

Monthly Public Meeting Notes

Accelerating the transition away from fossil fuels as we collaborate, cooperate and coordinate with climate crisis fighters in and around Santa Fe

Date: January 9, 2021

Place: via Zoom

Attendees: Robert Cordingley, facilitator; Paul Biderman, facilitator; Christopher Mann, Cris Moore, Cynthia Mitchell, Gary Payton, Greg Sonnenfeld, Hallie Love, Jim Eagle, John Geissman, KC Nelson, Kevin Malloy, Leslie Lakind, Maria Spray, Mark Bourke, Barbara Sinha

Current Business

Welcome and introduction

The meeting began at 10:00 am.

Team Progress Reports

Jim Eagle, **Climate Action Simulations Team** lead, gave a description of C-ROADS and En-ROADS. He explained that the simulations can be done either by one person or with many people taking on the role of negotiators for different countries. A training program is provided by developers Climate Interactive.

Robert Cordingley is the lead for the **Communications Team**. He gave the following updates:

- 1) Weekly News Digest ~ The last issue of 2020 hit a new high for opens.
- 2) Quarterly Newsletter ~ People who want to submit an article for the next Quarterly Newsletter should give it to Robert by the last week of January.
- 3) Reed Eckhardt does most of the Weekly News Digest; Stephen Schmidt helps send out the monthly meeting announcement.

Paul Biderman and Christopher Mann are co-leads of the **Legislative Action Team**. Paul said pre-filed bills are starting to come in concerning climate. The state legislature is expected to be receptive to dealing with climate change. We could use more people on this team. Examples of issues the team will be tracking include Community Solar, the Green Amendment, Climate Resilience and Security, Just Transition, Sustainable Economy Taskforce, ETA Amendments, and a Moratorium on Fracking. Dr. Moore asked whether there will be legislation about New Mexico joining a Regional Transmission Organization.

Members responded by mentioning recommendations expected from the Grid Modernization Advisory Group and the Renewable Energy Transmission Authority.

What's Happening at Citizens' Climate Lobby

Paul gave a short history of Citizens' Climate Lobby (CCL). This organization advocates for national carbon fee and dividend legislation. This approach to carbon pricing is simpler to administer than cap and trade. Members of CCL are encouraged to lobby their U.S. Senators and Representatives. The goal of CCL is to be bi-partisan.

Invited Talk

The Energy Transition in New Mexico

Speaker: **Cris Moore**

Speaker note: Cristopher Moore received his B.A. in Physics, Mathematics, and Integrated Science from Northwestern University and his Ph.D. in Physics from Cornell. From 2000 to 2012 he was a professor at the University of New Mexico, with joint appointments in Computer Science and Physics. Since 2012, Moore has been a resident Professor at the Santa Fe Institute. He served as a City Councilor in Santa Fe from 1994 – 2002.

Introduction: New Mexico has made important commitments to transition its economy away from fossil fuels and toward carbon-free energy sources. Many cost-effective and carbon-free technologies are available to approach these goals, but deploying them will require focused effort. The transition to a carbon-free, efficient energy system also presents new opportunities for innovation, job creation, and equitable economic growth.

In response to these challenges and opportunities, on February 26-28, 2020 an interdisciplinary group of local, national, and international experts met at the Santa Fe Institute to discuss strategies for the deep decarbonization of New Mexico's economy. Their report draws on discussion from the workshop and subsequent conversations with several New Mexico stakeholders. It focuses on areas of innovation that are well-suited for New Mexico and its communities.

Presentations based on the report were given to the Interim Water and Natural Resources Committee and to the Public Regulation Commission. The full report is available at the Santa Fe Institute website [here](#). **Dr. Moore discussed the following primary insights** from the report:

1. Job creation and economic recovery: New Mexico could try to attract companies that want to use green energy. The term for this is 'greenshoring.'
2. Decarbonization across the state's economy sets up the potential to exploit cross-sector synergies: Decarbonization offers not only the possibility of developing

solar power, wind power and battery storage but would create opportunities for pumped hydropower and hydrogen-powered energy generation. Changes in the power grid and changes in other sectors interact with one another. We will need more electricity to decarbonize heating and cooling of buildings and for transportation. Addressing land use issues and providing broadband can lead to a greater need for (renewable) energy.

3. Embracing innovation to ensure grid stability while relying on variable sources of renewable power: Use a combination of energy storage, fast-response management of flexible demand, power electronics and better regional interconnections.
4. Regional coordination: A report by the Renewable Energy Transmission Authority pointed out the magnitude of wind potential in New Mexico and the potential to export energy to western states when the infrastructure is built. Regional Transmission Organizations have been shown to reduce costs. Depending on the state, the impetus for regional coordination may come from a utility, legislation or the equivalent of the Public Regulation Commission. PNM has already taken a step in this direction.
5. Supporting electrification of more energy services: Real time demand response can take advantage of increased use of electric water heaters and electric cars.
6. Innovation to achieve soft cost reduction: Soft costs include items such as design, permitting, installation, inspection and interconnection. Allowing distributed generation and storage of energy could encourage both innovative technology and building up a skilled workforce. Although large scale generation by investor-owned utilities is more economical than small scale generation, the latter has the advantage of making renewable energy more visible to people in their own communities.
7. Anticipate technological change in regulation.

Dr. Moore requested feedback on whether they are asking the right questions.

Q & A section

- Greg: In residential areas, what is the ratio of renewable to fossil fuel you need to break even for a good greenhouse gas emission effect? Answer ~ We have not done that study but we should. I believe electric vehicles are already a win. Kit Carson Cooperative has propane, electricity and broadband so it is easier to shift the financial benefits/losses within the company.
- Christopher: What are the cons of renewable energy? I have concern about New Mexico being a sacrifice zone for wind and solar farms. Answer ~ On one level there is the scenic aspect. There should be parks where views are preserved. On another level there is a cost to shifting to a carbon-free economy but there is also profit to that shift. Let Pueblos and tribes consider seeing that shift as an opportunity for economic development. It is not an obligation; it can be presented as an option. On another level, it is kind of cool that electrons move.
- John: I am a nearly retired geoscientist and my question is where are all the raw materials going to come from? Copper alone would be huge. Where will solar

panels be manufactured? Parts of the developing world are ramping up their use of coal. It needs a global perspective. And we haven't even talked about water or food. Answer ~ Both labor and toxic materials are an issue for renewables. Making the solar panels will never be a small-scale local project. It needs large scale processes and clean rooms. The life-time costs should include the issues John raised but need to be addressed by social mechanisms.

- Mark: If the goal was maximum bang for the buck in the next decade, what would you put your shoulder to the wheel for? Answer: ~ Cutting down methane emissions from oil and gas production. We also need to electrify the transportation sector but that's hard for a poor state like New Mexico.
- Mark: Do you have an opinion about carbon sequestration for coal plants? Answer: ~ The San Juan Generating Station had a cost of \$45 per megawatt hour; solar is now \$40 or less per megawatt hour. If you take an existing coal station and add sequestration, which reduces efficiency, my opinion is that the cost will not decrease.
- John: I spent time studying ancient climate. The rate of carbon emissions now is an order of magnitude greater than then. That shows we are in a climate crisis. Answer: ~ That reminds me of a cartoon. Robert added the cartoon is on the 350 Santa Fe website as a timeline illustration within the "Learn Deeply" tab.
- Robert: The potential contribution of innovation and partnerships between government and private companies is still missing. We need strategic planning. Answer: ~ The Grid Modernization Workshop and the Renewable Energy Transmission Authority study made steps in that direction. It is not clear to me what happens next. It seems like the Economic Development Department is not on top of that type of opportunity. I strongly support the economic justice movement part of the environment movement. I also believe in science and engineering. These can be different cultures with different desires. There is a need to build bridges between the two.
- John: There is a huge literature out there on the matter of the "Anthropocene" and what it means and represents. The geoscience community argues about whether this should be a formal time unit, but, regardless, the Anthropocene is VERY real. I can provide many, many references if interested.....again, thanks for listening to me!

Next meeting

The next monthly public meeting will be Saturday, February 13th, 2021, starting at 10:00 am.

Meeting ended at 12:00 pm

Notes taken by Barbara Sinha