PLATFORM
FOR CREATING AND RETAINING
MIDWESTERN JOBS IN THE NEW ENERGY ECONOMY

2009

MIDWESTERN GOVERNORS ASSOCIATION

Jobs+ Energy Forum

MGA

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CREATING & RETAINING JOBS IN THE NEW ENERGY ECONOMY I

Preamble

At a time when the Midwest continues to experience job losses and a challenging economic outlook, new energy industries in the Midwest are emerging as focal points for job creation and retention. Although the Midwest has lost more than 1.2 million manufacturing jobs since 2000, a number of recent studies[1] suggest that new energy industries can create as many as 1.2 million jobs over the next decade, with as much as a third of those in high-wage, high-skill manufacturing and construction jobs.

In one state, Michigan, for example, new energy production jobs grew at a much faster rate (+7.7 percent) since 2005 than did employment across the entire Michigan economy (-5.4 percent). This positive and significant growth provides a strong indication that the new energy economy may be a path toward renewed economic prosperity for the region. Further, while a 2009 Pew Charitable Trusts report suggests that the Midwest region attracted only approximately 4 percent of the total venture capital invested in clean energy in the United States between 2006 and 2008, that same report shows that several Midwest states are already among the top 10 job-creating states in new energy, energy efficiency, environmentally friendly production, conservation and pollution mitigation, and skilled-workforce training and support.

DEFINING THE NEW ECONOMY:

A new energy economy generates jobs, businesses and investments while expanding energy production; increasing energy efficiency; reducing carbon emissions, waste and pollution; and conserving natural resources.

Many definitions of "the new energy economy" have been put forward. We use the following definition: *A new energy economy generates jobs, businesses and investments while expanding energy production; increasing energy efficiency; reducing carbon emissions, waste and pollution; and conserving natural resources.* We also recognize that many jobs and occupations in the new energy economy will not emerge until the next decade, and that thousands of jobs and occupations which exist now can be retooled to support deployment of new energy technologies, services and processes.

To continue to harness the opportunities and address the challenges of a transforming regional economy, the Midwest must better assess and organize itself,

work to bring new capital to the region, form new global partnerships and tap the potential of our current under-employed workforce. The Midwest is well-positioned to be a leader in the retention and creation of jobs for the new energy economy. The region has a burgeoning biofuels industry; huge energy efficiency potential; vast coal reserves that could be used in advanced coal power plants; significant underground storage potential for carbon captured from factories and power plants; considerable wind power potential; a well-developed infrastructure; world-class manufacturing capabilities and a diverse supplier base; an internationally recognized work ethic; world-renowned community colleges with exceptional training programs; and universities exploring the frontiers of future energy solutions.

Over the past two years, advisory groups formed through the Midwestern Governors Association (MGA) have been helping to implement the *Energy Security and Climate Stewardship Platform* (Energy Platform) that we signed in November 2007. In it we set ambitious targets, such as:

- 2 percent energy-efficiency savings per year, by 2015, in regional annual retail sales of natural gas and electricity, and an additional 2 percent in energy-efficiency improvements every year thereafter;
- 20 percent of total energy consumption from renewable sources by 2020, and 30 percent by 2030;
- 50 percent usage of renewable and low-carbon transportation fuels by 2025; and
- by 2020, all new coal gasification and combustion plants will capture and store carbon dioxide (CO_2) emissions, and by 2050, all regional coal plants will have transitioned to carbon capture and storage.

Meeting these energy goals will drive the retention and creation of new jobs, both in existing industries as well as new businesses. But energy policy alone will not suffice; a stable new energy business climate—including an enhanced regulatory framework and significantly higher levels of public and private investment in energy technologies—is needed to unleash creative thinking and innovation in businesses across the region. The other critical element is the skilled workforce to design, build, install, and maintain the new energy technologies. This document lays out goals, strategies and policy options to sustain and create jobs in the new energy economy, and to identify and develop the technically qualified workforce to perform those jobs.

[1]Reports include: http://apolloalliance.org/downloads/PerrymanDataNAP.pdf, http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf, http://usmayors.org/pressreleases/uploads/GreenJobsReport.pdf, http://www.repp.org; http://www.michigan.gov/documents/nwlb/GJC_GreenReport_Print_277833_7.pdf

GUIDING PRINCIPLES FOR CREATING JOBS IN THE NEW ENERGY ECONOMY

We appointed an Advisory Group that developed a set of strategies and policy options that will result in significant impact across the Midwestern region. Advisory Group members used the following guiding principles to inform their work:

Regional: Results in creative cross-border cooperative policies that distinctly and positively impact the Midwest as a region, as well as state and regional economies and labor markets.

Build on Existing Strengths: Work with existing firms and industries to ensure they have the resources and tools necessary to grow their businesses and equip their existing workforce with the skills necessary to compete in the new energy economy.

Forward Looking and Transformative: Establishes or reinforces infrastructure to position existing and emerging industry sectors for growth, and to improve competitive advantage through economic and workforce development initiatives.

Emphasize Quality Jobs: Targets creation and retention of jobs that provide opportunities for worker skill improvement and career advancement; that support middle-class families; and that address projected future labor-force needs for new energy industry sectors.

Sustainable: Demonstrates commitment to sustain policies and strategies for meeting industry and worker needs over time.

Collaborative and Coordinated: Supports teams of workforce and economic development professionals within the states to implement initiatives that are aligned and leverage the resources and services of each state agency and its partners.

Nurture Leadership: Identifies and nurtures private- and public-sector leadership to support the workforce and economic development needs and goals of the industry sectors within the new energy economy.

Replicable/Transferable: Produces outcomes that are applicable and replicable for different industry sectors and/or a mix of states or regions within the states, understanding that each state has different assets to leverage.

Measurable: Encourages accountability that establishes a baseline and uses a framework to define intended impacts and outcomes of the state policy options and cooperative regional agreements.

REGIONAL JOB CREATION & RETENTION GOALS & STRATEGIES

II

We recognize that state energy and economic development policies are key drivers for business diversification, job creation and workforce preparation. Equally important are ways in which states leverage policies, funding, and resources—both existing and new—with federal policies and funding and with private-sector investment. Therefore, we commit to the following goals and strategies for the MGA region.

GOALS

1. Adopt and align energy, economic and workforce policies that position the region's workers, firms and communities to compete with and lead other regions of the United States—and other countries—in creating and retaining jobs in the new energy economy.

2. Increase and optimize public- and private-sector investments in education, training, entrepreneurship, natural resources, manufacturing, agriculture, intellectual property and research to grow, retain and attract technologies and companies that support jobs and career opportunities in new energy industries.

STRATEGIES

Reaching these goals requires a menu of strategies and policy actions that fully maximize individual state and regional strengths to meet the MGA's regional energy and climate stewardship targets. The following strategies, presented in this chapter, are broad and cut across all of the new energy technology categories. They are intended as a menu of options that any of our Midwestern states might choose to pursue, based on their specific state workforce and economic development goals. We seek to leverage opportunities that cross state borders and include other MGA states.

1. **Focus manufacturing, production and industrial policies on job retention, as well as job creation, through support for existing firms to obtain opportunities in new energy businesses and their supply chains.**

2. **Develop an explicit investment strategy to leverage public- and private-sector financial assets to grow new energy businesses and jobs.**

3. **Align traditional economic development policies to support and grow businesses and jobs by building on in-state assets and strengths within new energy industries.**

4. **Leverage and improve the region's workforce development, education and training infrastructure to position the Midwest as a leader in skills development and career advancement for jobs in the new energy economy.**

5. **Enhance the integration and sharing of information on jobs, labor markets, firms and industries across agencies and states to help make better decisions about economic and workforce development strategies and investments.**

These five strategies and policy options are described below. Chapter III includes strategies and actions that are tailored to specific technologies and industries. Throughout the document, examples of existing state strategies or policy options are highlighted. Each state in the region will need to choose which strategies and actions support its own economic and workforce development goals, and which ones should form the basis for regional collaboration efforts.

MICHIGAN NO WORKER LEFT BEHIND GREEN JOBS INITIATIVE

The state of Michigan has launched the No Worker Left Behind Green Jobs Initiative to accelerate workers' transition into new jobs. The Green Jobs Initiative is a $6 million investment of federal dollars designed to increase the number of green industries and businesses in Michigan. These jobs and investments are being targeted in the areas of alternative-energy production and energy efficiency, green building construction and retrofitting, and agriculture and natural resource conservation. The Michigan Department of Energy, Labor, and Economic Growth leads the initiative. Through this initiative, the agency is creating green-sector skills alliances that bring together business, labor, government and educational leaders who share an interest and expertise in a specific green sector of Michigan's economy. These alliances then develop training programs for jobs in a particular sector. The Michigan department is also making investments in Michigan's community colleges, universities and training facilities to build their capacity to develop and provide training for green jobs. In addition, No Worker Left Behind provides tuition support for individuals pursuing approved green-jobs training programs at Michigan's colleges and universities. Other projects related to the initiative have included a Green Jobs Conference, production of green jobs report, and the creation of a data clearinghouse regarding jobs and education and training opportunities.

http://michigan.gov/greenjobs

Strategy 1

➤ **Focus manufacturing, production and industrial policies on job retention, as well as job creation, through support for existing firms to obtain opportunities in new energy businesses and their supply chains.**

STATE POLICY OPTIONS

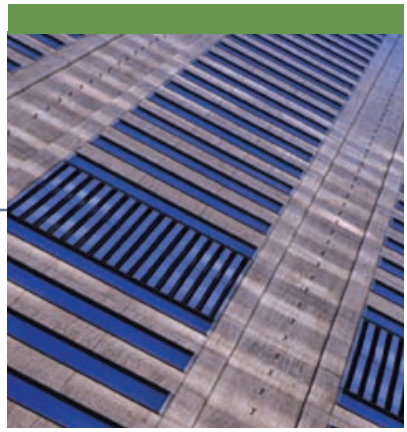
- Bolster the capacity of manufacturing extension partnership (MEP) centers or other manufacturing support organizations to identify and facilitate commercial supply-chain opportunities between original equipment manufacturers (OEMs) and existing manufacturers within and across the region, and to support existing manufacturers in the adoption of "lean and green" products and processes.
- Connect manufacturers and employee organizations to opportunities available for transitioning the manufacture of products to new energy industry supply chains.
- Explore multi-state and regional incentives that encourage a manufacturer located or locating in one state to purchase from, or help establish providers in, their supply chain in other states in the region.

MINNESOTA GREEN TECH BUSINESS COMPETITION

In November 2008, as part of the state's "Green Jobs Investment Initiative," a clean and green technology category was created as part of the Minnesota Cup competition to reward innovation and spark invention. The Minnesota Cup competition began in 2005 to discover, support and promote Minnesota's newest and most innovative business ideas. The contest connects winning Minnesota entrepreneurs with the state's leading business executives, investors and the University of Minnesota. This competition runs from March through September each year, and the new clean-tech category will be added to the 2009 competition. Award recipients will be selected by a panel of recognized entrepreneurial and clean-tech experts and will receive a cash prize.

http://www.minnesotacup.org

- Develop guidelines for public investment that include environmental and labor standards and domestic content requirements to ensure sustainable jobs in the new energy economy that support middle-class families.
- Increase and/or redirect state funding streams to manufacturers so they can retool their facilities and retrain their workers to develop, produce and commercialize new energy technologies.
- Provide regulatory support, as well as financial and non-financial incentives, to increase the energy efficiency of the Midwest's manufacturing sector.
- Appoint coordinators with relevant industry experience to new energy-related jobs initiatives in workforce and economic development agencies. Charge coordinators with working with industry, labor, and education and training partners, and with resource deployment across Midwestern states for new energy-related jobs initiatives.



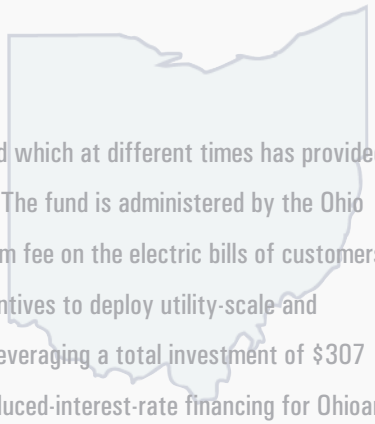
Strategy 2

➤ **Develop an explicit investment strategy to leverage public- and private-sector research and financial assets to grow new energy businesses and jobs.**

STATE POLICY OPTIONS

- Provide financial incentives, regulatory support and technical assistance for collaborative development of business plans by universities, community and technical colleges, businesses, energy companies and entrepreneurs that accelerate technology transfer and commercialization of next-generation technologies, products and systems.
- Align state higher-education policies to support collaboration among the region's colleges and universities, and with private investors, to identify promising technology prospects and accelerate their commercialization.

OHIO'S ADVANCED ENERGY FUND

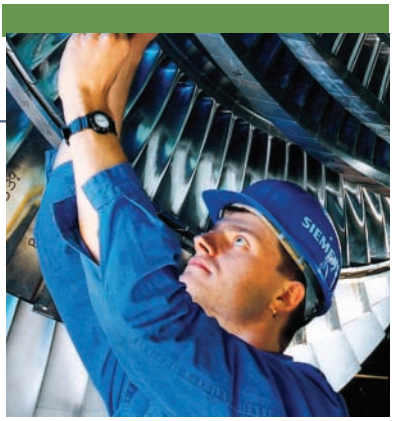


The Ohio Department of Development's Energy Office maintains the Advanced Energy Fund which at different times has provided grants for renewable-energy and energy-efficiency projects to different economic sectors. The fund is administered by the Ohio Department of Development's Office of Energy Efficiency and replenished through a uniform fee on the electric bills of customers of the state's four investor-owned utilities. The fund has provided nearly $7 million in incentives to deploy utility-scale and consumer-scale projects as well as support for wind and solar manufacturing operations, leveraging a total investment of $307 million. In addition, The Energy Conservation for Ohioans (ECO-Link) program provides reduced-interest-rate financing for Ohioans completing "whole home" weatherization improvements in their homes. ECO-Link provides the powerful lending resources needed to allow homeowners to enjoy a more comfortable home, realize savings from energy-efficient products, and position Ohio as a leader in the developing green economy.

http://www.odod.state.oh.us/cdd/oee/ELFGrant.htm
http://www.ohiotreasurer.org/foryou/Default.aspx?Section=ECO

- Determine and dedicate specific state financial support for seed funding to start-up and existing firms with new products and technologies to support the new energy economy, with emphasis on providing funding for front-end engineering and design studies.
- Determine and dedicate specific state financial support of small, non-R&D businesses providing installation, distribution and other services within the new energy industries.
- Explore ways for states to expand their participation in federal loan guarantee programs that enable businesses to set up new energy technology processing and manufacturing plants, and that help to facilitate the next stage of conventional project financing and job creation.
- Create angel-investor tax credit programs, or build upon existing ones, to promote greater private investment in new energy technologies and businesses.
- Develop sustainable business and/or funding models for the goals and strategies, established in this document, beyond short-term appropriations or grants by individual states and philanthropic entities, such as through models for incubating publicly or philanthropically funded efforts into privately funded, sustainable entities.

Strategy 3



➤ **Align traditional economic development policies to support and grow businesses and jobs by building on in-state assets and strengths within new energy industries.**

STATE POLICY OPTIONS

- Utilize financial incentives and regulatory policy to foster the use of new energy products within communities, companies and homes; to attract new energy manufacturers and service providers into the region; and to drive demand for existing firms.
- Encourage conversion of existing public and private facilities and construction of new ones to meet LEED (Leadership in Energy and Environmental Design) or other green building standards with materials, products and technologies of the region.
- Ensure that sufficient resources and regional coordination are dedicated toward public and private infrastructure needs that are critical to successful growth of businesses and jobs in biofuels, energy efficiency, renewable electricity, and carbon capture and storage.

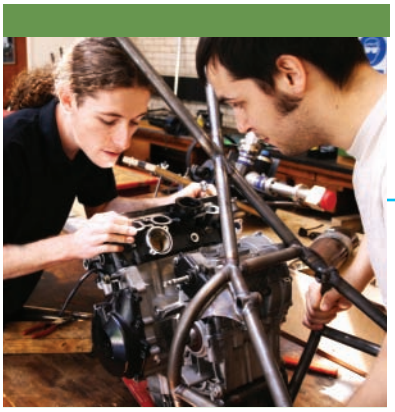
KANSAS REGISTERED APPRENTICESHIP (RA) SCHOLARSHIP PROGRAM

The RA Scholarship program is available to Kansas companies and Joint Labor-Management programs that support the state's critical industries, in addition to spurring growth in the new energy economy. The objective is to provide an incentive to hire WIA eligible adults, including dislocated workers, displaced homemakers and under-employed workers into Registered Apprenticeship opportunities in strategic areas of the Kansas economy. These opportunities provide gainful employment with significant skill enhancement and excellent wage outcomes.

The RA scholarships provide up to $1,250 per year, per apprentice, toward the cost of Related Technical Instruction for the first two years of training for any WIA eligible adult. This program was developed using American Recovery and Reinvestment Act funds.

http://www.kansasapprenticeship.org

- Ensure that there are clear and explicit benefits to the region's large metropolitan areas, mid-sized cities, college towns and small towns/rural counties, including providing economic adjustment assistance to eligible communities; shaping tax and bond authorities to ensure that cooperatives, municipal authorities, other local and community-owned entities, and small investors are given access to bond funds for new energy projects; and supporting communities with particular centers of expertise in research, commercialization or workforce skills. Align economic development policies to support and grow industry-sector clusters involving business, education, government, and non-profit groups, and which build on in-state assets and strengths within new energy industries.



Strategy 4

➤ **Leverage and improve the region's workforce development, education and training infrastructure to position the Midwest as a leader in skills development and career advancement for jobs in the new energy economy.**

STATE POLICY OPTIONS

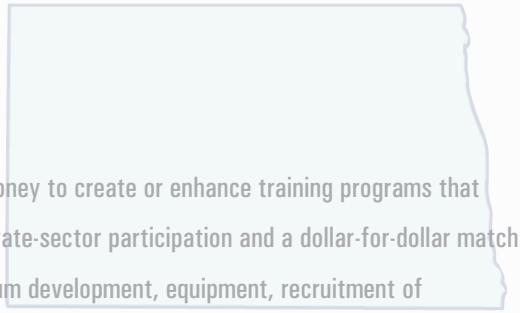
- Strengthen and/or develop community and technical college infrastructure and programs for new energy jobs, targeting programs toward pre-apprenticeship and apprenticeship training, training of incumbent workers, new labor-market entrants, and workers affected by off-shoring of manufacturing facilities.

- Optimize linkages between state job training, K-12, pre-apprenticeship and apprenticeship, and post-secondary education programs, funding formulas and curriculum standards to support common curricula, competency-based certifications, career pathways, Internet-based portfolios, distance learning, internships and post-high-school options in addition to four-year college.

- Utilize existing state workforce system programs and funding, including employment transition assistance mechanisms, to build new energy career pathways and help workers across the age, income and skill-level spectrum access these opportunities.

- Attract experienced industry professionals to teach in high school, community college and apprenticeship programs to train a skilled workforce in the new energy economy.
- Increase use of apprenticeships for developing skills in energy related fields across the range of energy sectors addressed by this *Platform for Creating and Retaining Midwestern Jobs in the New Energy Economy.*
- Create new energy partnerships among government, industry, labor, education and community-based organizations that build or expand upon existing regional and sector partnerships, support green industry development through infrastructure and market analysis, and better align workforce supply and demand.
- Strengthen the capacity of K-12 schools, community and technical colleges, preparatory schools and universities to build greater awareness of education, research, apprenticeship, career and entrepreneurship opportunities in the new energy economy.

NORTH DAKOTA TALENT INITIATIVE – WORKFORCE ENHANCEMENT GRANTS



The state's Workforce Enhancement Grants provide two-year colleges with money to create or enhance training programs that address the workforce needs of private-sector employers. Projects require private-sector participation and a dollar-for-dollar match of all state money with private funds. Grant funding may be used for curriculum development, equipment, recruitment of participants, training and the certification of instructors. In July 2009, the state awarded almost $200,000 to Bismarck State College to support efforts to train workers in the energy sector. The grants funded two programs: the Lineworker Program- to replace machinery used by the program participants- and the Process Plant Technology Program, which received an additional $144,000 to acquire a biodiesel process trainer with materials and supplies. Funding for these two programs aligns with the college's National Energy Center of Excellence. The center was created to address the workforce needs of the energy industry and is funded through a collaborative effort of the cities of Bismarck and Mandan, the state and federal government, private industry, individuals, college employees and the college itself. The center offers courses for current students and works with industry to provide incumbent worker training.

http://www.bismarckstate.edu/energy/

Strategy 5

➤ **Enhance the integration and sharing of information on jobs, labor markets, firms and industries across agencies and states to help make better decisions about economic and workforce development strategies and investments.**

STATE POLICY OPTIONS

- Increase or redirect state resources for labor-market information systems to perform ongoing market analysis of business- or firm-level education and training needs, and to develop better job and career pathway data about new energy companies.
- Align and pool workforce and economic intelligence resources and strategies within and across state agencies. Form a state workforce and economic intelligence council, or some other mechanism, that brings

WISCONSIN STATE SECTOR STRATEGIES INITIATIVE

Wisconsin's Sector Strategies Initiative is designed to meet the regional workforce needs of emerging and high-growth industry clusters. The Sector Strategies Initiative was announced in March 2009 as part of a nearly $6 million worker-training package, which is funded with federal dollars. Nearly $3 million was designated for the Sector Strategies Initiative. A number of the grants that have been awarded are for partnerships that will support worker transitions into the emerging green manufacturing sector. For example, the Southeastern Wisconsin Green Manufacturing Sector Strategies Project in Waukesha, Wis., will train 97 dislocated workers and disadvantaged adults, preparing them for career pathways within the emerging green manufacturing sector. In addition, the governor announced seven additional grants to set up similar training efforts in other parts of the state. The Wisconsin Sector Strategies Initiative brings together employers, representatives of labor, and leaders in economic and workforce development. On a regional basis, training resources will be aligned to meet the workforce needs identified by industry partnerships.

http://www.dwd.state.wi.us/

SOUTH DAKOTA WORKFORCE 2025

The Workforce 2025 initiative focuses on providing South Dakota a competent and qualified workforce to allow for economic growth and expansion. The South Dakota departments of Labor, Tourism and State Development, Education, and the Board of Regents have partnered to offer the following programs: Dakota Roots is recruiting individuals to South Dakota by connecting them to career opportunities with the state's leading businesses. Companies interested in relocating to South Dakota or expanding operations also can receive assistance. Live Dakota is retaining current South Dakotans by educating them about the rewarding career opportunities in-state and the ability to get on the career fast track. Grow Dakota is preparing students for the workforce and providing teachers and principals with a vision for the 21st century high school. Dakota Seeds is creating new internship and assistantship opportunities in the fields of Science, Technology, Engineering and Mathematics. Build Dakota is developing solutions to immediate, intermediate and long-term workforce challenges facing industries statewide.

www.workforce2025.com

together all producers of this type of data, including state agencies for workforce development, economic development and higher education, K-12 education, social services, and transportation, as well as university researchers and utilities (which typically have strong data intelligence and forecasting capabilities).

- Create and maintain an inventory of all new energy economy research being conducted at Midwestern universities as a way to leverage, where possible, the work being done and to anticipate and prepare for the release of promising technology under development.

TECHNOLOGY/INDUSTRY SPECIFIC JOB CREATION & RETENTION STRATEGIES

III

This chapter includes strategies and actions that are tailored to specific technologies and industries. As with the regional job-creation goals and strategies in the previous chapter, each state in the region will need to choose which of these strategies and policy options support its own technology and industry development goals, and which ones may form the basis for collaboration with other states in the region.

Energy Efficiency

➤ **Focus in the near term on energy efficiency, due to immediate market demand and expected growth in all states within the region.**

Energy efficiency is the least expensive, easiest and fastest clean-energy option, and therefore represents a potentially fast path to job creation in the near term. Several Midwestern states already have aggressive ratepayer-funded policies in place that set goals for utilities to achieve energy savings of between 1 and 2 percent, and representing approximately $540 million in annual spending. This is expected to rise steeply to more than $1 billion annually by 2015 based on policies already in place in Midwestern states. Energy efficiency is significantly less expensive than other sources of new power, and provides a net benefit to the economy. Our Midwestern energy efficiency goal can be met initially by taking the best existing energy-saving technologies to scale across the region. Longer-term opportunities on the horizon include research acceleration; development of new and emerging technologies including, but not limited to, smart grid technologies that will help to optimize power usage in homes, businesses and institutions; and technology improvements in areas such as lighting, appliances and industrial processes.

STATE POLICY OPTIONS

- Develop policies and incentives that foster energy efficiency improvements at industrial, neighborhood, city or county scale, including prioritizing energy efficiency improvements to public/government buildings.
- Ensure that federal energy efficiency stimulus spending builds expanded capacity for workforce partnerships, energy efficiency career pathways and the delivery of quality energy efficiency services, including a trained public- and private-sector workforce (entry-level installers and auditors, inspectors, installers, architects, engineers and building operators) and high-quality contractors and builders with experience installing energy efficiency measures.

ILLINOIS BUILDING INDUSTRY TRAINING AND EDUCATION (BITE) PROGRAM

The Illinois Department of Commerce and Economic Opportunity (DCEO) administers the Building Industry Training and Education Program to encourage implementation of cost-effective energy efficiency measures that help meet annual energy savings targets. Implementing such measures also enhances economic development in the state of Illinois through job creation and business development. The Building Industry Training and Education Program, to the extent funds are available, provides money to organizations to train building-industry professionals on energy efficient practices and about energy efficient products and equipment. The goal of the program is to develop the robust market for energy efficiency services that is needed to achieve Illinois' future energy savings goals. Grantees organize and coordinate workshops and training for all sectors throughout the state in order to educate the industry on state-of-the-art energy efficiency practices for building construction, rehabilitation, operation and maintenance. Funding is made available through the Energy Efficiency Trust Fund and through the administration of a portion of the Illinois Energy Efficiency Portfolio (EEP). Through EEP certain statutory requirements are set to meet incremental annual energy savings goals, procure a minimum percent of the portfolio from local government, schools, and community colleges, and target low-income households proportionate to their share of annual utility revenues. The Building Industry Training and Education Program is one component of the DCEO's total portfolio of measures.

http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/Energy/Energy+Efficiency/

http://www.ildceo.net/NR/rdonlyres/7D04492D-93AE-4311-A1BB-70F201D733FA/0/BuildingIndustryTrainingandEducationGuidelinesFINAL32509.pdf

- Establish incentives and training that support small businesses and entrepreneurs to become energy efficiency contractors and create jobs that provide opportunities for worker skill improvement and career advancement to boost both quality jobs and quality energy efficiency installations.
- Create or adapt state financing programs, such as revolving loans, that optimize savings and payback and that help accelerate demand for energy efficiency products and projects (e.g., research, innovation and deployment funds, revolving loan funds, and U.S. departments of Agriculture and Energy loan guarantees).
- Provide incentives to companies to train existing workers in energy efficiency operations and technologies and to create pathways for career advancement.

Renewable Electricity

➤ **Accelerate support for renewable electricity production and distribution, including wind, solar, smart grid/transmission, and advanced energy storage.**

Ten Midwestern states have renewable energy standards or objectives in place. These standards, plus improved integration of renewable energy into the wholesale market, will increase wind and solar energy installations significantly over the next decade. For example, utility-scale wind energy is expected to comprise a majority of renewable electricity production, going from the current 9,000 megawatts (MW) of production to between 15,000 and 20,000 MW by 2020, with a projected capital investment of $30 billion to $50 billion.[2]

Midwestern states' renewable electricity and job-creation needs will ultimately be met through support for utility-, commercial- and residential-scale wind, solar and biomass electricity products and projects, as well as the smart-grid, transmission and advanced-storage infrastructure required for efficient, cost-effective distribution. The need for regional transmission

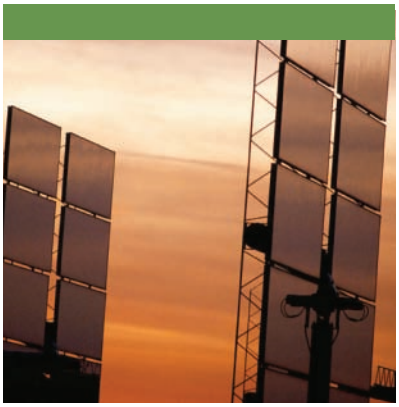
IOWA ALLIANCE FOR WIND AND NOVEL DEVELOPMENT (IA WIND)

The Iowa Alliance for Wind Innovation and Novel Development is a partnership among state and local governments, community colleges, universities, the private sector, associations and community organizations, and the federal government. It is designed to serve as a catalyst for the growth of wind energy, to support and to facilitate the research and training needs of wind energy companies, and to support the state of Iowa in its efforts to attract and nurture wind energy-related industries. This state-wide effort helps coordinate the breadth of activities and capabilities in research and education taking place within the state, and catalyzes activities designed to meet the research, training and testing needs of the rapidly expanding wind energy industry.

http://www.iawind.org/

[2] Great Plains Institute calculations using EIA data adjusted with input from utility resource planners.

projects and cost-sharing agreements to enable wind farm and utility solar projects is needed within the next three years to continue to provide grid access and growth in these areas. The region will have to invest approximately $15 billion in regional transmission or other grid-integration technologies over the next 15 years to continue significant development of wind and solar energy and to provide export capability for meeting any national RPS standards. Cost estimates of a regional transmission grid — 765 kilovolts (kV) AC and 800 kV DC — for the MGA region range from $50 billion to $80 billion, and significant technology-investment potential exists to support development of energy storage facilities in the 2015-2025 time frame.



STATE POLICY OPTIONS

- Develop economic incentives and workforce partnerships to attract new, and grow existing, manufacturers of renewable electricity components.
- Increase use of apprenticeships for developing skills in building and operating towers, substations and transformers for wind and solar projects; system design, code and ordinance compliance, and installation for residential- and commercial-scale wind and solar projects; and wind turbine maintenance and decommissioning.
- Encourage the creation of community co-ops to negotiate prices for residential building improvements that include renewable electricity and energy efficiency product purchasing.
- Support efforts for development in the research, commercialization and manufacturing of next-generation wind technology (e.g., offshore, wind-to-hydrogen), advanced energy storage, smart-grid technology, and solar technology (e.g., thin-film, printable).

Biobased Products and Transportation

➤ **Deploy public- and private-sector resources to expand the existing bioeconomy, commercialize new bioenergy and bioproduct technologies, and create jobs by enhancing low-carbon, multi-modal transportation infrastructure.**

The Midwest is a leader in developing a successful first-generation biofuels and bioproducts industry and is taking early steps to develop a second-generation biomass supply. It is also working to harness the output of regional research institutions to meet bioeconomy and transportation challenges. In addition, the region has initiated the development of new transit and high-speed passenger-rail systems, as well as efforts to commercialize advanced electric, hydrogen and bio-fuel vehicles, both passenger and fleet, that build on its existing manufacturing base.

Future work will involve the commercialization of next-generation biofuels and bioproducts; continuing to improve the efficiency and environmental profile of first-generation technologies; the build-out of refueling infrastructure for not just biofuels but also other fuels and energy sources such as hydrogen, natural gas, electricity, and battery storage for electric vehicles; and further implementation of transit and high-speed rail systems. Finally, the agricultural and forestry resources of the region allow for expansion of the supply of sustainably produced biomass for the region's energy facilities, which will help to grow rural economies.

STATE POLICY OPTIONS

- Identify and maximize utilization of federal dollars for research, technology transfer and commercialization of bioenergy, transportation and advanced battery-storage projects.
- Develop detailed plans and demonstration projects for sustainable, large-scale production and processing of biomass for both liquid transportation fuels and for power and heat.

MISSOURI / ST. LOUIS ENERGY TRAINING PARTNERSHIP

The St. Louis Energy Training Partnership is a recently developed collaboration designed to retrain laid-off automotive production workers from Chrysler and General Motors (GM) for jobs in energy-efficiency industries. The partnership is led by the United Auto Workers (UAW) and St. Louis and St. Charles community colleges, with input from area workforce investment boards, the state departments of Economic Development and Natural Resources, and area businesses. Through the partnership, the dislocated UAW workers will access a "Green Portal," which provides an intensive assessment process. From this process, individuals with transferrable skills and aptitudes for energy efficiency-related occupations will be directed through one of four training programs designed for energy-efficiency related jobs. The pathways include electric vehicle assembly, hybrid electric auto mechanic, electric motors and devices, and commercial electrical-energy technician. In order to finance the initiative, the UAW, on behalf of the partnership, has submitted a grant application with the U.S. Department of Labor, which is pending. In addition, the state is investing some of its funds to retrain incumbent workers at the GM Plant in the area. By pooling resources, this initiative will take workers from a region devastated by automotive closures and layoffs and retrain them for jobs of the future.

- Encourage existing biofuels plants to pursue technological innovation and partnerships to diversify production into full-fledged biorefineries.
- Develop programs to increase broader use by industry and consumers of bioproducts as a replacement for fossil-based feedstocks. This can build on the public-sector bioproduct procurement program already established by MGA states.
- Provide incentives to community and technical colleges to train auditors, verifiers, aggregators and other experts in carbon markets who will assist the agriculture and forestry sector with participation in nascent global carbon markets.
- Provide incentives to community and technical colleges to train logistics specialists to assist in the production, densification, handling, transportation and warehousing of vast quantities of biomass.

- Participate in the 2010 BIO International Convention and other conferences to showcase strengths such as the region's powerful research institutions, along with the numerous emerging businesses that are created by them.
- Accelerate the growth of a Midwestern industry cluster focused on vehicle battery technology research and manufacturing through increased public-private partnerships.
- Prioritize highway, surface street, and rail projects that not only create jobs but also expand clean travel options, such as state shares of regional rail corridors, inter-city passenger-rail improvements, rural and urban transit systems, bicycling and pedestrian infrastructure, and the use of energy-efficient vehicles.

Advanced Coal with Carbon Capture and Storage

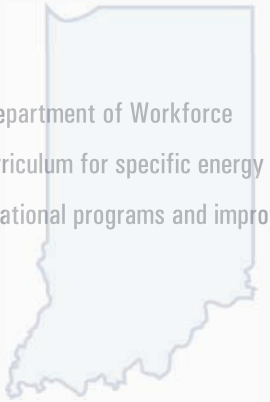
➤ **Develop an economic and workforce development plan for deployment of advanced coal with carbon capture and storage.**

The Midwest can transition its energy system, which is heavily dependent on traditional coal-fired electricity generation, to lower-carbon generation through the deployment of advanced coal with carbon capture and storage (CCS). Through CCS, CO_2 is captured and transported to geologic storage formations (saline formations, depleted oil and gas formations, or un-mineable coal seams) for long-term storage. The CO_2 can also be used for enhanced oil recovery and subsequent storage, providing an economic benefit to jurisdictions while supporting the build-out of infrastructure for transporting CO_2 to other types of formations (e.g., saline formations). Through infrastructure development and commercial deployment, the Midwest will transition to an energy system that utilizes CCS in all new coal-fired plants by 2020 and in the entire regional coal fleet by 2050.

INDIANA ENERGY CONSORTIUM

Under the Indiana Energy Consortium, private sector entities collaborate with the state's Department of Workforce Development, energy associations and Ivy Tech Community College to develop effective curriculum for specific energy related jobs. This partnership seeks to decrease the amount of time it takes to create educational programs and improve the skill level of graduates.

http://www.getintoenergy.com/indiana.asp



A suite of legal, regulatory and financial measures need to be developed in order to support the systemwide commercial deployment of advanced coal with CCS, and to create the jobs associated with deployment. Several states (including Illinois, Indiana, Kansas, Michigan, Minnesota, North Dakota and Ohio) are in the process of developing or have already passed legislation that provides financial incentives for deployment of advanced coal with CCS technologies in their jurisdictions.

STATE POLICY OPTIONS

- Optimize state education and workforce training resources to train highly skilled workers who will operate CO_2-capture facilities (e.g., mechanical and chemical engineers), build CO_2 pipelines (e.g., welders and pipefitters), and manage storage facilities (e.g., geologists). Training and education are needed in the near term to have a sufficient workforce available for achieving the commercial deployment milestones that significantly ramp up during the 2020 time period.
- Allow for tax abatements and/or tax credits to incentivize development of CCS projects by reducing project capital costs.
- Create a regional or inter-jurisdictional public/private consortium (e.g., from governments, universities, industry and non-governmental organizations) to research, manufacture and commercially deploy capture technologies and integrated CCS projects, and to identify barriers and develop strategies for achieving systemwide deployment.

IV COOPERATIVE REGIONAL AGREEMENTS

In addition to the broad strategies and the technology-specific strategies that the Midwestern states can implement to achieve the regional goals, there are six areas in which we have committed to regional cooperation and collaboration to ensure a long-term, positive and sustained impact.

Midwestern Workforce and Economic Development Collaborative

WHEREAS, the Midwest, like other areas of the country, continues to experience job losses and a challenging economic outlook, but the new energy industries in the region are emerging as focal points for job creation; and

WHEREAS, the Midwest is well-positioned to be a leader in the creation of jobs for the new energy economy through its burgeoning biofuels industry, vast coal reserves for advanced coal development, significant underground storage potential for captured carbon, considerable wind power potential, a well-developed infrastructure network, world-class manufacturing capabilities and a diverse supplier base; and

WHEREAS, the Midwest is also home to world-class academic institutions, including community and technical colleges with exceptional training programs and universities challenging conventional thinking and understanding; and

WHEREAS, in order to meet the nation's energy and workforce challenges, the Midwest must continue to capitalize on its strengths and transform its regional economy by providing better economic and workforce analyses and information, developing innovative policies, programs and institutional partnerships, attracting new capital to the region, forming new global technology commercialization and manufacturing partnerships and tapping the potential of the current under-employed workforce; and

WHEREAS, states working together have the collective ability to pool ideas, talent, resources and capital to establish solutions and strategies that surpass what states could accomplish on an individual basis; and

WHEREAS, the MGA's history of bringing together states and stakeholders, with common interests and expertise, positions it to best identify and work through regional approaches to issues facing the Midwest;

NOW, THEREFORE, BE IT:

RESOLVED, that in order to develop consistent and well-coordinated workforce and economic development policies and programs, we will appoint agency officials to a Midwestern Workforce and Economic Development Collaborative (the Collaborative), with consideration of additional stakeholders and technical experts as necessary to ensure ample expertise and representation; and

RESOLVED, that this group of state officials through the MGA will monitor progress and work on the deliverables; and

RESOLVED, that this group create a regional branding and communications strategy to ensure the agreements, messages and deliverables set forth in this Jobs Platform and subsequent cooperative regional agreements herein be properly recognized by the public and policy-makers inside and outside the region; and

RESOLVED, that this group further works to develop a regional growth, investment and technology commercialization plan, together with potential public-private consortia and other supporting initiatives for the development of new energy business and jobs in the Midwest, and to establish regional training standards and portable credentials; and

RESOLVED, that we will designate appointments to the Collaborative no later than December 1, 2009.

Mapping the Region's Assets and Resources

WHEREAS, comprehensive information regarding the region's workforce, energy and manufacturing assets and financial and natural resources is needed to support the growth of new energy industries; and

WHEREAS, a major challenge for policymakers, regulators, developers, educators, training providers and business-support providers is the lack of adequate data regarding new energy economy industries, businesses, and jobs; and

WHEREAS, the U.S. departments of Labor and Energy have begun to provide funding to some states and research universities to conduct studies regarding jobs in new energy economy industries;

NOW, THEREFORE, BE IT:

RESOLVED, that we direct state workforce and economic development agencies to collaborate regionally to identify, improve and share information about the region's workforce, energy and manufacturing assets, financial and natural resources; and be it

RESOLVED, that the Collaborative will work with others as necessary to quantify regional assets and resources and create baseline data; identify data and intelligence gaps; provide predictive modeling of future opportunities; develop and publish regional surveys and reports and recommend uses of data and intelligence to promote the region's unique strengths and prioritize targets for investment; and share best practices in intelligence gathering, analysis and reporting among the Midwestern states; and be it

RESOLVED, that the following be considered for mapping:

1. Key sectors of the region's economy and geographic clusters — measured by share of state value-added employment, linkages to other sectors, and exports; comparison of these sectors and clusters against international and other extra-regional rivals; and intra- and extra-regional trade flows and supply chains.

2. New energy economy jobs (current and future) — to identify what they are, where they are within the region, what skill-sets and training are required, and what workforce and training infrastructure exists or is needed.

3. Existing skills analysis — to identify and map, by state, the prevalence of the necessary new energy economy skills in the current workforce to compare where the skilled workforce lies in comparison to different energy sources, businesses, training providers, etc.

4. Existing education and training analysis — to identify and map, by state, the availability and capacity of education and training through community and technical colleges, apprenticeships and labor, etc., to provide skill training for current and developing new energy economy skill jobs.

5. Supply-chains within each of the targeted industries — to identify the types and sizes of businesses, product components, production volumes, jobs, and training requirements, and to identify gaps, opportunities and what other states have done.

6. Innovation activities—to better understand the timeline and resource intensity for bringing various new energy technologies to market, as well as associated job growth projection, education and training needs, and types and amounts of state investments in these innovation activities.

7. Financial assets—to identify gaps and opportunities within existing federal, state, private and philanthropic funds that are already in the Midwest, and to assess the level of investment that will be needed for the *Energy Security and Climate Stewardship Roadmap* recommendations to be enacted to attract funding that encourages regional cooperative initiatives.

8. Survey of regulatory issues—examine issues and state policies related to issues such as rights-of-way and easements.

9. Renewable resources/infrastructure—to better understand the region's existing and potential capacity in traditional infrastructure (utilities, telecommunications); transportation and access to markets (roads, airports, rail, broadband); land sites (land use, zoning, building stock availability); quality of life (culture, weather, recreation, crime rates, schools, wireless); and natural resources (wind, sun, water, gas, air quality, tourism); and be it

RESOLVED, that the Collaborative shall provide an analysis of available data, prepare an outline of a regional information plan and identify key deliverables and milestones and report back to the MGA no later than May 31, 2010.

Creating a Regional Communications Strategy

WHEREAS, the Midwestern region has already made significant investments in the new energy economy; and

WHEREAS, the image of the Midwestern region presented to the rest of the country, and to the world, does not adequately reflect the region's new energy economy strengths; and

WHEREAS, promoting Midwestern assets, capabilities and competitive advantages will attract greater private investment in the new energy economy that now disproportionately occurs outside our region;

NOW, THEREFORE, BE IT:

RESOLVED, that the Collaborative, shall finds ways to represent and market the Midwestern region for economic development purposes, with specific focus on the region's new energy industries, businesses, and jobs; and be it

RESOLVED, that the Collaborative create a consistent messaging strategy that uses the results from the work done in mapping the region's assets; increases public awareness of, and public and private investment in, businesses, careers and jobs in the new energy economy; and communicates the region's story, honoring and celebrating past history and tradition; and be it

RESOLVED, that the Collaborative shall:

1. Oversee development of a Web site that focuses on marketing the Midwest to potential workers, residents, financiers and employers;

2. Create a Midwestern business plan and funding competition, no later than fall 2010, for Midwestern-based small and emerging businesses in order to encourage development of breakthrough ideas and to promote business development in the new energy economy;

3. Coordinate with the MGA states to conduct trade and investment missions and participate in conferences and trade shows that promote the region's new energy products and capabilities; and be it

RESOLVED, that the Collaborative appoint any other additional participants necessary to complete this work by December 31, 2009, and convene a meeting by February 28, 2010.

Developing a Regional Growth, Investment and Technology Commercialization Plan for New Energy Businesses and Jobs

WHEREAS, Midwestern states have considerable synergies and competitive advantages in new energy economy assets and resources; and

WHEREAS, improved leveraging of these assets and resources is seen as imperative by the region's government, business, industry, education, labor and community leaders for continued growth and prosperity in the region; and

WHEREAS, the U.S. departments of Agriculture, Commerce, Energy, Labor and others, as well as the National Science Foundation, are providing significant funding for research, development and commercialization of new energy technologies;

WHEREAS, the majority of private-sector capital for research, development and commercialization does not flow to businesses, entrepreneurs and researchers in the Midwest;

NOW, THEREFORE, BE IT:

RESOLVED, that we shall work cooperatively to seek opportunities with key federal agencies (e.g., Agriculture, Commerce, Energy, Labor, National Science Foundation, etc.) for coordinated regional program delivery and funding; and be it

RESOLVED, that the Collaborative will develop recommendations for improving the Midwestern environment for venture capital investment in new energy technology companies, including strengthening existing state-sponsored funding and investment programs, and leveraging existing regional venture-capital fairs to better connect regional innovators with capital outside the region necessary to pursue and commercialize new ideas; and be it

RESOLVED, that the Collaborative shall convene forums and roundtables to engage the region's colleges, universities, entrepreneurs, investors and policymakers in promoting and developing an attractive Midwestern culture and climate for innovation and entrepreneurship, and for continuing to explore the growth of energy innovation clusters or corridors.

Advancing Regional Sector Initiatives

WHEREAS, many of the Midwestern states have experienced considerable industrial transformation and job loss over the past decade; and

WHEREAS, support for, and retention of, existing businesses and jobs is as important as the creation of future jobs in new energy industries, and yet requires different strategies and significant resources to do effectively; and

WHEREAS, industry sector-based strategies have proven to be an effective way to increase the economic competitiveness of regional firms and workers; and

WHEREAS, proposed legislation and current funding opportunities indicate continued federal support for the development and implementation of sector initiatives as a framework for aligning resources and strategies to help manufacturing support organizations, small-business development organizations, workforce development agencies, community and technical colleges, apprenticeship programs, universities and community-based organizations;

NOW, THEREFORE, BE IT:

RESOLVED, that the Collaborative create a regional supply-chain network to strengthen the Midwest's manufacturing base by transitioning to new energy technologies, products and industries; and be it

RESOLVED, that the Collaborative shall be further charged with launching regional public-private partnerships comprised of industry, labor and post-secondary education leaders to identify and develop effective workforce development strategies in the following sectors: energy efficiency, bioproducts and transportation, renewable electricity and transmission, and carbon capture and storage; and be it

RESOLVED, that the Collaborative work to develop regional plans and consortia for sector-based and/or supply-chain initiatives, including appropriate international linkages and partnerships with key countries and overseas companies, that target strategic regional opportunities, such as:

1. Manufacturing of renewable-electricity components.

2. Research, commercialization and manufacturing of next-generation wind technology (e.g., offshore, wind-to-hydrogen), advanced energy storage, smart-grid technology, and solar technology (e.g., thin-film, printable).

3. A manufacturing network for multi-modal transportation systems, including energy efficient, electric, and hydrogen-fueled vehicles (both passenger and fleet), and next-generation batteries.

4. A regional or inter-jurisdictional public/private consortium (e.g., from governments, universities, industry and non-governmental organizations) to research, manufacture and commercially deploy capture technologies and integrated CCS projects, and to identify barriers and develop strategies for achieving system-wide deployment.

5. Sustainable, large-scale production of biomass for liquid transportation fuels, and an in-depth study of the full commercialization cycle of biomass for biofuels.

6. Utilization of biomass for power and heat by co-firing and gasifying biomass at Midwestern energy and industrial facilities.

Establishing Regional Training Standards and Portable Credentials

WHEREAS, the definition of and adherence to standards in post-secondary educational curricula and credentials varies across the region, diminishing their value to employers, students, job seekers, and incumbent workers; and

WHEREAS, due to the natural fluidity of regional labor markets, the lack of transportability and acceptance of credentials across state lines is a major challenge to enabling students and job seekers to take advantage of regional opportunities in new energy industries; and

WHEREAS, a lack of awareness of career, job and entrepreneurial opportunities in the new energy economy inhibits the ability of educators, counselors, parents and others to guide students and workers into new energy economy careers; and

WHEREAS, K-12 and post-secondary educational institutions lack capacity in the number of teachers, instructors, professors and industry advisors who understand the new energy economy and can provide meaningful education and training experiences for students and incumbent workers; and

WHEREAS, the U.S. departments of Energy, Labor, other federal agencies and private philanthropic foundations are providing significant funding opportunities for workforce development agencies, K-12 schools, community and technical colleges, apprenticeship programs, universities, community-based organizations and small-business development organizations so they can help more individuals to become aware of, and pursue, career and professional opportunities in the new energy economy;

NOW, THEREFORE, BE IT:

RESOLVED, that to competitively position the Midwest, we will develop the region as a national model for education and training for the new energy economy; and be it

RESOLVED, that the Collaborative work to develop strategies that will result in: increased capacity for teachers and instructors with experience in new energy economy curricula; enhanced or new educational training programs for current and future jobs; and better access to information for workers regarding the range of employment opportunities available to them; and be it

RESOLVED, that we charge the Collaborative to work with technical and community colleges, labor, industry, apprenticeship programs, and community organizations to identify and develop regional career pathways and effective ramps onto them, particularly for low-income adult workers; to ensure that the related credentials are portable, meaningful, and connected to actual industry demand in the Midwest; and to establish networks for learning and mutual assistance among the region's workforce partnerships linked to state sectoral efforts in new-energy industries and among providers of early warning, layoff aversion, and displaced worker assistance; and be it

RESOLVED, that we support existing efforts to develop common curricula, career pathways, certifications and opportunities for resource sharing such as the Midwest Community College Energy Consortium; and be it

RESOLVED, that the Collaborative shall consider convening a summit of labor, community, education, workforce and industry experts to align standards and credentials for changing and emerging industries; and be it

RESOLVED, that MGA states will explore creation of a regional information clearinghouse that allows students, job seekers and incumbent workers of all ages and skill levels to pursue new energy economy jobs and obtain information about education, training and financial-aid options.

DONE, this 7th day of October, 2009, in Detroit, Michigan.

Creating Jobs in the New Energy Economy Advisory Group Members

Masood Akhtar - CleanTech Partners

Caleb Asher - Kansas Department of Commerce

Nathaniel Baer - Iowa Environmental Council

John Biondi - C5-6 Technologies

Marcia Black-Watson - Michigan Bureau of Workforce Transformation

Linda Blair - ITC Holdings Corporation

Tim Burga - Ohio AFL-CIO

Nina Carlson - Office of Wisconsin Governor Doyle

Robert Denson - Des Moines Area Community College

Dawn Dovre - South Dakota Department of Labor

David Gard - Michigan Environmental Council

Coffiann Hawthorne - Office of Michigan Governor Granholm

Georgie Hilker - Minnesota Department of Commerce

Kari Knudson - Bismarck State College

D. Michael Langford - Utility Workers Union of America, AFL-CIO

Mike Lanser - Lakeshore Technical College

Marc E. Lewis - Indiana Michigan Power Company

Mark Lofthus - Minnesota Department of Employment and Economic Development

Karen Massey – Missouri Department of Natural Resources

Frank O'Brien-Bernini - Owens Corning

Dave Parker - Great Plains Laborers District Council-Iowa

Harold Prior - Iowa Wind Energy Association

JoAnna Richard - Wisconsin Department of Workforce Development

Hunter Roberts - South Dakota Governor's Office of Economic Development

Mark Shanahan - Ohio Air Quality Development Authority

Bob Sheets - Illinois Department. of Commerce & Economic Opportunity

Dorothy D. Stites - Kansas Department of Labor

Kate Tomford - Office of Illinois Governor Quinn

Brian Warner - Wolverine Power Cooperative

Sarah L. White - Center on Wisconsin Strategy

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