Economic Development and Energy Careers – Working Group Meeting #4

May 24, 2016; 10:00 am – 12:00 pm

Meeting Summary

I. Meeting Objectives

- To **develop draft objectives** for recommendation to the energy plan leadership team.
- To **develop draft strategies** for recommendation to the energy plan leadership team.

II. Revised Vision Statement Discussion

During the meetings facilitators presented a revised vision statement for the Iowa energy plan to working group members. The vision statement was revised using comments received from working group members and the public during the third working group meeting (April 26, 2016).

> *Iowa is committed to the development of an affordable, reliable and clean energy system that maximizes economic benefits for our state. We will continue to embrace a mix of energy resources, infrastructure, and technologies while prioritizing energy efficiency and conservation to position all of Iowa – both rural and urban – for future growth. As an energy leader, our efforts will drive innovation, foster research and development, create business opportunities and promote environmental stewardship.*

III. Revised Guiding Principles Discussion

During the meetings facilitators presented revised guiding principles for the Iowa energy plan to working group members. The guiding principles were revised using comments received from working group members and the public during the third working group meeting (April 26, 2016).

The objectives and strategies put forth in the Iowa Energy Plan will:

- *Foster long-term energy affordability and price stability for Iowa's residents and businesses.*
- *Increase the reliability, resiliency and security of Iowa's energy systems and infrastructure.*
- *Stimulate research and development of new and emerging energy technologies and systems.*
- *Provide predictability in Iowa's energy market by encouraging long-term actions, policies and initiatives.*

- *Expand opportunities for access to resources, technologies, fuels and programs throughout Iowa.*
- *Seek diversity in the resources that supply energy to and within Iowa.*
- *Support alternative energy resources, technology, and fuel commercialization in proven, cost-effective applications.*
- *Promote the protection of the environment and Iowa's natural resources.*

IV. Development of Objectives and Strategies

During the meeting working group members participated in a facilitated brainstorming exercise to identify objectives and strategies for the energy plan correspond to the energy pillar "Economic Development and Energy Careers."

Attached is a summary of the rough objectives and strategies that were discussed during the session. The summary does NOT represent any final recommendations. Ideas put forth were recorded during the meeting and the group will continue to contribute additional thoughts and refine ideas through the end of June.

V. Comments and Questions Received from the Public

- Supporting an energy source (or R&D) for the sake of Iowa jobs is a poor reason. A low cost, highly reliable energy infrastructure will attract jobs to Iowa. Many large manufacturers look at energy costs as highly desirable. Let's please not put a cart before the horse.
- Objectives Comment: Regularly assess and optimize infrastructure and energy distribution – perhaps 4 year cycles? (since the governor is elected every four years this would make a timely tool)
- Strategy comment: Jobs would be a type of welfare if that specific industry depends on subsidies because of poor EROI or ERoEI. Favor clean technologies with strong EROI (financial) & ERoEI (efficiencies) and higher paying jobs will likely be plentiful. An additional thought would be to encourage Worker Directed Initiatives (Co-Operatives) so that profits are not siphoned out-of-state by a corporation.
- Non-binding objective/benchmarks are an excellent idea.
- Objectives should be technology neutral. Specify clean & efficient not a specific industry.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
1	Set baseline for energy reliability, affordability and environmental stewardship as a means to inform policy.	1.1	Set emissions goals and measure carbon emission of projects (includes air and water emissions and is not specifically carbon).
		1.2	Define what is an acceptable level of reliability for energy systems.
		1.3	Establishing appropriate levels of redundancy in the grid and minimize duplication of facilities.
		1.4	Measure opportunity cost and what is affordable. Use Cost-benefit analysis to look at trade-offs.
		1.5	Define affordability.
2	Reduce carbon emissions in the state.	2.1	Incentive-based strategy instead of a mandate.
3	Distribute economic benefits of clean energy throughout all of Iowa.	3.1	Develop energy resources (wind, solar, etc.) valuation studies of different utility models.
		3.2	Ensure the continuation of retail-rate net metering policies for DG customers.
		3.3	Establish energy district legislation
		3.4	Develop policy that promotes distributed generation in partnership with utility generation
		3.5	Develop tools or strategies for local communities interested in expanding clean energy
4	Expand the geographic reach of workforce development and K12 opportunities.	4.1	Promote distance learning opportunities
		4.2	Increase sharing online courses between community colleges and other academic institutions.
		4.3	Standardize high school vocational training so that dual credits apply across the state.
		4.4	Educate employers on the process.
		4.5	Increase concurrent enrollment of k-12 and community college classes for workforce training
		4.6	Decrease obstacles for career or technical experts to get the correct credentials for teaching in k-12
5	Create an efficient, safe, comfortable and affordable housing stock (new construction and existing housing).	5.1	Establish PACE financing
		5.2	Establish direct loans to homeowners
		5.3	Low-interest loans for developers that do energy efficiency improvements
		5.4	Increase regional training programs
		5.5	On bill financing for rural and municipal utilities.
		5.6	Increase funds available for residential energy assessment and planning.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
		5.7	Policy for energy information disclosure during real estate transactions for renters or buyers. 18 month usage history.
		5.8	Train and certify contractors on high-performance energy retrofits (certifications).
		5.9	Training home remodeling contractor on how to sell or upsell home energy efficiency services.
		5.10	Statewide enforcement of energy codes through proper funding and certify/licensing.
		5.11	Factoring energy cost/value into loan-making process.
6	Increase commercialization and expansion of Iowa energy-related products, services, companies, technologies.	6.1	Attract attention of venture capital to Iowa. Leveraging private dollars
		6.2	Create a tax program for private sector that invests in small businesses
		6.3	Expand phase zero funding for small businesses.
		6.4	Establish startup accelerators targeted to energy sector related businesses.
		6.5	Host annual business challenge.
		6.6	Review strategies from Iowa energy jobs report – create tax credits.
		6.6	Establish startup accelerator targeted to the energy sector
		6.7	Enact legislation allowing formation of benefit corporations in Iowa.
		6.8	Use programs such as the “energy district” model to offer regional business incubator services and mentoring for clean energy startups.
7	Increase opportunities for Iowans to receive energy-sector workforce training.	7.1	Eliminate or reduce obstacles in connecting employers and employees.
		7.2	Increase concurrent development and workforce training prior to college.
8	Increase availability of natural gas resources statewide (supply) and maintain a level of affordability (pricing).	8.1	
9	Ensure Iowans have access to affordable energy resources.	9.1	
10	Invest in and develop bioenergy resources with a positive influence on Iowa’s natural resources (perennial resources).	10.1	
11	Consider lifecycle and system-level (workforce, equity, social wellbeing, sustainability, etc.) implications when making policy decisions.	11.1	
12	Replace imported fuels with Iowa-grown native biomass.	12.1	
13	Increase availability of renewable natural gas for energy generation, heating and transportation.	13.1	

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
14	Increase talent pool for energy-related careers.	14.1	
15	Leverage Iowa workforce development opportunities (see objective from Iowa's job report).	15.1	
16	Set a priority for analyzing existing systems and optimizing them before creating new systems and to reduce trade imbalance.	16.1	Review losses and productivity by examining Livermore charts or similar data
17	Reduce Iowa's energy expenditure intensity per unit of GSP by 25%.	17.1	
18	Analyze and reduce energy trade deficit in the agricultural industry.	18.1	Separate agricultural sector for larger industrial sector
19	Capture and reuse energy / nutrients in wastewater and farmland runoff.	19.1	Formally recognize nutrients in fertilizer as an energy source.
		19.2	Decrease imports of synthetics
20	Improve innovation ecosystem and access to capital as a business innovation model.	20.1	Incubators
		20.2	Creating an equity crowd funding hub
		20.3	Tax credits for new businesses / capital gain tax exemption
		20.4	Creating energy districts
		20.5	Matching grant program for awardees receiving federal funding
21	Connect leaders in education and employers to understand workforce needs.	21.1	
22	Set a nonbinding goal of Iowa being net positive of carbon emissions by mid-century (not a regulatory goal).	22.1	Identify obstacles and barriers.
		22.2	Create a cost-benefit analysis
		22.3	Identify policy
23	Global Strategies that could apply to all or several goals	23.1	Set energy resource baseline
		23.2	Analyze framework
		23.3	Review policies
		23.4	Understand wasted resources
		24.4	Coordinate state incentive/funding
		24.5	Establish a point of communication for dissemination of resources

Energy Efficiency and Conservation – Working Group Meeting #4

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IV. Development of Objectives and Strategies

During the meeting working group members participated in a facilitated brainstorming exercise to identify objectives and strategies for the energy plan correspond to the energy pillar "Energy Efficiency and Conservation."

Attached is a summary of the rough objectives and strategies that were discussed during the session. The summary does NOT represent any final recommendations. Ideas put forth were recorded during the meeting and the group will continue to contribute additional thoughts and refine ideas through the end of June.

V. Comments and Questions Received from the Public

- Comment on efficiency in the principles: Including EROI (not pork-barrel) and ERoEI (efficient use of resources for a task) would both steer the principles towards good stewardship of both natural and human resources.
- Comment on Objectives - 3rd bullet "realistic & attainable... within timeframe"; I would be fine with an objective which likely can only be halfway met within the plan's timeframe. When JFK proposed going to the moon much of that tech didn't exist. Setting a "realistic goal" might become a low goal which new technologies or working relationships could make easy. Allow room for long-term serendipity.
- Comment on affordability; Protecting natural & civic resources is more important than cheap energy. Most would be willing to pay slightly higher costs if it does not create long term damage to the environment, society (families & communities), and the infrastructure between them all. Affordability is a close 2nd to protecting current & future resources.
- Comment on strategy; Explore & implement multi-use energy streams (heat & power).
- Comment on vehicle efficiency; Encourage development of robust public transportation – especially synthetic fuel or electricity powered.
- We listened to the past discussions and reviewed the meeting notes. Based on our review, we wanted to highlight a few things specifically related to energy efficiency in Iowa.
    - The energy efficiency-related provisions of the energy plan should build off of the past and current efficiency programming successes.
    - Energy efficiency is the cheapest energy resource in Iowa, at an average of $19 per megawatt hour. New natural gas and coal-fired power plants are three times

more expensive, as seen in the graph to the right. Wind generation is more than twice the cost of energy efficiency.

- Iowa is currently a regional leader in energy efficiency programs, specifically in industrial efficiency.
- In addition to energy savings, energy efficiency investments improve business competitiveness, save consumers money on their bills, and make homes and businesses more comfortable places to live and work.
- Energy codes are a crucial part of achieving energy reduction and should be considered part of the Iowa Energy Plan. It is important to keep the codes strong and continue striving for greater efficiency to keep buildings healthy, high-quality, and affordable to operate.
- Tracking energy use is a key first step to energy reduction in buildings. MEEA supports benchmarking practices and disclosure ordinances as methods to measure, evaluate and help achieve energy savings in buildings. Historically opt-in benchmarking policies get low participation and lower energy reduction than mandatory benchmarking practices. Free benchmarking software is readily available.
- Utilizing utility financing, such as with the CANDi program in Illinois, can assist with energy code compliance and lead to deep energy savings.
- In the most recent meeting, you considered the following Draft Vision Statement for the working group:
  - *The Iowa Energy Plan will set out Iowa's priorities to ensure energy affordability, reliability, and predictability for all through encouraging economic growth and improve Iowa's environment for years to come. The plan will leverage the state's renewable energy successes and promote innovation.*
  - After reviewing this statement, we suggest the following:
    a) The vision statement should be more closely tied to energy savings and reduced need for new generation due to cost-effective energy efficiency.
    b) It should be clear that energy efficiency can and should be the starting point to achieving affordability, reliability and predictability.
- During the April 5th meeting, the notes mention that a list of current efficiency program offerings shared across utility territories will be shared with the working group – can this list also be made available to the public?

- During the April 5th meeting, the notes reflect an interest in example energy plans. Please find the recently released Missouri Energy Plan here.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
1	Reduce energy intensity by 25% (energy intensity by gross state product)	1.1	Increase use of Combined Heat and Power for resiliency benefits.
		1.2	Assist companies who want to pursue ISO 50001 EMS certification
		1.3	Develop private/public education and recognition programs for those making improvements (e.g. Healthy State Initiative).
		1.4	Leverage utilities to help promote energy efficiency for industries.
		1.5	Ask industries to commit to energy reductions (e.g universities making carbon neutral statements, DOE better building program.
		1.6	Provide training
		1.7	Provide audits
2	Create a one stop shop for information, programs, and policies related to energy efficiency.	2.1	Develop a central inventory of opportunities, new technologies, programs, and policies that are available to support energy efficiency
		2.2	Effectively market the clearinghouse of information so it is used.
		2.3	Leverage private sector resources.
		2.4	Develop training programs and materials that are available to the public.
		2.5	Analyze state energy office programs for clearinghouse models (PA and CO to start)
		2.6	Establish funding source for developing and maintaining clearinghouse
3	Position Iowa as a leader in R&D. Make Iowa the place that people want to come to for energy ideas and new technologies.	3.1	Streamline and review interconnection standards.
		3.2	Evaluate policies and factors that prompt research and development activities to occur in other states.
		3.3	Develop an incentive program to bring new companies to Iowa.
		3.4	Establish an energy engineering field of study.
4	Incentivize (continue to foster) innovation for applied projects (not just R&D).	4.1	Establish an energy efficiency component for research & development activities conducted in Iowa.
		4.2	Provide grants to utilities and others that want to innovate and experiment with new technologies.
		4.3	Develop a catalogue of grants and financial assistance available.
		4.4	Provide access to capital via private lending and funding.
		4.5	Provide administration support for entities that want to pursue innovation
5	Be a leader in new opportunities in energy efficiency.	5.1	
6	Improve the energy performance of existing buildings (plants, operations, transportation).	6.1	Building codes. 2012 IECC currently. Are we looking at the next one?
		6.2	Develop a program to fund behavior change.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
		6.3	Implement pay for performance incentives.
		6.4	Encourage the installation of smart meters in buildings.
		6.5	Encourage additional participants of the B3 public benchmarking program.
		6.6	Weatherization of low-income funds and more private/public partnerships.
		6.7	Explore pilot program for renewable energy for low-income (e.g. geothermal) to determine the return on investment
		6.8	Make the Leadership in Energy and Environmental Design (LEED) certification more easily accessible (less costly).
		6.9	Clarify performance contracting legislation in public buildings.
		6.10	Develop a strategy to target rental units and solve the split incentive barrier.
		6.11	Adjust the code for Iowa Green Streets for green/brownfield programs to make it applicable for other uses that include energy efficiency.
		6.11	Improve Iowa's energy code
7	Improve the energy performance of new buildings (plants, operations, transportation).	7.1	Enforce code compliance.
8	Increasing energy efficiency awareness across all sectors (consider workforce, general public, consumers, facility owners).	8.1	Leverage existing community distribution channels (CIRAS, extension programs)
		8.2	Catalogue existing networks and channels of communications in the state.
		8.3	Develop a marketing campaign to promote what the state has done so far and further encourage energy efficiency (eg milk does a body good or Iowa's live healthy program).
9	Reduce energy consumption in homes.	9.1	Target homes that have a higher level of energy use per square feet.
		9.2	Foster innovation around renewable energy practices in low income properties. Maybe trying some incentive initiatives. – geothermal should be named specifically.
		9.3	Focus strategies on low and moderate income education.
10	Expand energy education.	10.1	Developing energy-focused curriculum in K12 environment.
		10.2	Develop a Mission Critical Operations (MCO) program or degree.
		10.3	Incorporate field trips for energy efficiency and determine how to fund them.
11	Establish a baseline for affordability.	11.1	Define affordability.
		11.2	Determine if energy is affordable.
12	Increase efficiency of vehicles.	12.1	Increase or deploy a network of charging stations
		12.2	Establish efficiency standards for vehicles registered in Iowa.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
		12.3	Develop a statewide complete streets policy.
		12.4	Develop an emissions testing regime for vehicles in Iowa.
		12.5	Offer more public transportation options.
		12.6	Use performance contracting to replace state fleets with more efficient vehicles (example from another state).
13	Improve access to capital for energy efficiency improvements.	13.1	Remove limitations for state treasurer office from 6 years and expand to 15 years.
		13.2	Establish on bill financing opportunities.
		13.3	Enact PACE financing legislation.
		13.4	Identify uses for the Qualified Energy Conservation Bonds (QECB) program.
14	Expand the energy-related workforce and general knowledge of the industry.	14.1	Create an audit process to improve the quality of inspectors.
		14.2	Commission and retrocommissioning engineers, energy management technicians. Are hard individuals to come by in the industry – can we evaluate the needs and invest in this?
		14.3	Leverage the state's STEM initiative.
15	Better to evaluate the benefits of energy efficiency.	15.1	
16	Evaluate programs and policies.	16.1	

Transportation and Infrastructure – Working Group Meeting #4

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IV. Development of Objectives and Strategies

During the meeting working group members participated in a facilitated brainstorming exercise to identify objectives and strategies for the energy plan correspond to the energy pillar "Transportation and Infrastructure."

Attached is a summary of the rough objectives and strategies that were discussed during the session. The summary does NOT represent any final recommendations. Ideas put forth were recorded during the meeting and the group will continue to contribute additional thoughts and refine ideas through the end of June.

V. Comments and Questions Received from the Public

- In case it is appropriate to submit suggestions for objectives and strategies, I might suggest: Increase use of locally produced Iowa energy resources; 2. Increase renewable energy use, particularly from a diverse portfolio of locally produced renewable energy resources; 3. Establish policies and programs that advance environmental objectives in a cost effective manner.

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
1	Increase renewable fuel blending for ethanol	1.1	Expand the Renewable Fuels Infrastructure Program.
2	Increase renewable fuel blending for biodiesel	2.1	
3	Protect and extend Iowa's unique biofuel leadership and exports	3.1	Extend the Renewable Fuels Infrastructure Program that sunsets in 2017.
		3.2	Increase education to promote off-road biodiesel use (farming).
		3.3	Adjust the state's renewable fuels standard and adjust as needed.
		3.4	Continue research for low-carbon, Iowa-based fuels.
		3.5	Consider the construction of an ethanol pipeline to transport ethanol in an efficient manner to the location where it is blended with gasoline.
		3.6	Co-location of ethanol infrastructure in road rights of way (DOT, county).
4	Provide funding for Iowa's road infrastructure and increase efficiency through a complete transportation system.	4.1	Ensure all system users are paying for maintenance.
		4.2	Support and research alternative funding, including public private partnerships for Iowa's lock and dam system.
		4.3	Investigate a fee on miles traveled vs. fuel tax or other revenue sources.
		4.4	Develop a funding strategy for rail infrastructure to keep traffic off roads.
		4.5	Develop an incentive strategy to promote multi-modal transportation.
		4.6	Identify locations and funding to construct 3 intermodals facilities in Iowa by xx date.
5	Support maintenance of Iowa's transportation infrastructure (highways, roads, lock and dams, railroads, pipelines)	5.1	Most efficient use of movement means that alternatives are available – complete system.
		5.2	Use the least amount of energy
		5.3	Bio economy requires inputs and outputs – needs infrastructure
6	Minimize damage to and preserve agricultural land productivity during the placement of infrastructure.	6.1	
7	Protect energy deliverable reliability.	7.1	Develop a new methodology to fund construction of infrastructure in rural areas of Iowa.
		7.2	Streamline the regulatory permitting process for infrastructure.
		7.3	Create a minimum threshold for voluntary easements before eminent domain can be utilized for projects.
		7.4	Establish a tax credit to encourage the construction and development of underground power lines.
		7.5	Develop standards at the state level that minimize damage to agricultural land, during construction and reclamation of pipelines that are used to transport fuels. Include safety standards such as depth. Need to ensure these standards are federal compliant

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
8	Ensure adequate availability of energy to all of Iowa to increase economic growth and jobs.	8.1	Facilitate local ownership of electrical generation (e.g. ethanol coops).
		8.2	Develop incentive programs and initiatives for distributed generation (e.g feed in tarrifs).
		8.3	Review if right of way laws efficiently promote colocation.
9	Provide diversity of Energy to Iowa	9.1	
10	Educate Iowans on energy challenges and opportunities to be better informed on policies and decision making processes.	10.1	Educate fleet owners and operators.
		10.2	Develop a public campaign to educate.
		10.3	Education and outreach of end users for the retailers and the general public to promote the use of alternative energy.
		10.4	Develop high school curricula on energy that could also be expanded to community colleges and universities.
		10.5	Establish a clearing house of information.
11	Create an educational environment to create a workforce that reflects / meets the needs of Iowa's energy future.	11.1	Develop area of excellence.
		11.2	Develop a workforce consortium (utilities and businesses) to predict trends in workforce and develop curriculum with high schools and community colleges.
		11.3	Train auto technicians on conversion to alternative fuel vehicles, and also on electric vehicles.
12	Explore (or expand) Iowa's energy exports.	12.1	Explore opportunities to include a premium on alternative energy in Iowa
		12.2	Protect ability to consider export opportunities when looking at the needs of a project
		12.3	Establish a baseline by developing a study on the export potential.
		12.4	Review other states policy for low carbon to identify new markets for renewable energy and/or renewable energy credits.
13	Develop policies and programs that support Iowa's independence.	13.1	
14	Streamline the regulatory timeline process related to infrastructure while maintaining public input in the process.	14.1	
15	Continue plans for intercity rail connections in the Midwest	15.1	
16	Promote efficient transportation to reduce the energy use.	16.1	Public transportation.
17	Increase the number of alternative fuel vehicles in circulation	17.1	Increase the number of charging infrastructure for electric vehicles.
		17.2	Increase investment in infrastructure

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
18	Increase the number of public and private partnerships for alternative fuel vehicles and EV charging stations.	18.1	
19	Increase the broader adoption of RNG by increasing development and end uses for RNG	19.1	
20	Position Iowa as a leader in energy education and research.	20.1	
21	Investigate the role of autonomous vehicles and energy efficiency.	21.1	
22	Ensure the safe transport of energy.	22.1	Educate on the needs for contingency planning and what needs to be done in case of an emergency.
		22.2	Increasing investments into rails and rail crossing to prevent issues.
		22.3	Determine standards for high voltage lines related to set backs.
		22.4	Support interactive mapping for tracking transportation of fuel.
		22.5	Educate first responders on electric vehicles.
		22.6	Ensure flow of fuels during emergency situations.
		22.7	Define what is an "emergency situation" based on hours of service.
23	Ensure energy affordability by long term economic planning		
24	Objective needed for liquid propane (look for worksheets to address)		
25	Decrease the carbon intensity of Iowa’s energy		
26	Objective needed to address energy security		
27	Objective needed to address energy storage		

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- N/A.

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1	Provide Iowans with safe energy sources and delivery including cyber security.	1.1	Interconnections and utility codes.
		1.2	increase pipelines for natural gas.
2	Ensure Iowa maintains low and competitive industrial energy rates to encourage economic development.	2.1	Cost of service regulation.
3	Maintain low energy rates to encourage economic growth.	3.1	Acknowledge and be aware of leakages resulting from choices.
4	Maintain affordable and reliable energy generation.	4.1	
5	Promote baseload hydro and convert flood control dams into generation.	5.1	
6	Access and choice to various energy options.	6.1	Investigate roadblocks to consumer choice in customer generation.
7	Reach high levels of wind energy installation (10,000 MW by 2020, 20,000 MW by 2030; reference wind vision report by DOE).	7.1	Position wind energy for exporting to other states.
8	Focus integration of renewables into existing infrastructure.	8.1	Retain a consulting firm to look at integration and explore more than the distributed generation rule making that is out there now.
		8.2	Pricing, PPAs, zonal pricing vs utility-wide pricing.
		8.3	Encourage incentives or tax policies to assist in the cost of implementation of AMI and other technologies that get data on load and position Iowa for the smart grid.
		8.4	Undertake a study to determine the value of solar and other renewable energy resources including energy efficiency in Iowa.
		8.5	Develop methodology to account for externalities when determining costs and value of resources.
		8.6	Implement a joint pilot project to examine integration.
9	Focus on zone pricing as opposed to utility-wide pricing.	9.1	Market at the distribution level
		9.2	State controls the rate; buying from MISO under Purpa/PPA
10	Continue renewable evolution if engineering and pricing signals to grow are present (market pushes).	10.1	
11	Better integration of decentralized energy sources to allow for energy choice in all sectors.	11.1	
12	Ensure energy conservation and renewable energy sources to address peak demand across all sectors.	12.1	Use of utility or individual storage
13		13.1	Continue the Clean Power Plan stakeholder process

NUMBER	OBJECTIVE	NUMBER	STRATEGIES
	Plan for carbon reductions and be a leader using the Clean Power Plan goals as guidelines.	13.2	Develop a GHG reporting framework
		13.3	Continue to work with other states to identify regional solutions.
14	Leverage Iowa Universities and research centers for research on new technologies and storage capabilities.	14.1	Establish incentive program for storage
		14.2	Pumped storage as a strategy at existing reservoirs.
		14.3	Institute a tax credit.
		14.4	Balance research and commercialization.
		14.5	Coordinate with utilities (IUB) and businesses to address incentives for storage.
15	Encourage development of additional infrastructure that is cost effective for Iowans.	15.1	Support state agency RTO involvement and understanding.
		15.2	Ensure MISO is planning for Iowa's expansion of renewable energy. This can be done by communicating Iowa's goals into MISO processes.
		15.3	Build out natural gas infrastructure where needed to facilitate economic development.
		15.4	Remove obstacles to building natural gas pipelines that are needed in Iowa.
		15.5	Develop inventory areas with natural gas constraints
		15.6	Conduct a study to inventory existing natural gas infrastructure in the state of Iowa.
		15.7	Develop rate structure or funding so that costs are covered by those who benefit
		15.8	Implement transparency of costs on utility bills
16	Connect employers with educators who understand workforce needs.	16.1	Create awareness amongst faculty and parents.
		16.2	Engage Iowa's universities and community colleges in energy related workforce development.
		16.3	Connect leaders in energy employment.
		16.4	Use the educated workforce as a strategy to recruit new employers to the state.
17	Ensure consumer protection.	17.1	Institute criminal background checks for contractors working in utility programs.
		17.2	Cybersecurity.
		17.3	Establish an electricians/installers licensing program (e.g. SAVE program).
18	Measure reliability in terms of power quality.	18.1	Develop statewide standards that also meet MISO standards.