

Transportation and Infrastructure – Working Group Kick-Off Meeting

February 29, 2016; 2:30 pm – 4:30 pm

Meeting Summary¹

I. Meeting Objectives

- Explain approach to working group meetings and member contributions.
- Introduce working group topics and scope for discussion moving forward.
- Engage in a high-level conversation about Iowa's opportunities and challenges as it relates to energy.
- Begin identifying programs, policies, and initiatives that work well and could serve as best practices.

II. Questions for Discussion

- What do you think is the biggest opportunity that Iowa has as it relates to energy?
- What are the greatest challenges for the future?
- From your perspective what are some existing energy policies and programs that are exemplary and work well?
- Are you aware of any best practices in terms of policies and programs from the region or other states that would be beneficial to Iowa?

III. Summary of Key Comments

What do you think is the biggest opportunity that Iowa has as it relates to energy?

- Decrease energy use as a proportion of the gross state product; fuel in all forms (ethanol & others) can be used to achieve energy independence with improves the economy.
- Focus on multimodal transportation. Expanding passenger rail could be an opportunity to explore, although there is a recognition that the costs are high.
- Freight movement consumes a significant amount of fuel, and can be made more efficient through a variety of strategies that include more efficient forms of transportation and freight optimization, better connections between transportation modes; perhaps more port development, and passenger rail.
- Important to look at congestion points for car and rail transit to give consumer choices. Also important to reduce idle-time at rest stops along interstates.
- Expand use of biofuels as a transportation fuel. Also look at natural gas as an opportunity for transportation fuels.

¹ *Disclaimer: The ideas and items included in this document represent a high level summary of what was discussed during the meeting as interpreted by multiple staff assisting in the note-taking process. They are not to be construed as verbatim comments from any working group member.*

- Use of propane as a transportation fuel could be expanded. One benefit of this is being able to sell more propane year-round and not just in the winter thus maintaining supply and demand consistency, and therefore consistent pricing.
- It is important to link the timing of the Energy Plan development process to the strategies presented in Iowa Department of Transportation Long-range Transportation Plan. We should explore how one process can feed into the other.
- There is a need to better understand intrastate vs. interstate transportation movement as well as infrastructure – road, pipes, wire.
- Identify opportunities for farm-to-market roads that are necessary but require large investments to build and maintain. We cannot abandon the way that we get products to market or ignore the urban and rural linkage in transportation.
- Electric vehicles might be an opportunity for the state.

What are the greatest challenges for the future?

- Iowa's electricity transmission infrastructure is aging and there are a lot of new demands on it.
 - This brings challenges associated with keeping electricity rates low and attractive.
 - Wind energy requires high voltage lines in places where they do not exist.
- There are similar challenges with natural gas pipelines, especially when trying to serve potential new industrial users while wanting to maintain attractive rates.
 - In rural Iowa there are pipeline capacity issues as well. The federal regulatory structure does not allow for growth in pipeline capacity unless customers pay upfront, which is not affordable.
 - Can we get enough natural gas throughout the year when we have limited pipeline capacity for natural gas or propane?
- Iowa has its own Renewable Fuels Standard and the goal is set too high to be achievable.
- Other states have incentives to help fleets switch to alternative fuel vehicles
- Trains and locomotives could possibly use more biodiesel but there are challenges associated with the warranties on engines.
- Is energy storage a viable option for attracting businesses interested in renewable energy?
- Education is extremely important. We need to consider how we educate on economy, technology and environmental impacts and benefits.
- If Iowa is to incentivize electric vehicles, then there needs to be a discussion about how owners pay for their use of the state's infrastructure.
- Use of propane as a transportation fuel has some challenges, as there seem to be discriminatory regulations against propane when compared to compressed natural gas (CNG) fueling stations due to the requirements of Iowa Fire Marshall along the lines of training and testing.
- Consider storage technology and how that will interface with infrastructure.
- Cost of fleet turnover to non-petroleum fuels is dependent on the price of crude oil.
 - There are challenges associated with the volatile price of petroleum.
 - However, there are also some federal incentives available for conversion of fleets and some states also have incentives available.
- Closure of power plants and coal movement up and down the rivers has led to less paying jobs in towns with coal plants. This is a big problem for economic development. How do we identify alternative jobs or industries?
- Need for regulatory certainty: RFS; without it the price of corn was driven down and farmers can't produce ethanol without cash flow which will create a decrease in the economy.
- Use of eminent domain should be evaluated.

- The wholesale electricity market is not regulated. How do we keep the value of electricity produced in the state in Iowa.

IV. Comments and Questions Received from the Public

- Will policy issues like continued access to net metering for home solar be included in the energy plan?
- Opportunity: if we developed all the wind energy in Iowa, it would double our Gross Domestic Product (GDP). To make this work we need improvements in transmission and storage.
- Smart grid is highly important to enable higher use of Iowa wind. Using locally produced Iowa electricity creates local jobs vs. importing coal or gas from outside the state.
- Some of the large technology firms like Google and Microsoft have located computer server centers here in the Midwest because of our access to low-cost wind energy.

Economic Development and Energy Careers – Working Group Kick-Off Meeting

February 29, 2016; 2:30 pm – 4:30 pm

Meeting Summary¹

I. Meeting Objectives

- Explain approach to working group meetings and member contributions.
- Introduce working group topics and scope for discussion moving forward.
- Engage in a high-level conversation about Iowa's opportunities and challenges as they relate to energy.
- Begin identifying programs, policies, and initiatives that work well and could serve as best practices.

II. Questions for Discussion

- What do you think is the biggest opportunity that Iowa has as it relates to energy?
- What are the greatest challenges for the future?
- From your perspective what are some existing energy policies and programs that are exemplary and work well?
- Are you aware of any best practices in terms of policies and programs from the region or other states that would be beneficial to Iowa?

III. Summary of Key Comments

The following items were discussed as potentially missing from the scope of this working group's discussion or needing additional clarification:

- How do we leverage Iowa's energy resources and energy industry to attract and retain businesses and individuals to Iowa?
- How do we train individuals to work in Iowa's energy industry, and how do we retain them once trained?
- Consider the affordability of energy, both for businesses and individual consumers.
- Scope should encompass financing, incentives, policy review, and development to support the energy industry.
- Focus on Iowa companies that make energy related equipment and technology, i.e., energy supply chain manufacturing, as well as those that work in the extraction and production of energy.
- Research and development activities should include university research and work of the Ames National Laboratory.

¹ *Disclaimer: The ideas and items included in this document represent a high level summary of what was discussed during the meeting as interpreted by multiple staff assisting in the note-taking process. They are not to be construed as verbatim comments from any working group member.*

- Economic development related to biomass is certainly in scope, but the working group is missing a voice from the agriculture or ethanol industry. Perhaps a guest presenter or guest meeting participant could help supplement on this topic.

What do you think is the biggest opportunity that Iowa has as it relates to energy?

- Shifting Iowa's energy trade imbalance – i.e. Iowa currently imports about half of the energy it uses.
- Important to compare the economic impact of centralized energy generation vs. distributed generation as a means to reduce the trade imbalance.
- Similarly, it is important to consider the economic impact of energy efficiency.
- Significant opportunities exist for rural areas to offset energy costs -- for example, installing solar panels on hog confinements.
- We need to consider how we make energy and energy-related economic development accessible to all income levels and areas of the state.
- Can we tap into local communities for capital such as investments in industrial parks and incubators?
- We have a successful model for a local energy district, Winneshiek Energy District. What would it take to replicate that model elsewhere in Iowa?
- Increasing cooperation between energy technical assistance providers would help stimulate economic impact.
- Biomass from agriculture and from agricultural industries such as meat packing and wastewater treatment plants is a large resource in Iowa. We could treat meat-packing, confinement facilities, ethanol production, and wastewater treatment plants as bioenergy centers and grow energy crops as feedstocks for these centers.
- Leverage the availability of renewables as an attraction for businesses looking for resiliency and environmental benefits – for example, data centers typically have onsite generation and use the electric grid as backup.
- Energy storage is the “next frontier.” Iowa used to house battery manufacturing companies. Is this an opportunity to bring them back? More broadly, Iowa has an opportunity to marry new developments in clean tech with its competitive advantages in manufacturing.
- A policy around distributed generation and access to the grid is critical. Standards for siting and installing distributed generation resources are needed.
- Net metering policies currently do not apply to all utilities.
- There is a need to for more information and data on how distributed generation can help with resiliency and reliability issues. How do distributed generation and base-load generation compare in terms of reliability?
- Energy efficiency is possibly the greatest opportunity for Iowa: it provides local jobs, it can reduce the energy trade imbalance, and it can free up operations money for local reinvestment.
- There is also an opportunity to focus on when we are using energy and how to flatten the energy load profile.
- Fertilizer use for agricultural activities has a big impact on energy use, transportation, and energy importing of natural gas. How does the development of decision-metering of fertilizers impact energy use? What happens with the development of agricultural crops for cellulosic fuels?
- Consider the state of infrastructure. How much energy are we losing through transmission of electricity, natural gas and other resources? How could reducing transmission loss improve Iowa's energy trade balance?
- Early education (K-8) is key, as well as training offerings for K-12 and beyond plus the general public. Youth need to opportunity to see the salary potential in the energy field and

to be interested in staying in Iowa and working in this industry, in family-sustaining businesses.

What are the greatest challenges for the future?

- Access to reliable information as it relates to energy – for example, development of wind resources and siting transmission – and distribution of accurate information to the public.
- Better transmission to move renewable energy to load centers.
- Controlling carbon emissions.
- Funding for energy efficiency projects for customers of municipal utilities and rural electric cooperatives.
- Resiliency and addressing risks to the electricity grid.
- Finding the right balance between economic development and environmental protection; identifying “win-win” policies, programs, and projects that benefit both the economy and the environment
- Considering the short-term, medium-term, and long-term impacts of energy-related economic development strategies, not just pursuing quick wins

Examples of existing energy policies and programs that working group members consider exemplary:

- Winneshiek District Energy has a model program for rural economic development that accelerates adoption of locally-owned distributed generation through a local capital option.
- Algona and Bloomfield – energy independence studies
- Leopold Center for Sustainable Agriculture
- MidAmerican’s investment in renewable energy
- Iowa Lakes ethanol plant’s installed generation
- Farmers Electric Cooperative
- Wastewater project examples
- Green Iowa AmeriCorps
- Perennial biofuels production on marginal lands
- Performance-based contracts (public-private partnerships)
- Investor-owned utility rate-payer funded energy efficiency programs
- Clean economy report by Brookings Institution
- Illinois renewable energy installation standards for installers
- Center for Industrial Research and Service – Iowa State Extension

IV. Comments and Questions Received from the Public

- As a consumer of gasoline/diesel/ethanol, electricity, and natural gas I want to be able to choose renewably-produced energy, and would prefer that it be from a distributed generation infrastructure. We need policies to promote that renewable energy infrastructure.
- On solar farms: As a consumer, I am interested in a Colorado “Clean Energy Collective” program in Iowa.

Energy Efficiency and Conservation – Working Group Kick-Off Meeting

February 29, 2016; 2:30 pm – 4:30 pm

Meeting Summary¹

I. Meeting Objectives

- Explain approach to working group meetings and member contributions.
- Introduce working group topics and scope for discussion moving forward.
- Engage in a high-level conversation about Iowa's opportunities and challenges as it relates to energy.
- Begin identifying programs, policies, and initiatives that work well and could serve as best practices.

II. Questions for Discussion

- What do you think is the biggest opportunity that Iowa has as it relates to energy?
- What are the greatest challenges for the future?
- From your perspective what are some existing energy policies and programs that are exemplary and work well?
- Are you aware of any best practices in terms of policies and programs from the region or other states that would be beneficial to Iowa?

III. Summary of Key Comments

What do you think is the biggest opportunity that Iowa has as it relates to energy?

- There is an opportunity to enforce building codes and increase education of the public, however, building design is as just as important as building codes.
- Buildings retrofits should be planned standards improved.
- Conservation needs to be approached from the perspective of cradle-to-grave with a recognition of various financial streams.
- Energy affordability is critical.
- Energy efficiency provides quick paybacks. It is important that we do not lose sight of energy efficiency as renewable energy continues to grow. How do we deal with a lack of interest from the public?
- Performance contracting needs enabling legislation.
- High performance building design where cost of ownership is included should be considered.
- Utility programs that incentivize energy efficiency are critical.
 - Equity of programming is extremely important. We need to engage low-income

¹ *Disclaimer: The ideas and items included in this document represent a high level summary of what was discussed during the meeting as interpreted by multiple staff assisting in the note-taking process. They are not to be construed as verbatim comments from any working group member.*

- individuals as well as small businesses.
- An opportunity exists to focus on energy users by groups or categories, for example healthcare or data center users.
- Consider lifecycle cost analysis.

What are the greatest challenges for the future?

- The sustainability piece needs to be a part of the debate on conservation. The financials are important but so too are the environmental and social impacts.
- What happens when the energy efficiency low-hanging fruit is fully tapped? How do we get to a deeper level of energy savings?
- Lack of public education and consumer awareness is a constant issue.
- Energy efficiency is not always critical to the end user and other issues are seemingly more important. How do we bring this to the forefront?
- A collaborative approach to energy program planning is needed.
- Changes to energy program funding levels and various opt-outs or opt-ins and the associated impacts (both positive and negative) must be considered.
- Demand response would be a good opportunity but we would need to focus on time of use pricing for all customer classes.

From your perspective what are some existing energy policies and programs that are exemplary and work well?

- Home Energy Savers, a program where the utility shares the cost with the weatherization agency, is a best practice to assist low-income customers.
- Demand response programs, including residential thermostat programs, have had positive results in other locations.

Are you aware of any best practices in terms of policies and programs from the region or other states that would be beneficial to Iowa?

- Alliant Energy's C&I Custom Rebate program is a best practice and has worked very well for customers.
- Grid modernization activities are moving forward across the country with a potential for improved delivery and service for customers.

IV. Comments and Questions Received from the Public

- There is public policy, such as increased property taxes applied on a perceived value increase of property, that dis-incent energy efficiency.
- Consider operational efficiencies for energy.

Iowa's Energy Resources – Working Group Kick-Off Meeting

February 29, 2016; 2:30 pm – 4:30 pm

Meeting Summary¹

I. Meeting Objectives

- Explain approach to working group meetings and member contributions.
- Introduce working group topics and scope for discussion moving forward.
- Engage in a high-level conversation about Iowa's opportunities and challenges as it relates to energy.
- Begin identifying programs, policies, and initiatives that work well and could serve as best practices.

II. Questions for Discussion

- What do you think is the biggest opportunity that Iowa has as it relates to energy?
- What are the greatest challenges for the future?
- From your perspective what are some existing energy policies and programs that are exemplary and work well?
- Are you aware of any best practices in terms of policies and programs from the region or other states that would be beneficial to Iowa?

III. Summary of Key Comments

- There is a need to protect utilities and their infrastructure. The renewable standards have been successful because they allow the utilities to make a profit.
 - There is currently nothing to replace the RPS goal; what is Iowa's long term plan and how do we get there?
- There is a need to conduct a value of solar (VOS) analysis to determine the true value of solar energy in the state. Once this information is available it would be possible to make policy decision that addresses rate design, tax incentives, etc.
 - How can utilities partner with other organizations for solar development?
- Cities need to be aware that zoning and land use regulations might have an impact on solar developers. How can we remove barriers to solar development?
- Large manufacturing businesses look at the cost of energy when determining when to establish their operations. Keeping energy costs low is critical to retaining businesses in Iowa.
 - At the same time, we need to be efficient with the money that we spend on energy, even if it means building and/or taking advantage of resources outside of the state, we shouldn't focus on borders.

¹ *Disclaimer: The ideas and items included in this document represent a high level summary of what was discussed during the meeting as interpreted by multiple staff assisting in the note-taking process. They are not to be construed as verbatim comments from any working group member.*

- PACE financing has experienced challenges, and state-level issues have prevented city-level work from being done, but the mechanism is coming back into relevance at the state level and has the potential to attract lenders.
- Should take advantage of hydropower, there are lots of rivers in the state and it can provide a balance between intermittent renewable resources and baseload power. Can it be done cost effectively?

What are the greatest challenges for the future?

- Utilities today are different than in the 1960s. There is an evolution of where power comes from and how it is connected to the grid in a way that it ensures reliability.
 - How do we look at costs over the long term? It's critical to keep rates low and preserve in-state investments wherever possible.
- How do we take technology to market? We need to keep jobs and tax base in the state. We get more research and development money from outside of the state than in the state for biofuel research and technology investment.
- Planning for new generation assets deserves a discussion:
 - In other states they do Integrated Resource Planning (IRP), how is the current process working in Iowa?
 - We have been lucky so far, but there are three different plans that are submitted, each relying on different numbers. It's difficult because the information is always changing. We may need to explore more frequent rate cases.
 - The Renewable Portfolio Standard (RPS) goals were exceeded many years ago, how do we think about new technologies and integrate other options then?
 - Important for utilities to coordinate their planning efforts with the Midwest Independent System Operator.
- Currently energy storage options are too cost prohibitive, but Iowa resources would be more competitive with it.

Examples of existing energy policies and programs that working group members consider exemplary:

- CAfirst.org to learn more on Property Assessed Clean Energy (PACE) financing.
- Municipal electric communities in Minnesota are using on bill financing for commercial properties and for projects that includes small Heating, Ventilation and Air Conditioning (HVAC) and energy efficiency improvements.
- State Solar Ready Program.
- DNR report on hydropower.

IV. Comments and Questions Received from the Public

- N/A.