

Nebraska Climate Pollution Reduction Plan Stakeholder Engagement Notetaking Template

Date/Time: Thursday, December 7, 2023

Sector: Energy Production (Round 1)

Welcome & CPRP Presentation:

- Welcome & Ground Rules
- NCPRP Presentation
- Short Q&A
 - It was asked if Nitrous oxide and sulfur oxide are considered GHG? It was noted that Nitrous oxide is considered GHG but not sulfur oxide.
 - It was asked if only government entities can apply for the funding or if non-profits and utilities can. It was noted that only government entities can apply for the funding. However, utilities fit within the definition of a municipal government.
 - Can NDEE provide specific information and clear links on applying for these programs. It is unclear to many how to apply.
 - It was understood that the DOE and EPA require communities with IRA money/clean energy projects to have a community benefits agreement in place. It was noted that NDEE doesn't have information on the community benefits agreements and wasn't sure what programs those were related to.
 - Local communities are zoning out clean energy projects, can the state give guidance to communities on this? It was noted that the NDEE does not have the authority to tell counties how to do their zoning, but they hope to incentivize these things.

Key Question 1: Poll

Of the 4 example measures, how would you prioritize them? Do you have others to propose?

- Twenty-seven participants responded to the poll ranking example measures as follows (highest to lowest):
 - Funding to low-income and disadvantaged communities for residential solar installation (e.g. Solar for All Grant).
 - Funding to utilities to expand energy efficiency incentives for residential and commercial customers.
 - Incentive program for community solar projects on contaminated lands.
 - Incentive program for solar canopies on parking lots & cattle feed lots.
 - Other
- Other responses include:

- Biomass generation
- Resources to help counties update the energy element of their comprehensive plan
- Agrivolatics (solar/crop collocation). With feed lots, it's a unique opportunity to emphasize Nebraska's strengths.
 - Solar for shading cattle and growing crops
- Microgrids supporting critical infrastructure like water and sewerage plants support low-income communities.
- Community solar projects in low-income communities. Support energy efficiency programs for non-profits.

Breakout Discussion of Stakeholder Proposals:

Generation (Room 1)

Discussion:

- Discussed some of the hurdles for pushing wind in the state.
 - NIMBY some support for wind but not as much support for transmission and transmission towers which are required to move the energy
 - Nebraska, as a conservative state, tends to be more apprehensive of de-carbonization goals in general.
 - Since the rolling outages several winters ago, concern about resource adequacy and reliability
- Battery storage transmission- may be a more long-term goal
 - Cost-effective
 - Batteries are a good option because prices are quickly dropping, and the technology is advancing.
- Agrovoltics has a lot of potential- it has a heavy ag emphasis and would have immediate benefits.
- Small modular reactors (SMR)- could be a longer-term goal. The state should define a plan for pursuing that in some structured manner (e.g., Nebraska Power Association or districts)
- Build off of/expand LES CSP- it's a ready-made platform that could increase funding and broaden eligibility and coverage.
- De-carbonize Nebraska- allow for utility-scale renewable energy projects to take place, aid this, and set aside money to create resources, best practices, and solar wind incentives.
 - County zoning and permitting are big barriers
 - Funding could be used to develop resources/framework
 - Model zoning programs

- There is a lot of misinformation from other states. Nebraska needs resources and an accurate framework.
 - The #1 inhibitor from an energy production perspective is regulations.
- Can the funds be used for land acquisition? Unsure, but does not think so.
- NPPD has been looking into biomass.
 - Ties in with the ag industry.
 - Specifically, look at corn stover.
 - It's feasible, but not sure how cost-effective it would be scalable
 - Add biochar production to this and get co-benefits of CO2 sequestration and all the benefits of biochar
- Renewable natural gas- use it in more facilities, partner with entities (e.g., municipal water treatment to feedlots to clean up) to clean up methane and put that into the natural gas systems
 - Blackhills has seven active projects in this area and a large partnership with Lincoln

Generation (Room 2)

Discussion:

- We should focus on looking at community solar projects more than residential ones. A lot of demographics show that people of low economic status rent their homes, so putting solar panels on residential homes probably has less impact. How do we optimize cost-effectiveness?
- Energy efficiency – homes need to be insulated to help save on cost.
- Weatherization – low-income homes that would be eligible for some programs have to meet certain safety requirements, so the majority of low-income homes that would otherwise be eligible are not because they do not meet requirements. Looking for funding to cover pre-weatherization activities.
 - The efficiency of improving the equipment in houses (refrigerators, stoves, etc.) should be a lower priority than weatherization because those appliances will still wear out eventually. Weatherization will save cost over a longer time (opinion)
 - Ideally, we would get low-income homes eligible for weatherization AND get things updated to get houses qualified for more energy-efficient appliances.
 - Conservation hasn't come up in discussions yet – we should continue pushing that.
- LES has had a successful sustainable energy program for at least ten years and can quantify greenhouse gas reduction. It provides funding for heat pumps, insulation, heat pump water heaters, etc. Also, provide funding for low-income energy efficiency projects

in coordination with community action projects. Should chat with those folks – these projects are definitely worth the effort.

- Two sides to conservation – technical side and voluntary activity. Upgrading tech is only half the equation. Need voluntary use of energy-saving behavior (e.g., turning the thermostat up in the summer and down in the winter)
- The cost of inspection for pre-weatherization is expensive – maybe provide funds for that if they're not already available.
- Battery storage for solar power would help make solar more interesting to the market.
- If we're focused on straight greenhouse gas reduction, maybe we should focus more on wind. We have a lot of wind in Nebraska.
 - Wind is a more mature industry; it's less clear where to break into the market.
 - Lots of rural communities don't want wind farms. Right now, it's a bad political climate for it, and a lot of rural communities don't like it.
 - We could instead structure it in such a way that opportunities are available but not prescriptive.
 - Also, fuel cells from hydrogen are an option and maybe look at vertical turbines for communities.
 - Wind farms require a lot of land, whereas solar is less land-intensive.
 - Does this need to be a big project or more of a chip-at-the-margin project?
 - TBD
 - LES wants to put an incentive in place that changes people's minds. That doesn't mean buying the whole thing for people. It means letting them choose. Help cover the cost rather than totally covering the cost.
 - Are the outreach efforts to actively educate folks about the incentives available to them? It's one thing to have the incentives available, but another for people to be actually aware of them.
- There are a variety of ways to work the solar array concept into the power grid.
- Utilities have used and are looking at expanding our NE ag/waste resources for biomass generation
- Is NDEE looking at a GHG reduction number that we would try to fit the generation options into?

Grid/Storage

Discussion:

- Targeting critical infrastructure useful for climate – prolate them. This would reduce carbon and lower costs for lower-income communities.
 - One-half to one-megawatt grids.
 - Support small rural towns by supporting low-carbon electricity.
 - Microgrids for lower-income rural communities in Nebraska.
 - It will reduce costs and lower carbon footprint.

- Long-term storage concerns energy situations.
 - Liquid air is well established in other areas, used in small spaces, and has the same cost as hydro pumps. We need to look at these; there are not a lot of these in NE yet.
 - Liquid air is pumping air and lowering it until it becomes liquid and then storing heat until you need the energy until it is efficient.
 - Grant would pay for a long-term storage pilot project.
 - It is not the cheapest, but it would work in the long term.
- NPPD is trying to tie batteries to rural irrigation.
- Load increases and how to manage that by utilizing solar in storage.
- It would pair well with microgrids by managing battery systems.
- Switching over to electric vehicles and how that will affect the grid.

Large Group Discussion of Stakeholder Proposals:

Generation (Room 1) Summary:

- Expansion of renewables, long-term benefits of battery
- Why haven't we, as a state, adopted these renewables?
 - Misinformation, focus grant money to build up a knowledge base, provide resources.
- Biomass, ag waste
- Expand renewable natural gas
- Small modular reactors and impact for de-carbonizing our grid
- Agovoltaics, utilizing solar in ag operations
 - Anaerobic digestion
- Allowing the discussion of accurate info, promoting knowledge sharing

Generation (Room 2) Summary:

- Solar for All initiative
 - Community solar would be more influential for low-income/renters in comparison to residential solar.
- Energy efficiency measures
 - Weatherization programs
 - One difficulty with weatherization programs is eligibility issues for low-income residents, and the place has to be ready for weatherization
 - Small amount of funding to overcome the eligibility problems

- Provide implementation grant funding for those pre-weatherization activities
- Long-lasting benefits and would be more effective than upgrading appliances
- Conservation needs to be addressed
 - Voluntary actions rather than technical energy efficiency measures
 - How do you provide incentives for people to voluntarily conserve energy
- Discussed wind energy and the hurdles around it
 - Well-established mature tech could provide potential benefit
 - several factors, including political and zoning issues, make wind energy somewhat controversial. Want to be non-controversial
 - In the solar facility, you can set up solar array for a community and a small amount of land needed,
 - Wind farm is larger area and owners
 - Battery storage was also mentioned as a means of reducing fossil fuels to generate electricity.

Grid/Storage Summary:

- Microgrids
 - Offline microgrid- used to be that each community had microgrid, served their basic town, and didn't go between towns
 - Today they can be isolated but can also be connected, if they are is an outage you can go into your isolated microgrid and have power
- Water or sewer projects
- Behind the meter would reduce the cost of those projects
- Long-term storage, a lot of implementation of the shorter term
 - To fully utilize wind and solar resources we need longer-term storage
 - Fracking using geothermal process (done in Utah)
 - Might work in Northern Nebraska
 - Liquid air storage system (done in Europe)
- Trying to provide financial assistance to community solar.
 - Increase in interest has resulted in higher price in some communities, and financial assistance to help those projects.
- Solar battery storage to serve irrigation loads
 - NPPD has peaks of irritation loads
 - Localized battery to reduce the carbon generation at that time period

Other Discussion:

- There are several thermal energy storage options, 8-24 hour options being assessed by the utilities
 - They are synchronous, not battery based

- Discussed funding limits on utility programs
 - NPPD has energy efficiency incentives at a flat budget (upwards of 2 million) fund limited and has been for years. No increase even from an inflation standpoint. All funds are being utilized.
 - LES's funding has ranged between 1.5-2 million, part of it is based on programs which are evaluated
 - Some of the incentives aren't things that people go out to get- e.g. they get incentives for heat pumps when their furnace quits on them
 - Not always spending all funds, but it likely depends on the incentives that are provided
 - OPPD has seen the level of saturation in their solar projects, but are looking for larger additional generation to address the loan longer term.
 - Likes the idea of microgrids because it effects/helps a community rather than just an individual