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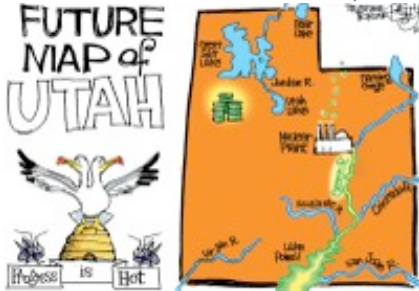
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Water fallout

Utah's first nuclear plant won't float without water rights

News - From the March 01, 2010 issue of High Country News by Rachel Waldholz



The former uranium boomtown of Green River sits along I-70 in eastern Utah, 100 miles from the closest city. Now it may become the Western outpost of America's nascent nuclear renaissance. Blue Castle Holdings, a 3-year-old, politically connected startup, wants to build a nuclear power plant here -- Utah's first, and the first in the West since 1987.

Nuclear power has recently gained cachet -- and the backing of the Obama administration -- for its potential to help avert climate change. Nuclear generation emits a fraction of the greenhouse gases of coal or natural gas generation, and provides a steadier energy supply, at a larger scale, than solar or wind arrays. In January, President Obama made nuclear power the center of his "clean energy" agenda in his State of the Union speech. Two days later, he announced a commission to study nuclear waste solutions, and proposed tripling federal loan guarantees for new plants to \$54 billion.

The Green River proposal has sparked intense skepticism. Critics ask where the funding will come from, where the electricity will go, and, of course, what will happen to the waste. But the first hurdle is more immediate. In the Utah desert, this possible climate change solution is colliding with one of its projected consequences: water scarcity.

Blue Castle needs some 50,000 acre-feet annually -- enough water to supply up to 100,000 homes -- to cool the reactors of its proposed 3,000 megawatt plant, which would produce enough electricity to power nearly 3 million households.

In 2007, the company struck a deal to lease 53,600 acre-feet from Utah's San Juan and Kane counties, which are about 150 miles south of the proposed reactor site. Blue Castle has applied to move the counties' diversion points upstream, onto the Green River, from their current locations on the San Juan River and Lake Powell. Aaron Tilton, Blue Castle's CEO and a former Utah state legislator, believes the Green, the Colorado's major tributary, has enough water for the project; in an average year, he says, the plant would lower the river by less than 2 inches.

But the plan has drawn protests from local farm, health and recreation interests, environmental groups, the U.S. Fish and Wildlife Service and the Bureau of Reclamation.

"Our main concern is that the water really isn't there," says John Weisheit, conservation director of the nonprofit Living Rivers, in Moab. A 2009 study by the National Oceanic and Atmospheric Administration cites estimates that over the next 50 years, the Colorado River system could lose between 6 and 20 percent of its total volume to climate change-induced drought. Fish and Wildlife, BuRec and the Utah Division of Water Resources want the state engineer to wait for the results of several studies on future water levels in the Green River and across the Colorado Basin before allocating any more rights.

If more water is taken from the river, the agencies may not be able to keep stream flow high enough to protect several species of rare and endangered fish, says Wayne Pullan of BuRec's Provo office.

And if the Green River drops, Blue Castle would have early rights to what remains: While San Juan's rights are junior (2001), Kane County has 1964 rights to 29,600 acre-feet. That places it ahead of many rights holders, including the BuRec's Central Utah Project, which supplies water to much of the Wasatch Front. Pullan says that in a drought, calls from such senior rights could short the project's users -- including Salt Lake City.

This is part of a much larger tangle. If Utah develops just 360,000 more acre-feet of Colorado Basin water, it will hit its limit (1.4 million acre-feet) under the Colorado River Compact. But it has handed out paper rights to an additional 1.1 million acre-feet. All those rights holders, like Kane County, still have the right to develop. But Utah will have no excess water to supply them, and so water will be rationed by priority date across the state. In that context, Blue Castle's request is nothing to sniff at -- it's a seventh of the water Utah has left.

At times, the Blue Castle proposal looks like a water right in search of a project. Kane County has five more years to prove it is putting its water rights to "beneficial use," or risk forfeiting them, according to Mike Noel, executive director of the Kane County Water Conservancy District. By leasing the water to Blue Castle, the county hopes to meet its deadline — and earn \$1 million a year once the reactors are constructed. (San Juan County would earn \$800,000 annually.) Noel, a Utah state representative (R-Kanab), is the project's unofficial godfather. He was hunting for a use for Kane County's water while serving on the same committee with then-Rep. Tilton. A prominent nuclear booster (and vocal climate change skeptic), Noel introduced Tilton to Tom Retson, a North Carolina-based nuclear consultant. Retson and Tilton formed Blue Castle Holdings in early 2007. (Noel says he has "zero" personal financial interest in the project.)

Despite the water wrangling, many of Green River's 1,000 residents welcome the proposal. The town depends on agriculture and tourism, and neither pays the bills, says Mike McCandless, economic development director for Emery County. A nuclear plant would provide a solid tax base, and its construction would employ up to 4,000 people, with 750 to 850 full-time once it began operating. After decades of the nuclear industry taking advantage of the state, McCandless says, this is a chance for Utahns to benefit.

Even if Blue Castle does get its water rights, though, it's unclear whether the project will ever materialize. Nuclear power plants require immense up-front funding: at least \$100 million for the Nuclear Regulatory Commission's application process, which could take five to seven years or longer. Estimates for the cost of building the reactors range between \$7 and \$15 billion.

And there is the never-ending question of what to do with the high-level nuclear waste -- especially since the Obama administration has essentially pulled the plug on the Yucca Mountain repository.

But all of that comes later. "First, you've got to have water," says Tilton. "If you don't have water, you don't have a project."

Rachel Waldholz is an HCN intern.

This story was funded by a grant from the David and Lucile Packard Foundation.

For more information, see:

Uranium Watch's page on the Green River proposal

Blue Castle Holdings

Nuclear Regulatory Commission primer on nuclear energy

Add Comment

nuclear reactor in greenriver

Word of warning. Nuclear Reactors meltdown. There is a danger of the "loss of coolant accident", like Three Mile Island. The nuclear industry said back in 1970 it could not happen...it did. GreenRiver is really a beautiful spot, I swung on the rope of Creadance Fame, but you know, with the constant wind you got there, wind energy may be a better way to go. Word of Warning...these things blow up.

Better way to go, try solar energy.

Reply

Misleading Anti-Nuclear Article

Yes, a nuclear power plant needs water for cooling, but the water is not used up. It gains a few degrees of heat and that is it. This water can be used for any other purpose the community wants. It does not disappear.

As to nuclear power plants blowing up, impossible.

Nuclear power is cheap and green. Plus it adds to the energy independence of America. Instead of allowing more coal plants to be built that spew out mercury and radioactive materials, try a safe modern nuclear power plant instead.

Reply

Cooling Systems

Hi Davelv,

Blue Castle Holdings has said they plan to use a closed loop cooling system, which would cycle the water through the plant multiple times and then release it as steam, rather than a once-through cooling system (which I think you're referring to) which would return the heated water to the environment after one cycle. According to their current plans, the water wouldn't be released back into the river, and wouldn't be available for other uses.

Thanks for the comment,

Rachel Waldholz

Reply

Greenwashing Nuclear Energy

Energy, whether fossil or nuclear, has trumped all else long enough. We must keep nuclear power plants out of Utah. The grand plan probably involves mining uranium, milling the uranium into a useable product, producing nuclear energy, and, finally, storing the nuclear waste--all within the nearby region. We absolutely must keep the well financed utility and mining corporations from taking our public resources--water and minerals and others--at giveaway deals.

To put a greenwash over nuclear energy simply because it does not produce carbon emissions is absurd. What about the effects of mining? Just look at the Four Corners region and the toll that uranium mining has exacted on this landscape during the 1950s and 1970s. And this is before the uranium is processed (see tailing piles near Blanding, Monticello, Moab, and Green River) and energy is generated from power plants that consume and (likely) contaminate vast amounts of water. For Obama to paint nuclear energy as "clean energy" is deeply irresponsible. I'm really let down with my vote--not that I had much of a choice in the matter with McCain as the only alternative.

The corporate-governmental paradigm has prevailed long enough. And its utterly failed: rich are getting richer, poor are getting poorer, environments are becoming more and more degraded (if not hazardous), alternatives for centralized nuclear and fossil-fuel power are continually thwarted. Time for small plans, small solutions, small development. Time to decentralize the corporate-governmental power structures driving this insane energy agenda.

Never expect change to trickle down from the top.

Enough is enough! Ya Basta!

Reply

greenwashing...

Energy has trumped because it allows some pretty grand things in terms of human achievement. It is easy to cite the irresponsible mining practices of past generations as reasons to prohibit mining in the future - from your tipi - but you didn't. You typed your response on a keyboard made of petroleum industry plastics, and sent it through glass semiconductors and gold terminals using charged electrons, all of which were mined from the earth. As with most technologies, at the beginning our use of the technology is vastly inefficient. Today we can mine and process uranium with a fraction of the impact of the past. And today's nuclear power plant designs are smart enough that even Homer could safely operate them and are able to extend the usable energy of the fuel.

The real absurdity is thinking that we can go along with business as usual. The truth is nuclear energy is not business as usual and that is why Obama has to promote it as 'alternative.' The truth is the world is moving forward whether you like it or not. And you can sit back and complain how it's not going your way or you can get up and make a difference. And voting for a presidential candidate is not enough. You've got some great ideas, put that mind to use.

The real point of the article was that there are potential environmental impacts due to the plants planned use of Green River water. To drop the river 2" on a full time basis is undisputably huge (though I'd like to see the calculations to arrive at 2"). I have several times floated the section from Green River to Mineral Bottom and I'd hate to see its beauty compromised even if it meant fewer mosquitos. What's more, removing relatively fresh water from the upper Colorado only degrades the water quality downstream. Rachel, can you speak to this?

Reply

Next Generation Nuclear Power

Humanisto's comment about the safety of the next generation of nuclear power plants is not accurate. There are several proposed designs for new power plants, but none of them has passed scrutiny by the NRC. The GE design is in its 19th revision. The French reactor was sold to Finland before the design was completed. It is now twice the original projected cost, three years behind schedule and design problems still have not been resolved.

Nor is uranium mining as neat as you suggest. While there have been improvements due to environmental regulations, open pit mining is as rapacious as ever and poses a threat to underlying water tables. That is why Virginia, with the largest uranium lode in the east, has maintained a ban on the mining for 25 years -- through democratic and republican governors. nuclear power may have a place in the nation's energy mix. But the notion that it is clean, easy, established, and risk free is false.

Reply

Nukes

There is a compromise: maritime reactors. Subs and carriers use small reactors. These are a "production" item. They are safe. The fuel needs are quite different. I suggest "plugging" them in near the areas of use; bigger cities. Forget the monster plants. Too many issues. Change the scale and use "off the shelf" technology. Let's have a variety of sources for energy.

Reply

the water use is consumptive

A correction to a comment below: the water use is consumptive. In closed cycle cooling, 100% of the diverted water will be lost to evaporation. It cannot be used again, contrary to the suggestion below.

Reply



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