

# Notes from the Tenth Meeting of the Dane County Council on Climate Change

March 1, 2019, 12:30 pm to 4:00 pm  
Madison Municipal Building  
215 Martin Luther King Jr. Blvd., Madison, WI

## Attendees

Lauren Azar, Mary Blanchard, Jim Bradley, Brad Bruun, Tom Content, Jamie Derr, Mary Evers Statz, Ellen Geisler, John Haeckel, Jeanne Hoffman, Tyler Huebner, Andy Kellen, Jessie Lerner, Erik Lincoln, Michele Pluta, David Poklinkoski, Mark Redsten, Stacey Reece, Paul Robbins, Joel Schriever, Charles Tubbs, Libby Tucci, William Walker, Gary Werner, Steve Wayland, Keith Reopelle, Kelly Osborn

## Introduction by Dane County Executive Joe Parisi

- Thanks the Council and to Keith.
- Time to shift to prioritization.
- Looking forward to seeing the Climate Action Plan report.
- Brief overview of landfill project
  - First project of its kind in the nation.
  - Dane County is making a concerted effort to share what was learned from this project with other municipalities.
  - \$28 million project will pay for itself in three years and offset more greenhouse gas emissions than generating electricity from landfill gas.
  - Partnership with area digesters will improve economics of digesters, while helping our lakes.
- Pledge to the Council that the Climate Action Plan won't simply sit on a shelf.

## Updates

### *Stacey Reece*

Navigant will be bringing an expert from Europe to the National Adaptation Forum. Holding a workshop on the Friday after the forum. Stacey invites Council members to participate and will send more information closer to the date.

### *Ellen Geisler*

Fitchburg unanimously passed 100% clean energy resolution on February 26, 2019. Ellen will be leaving her position at Fitchburg.

### *Keith Reopelle*

This is the last official meeting of the Dane County Council on Climate Change. Thank you all for work of the past year. Review of the agenda.

## Ag, Forestry & Food Working Group proposals

### Introduction, Gary Radcliffe

The working group tried to take a systems approach in developing recommendations for the Climate Action Plan. The recommendations being presented today compliment the Dane County landfill project.

### Digesters to produce Renewable Natural Gas, John Haeckel

The Waunakee digester was put in place to enable phosphorus extraction and removal from watershed.

It is currently processing manure of 2500 cows from three farms. The current digesting processes uses a by-product of biodiesel production which is a glycerine substrate.

The working group proposes that the digester moves from the current electricity production to renewable natural gas (RNG), dropping the glycerine substrate and increasing manure intake to 2750 cows.

Currently, the system captures roughly 80 tons of CO<sub>2</sub>E per cow annually. Only two of three digesters on the site are operating, but with all three in operation and producing RNG, 220,000 tons of CO<sub>2</sub> would be removed.

The working group proposes digesting the manure of half of the 55,000 total dairy cows in Dane County resulting in the capture of 2.2 million tons of CO<sub>2</sub>E annually. Additionally, 450 tons of phosphorus would be diverted from potential runoff into local waterways. Goal is to achieve this within five years.

### *Discussion*

Won't this require more digesters? Is five years a realistic goal?

Currently 5%, third digester will bring up to 7%, there's room for a 4th that would allow 10% of the cows. More digesters would be required. Ambitious, but doable

Have you thought about modeling for reduction of nitrogen?

Primary focus has been on phosphorus removal.

Did you look at revenue from the RNG?

\$30-40 million of revenue annually from half the cows

What's the process for dealing with the solids from digesters?

Either take the solids outside the watershed or compost it.

## Biomass Upcycling Facility, Jamie Derr

The working group has also been looking at nutrient catch strips as another source of material to feed into digesters. Nutrient catch strip buffers help prevent nutrient runoff into waterways.

Create compost from low quality bio-material to build up soil quality and increase the amount of CO<sub>2</sub> the soil can hold and sequester.

The proposed upcycling facility would intake biomass and disassemble it into high quality material to feed into a digester, while composting the lower quality material at the facility.

Build a compost hub around the facility. If you are going to ask a farmer to take land out of production, riparian catch strips are a reasonable ask. Ideally, the facility would eventually be interconnected with RNG pipeline.

### *Discussion*

Do you anticipate farmers getting incentives in the future to take cropland out of production?

There currently are such programs.

Are you familiar with work of Wes Jackson at Land Institute in Kansas looking at perennial strips planted with food.

The group looked at kernsa. Biomass for compost as benefit to farmers. Trying to change on fringes without upsetting the whole apple cart.

Recommends looking at Denmark's conversion of biomass to transportation fuel

What about growing hemp?

There's no processing infrastructure yet, but the upcycling facility could take the excess biomass that results

## Local Carbon Market, Robin Lisowski

The working group recommends creating a local carbon market, beginning in Dane County with the purchase of carbon offsets, with later expansion to other counties/region. Price suggestion of approximately \$15 per metric ton of CO<sub>2</sub>e with a premium for co-benefits. Recommend that the platform offer "green tags". Dane County would help recruit the investors to seed the fund, brand the program.

### *Discussion*

- There is a carbon reporting rule in place that could lay the groundwork for statewide credits.
- The 2019 Dane County budget includes money for a study to look at the feasibility of an expansion of digesters in the county.
- There is also \$200,000 in the budget for RFP for a community compost feasibility study.

## FACETS Modeling for the Dane County Council on Climate Change, Evelyn Wright

Overview of how the model works: a giant assumptions calculator. Considers possible future cost of technologies, policies, and demand for energy and services, then evaluates for the cheapest outcome. Dozens of runs are performed to understand relationships, understand trajectories and what influences outcomes.

Leveraging the process of the regional Roadmap to Decarbonization report for Dane County.

FACETS is a bottom-up tech-detailed model. Includes transportation, light vehicle demand. End-use energy is also tracked. DC4 proposals were added to model.

Evelyn went on to describe the results of the modelling runs thus far.

### *Discussion*

Were electric buses considered?

Yes

How much have you assumed energy efficiency?

This run includes current regional efficiency trends.

Have you modeled reliability needs of future tech?

Yes, but only in the sense that the model requires a certain amount of supply provided by dispatchable sources.

Does the model include possible rise in cost of technology due to limited resources?

No.

Dane Co. might be a bit of an outlier.

### Policy runs

The model looked at nine policies proposed by the working groups:

- Reduction of vehicle miles traveled (VMT)
- Promotion of electric vehicles
- Conversion of heavy vehicles to renewable natural gas (RNG)
- One third solar energy goal
- Purchasing wind energy to meet half of the load by 2030
- Decreasing per capita water demand
- Reducing energy use by 2% overall
- Promoting higher efficiency in commercial buildings
- Converting half of the oil and propane heat systems to heat pumps.

Evelyn described the results of the most relevant of the 160 modelling runs that were performed incorporating the above policies. The results show the combination of policies would see a 50% reduction in emissions, below 2010 levels, by 2030. She also explained how to use the web-based interactive scenario tool.

Keith:

- The modelling runs presented at December Council meeting showed about half of the agricultural emissions are nitrous oxide, released from soil with row cropping, fertilizer. Will look at this more in future.
- October meeting, talked about using IPCC report as benchmark for policy runs.
- Beyond 2030? Asked working group chairs for scenarios and will do more modeling runs.

## *Discussion*

If we are going to create all this methane, why not use it for local heat, etc..

Transportation is where RNG is most cost effective right now. Not sure if a market will develop for using RNG for heat. There are no specific proposals for heat pumps offsetting natural gas.

Only commercial buildings modeled?

Both residential and commercial were included. We could have a voluntary program for home builders.

Where did the 2% savings come from for efficiency?

Looked at what the best performing programs were able to achieve.

What if there was an increase in EV costs? - would fit the worst case baseline

Possibility of modeling all the county RNG being used for vehicles and heating?

Worth looking at what the total production of RNG would be and the scenario of the RNG being used only locally. Biogas today is removing a lot more carbon than are electric vehicles with our current electric grid.

Right now the landfill produces more than needed to fuel all heavy vehicles in the county if converted, with plenty to sell into pipeline. With Ag biodigesters, we will have more bio methane.

We can be strategic, plan for district heating development.

The three Ag proposals are very synergistic. Could lead to changes in farming practices. More opportunity for more benefits.

We eventually have to eliminate combustion.

Climate Action Plan (CAP), Keith Reopelle

CAP outline

- Introduction, climate science, framework
- Principles
- Goals and modeling, working group areas
- Cross sector solutions.
- Global leaders, public engagement, implementation.
- Stories throughout.
- Will include a section on solid waste.

There will be a draft in the next two weeks. But if there are any good recommendations suggested, they will be considered right up to printing of the final report.

Also taking a close look at green infrastructure, groundwater research modeling and technology, and Dane County Clean Energy Districts as additional recommendations.

Over the next six months

- Identify local climate stories.
- Do public outreach.
- Bring an equity and justice lens to implementation.
- Steps towards implementation of Climate Action Plan.
- Prepare for the launch the plan (sign up, post, share, commit).

Governor's budget includes the goal to be carbon free by 2050, strengthening the Focus on Energy program, money for efficiency and electric vehicle charging, and establishes a State Office of Sustainability and Clean Energy.

#### *Discussion*

Will there be a section in the plan for financing option?

There is a finance working group, which has developed very specific recommendations.

Add grant opportunities to website

Will outreach plan includes engaging municipalities that haven't been participating with DC4?

Yes.

*Meeting adjourned at 4 pm.*