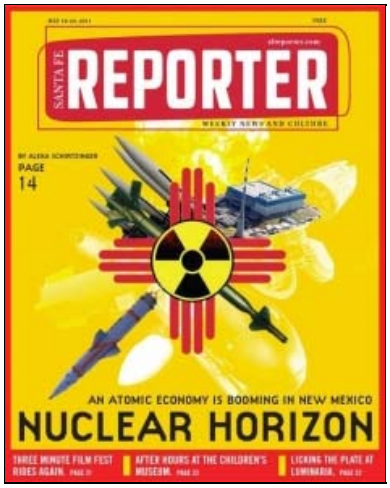
SANTA FE REPORTER
LOCAL NEWS AND CULTURE

Features 05.18.2011

Nuclear Horizon

An atomic economy is booming in New Mexico.



On April 27, Greg Mello--a tall, intense man whose natural state is vague dishevelment--was in court, watching his witness annihilate (at least in Mello's view) the US Department of Energy's case.

Mello is the Harvard-educated co-founder and executive director of the Los Alamos Study Group, a nuclear disarmament advocacy organization based in Albuquerque, but with a concerted focus on the activities of Los Alamos National Laboratory. Last year, LASG sued to stop the construction of the Chemistry and Metallurgy Research Replacement (CMRR) project, a new facility at LANL designed to process--and possibly produce--plutonium-based nuclear warheads.

On this particular Wednesday, Mello's lawyer had called Frank von Hippel, a nuclear physicist and Princeton professor, to testify against the facility--essentially a costly, heavily fortified nuclear warhead processing facility situated over a geologic fault zone (see sidebar: "Price Point").

In his prepared testimony, Von Hippel argued the need for new warheads "has vanished"; the earthquake hazard is now "much larger" than previously thought; the last full environmental assessment of the project--completed eight years ago--is insufficient for a project whose cost has swollen from $350 million to more than $3 billion.

All of this, Von Hippel says, amounts to a more fundamental question: Does New Mexico really need to be researching and building new nuclear weapons?

Mello doesn't think so--but says the political momentum isn't on his side.

"New Mexico is viewed as a place with a compliant government, where nuclear contractors can get federal money," Mello explains. "There's no private sector demand for most of this stuff, and a great deal of it could never be licensed or permitted."

Even so, the CMRR facility--along with its budget--has expanded virtually unheeded since it was first proposed in 1999.

"It's terrifying," Mello says. "It's frightening for New Mexico, both in itself and because of what it's not: renewable energy; investment in our housing and building stock, our infrastructure, our schools. A very tiny group of people have captured an outsize amount of attention from a political elite and are setting far too much of our agenda."

Within Santa Fe, Mello's view is relatively common. At the LASG meetings and study sessions he hosts in the basement of a local church, attendees are routinely knowledgeable to the point of expertise. And in addition to various environmental protection and renewable energy groups, Santa Fe also hosts two other nuclear disarmament organizations, Concerned Citizens for Nuclear Safety and Nuclear Watch of New Mexico.

Southern New Mexico, though, is a different story. There, lawmakers and academics extol the virtues not only of nuclear research and development, but they also court uranium processing plants and waste disposal facilities with gusto--and, in some cases, financial incentives.

In fact, the morning of Von Hippel's testimony, a collection of public officials, scientists and executives had gathered in a conference room in Hobbs, some 350 miles south of Santa Fe. They were discussing New Mexico's future as a focal point for the new nuclear age, in which economies rely increasingly on nuclear power and entire processing industries spring up around the "uranium fuel cycle," which begins with mining and ends with waste disposal. Every stage of that process can be monetized--and nearly every stage has commercial operations in New Mexico.

"The state currently has a stake in a lot of aspects of this cycle--the mining, the enrichment, the storage," Mat Lueras, vice president for corporate development at Uranium Resources Inc., a mining outfit that owns 183,000 acres of uranium mineral rights in New Mexico, tells SFR. Because of that, Lueras says, URI has "seen widespread local and state support from New Mexico politicians" for its efforts to restart uranium mining.

To Daniel Fine, a research associate at New Mexico Tech and at the Center for Energy Policy in Hobbs,
such enthusiasm is simply an acknowledgment of the inevitable.

"Nuclear energy, worldwide and in the United States, has a very strong future," Fine says. "Twenty percent of our electricity is nuclear. There's potential planning for 50 percent more."

Greg Mello of Los Alamos Study Group is challenging the lab's new plutonium facility.

In Fine's view, New Mexico's role in that future remains to be determined. But given what's already here, and the gradual buildup of a nuclear fuel cycle complex in the state's southeastern counties, a nuclear future may indeed be unavoidable. Take the beginning of the fuel cycle, for instance.

"New Mexico," Fine says, "is the Saudi Arabia of uranium."

Daniel Fine of New Mexico Tech predicts a bright future for nuclear energy.

New Mexico had its first exposure to the nuclear industry in 1943, with the founding of Los Alamos National Laboratory. Two years later, near Alamogordo, LANL scientists conducted the Trinity test with a prototype of the atomic bombs that, less than a month later, would raze Hiroshima and Nagasaki. Sandia National Laboratories, the Albuquerque lab charged with turning LANL's nuclear weapons concepts into deployable missiles, was founded in 1949.

While the labs were located near northern New Mexico's population centers, less populous areas of the state became nuclear hubs in their own right. In southern New Mexico, a huge swath of desert scrubland became the White Sands Proving Groundsnow the White Sands Missile Rangefor nuclear weapons testing. In far western New Mexico, on the outskirts of the Navajo Nation, uranium mines sprang up in the 1950s.

Since the US government promised to buy all mined uranium, it was good business, and northwest New Mexico's mining industry boomed for close to two decades with relatively little oversight. But in the 1970s, reports of elevated levels of radon, a radioactive element that can cause cancer, began to surfaceand so began what Fine calls "the sad chapter" of widespread radioactive contamination from New Mexico's uranium mines.

"[Uranium] mining, from the 1950s to the early 1970s, was very high risk, and the methods then did expose uranium miners to radioactivity," Fine says.

In 1979, conditions worsened considerably: A dam belonging to United Nuclear Corp. broke, spilling more than 1,000 tons of contaminated tailings into the Rio Puerco, a tributary of the Rio Grande. By 1990, the last of New Mexico's uranium mines had closed.

Enter URI, which since 1977 had been buying up old uranium mines. With a lengthy permitting process and a court challenge behind it, Lueras says URI plans to restart mining activity in New Mexico as soon as 2013.

According to Lueras, the nation--if not the world--demands it.

Even if the US doesn't expand its nuclear power profile--which consists of 104 operational reactors--only approximately 10 percent of US uranium needs are supplied domestically. A treaty that provides for additional enriched uranium from Russia is set to expire in 2013--meaning many companies, like URI, are banking on expanding domestic demand for both raw and enriched uranium.

"We can be a US producer, producing US uranium for use in US commercial reactors," Lueras says. "We see a strong market out there."

Demand is also growing as other nations--China, India, South Africa--build up their nuclear power portfolios.

"We have the largest supply of uranium in the country," Lueras says: more than 101 million pounds of proven uranium reserves, with potential for up to 600 million pounds in the Grants mineral belt alone.

At uranium's current price, approximately $56 per pound, that's $5.7 billion in potential income for URI--not to mention, Fine notes, royalties for the state.

"Very ironic that New Mexico is sitting on probably the ninth-largest deposit of uranium in the world--and the United States imports its uranium," Fine says. "If we are dependent on foreign oil, we are even more dependent on foreign uranium."

Still, to local residents, the market potential isn't worth the risk.

"They talk about jobs--BS!" former uranium miner Larry King says. King serves on the board of Eastern Navajo Diné Against Uranium Mining, an organization dedicated to stopping URI in its tracks (see sidebar, "Miner Issue").

After uranium is mined, it must be transported to a conversion facility, where it is transformed into a purified, liquid form. (The US has only one such facility, run by defense contractor Honeywell International in Metropolis, Ill.)

The converted uranium is then ship-ped to an enrichment facility--which is where URENCO, a multinational enrichment company, comes in.

URENCO's new enrichment plant in southern New Mexico, which began operations in June 2010, is the first such facility to be licensed in the US in 30 years.

URENCO Communications Manager Don Johnson says the delay in certifying new enrichment plants was likely due to the partial meltdown of a nuclear power plant at Three Mile Island in Pennsylvania in 1979.

"After Three Mile Island, I think there was a sense of concern that slowed things down," Johnson tells SFR. "A combination of things, including the cost of capital and some other issues, combined to present an environment that maybe wasn't as conducive to nuclear power as we feel like we have gotten to in the last few years."

Despite such risks, southeastern New Mexico is the poster child for the nuclear industry's new acceptance--a fact URENCO learned when, in 2002, it was searching for a place to build an enrichment facility in the US.

"URENCO was trying to locate first in Louisiana, and then in Tennessee, [and] they were meeting resistance in Tennessee," New Mexico state Sen. Carroll Leavell, R-Eddy, says. So Leavell contacted the company and suggested southeastern New Mexico--specifically, Eunice, a tiny town just 5 1/2 miles from the Texas border.

Compared to the push back the company experienced elsewhere, southern New Mexico was a breeze.

"It was amazing, the lack of resistance in New Mexico," Leavell says. "I'll never forget: Whenever we had the groundbreaking,

URENCO had anticipated an organized protest at the scene," he says. "They had considerable security. I was with the [president of the company] the night before, and he was very concerned about security, and I said, 'I don't think what you're expecting is going to happen.'"

When they arrived the next day at the site--"nothing but mesquite and sand" back then, Leavell says--they found some 200 people. Every single one of them was there to support the project.

"If there was any protesters that day," Leavell says, "they certainly did not make themselves known."

Johnson says URENCO makes a concerted effort to be a "good corporate citizen" by sending its employees out to volunteer in surrounding areas and by making "significant donations" in local communities.

For other companies, however, the reverse is true.

International Isotopes, a company currently building a plant near Hobbs to provide the fourth phase of the uranium fuel cycle, received incentives from southeast New Mexico governments to locate there.

"There [were] quite a few incentives put together in a financial package--tax incentives and the opportunity to participate in the local economic development act, where the state can transfer properties," International Isotopes (INIS) CEO Steve Laflin tells SFR.

"The last thing in the world I wanted to do was build a project where we were not going to be strongly welcomed," Laflin says.

The INIS plant, located just 20 miles from URENCO's enrichment facility, uses the by-products of enrichment to create gases that can be used in solar cells, lubricants and pharmaceutical products.

"We are the solution," Laflin tells SFR. "We are taking material that otherwise would be a waste and dealing with that--and we're doing it in a way that's safe and highly sensitive to the environment."

Laflin says INIS submitted an application to process uranium to the NRC in 2009 and anticipates approval later this year. By 2012, Laflin says, INIS should be in the construction phase of a $125 million processing plant.

Any risks, Laflin says, lie mostly in the chemical processes INIS uses, not in the uranium.

"This is much more of a chemical manufacturing facility than anything else," Laflin says. "There's no question fluoride products are toxic and reactive, but there's very well-established safety processes."

International Isotopes is pioneering a method of marketing enriched uranium byproducts.
Credits: Courtesy of International Isotopes.

The only phase of the uranium fuel cycle that's missing in New Mexico is nuclear power generation--but The Babcock & Wilcox Co., another multinational corporation that builds small, modular nuclear reactors, is scoping out possibilities. (B&W is also one of the contractors in charge of running LANL.)

B&W Public Relations Manager Jud Simmons writes, in an email to SFR, that although the company has not received any offers of incentives from New Mexico public officials, it "continues to seek opportunities in the state and in other parts of the world where the reactor would be a good fit."

Small modular reactors, Fine says, are cheaper--they cost about $500 million, rather than the $10 billion required for a conventional reactor--safer and use less water than the large, water-cooled reactors used in places like Japan.

"We had a recent phenomenally cold three-day period in New Mexico, [and] we lost gas service," Fine says. "The whole system that failed was based on natural gas, pipelines, so forth. But the reliance on an additional, low-risk source of energy would've been a small nuclear modular reactor, contained underground, and it would be impervious to a temperature like that."

The final stage of the nuclear fuel cycle is the one that perhaps generates the most resistance: storing radioactive waste.

In New Mexico, the Waste Isolation Pilot Plant, a DOE project to store radioactive waste underground in natural geologic salt dome formations near Carlsbad, went online in 1999--but only after several years of permitting negotiations and public hearings.

Because of federal budget cuts, however, WIPP is currently shedding some of the vaunted jobs it has provided to the Carlsbad area. The City of Carlsbad, which normally receives WIPP-related infrastructure funding from DOE, voted in May to return $3.5 million with the hope of preventing further job cuts at the facility.

Donavan Mager, the manager of strategic communications for Washington TRU Solutions, which contracts with the DOE to manage operations at WIPP, says the plant is seeking to preserve jobs by expanding its mandate to accept other types of hazardous waste material. Achieving the DOE's goal of processing 90 percent of all US transuranic waste by 2015, Mager says, will mean a need for fewer employees.

Despite a solid safety record, though, WIPP still generates questions and concerns even from observers living hundreds of miles away.

"Just because you buried it in a hole in the ground doesn't mean it's gone away," Nuclear Watch of New Mexico Operations Director Scott Kovac tells SFR. "It still exists. It can't hurt anybody for 100 years or 1,000 years--but eventually it's going to get out."

Not far from WIPP, a privately owned Texas waste facility has engendered sharp criticism from nearby residents. Waste Control Services' storage site accepts low-level radioactive waste--but its location close to the New Mexico border and overlying the vital Ogallala Aquifer has environmental groups incensed. (Lately, a war of information has broken out between a public relations firm hired by WCS and Public Citizen, a nonprofit consumer advocacy organization; read their opposing briefs at SFReporter.com.)

But activists aren't the only ones with doubts about nuclear energy. Particularly in the face of catastrophes, such as the recent

earthquake, tsunami and nuclear reactor crisis in Japan, Fine says the general public can quickly grow wary of nuclear energy.

To Fine, though, such fears are based on emotion, not reason.

"The public understandably fears radioactivity--not nuclear energy," Fine says, "not the science and technology of manufacturing energy that's atomic-based. The fear is the radioactivity."

Jonathan Block, a staff attorney at the New Mexico Environmental Law Center who once worked for the Union of Concerned Scientists and has spent decades litigating nuclear issues, counters that most stages of the uranium fuel cycle are plagued with complicationsnot least because the NRC is reputedly cozy with industry representatives.

In January 2010, for instance, an accident at URENCO's German enrichment facility resulted in a worker's exposure to radiation, followed by protests calling for the plant's closure. The Honeywell conversion plant in Illinois has been plagued by labor issues related to workers' health and, in March, was fined $11.8 million for illegally storing radioactive waste on-site. The New York Times recently reported that problems at nuclear power plants, such as leaking pipes and earthquake risks, have been ignored by NRC officials.

But seemingly routine safety issues often don't attract much attention, Block notes.

"Because it's not a sexy news story, it's been out of the news until there's a giant blowup," Block says. "But in between Three Mile Island and Chernobyl and Fukushima, there are all kinds of almost-accidents."

And though proponents such as Leavell say they're pleased with local facilities' safety records, Block remains skeptical.

"Enrichment technology has problems," Block says. "The fact that they don't exist now doesn't mean that they're not going to exist at some point in the process."

Why does the US persist, then, in funding costly, potentially risky reactors and enrichment plants? Why do national lab budgets remain untouched, even as Congress seeks to eliminate funding for low-budget, high-yield line items such as public broadcasting?

"The reason," Block says, "is nuclear weapons production. Without a nuclear industry geared up to produce nuclear reactors, you don't have the [ability] to make nuclear weapons." He pauses. "The dirty side of 'atoms for peace'"--a term coined by President Dwight D Eisenhower in 1953--"is atoms for war." **SFR**

Price Point

In 1999, when US Sen. Jeff Bingaman, D-NM, first proposed a new facility to research nuclear weapons and plutonium at Los Alamos National Laboratory, he asked for $5 million from the US Department of Defense.

Today, the White House estimates the cost of the Chemistry and Metallurgy Research Replacement (CMRR) facility at $3-6 billion. Originally designed to process less than 1 kilogram of plutonium--still enough for the 1,550 nuclear warheads allowed under international treaties, and sufficient to warrant serious safety measures--more recent estimates put the amount of plutonium at a whopping 6,000 kilograms.

Though activists report that the primary focus of the new facility will be to manufacture new plutonium "pits"--essentially the core material for nuclear warheads [news, July 21, 2010: "It's the Pits"]--US Sen. Tom Udall, D-NM, tells SFR that's not the case.

"The characterization that this facility is creating new nuclear warheads is misplaced," Udall says. "What we're talking about here is a 50- to 60-year-old facility that sits on a fault--and with the continued work that we're going to have at the labs, should we have an updated, new facility?"

Los Alamos Study Group Executive Director Greg Mello agrees that the facility CMRR is designed to replace is antiquated.

"Even if we were to get rid of all our nukes tomorrow--which we would like--they still need a plutonium facility to use during that process," Mello says. "But it has to be safe."

Mello says the proposed nuclear facility is rife with seismic dangers and fire risks that weren't identified when the US Department of Energy, which runs the lab, first performed its original environmental impact statement in 2003. In his lawsuit, Mello contends that the agency must perform a new environmental assessment since the facility has expanded significantly in scope and cost.

And despite congressional talk of belt-tightening, the CMRR got a pass in this year's budget negotiations.

"It's been shielded in terms of what's happened in the current budget situation because there was bipartisan agreement on it," Udall explains. "People said, 'We need to modernize our infrastructure; we need to make sure the stockpile's safe.'"

Udall says he doesn't have the expertise to weigh in on the asserted need for such upgrades.

"I support what bipartisan presidents have said in the past, that we ought to be working toward a world that is free of nuclear weapons," Udall says. But, he adds, "I think the agreement that has been reached is a good thing for the national security of the country."

To New Mexico Environmental Law Center Staff Attorney Jonathan Block, the national security argument simply obscures the close relationship between politicians and the nuclear industry.

"We had a president who came in and was telling people he was critical of [nuclear weapons programs], and he would be looking at alternatives, and by the time he'd been in office for less than two years, he was turned around," Block says. "He's now a nuclear advocate. And the reason is that it's hard to be independent and safety-conscious when the people who write the checks are the industry that you control."

Indeed, nuclear contractors are generous when it comes to campaign contributions. In the past two years alone, US Rep. Ben Ray Luján, D-NM, has received $8,000 in contributions from Bechtel, a LANL contractor, and another $11,000 from nuclear contractor Honeywell International.

Mello says contractorssuch as Los Alamos National Security (LANS), a consortium of defense and nuclear industry contractors, including Bechtel, responsible for running the labare a large part of the problem.

"The lack of accountability and corporate arrogance generates safety problemsand allows the private interests to swamp the public interest," Mello says. "For LANS, a more expensive project is simply a more profitable project."

LANL will hold a series of hearings on environmental impact statements related to the new CMRR facility on May 23-26, with the May 26 hearing from 5-9 pm at Santa Fe Community College. For more information, visit nnsa.energy.gov/nepa/cmrrseis.

Miner Issue

Larry J King has been fighting uranium for decades.

In the late 1970s and early 1980s, King spent seven years underground, mining uranium. Five years ago--long after United Nuclear Corp., the mining company King worked for, shuttered its mines and left the state--King began having respiratory problems associated with exposure to radioactive elements.

Now a board member of Eastern Navajo Diné Against Uranium Mining, King has a new fight: to keep Uranium Resources Inc. from reopening a slew of uranium mines in northwest New Mexico.

Mat Lueras, URI's vice president for corporate development, says the methods URI will use to recover uranium are different, and safety standards are higher than they were 30 years ago.

"We've come a long way in understanding the technology, the impact that mining has to the environment and the communities," Lueras says. "And that's what we fully address before we go into any of these projects."

But King isn't buying.

"It's all garbage when they say it's modern technology, that it's safe," he says. According to Eric Jantz, a staff attorney at the New Mexico Environmental Law Center, under the method in question, known as in situ recovery, no aquifer has ever been successfully remediated to pre-mining levels.

"Families from South Texas [where ISR mining has been conducted in the past] came up here to forewarn the community not to believe what the company's saying," King recalls. "They were given the same lies, that [URI] would clean up the aquifer--and thus far they've contaminated the aquifer and cannot return it."

With Jantz' help, King and other concerned citizens sued the Nuclear Regulatory Commission, the agency charged with overseeing the nuclear industry, to stop it from issuing a mining permit to URI on the grounds that allowing mining in northwestern New Mexico would further contaminate already damaged aquifers. The suit failed on appeal in federal court, and the Supreme Court subsequently declined to hear it [news, March 17, 2010: "Brave Nuke World"].

Currently, the plaintiffs are hoping to convince the Inter-American Commission on Human Rights to weigh in "because of the number of the human rights violations that are the result of the NRC license," Jantz says.

At least some of the former miners' concerns are being heard, though: On April 12, three New Mexico DemocratsSen. Tom Udall, Sen. Jeff Bingaman and Rep. Ben Ray Luján--introduced a bipartisan bill to expand restitution for miners and local residents in communities harmed by uranium contamination.

Jantz says the measure is meaningful--but for King, who lives close to one of the mines, it still doesn't make the contamination disappear.

"Sometimes I just feel like, 'When is this going to end?'" King says. "When is [URI] going to hear the people and say, 'OK, we're not going to [mine there]'? It just really pisses me off."

8-12

is the minimum number of years before New Mexico could deploy the nation's first small modular nuclear reactor, according to New Mexico Tech research associate Daniel Fine.

2

is the total number of employees mining outfit Uranium Resources Inc. currently employs in New Mexico.

View Nuclear New Mexico in a larger map

national, earned in 2010.

r illegally storing radioactive waste on-site at its Illinois uranium conversion

ján's campaign committee, People for Ben, since 2009.

TIMELINE: Nuclear New Mexico