

Monthly Public Meeting

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

Date: August 8, 2020

Place: via Zoom

Attendees: Robert Cordingley, facilitator; Paul Biderman, facilitator; Julia Ying, Greg Sonnenfeld, Gary Payton, Karen Nelson, Barbara Feller-Roth, Jim Eagle, Maj-Britt Eagle, Jean Darling, D. Reed Eckhardt, Stephen Schmidt, Mark Bourke, James Bradbury, Hallie Love, Adam Wasserman, Theodora Todd, Gerald Lutzker, Barbara Sinha

Current Business

Welcome and introduction

The meeting began at 10:00 am. Robert suggested people look over the calendar on the 350 Santa Fe website for upcoming events.

Team Progress Reports

Paul Biderman and Christopher Moore are co-leads of the **Legislative Action Team**. Paul said the team is investigating or working the following issues:

- 1) Community solar
- 2) Environment amendment to the state constitution
- 3) State equivalent of the National Environmental Policy Act
- 4) Electric vehicles – tax incentives to buy
- 5) Electric vehicles – setting up corridors and developing interstate cooperation
- 6) Grid modernization – export electricity generated from sustainable sources
- 7) Healthy soils and regenerative agriculture
- 8) Carbon pricing
- 9) State methane emissions rules – draft rules from two state agencies are in public comment stage; support a change to include more wells

Greg Sonnenfeld, team lead for the **Climate TRAC team**, gave updates on the team's projects:

- Regenerative farming project ~ This has taken off as a collaborative effort with Xtinction Rebellion, the NM Healthy Soil Working Group and many interested individuals. Project participants are discussing the establishment of foodsheds, the possibility of incorporating regenerative agriculture credits into a gas tax bill and creation of urban mini-forests.

- State electricity transmission ~ According to a study done by the New Mexico Renewable Energy Transmission Authority, New Mexico has excellent solar and wind resources for generation of electricity and could generate much revenue by selling it, but transmission lines need to be built.
- New Mexico Climate Science and Engineering Technology Partnership ~ Robert is trying to get in touch with the New Mexico Consortium to understand what they are already doing.

The **Positive Public Education Team** is led by Adam Wasserman. He is making arrangements for a person to speak about the proposed methane emission rules at our September general meeting.

Robert is the lead for the **Communications Team**. He said there has been progress on three projects:

- 1) Weekly News Digest ~ Five issues have now been distributed
- 2) Quarterly Newsletter ~ The first issue has been distributed; it contained articles by Robert and Paul, Adam, Chris and Jim; the newsletter was also distributed to people on the 350 New Mexico email list who have zip codes in the Santa Fe area, along with an invitation to join 350 Santa Fe; this latter distribution went to 360 people, of whom ten so far have accepted the invitation to subscribe.
- 3) Social media ~ Needs a policy and strategy; volunteers are welcome

Paul's update on the **Carbon Pricing Team** confirmed that there will probably be an effort to have a carbon pricing bill introduced in the 2021 state legislative session, with improvements made to the 2020 version.

Invited Talk

The En-ROADS Global Climate Simulation

Speaker: **Dr. James Eagle**

Speaker note: Dr. James (Jim) Eagle is a Professor Emeritus of Operations Research at the Naval Postgraduate School, Monterey, CA. His primary areas of research have been the military applications of operations research, especially in search and detection theory, applied probability, and military modeling. Dr. Eagle served as an officer in the U.S. Navy submarine force, retiring from the U.S. Naval Reserve as a captain in 1994. Under a Navy scholarship, he received his Ph.D. from Stanford University in Engineering-Economic Systems. At the Naval Postgraduate School, he has served as chairman of the Undersea Warfare Academic Group, chairman of the Systems Engineering Analysis Curriculum, chairman of the Department of Operations Research, and associate dean of faculty.

His main hobbies are amateur astronomy and t'ai chi. He is currently active with the Santa Fe Star Gazers (a local group of amateur astronomers) and teaches t'ai chi at the

Unitarian Universalist Congregation of Santa Fe. He is a founding member of 350santafe.org.

Dr. Eagle used the screen sharing feature of Zoom to give a slideshow explaining the Energy-Rapid Overview and Decision-Support (En-ROADS) simulator. En-ROADS is an open-source, technically rigorous, well-documented and easy-to-use global climate simulation. It simulates global climate responses to energy policies such as establishing a carbon price, incentivizing solar installations, reducing methane emissions, planting trees or increasing the use of bioenergy.

Dr. Eagle recommended people interested in learning more about En-ROADS do the following:

- Watch the video of Andrew Jones giving an overview of the simulation at <https://www.youtube.com/watch?v=2XagC8pAOVg&feature=youtu.be>
- Try out the simulation available at <https://en-roads.climateinteractive.org/scenario.html>

After people have tried out the simulator, they are encouraged to share what they experienced on social media.

Dr. Eagle showed the main page of En-ROADs and described the two main graphs, some terminology and the 18 levers on the bottom portion of the page. He pointed out that on this page the levers can be adjusted in a non-quantitative way toward more or less of each parameter. However, the three vertical dots are the pathway to more specifics and for quantitative input.

Dr. Eagle went through demos of things that could be adjusted and how those variables would then affect the rise in global temperature by the year 2100, with a goal of 2° C or less. For example, even if all use of fossil fuels (oil, gas and coal) was eliminated by 2030, the temperature rise by 2100 would still be much more than 2°C. He gave another demo illustrating what a dramatic effect reducing methane and other bad gases would have on temperature. One of the main lessons that can be drawn from En-ROADS simulations is that there are many ways to influence carbon dioxide going into the atmosphere and being removed from the atmosphere; we will need a variety of approaches that together could produce the desired effect by 2100 and even beyond.

Q & A section

- Rebert: What is the confidence level in this model versus other models? Answer ~ There are models with more variables and more precision than this model, that En-ROADS has been validated against. A lot of effort has been put into its

development to match these more rigorous models. The tool is useful to understand interactions.

- Paul: People will want to know what this means for their own life. They will need some conversions into units consumers understand, such as dollar amount a tankful of gas would increase. Answer ~ Dr. Eagle agrees, says certainly for carbon pricing there are numerous resources to consult.
- Gary: This week the Construction Industries Division voted to update to 2018 building standards. That is equivalent to sliding one of the (levers). Can you see any way a mayor or governor can use this simulator to assist them in developing policy at the more local level? Answer ~ Everything is mixed or averaged because it is a global model. That means it is a simplification. C-ROADS was designed to be used to simulate changes a country could make but it would be challenging to apply it to the state level. Adam points out En-ROADS is actually good because the climate crisis is global and the model drives home that point.
- Mark: What assumptions are buried in the model about quality of life in second and third world countries? They are not currently contributing much to CO₂ emissions but is the assumption those countries would eventually become more like first-world countries? Answer ~ There was a book published in the 1970s called Limits to Growth written by three people. One of the authors was Donella Meadows, who then mentored Andrew Jones, one of the En-ROADS designers. The creators of En-ROADS are very aware of the consequences of policy decisions. Adam adds that facilitators who are guiding use of the simulation in a group setting would have participants discuss real-life consequences as they use the simulator.

Next meeting

The next meeting will be Saturday, September 12th.

Meeting ended at 11:45 am

Notes taken by Barbara Sinha