states in the nation are members of of the MGA; and

WHEREAS, many Midwestern governments have already passed standards, objectives, or goals and directives regarding renewable electricity, and wind power currently serves as the primary type of generation being developed to meet such obligations; and

WHEREAS, through 2025, thousands of new megawatts of wind power will be developed in Midwestern states, requiring additional transmission infrastructure to deliver that wind-generated energy to load; and

WHEREAS, system-wide challenges of an aging and outmoded transmission infrastructure, combined with growing demands on that infrastructure, call for focused and sustained attention to ensuring broader system reliability and adequacy over the long-term; and

WHEREAS, successful transmission adequacy efforts must carefully consider a comprehensive cost-benefit analysis, appropriate cost allocation methodologies, feasible transmission build-out alternatives, and the impact of increased transmission capacity and cost to the full range of Midwestern stakeholders impacted by regional transmission, including utilities, power marketers, suppliers, purchasers, and customers;

NOW, THEREFORE, BE IT:

RESOLVED, that the governors and premier of the states of Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota and Wisconsin and province of Manitoba agree to direct their staffs and designees through the MGA to develop and recommend to governors and premier specific strategies and steps to be taken for ensuring regional transmission adequacy; and be it

RESOLVED, that the scope of work for the working group shall include, but not be limited to, recommendations regarding the following deliverables:

1. identified partners, methodology and timeline for conducting a state-by-state evaluation of expected new megawatts of wind power development through 2020, including interim megawatt targets, the need for that growth to meet state/provincial, Midwestern, and national RPS goals, and corresponding needed transmission infrastructure; and

2. proposed recommendations for how to resolve short-term RTO interconnection and queue congestion that results in long lead times for interconnects into the grid; and

3. a proposed mechanism for dialogue and planning among utilities, transmission companies, state utility regulatory commissions, state electric transmission authorities, regional transmission organizations (RTOs) and nongovernmental stakeholders to:

- facilitate construction of transmission needed for wind power (modeled after CAPEX 2020 transmission initiative in Minnesota); and
- create a regional transmission plan for wind power development that identifies what transmission needs to be built where; and
- ensure broader system reliability over time; and

4. key elements and next steps for developing a transmission cost share and cost recovery mechanism for the build-out of resource transmission. (These efforts should take a fresh look at cost-sharing methodologies, identifying beneficiaries in a broad sense – sellers/developers, buyers/loads as well as jobs and tax beneficiaries and the burdens borne by different states, in order to develop an equitable cost allocation mechanism. In addition, these efforts should ensure any major expansion plan permits equitable participating in the ownership of improvements by each state’s utilities/transmission companies, so that the load serving needs of each state are properly accounted for.)

RESOLVED, that the governors’ and premier’s staff and designees shall report back to governors and premier with recommendations no later than June 1, 2008.

DONE, this 15th day of November, 2007, in Milwaukee, Wisconsin.

Establishing Renewable Fuels Corridors and Coordinated Signage Across the Midwest

WHEREAS, the Midwest is the “biobelt,” the source of a majority of the nation’s production of conventional biofuels feed stocks and biofuels, and the region with the greatest potential to produce advanced fuels from cellulosic biomass; and

WHEREAS, despite rapid growth on the production side, there is a need to better connect consumers with regionally-produced biofuels; and

WHEREAS, adopting a regional “brand” and coordinated signage for biofuels and advanced transportation fuels will help consumers traveling around the Midwest and facilitate growth in biofuels usage and sales; and

WHEREAS, efforts are already underway in several Midwestern states to establish E85 corridors;

NOW, THEREFORE, BE IT:

RESOLVED, the governors and premiers of the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin and the province of Manitoba direct state transportation, agriculture and regulatory officials to develop a system of coordinated signage across the region for biofuels and advanced transportation fuels and to collaborate to create regional E85 corridors; and be it

RESOLVED that, in addition to coordinated signage, this initiative should work with the private sector to ensure:

1. standardized product coding at the station level for fleet reporting purposes; and
2. increased education for retailers about converting pumps to E85, highlighting the regional economic and social advantages of E85; and
3. uniform “frequently asked questions” information material on E85 and biodiesel for the region’s retailers; and be it

RESOLVED, that state transportation, agriculture and regulatory officials shall report back to governors and premier with a report on implementation no later than April 1, 2008.

DONE, this 15th day of November, 2007 in Milwaukee, Wisconsin.

Advancing a Bioenergy Permitting Collaborative

WHEREAS, advanced bioenergy projects around the region present challenges to both project developers and regulators; and

WHEREAS, in many cases, these new technologies offer environmental improvements by increasing the use of biomass in the energy system, but they also have uncertain emissions, water use, and other environmental characteristics; and

WHEREAS, a major challenge for state regulatory agencies is not having adequate data on emissions and other characteristics of new technologies; and

WHEREAS, regulators do not have adequate information about projects under development in other states that could save them time in learning about and reviewing projects in their own states;

NOW, THEREFORE, BE IT:

RESOLVED, the governors and premier of the states of Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin and the province of Manitoba direct state regulatory agencies to collaborate regionally and share information about advanced bioenergy technologies in order to avoid unnecessary duplication of effort in each state and province; and be it

RESOLVED, that the governors and premier, through the MGA, will create a work group that will work to establish the following items:

1. development of siting and permitting guidance for advanced bioenergy technology plants; and
2. creation of a regional database of relevant information about advanced bioenergy technologies that may include manufacturers testing data on individual units, plant-wide test reports and emissions data; and be it

RESOLVED, that the governors and premier, through the MGA, will establish a working group to develop and recommend to the governors and premier, no later February 15, 2008, a work plan for achieving the deliverables set forth herein.

DONE, this 15th day of November, 2007, in Milwaukee, Wisconsin.

Developing Regional Low-Carbon Energy Transmission Infrastructure Initiative

WHEREAS, the Midwest has potential advantages for the development of particular low-carbon renewable and fossil energy resources; and

WHEREAS, regional leaders in the Midwest have a shared interest in the joint development of transmission capacity that enables robust development of all the Midwest's economical low-carbon energy options; and

WHEREAS, the practical demonstration of how the Midwest can regionally share in economic and other benefits from improvements to an inter-jurisdictional transmission corridor or corridors is necessary to build public and political support for needed transmission policies and investments over time; and

WHEREAS, joint development of a regional low-carbon energy infrastructure would provide a cost-effective way to supply the Midwest with sustainable and environmentally responsible energy;

NOW, THEREFORE, BE IT:

RESOLVED, that the governors and premier of the states of Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota and Wisconsin and the province of Manitoba, through the MGA, will appoint a working group consisting of state and provincial regulators, utilities, regional transmission organizations, project developers and advocates to pursue a collaborative, multi-jurisdictional transmission initiative that demonstrates how various economical low-carbon energy resources and generation technologies can be deployed synergistically and for broad regional benefit; and be it

RESOLVED, that elements of such a project or projects should include, but not be limited to:

1. common transmission initiatives serving multiple jurisdictions; and
2. multiple wind farms in participating jurisdictions, including some projects with local ownership components; and
3. wind-hydro, wind-biomass, wind-compressed air and biomass power demonstrations with the potential to qualify for capacity payments under FERC tariffs for renewable generators that establish a threshold of 65 percent firm capacity; and
4. base load IGCC coal plant with carbon capture and storage; and
5. hydrogen and fertilizer production using wind, coal with carbon capture and storage, and possibly biomass or biofuels as energy sources; and be it

RESOLVED, that the working group, through the MGA, shall report back to governors and premier with recommendations of specific project opportunities and proposed next steps no later than June 1, 2008.

DONE, this 15th day of November, 2007, in Milwaukee, Wisconsin.

ACKNOWLEDGEMENTS

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