

Transportation and Infrastructure – Working Group Meeting #2

April 7, 2016; 10:00 am – 12:00 pm

Meeting Summary

I. Meeting Objectives

- To **dive deeper** into the conversation and continue to **develop current challenges and areas of opportunity** and organize them by topic area.
- To **share expertise** around topic areas and frame the issues associated with that topic.
- To **gather more information** and facts on issues and opportunities.

II. Summary of Key Comments

The following topic areas were discussed as they relate to Transportation and Infrastructure. The summary captures issues brought forward by working group members.

Alternative Fuels

- Natural gas and propane require different delivery infrastructure.
- Ethanol and biodiesel are home-grown and should continue to be supported.
- Growing infrastructure for renewable fuels is critical.
- Compressed natural gas (CNG) is an emerging technology and could have potential - particularly for local governments and their fleets.
- A program to help incentivize private sector infrastructure for alternative fuels may be appropriate.
- There are multiple examples from programs across the country that incentivize private sector to bring alternative fuels – OK, PA, CA, NY.
- Important to plan for electric vehicles (EVs) and be in line with national trends – however, alternative fuel is more Iowa-specific and the state can be a national leader on this.
- It's important to consider alternatives for locomotive fuel. B5 blend can be used transfer containers in nonattainment areas – better than the SO₂ from diesel
 - o NREL study on B20 says this will work, but warranties are still being modified
- We need to be mindful of who, how, and where when it comes to funding for infrastructure
- It may not be the role of government to create mass fueling stations for the public.
- It is important to figure out how the state pays for infrastructure (roads, bridges etc.) if we use non-traditional fuels and the state loses the tax revenue. Important to make sure users of roads contribute their usage fee.
- There are many vehicles that can run on alternative fuels, but they need to be available to the public.
- There are many vehicles that have the capacity to run on a higher blend of ethanol (higher than 10%), but there isn't capacity at the retailer level to dispense fuel with a higher portion of ethanol. Having the infrastructure at the pump is critical.
- Where is the demand for alternative fuels going to be?

Alternative Fuel Vehicles

- Utilities should be part of the discussion.
- Private sector companies (particularly large companies with sustainability policies) seem interested in electric vehicles (EV).
- Electric vehicle technology will expand to more travel miles in the near future.
- There is a need to create policies that help recover the cost of installing charging stations.
- Charging stations are incentivized differently throughout the country – some with tax credits. There is a need to pay attention to the different types of incentives.
- More auto manufacturers are standardizing EV charging technology and therefore allowing the market to adopt at a faster pace.
- Up-take of personal EVs is still relatively small and the payback on installing charging stations is long.
- The technology for charging stations is moving very fast, and therefore stations become outdated relatively quickly.
- Critical to think about the stress on the electric grid if many users charge their vehicles at night at their homes.
- There is a study underway to forecast the potential growth of electric vehicles in Iowa – IEDA is undertaking this effort. Study will be complete by June 2016.
- More information on electric vehicles:
 - o How many registered EV's are in Iowa? 160 all-electric; 981 total including hybrid plug-in.
 - o What are the trends for electric vehicle growth? It has not grown much in the last few years, primarily because the price of gas has remained low.
 - o 76 charging stations in the state (multiple outlets each)
 - o A map of national locations will be posted on Basecamp.
- There are national discussions on how vehicles could operate on e30+ blends. What are the outcomes of these discussions?

Transportation Infrastructure Modernization

- We should consider rail and river for commodity transportation in addition to highways.
- The plan should use a lens of thinking about the most efficient use of Iowa's existing infrastructure
 - o Funding for connections between modes has been proposed
- Trucking efficiency standards from EPA and truck fuel economy are also important drivers
 - o Do current Iowa truck registrations take this into account?
 - o If not trucks aren't purchasing as much fuel, this will have an impact on the fair-share issue
- Policies are being revised related to interstate travel and tax reform
 - o User fees for transportation are general funds that go to transportation at the federal level. This could be an opportunity for state policy. Iowa may need to go beyond just using a gas-tax for infrastructure funding
 - o The planning process is an opportunity to look at big issues nationally and future impacts
 - o Using both miles traveled and weight to calculate fee structures would be the fairest system. This is how air quality and fuel standards are calculated at the federal level, which is what Iowa should support.
- Transport of energy through the state will also impact the infrastructure we choose to build and maintain

- We should utilize “positive train control” as a safety feature when transporting volatile fuel.
 - o This may be more expensive, but it’s likely necessary for both environmental and human safety
- We should understand the amount of ethanol currently being shipped in the state, and how it will increase in the future
- Iowa’s rail has to be flexible and ready for growth
 - o This is especially important as east and west coast states with low-carbon fuel standards are increasing demand of Iowa biofuels.
- Congestion problems on routes I80, 35, and 380 are a challenge. These roads may need to be widened in addition to finding ways of decreasing traffic.
 - o Are there ways Iowa can address congestion created by trucks? Some other states have truck-only lanes.
- Iowa needs to pay attention to maintaining existing infrastructure such as roads and bridges in addition to planning for expansion.
- An issue on rural roads is that there are a lot of valuable commodities being transported on “suspect” infrastructure. The fuel tax that was enacted last year helps, but it is not a silver bullet.
- Iowa Department of Transportation is currently finishing a study on transportation.
- There is also information on crude oil and other energy transport tracking and forecasting coming out soon.
- U.S. Environmental Protection Agency is releasing trucking efficiency standards for heavy-duty trucks soon. We should look at how this will intersect with the state.

Energy Infrastructure Modernization

- The new requirements from EPA will be more challenging for retailers as they need to maintain and likely expand.
 - o Current infrastructure does not support E15
 - o We should look at expansion from a policy standpoint based on what’s already successful
 - o We need to maintain program compatibility requirements of equipment
- The manufacturing industry is mainly focused on electricity and natural gas. When assessing fuel options, manufacturers’ first priority is reliability, and then cost. Need the most cost-effective, reliable options.
- Some in the riverfront industry have switched from coal to natural gas. We should consider how this feeds into availability of natural gas as more coal plants close.
- Iowa needs to make sure transmission infrastructure can support wind and additional renewables
- This group should get a deep understanding of distributed generation and how it impacts infrastructure
 - o Is there a way to help defer some infrastructure costs through cost-savings from DG? We should collect data to support this idea.
- Increasing DG also supports the need for infrastructure updates. The increase in EV’s and DG are signs that the nature of our systems are changing.
 - o Iowa also needs to build transmission upgrades when energy sources are retired. Those units still connect to the grid and need to be updated over time
 - o Iowa should plan to allow for retirements along with new generation and DG. Ultimately, we need a robust grid that can be flexible
 - The energy plan should not allow for siloes. We should be communicating at a regional level with MISO in order to plan together for future changes

- Planning should lead to efficiencies
 - Transmission fees are growing because we need to plan and build for infrastructure needs. Improvements need to be efficient so that investment is cost-effective
- The Clean Line would help create a new supply chain. Other lines are already taking wind out of Iowa and Clean Line would continue this.
 - Demand for wind from other states has created a new transportation need as Iowa has become a wind exporter
 - Iowa should decide whether we want to build infrastructure to support exporting activities
- Issues related to nuclear and coal plant closings such as job loss and infrastructure impacts need to be addressed.
- Need to address transmission eminent domain issue, particularly when building for export
 - Investment for through-traffic needs to be coordinated with economic needs to access in the state
- There are also issues related to natural gas and crude oil traveling through Iowa (i.e. Dakota Access)
- Iowa should look at safety, reliability, and cost-recovery when building infrastructure. The plan should address how we fund infrastructure that will support the future. This involves not just replacement, but the need to support future and different needs. Iowa needs to find a funding mechanism that allows the state to stay competitive by having reliable, affordable energy regardless of the source. This competitive advantage against surrounding states is important for the plan to protect.
- There are new environmental requirements from U.S. EPA related to ethanol that will need to be met for infrastructure.

Energy Storage

- In order to assess Iowa's complete energy picture for the future, we need to identify critical storage needs and locations in the state. We need reliable energy storage at the most urgent uses and infrastructure if an energy source runs out.
- When planning for electricity storage, especially in DG scenarios, we need to consider both the load demand and generation factors.
 - The order of magnitude of the gap in storage need vs. current capacity is very large. It may not be financially feasible to achieve completely.
- The demand-flexibility motivation is important (for example, solar with battery storage at dairy farms is a big opportunity)
- It is very expensive to store large quantities of energy. We need to understand the reasons for storage to determine what is worthwhile and ensure it is cost-effectiveness
 - The environmental consequences of leaks also need to be considered
- Ethanol plants are not located near rail lines. This creates an avoidable storage need.
- There is a propane study report coming out but is not yet finished. Is there any way to include in the planning process?

Energy Assurance

- Energy diversity would improve national security and decrease the need for storage.
- Natural disasters such as ice storms and flooding are a big issue and can cause major economic losses (dairy farmers, etc.)
- Will micro-grids work in Iowa as they're more meant for densely populated areas?

- Even micro-grids still need to be connected and supported by generation.
- The plan should help define what is most cost-effective. It may be more efficient to invest in a larger, robust system
- Local governments need a reliable communication system for natural disasters
 - Keeping infrastructure going during natural disasters is a priority
 - The plan should focus on communication, collaboration and coordination of local governments
- When there is a shortage of diesel, trucks need to be able to continue delivery beyond normally allowed hours. Policies for extreme situations that can help address urgent needs and respond to disasters would be beneficial
 - This would allow for cutting through red tape in urgent situations
- There is a workforce need for rural area line technicians. In the case of an emergency, is there an available workforce to help restore energy in rural areas?
- Most companies have security plans as security needs can change every day. There is a challenge of having security plans that are not available to the public. These need to be overseen and regulated by government

Education

- There needs to be more education around the state on the use of DG and EV's
- There are job opportunities around ethanol and other alternative energy that Iowans aren't aware of
- There is an education need around Iowan's understanding the benefits of export. There is currently a lot of confusion and more would likely support if there were more accurate information and better public awareness of benefits
- There is more education needed on biodiesel as there is still a lot of pushback
 - End-users have to be educated that biodiesel is suitable and standards are much higher than they were in the past
- The general public doesn't understand the level wind energy generation particularly in western Iowa and that Iowan's can't use all of it and can't store it, therefore there is a need to put it back on the grid
 - The public doesn't understand the benefits of the export market in general
- There is a public thinking that people currently pay for all transportation infrastructure needs. However this is not the case and more education about what things actually cost and how they are funded would be beneficial.
- DOT has innovative strategies for getting information out including use of technology, and gathering resident feedback (smart phones, etc.)
- A website or central location with facts about energy in Iowa compartmentalized by different sources would be very helpful. Particularly if it were focused on unbiased facts and not marketing
- Post 911, people are less inclined to share information

III. Comments and Questions Received from the Public

- I have concerns that fuels must have a good Energy Return on Investment (financial EROI or subsidy reliance) as well as excellent Energy Return On Energy Invested (physics of efficient resources EROEI). Many people outside of Iowa do not see ethanol as being efficient. Be mindful of emerging synthetic fuels which may be more efficient.
- On incentivizing Alternative Fuel Fleets: I know that NYC assisted taxi fleets with purchasing hybrids (often used in 12 hour shifts) These vehicles often drive > 150 miles each shift.
- Freight Movement: could expanding railways (to each county seat even) be efficient. There would be less heavy trucks wearing down the roads.
- My understanding is that the best grid-level storage is pumped hydro. While Iowa doesn't really have any large hydro, there are many small & micro-hydro possibilities. This would also be a great distributed energy source. As an example: <http://www.alternative-energy-news.info/micro-hydro-power-pros-and-cons/>
- Energy Assurance should include access to raw materials for energy production.... (coal supply, uninterrupted NG) Micro-grids would protect those areas that are not directly hit with natural disasters. Also nuclear energy only resupplies every 18-24 months - infrequent resupply makes it safe against running out of fuel.
- Additional ideas for facts on energy (laws of physics are the same within Iowa as well as outside!) can be found at University of Calgary's website: http://energyeducation.ca/encyclopedia/Main_Page