

PG&E weather modification plan raises concerns



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Concerned citizens held a rally in front of Mount Shasta City Hall last week about the PG&E plan to seed clouds in the area.

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By Charlie Unkefer
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Siskiyou County, Calif. -

On October 22, utility giant Pacific Gas and Electric posted a "Notice Of Intention" in the Mt. Shasta Area Newspapers outlining their plan to conduct a five-year "weather modification" program in southern Siskiyou County.

Many wondered, "Wait a second... Our weather is going to be controlled by PG&E?"

According to the notice, the answer is yes, at least partly. For some Siskiyou County residents, this is an unsettling thought, and many are demanding more information.

The program, called the "Pit-McCloud Cloud Seeding – Ground Water Enhancement Project," is one of several projects of its kind throughout California. It is slated to begin on November 15 of this year and will involve "cloud seeding" over a target area "east of McCloud town, north of Burney town, south of Medicine Lake and bounded on the east by the White Horse and Big Valley mountains," according to the NOI. The goal of the program, states PG&E, is to increase precipitation in the McCloud and Pit River watersheds in order to promote and protect the production of hydroelectric power.

Though the notice further states that "no adverse environment impacts will occur" and that "PG&E cloud seeding programs comply with all regulations," many residents have expressed their concern over the program and want more information, including a group of citizens who held a rally in front of Mt. Shasta City Hall on October 28.

Among those participating in the rally was Mount Shasta resident Robin Houghten, who had many questions that he feels have not been adequately addressed. Speaking bluntly, Houghten stated, "I have concerns about the implications of launching chemicals in the environment."

He further expressed his dismay about the program, referencing other concerns such as the short notice given by the utility company and questions over whether there have been sufficient studies done on cloud seeding. He also speculated on the overall wisdom of attempting to alter natural cycles. "I think we're already seeing evidence that (interfering with nature) doesn't always work."

Cloud seeding history

Though relatively unknown, the history of cloud seeding in California can be traced back to California Electric Power's 1948 project on Bishop Creek in the Owens River Valley. Since then, it has been practiced continuously in the state, primarily in the Sierras but also in the San Gabriel Mountains and in Santa Barbara County. PG&E has operated its own programs in Lake Almanor and in the Upper Mokelumne reservoir, which date back to the early 1950s, as well.

According to the "California Water Plan Update 2009 Pre-Administrative Draft," a document compiled by the California Department of Water Resources, the agency entrusted with the oversight of weather modification programs, "Cloud seeding artificially stimulates clouds to produce more rainfall or snowfall than they would naturally." It is a process that involves "injecting" silver iodide aerosol (AgI) into already existing clouds where the substance mixes with moisture and promotes the growth of additional ice crystals. It is, in a sense, a way of "wringing out" more water from clouds. Weather modification programs have also been designed for hail suppression and fog dispersal, according to the report.

With China's recent acknowledgment that it conducted extensive weather modification programs in preparation for the recent Beijing Olympics, the concept is slowly leaking into the public consciousness. Critics, however, hold fast to the idea that "playing God" has its unforeseen consequences and that messing with the environment only continues to disrupt nature's delicate balance.

Though seeding is sometimes done using aircraft, the Pit-McCloud project is a ground-based program, which utilizes seeding generators (metal towers) to launch the material. The towers, currently in place on Sierra Pacific land, are located on higher ground to incorporate the natural uplifting that occurs during winter storms.

Plan has been reviewed

In a recent phone interview, Byron Marler, PG&E supervisor and managing meteorologist for the project, expressed his regret that the issue appeared to surface so suddenly and asserted that PG&E has gone through all of the proper legal and environmental channels. Marler outlined the history of this particular program, noting that, "We weren't being quiet in 2005," referring to when PG&E first brought their attention to Siskiyou County officials.

In his attempt to inform the public and assuage mounting concerns, Marler noted reports supporting the minimal environmental impacts of cloud seeding and emphasized that it has been done in many other areas in California and has gone through several Environmental Impact Review processes. In every case, says Marler, it has received a "negative declaration," meaning that no substantial negative environmental impacts were found. Among the studies referenced by PGE are Harris 1981, PGE 1995, and Snowy Hydro 2003, as well as research done by the US Bureau of Reclamation in 1977 and 1981.

California DWR's "California Water Plan Update 2009" draft also notes that "Silver iodide concentrations measured in snow, water, soils, and lake sediments are far below thresholds of concern for humans, animals, fish, insects and plants and are not anticipated to affect endangered or threatened species or plant or wildlife or their habitats." The document points out, too, that "the emission rates of primary pollutants for the seeding generator chimneys resulted in no significant impacts."

Though most were surprised by PG&E's announcement, the plan had been reviewed by county and agency officials on at least two occasions prior to its release.

Steve Bachmann, a hydrologist with the McCloud Ranger District, and Curtis Knight of California Trout both recalled a presentation given by PG&E at a McCloud River Conservation Resource Management Plan meeting held in July, 2005. Knight noted that the program was introduced as something that was slated to happen and the tone of the presentation was more informational than anything else. Knight also said that he could

understand why PGE would be interested in enhancing precipitation in the region, noting that the extra water would be adding to three reservoirs and three runs of the river hydroelectric projects that exist in the target watersheds.

"From their perspective, it is a cheap way to produce more power," Knight said. He added that he had concerns over the impact of such a project.

Not much was heard about the program until six months later, on January 6, 2006, when PG&E made an informational presentation to County Supervisor Jim Cook and Assistant County Planner Patricia Bluman. In that meeting, PG&E presented their McCloud-Pit plan, providing general information about cloud seeding, its history, and its implications.

Because the launching towers are located on private land, it appears that a full California Environmental Quality Act review process is not required unless the home county wishes to pursue the matter. After reviewing the proposal with the Siskiyou County Air Quality and Pollution Control Board and the Northern California Regional Water Quality Control Board, the county decided that it was satisfied with the previous Environmental Impact Reviews that had been conducted for similar programs in other counties.

Supervisor said 'it looked reasonably benign'

Supervisor Cook noted in a February 6, 2006 e-mail in reference to the project that, "It looks like it doesn't require the CEQA process unless we want to require it and I don't get that sense from staff so I guess I have not [spelling error] questions or comments."

In a recent conversation Cook notes that the county made its best effort to review PG&E's proposal and that determining the process for weather modification programs proved challenging for the county. "On that particular one, we were trying to figure out whether we had any jurisdiction at all," noted Cook. He added, however, that although he had some questions about the process and its implications, "It looked reasonably benign," and he was satisfied with the "negative declarations" that previously filed EIRs had received. Since PG&E released its plan, Siskiyou County Natural Resource Specialist Ric Costales has been scrambling to find out more about the program and to respond to the barrage of calls he has recently received. He made it clear that the County felt justified in its decisions and willingly provided documentation tracing the decision making process that occurred. He noted, in particular, that "CEQA (review processes) are expensive and time consuming," and that "...a lot of the permitting stuff is over the top."

PG&E representative Marler emphasized his regret that the public was not informed in a more timely manner. "We did not involve the public and that was probably an oversight on our behalf," he said. However, he insisted that the program is safe and that the available science supports this fact. He said that it is projected to add an additional 200,000 to 300,000 acre-feet of water per year, a 5 to 10 percent increase in run-off in the target drainages. At an estimated \$20 per-acre foot cost to PG&E, it is deemed a cost effective way generating more power.

Marler noted that such programs help keep electric rates down for Californians and help ensure power in times of drought and "off peak" production. Though some of the precipitation is harnessed directly as run-off, a significant goal of the project is intended to add extra water to the aquifers that substantially contribute to the watershed. According to PG&E, "Northern California's flood basalts, with their large aquifers and springs, are a significant daily delivered source of hydroelectric power for PG&E."

No rigorous studies have been done

Though there is data to support the fact that the impacts of weather modification programs are safe and effective, there is also evidence to the contrary. The "California Water Plan Update Draft 2009" itself notes, "No complete and rigorous comprehensive study has been made of all California Precipitation Projects."

Other research, such as a report filed by the Office of Environmental Health and Safety at UC Berkley, rate silver iodide as a "class C non-soluble, inorganic, hazardous chemical that pollutes water and soil, and one of the key manufacturers of silver iodide, Deepwater Chemicals, warns of potential health effects of silver iodide in their Material Safety Data Sheet. The Federal Clean Water Act, regulated by the EPA, notes that "silver iodide is considered a hazardous substance, a priority pollutant, and as a toxic pollutant."

Other concerns are over the effectiveness of the programs to create the stated amount of moisture, with some critics claiming that cloud seeding can contribute to drought and in other cases flooding.

Though the Mt. Shasta citizenry is continuing to research the issue and make calls to county officials and PG&E, many questions remain. Among those still seeking answers is Ra-el Corsini, owner of the Flying Lotus Dance Studio, who also participated in the Mt. Shasta Rally with her children Shasta and Ellen and other students who are part of the "hummingbird" dance class. For the art portion of the class, according to Corsini, the group decided it would stage a rally to help raise awareness around the issue, which the students had learned about the day before.

Alarmed by the implications of "weather modification" and silver iodide in the air, the group, which consisted of both adults and kids, displayed banners, one of which said, "We love clean air and water." They sang songs, and passed out flyers that had a copy of PG&E's notice on one side and a list of questions compiled by the community on the other. Some of the questions posed were: What are the ingredients of the spray besides just silver iodide? What happens when the material is vaporized? What about our human rights to clean air and pure water?

Corsini noted that as a parent, she is open with her children and sees them as an important part of the

community. It was apparent to her that her children were concerned about the issue and wanted to express that concern. "My children have been raised with awareness about how chemicals can affect us," she said. The PG&E announcement, among other things, prompted her daughters Shasta and Ellen to write a letter to supervisor Marler.

McCloud Ranger District hydrologist Steve Bachmann noted that there is a "strong precedent" established by the previous "negative declarations" received by similar projects but noted that "there are indirect effects as well as direct effects (to these programs)." Though Bachmann professed little background knowledge on the seeding process, he did say that "In general, I don't think these programs have been studied enough. People need to be educated (about this technology), including myself."

This sentiment was parroted by Rene Henery, Research Director for the Upper Sacramento River Exchange and University of Nevada's Castle Lake Research project, who referred to the "reservoir in the sky" and emphasized that disrupting the complexities of the hydrological cycle could have its unintended consequences. Though PG&E asserts there are no negative impacts to other areas (what they call "downwind effects"), that assertion remains questionable for many.

Five to 10 percent more rain

Locals can expect to see a slight increase in precipitations, estimated to be around 5 to 10 percent. Cloud seeding, emphasized Marler, will not make more clouds. They would be seeding some storms, but not all storms, and they would not seed storms if winds came out of the east. He emphasized too that the seeding would occur during the winter months between November and May. "We are making snow, not rain."

With increasing concerns about climate change, aquifer depletion, and the possible implications of "bio-engineering" programs, many area residents are expressing their concerns and demanding answers.

Hydrologist Bachmann notes that "10 years ago, this would have gone unnoticed."

A group of concerned citizens is meeting at the Flying Lotus Dance Studio on Wednesday Nov. 5 to discuss the issue. The meeting is open to the public and scheduled to start at 7:30 p.m.

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