Protest

Public Discontent With Nuclear Power

Background photo: Вячеслав Сивчик шел во главе колонне на "Чернобыльском шляхе" 1997 года; за год до этого он держал голодовку в знак протеста против ареста

Protest Initially Focused on the Bomb, not Power Generation

- Initially protest was focused against proliferation and the Cold War arms race. It had broad social support, although scientists' organizations and movements determined much of the energy and focus in early years.
- As worries grew about fallout in the 1950s, so did protest against military nuclear efforts, especially atmospheric testing of nuclear weapons.
- This presentation focuses largely on protest against nuclear power across the globe. Several conclusions are possible.
- The spread of protest against military and peaceful nuclear applications accompanied the development of the national nuclear effort(s) from the US and Europe to the rest of the nuclear world. Protest was repressed in the socialist world where citizens largely accepted the official view that pursuit of peaceful applications would accelerate the achievement of socialism. The socialist world successfully advanced the position in a broad propaganda effort that the "western" atom, particularly that of the US, was largely military in application, not peaceful at all.
- Dissent and protest arose in right-wing dictatorships as well, often at a time of growing public rejection of those regimes.

Actors:

government departments, ministries, agencies and other bureaucracies
scientific organizations, universities, laboratories, and professional societies
producers, operators, bankers, utilities, construction firms,
local people, citizens' groups, NGOs, protest groups, international organizations,
homemakers, displaced people…

The “Peaceful Atom” generates hope, not fear

Industrial and State Interests Versus Protestors

Motivations

Catastrophic Accidents

- Industry and government pushed applications including in power generation from the 1950s without public participation. The first reactors were novelties and relatively small in capacities. They generated the interest of the public and awe, less likely fear and opposition.
- The nuclear industry and the state apparatus in every country that invariably underwrites and subsidizes nuclear power, and such international organizations as the International Atomic Energy Agency (IAEA), have tremendous resources – financial, public relations, informational including access to technical information, law enforcement and other resources – to shape public opinion or even repress public protest.
- Usually protest has been peaceful, even when it involved mass civil disobedience.
- Reasons for the opposition include: concerns over safety; worries about catastrophic accidents; fear that nuclear power is authoritarian and requires a police state to operate; and general environmental sentiments..
- Religious groups who saw nuclear weapons and nuclear reactors as two sides of the same coin frequently rejected nuclear power, not only the nuclear bomb, as un-Christian, including Catholics in Japan, the Philippines and Korea, and the Vatican itself. That is, many groups rejected both nuclear weapons and peaceful applications; they believe it is impossible to separate the two industries.
- The industry extends far beyond reactors. For example, miners, often indigenes, First Nation, American Indian, Namibian and other people, continue the struggle to remediate the environmental and public health costs of uranium economies in their communities.
- Protest gels around after a major accident (TMI, Chernobyl, Fukushima) and seems to know no borders.

Information, Intervention and Protest in Nuclear Power, East and West

- Opponents, especially in the early years of nuclear power, struggled to gain access to proprietary and technical information in order to intervene in decisions about siting, construction, licensing, safety, evacuation plans and so on. Industry was unprepared for intervention and sought to slow or prevent it. But intervention and protest have likely prevented several significant accidents precisely by halting construction in earthquake and other unsafe regions.
- In the US and Western Europe civilian protest dates to the 1960s. It was facilitated by interested professional and scientific associations, housewives and environmentalists, activitists in NGOs and many other people. Largely, environmental concerns were the first trigger of protest.
- In the USSR and socialist bloc generally protest was delayed until the late 1980s after the Chernobyl disaster and the fall of the Berlin Wall. Such NGOs and such professional associations as Nevada-Semipalatinsk (1989), Rukh (Ukraine, 1988), Eco-Defense (1990) and the Russian Socio-Ecological Union (1992) arose around that time or with the collapse of the USSR
- Waste remains an intractable problem for all of the nuclear nations.

Access to Information Equals Access to Power

Open (pluralistic) and Closed (authoritarian) Regimes

General Introduction, Protest, 1950s-present

The following sections provide comparative analysis on on the nature of protest across the globe on the following topics:

- The Rise of Nuclear Protest in the 1960s and 1970s
- From “Atoms for Peace” to Nuclear Protest
- Anti-nuclear Protest and “Nuclear Colonialism”
- NIMBY: Not in My Back Yard
- Korean Power and Protests
- Socialist Governance and the Beginning of Public Protests
- Indian Authoritarianism and Big Technology Projects
- Limited Dissent in the Authoritarian USSR
- Political Legitimacy and the Atom: Southeast Asian Authoritarianism
- Concluding Comments: The Atom and Dissent

We offer the following country “snapshots”:

Germany, Austria, Sweden and Denmark
First Nation People in Canada
Native Americans
Czech Republic
Finland
France
Japan and Korea
Bulgaria and Belarus
India
Russia
Philippines and Indonesia
The United States

The Rise of Nuclear Protest in the 1960s and 1970s

- In the United States protests were massive and usually non-violent: Seabrook Station and the Clamshell alliance, the Abalone Alliance at Diablo Canyon NPP
- In some cases protest led to scaling back plans (Sweden [temporarily], Austria [complete cessation], Germany [especially after Fukushima])
- NIMBY protest has been successful in slowing nuclear power in Portugal, Austria
- Transition to democratic regimes (Spain, Portugal, Lithuania) has meant in some places institutional change and new tools for public intervention that included public debate.
- The terrifying Chernobyl disaster triggered peak violence in protests and led to construction freezes in the late 1980s

↑ Violent protest in Germany; peaceful protest in Portugal → .

Protest Grew Rapidly Across the Globe Over Issues Safety, Waste Management, Environmental Concerns from the late 1960s and 1970s

- Protestors were concerned about safety, siting, cost, nature, and the perceived 'authoritarianism' of nuclear power
- Anti-nuclear protest rose along with environmental and anti-war movements in the late 1960s and 1970s
- It broke out in most European pluralistic societies
- By the mid-1970s, occupying construction sites was a central strategy among anti-nuclear activists on both sides of the Atlantic
- Violent protests in Germany against building of nuclear power plants, radioactive waste disposals and reprocessing facilities, beginning in Wyhl

Authoritarian governments have greater success in pushing nuclear power

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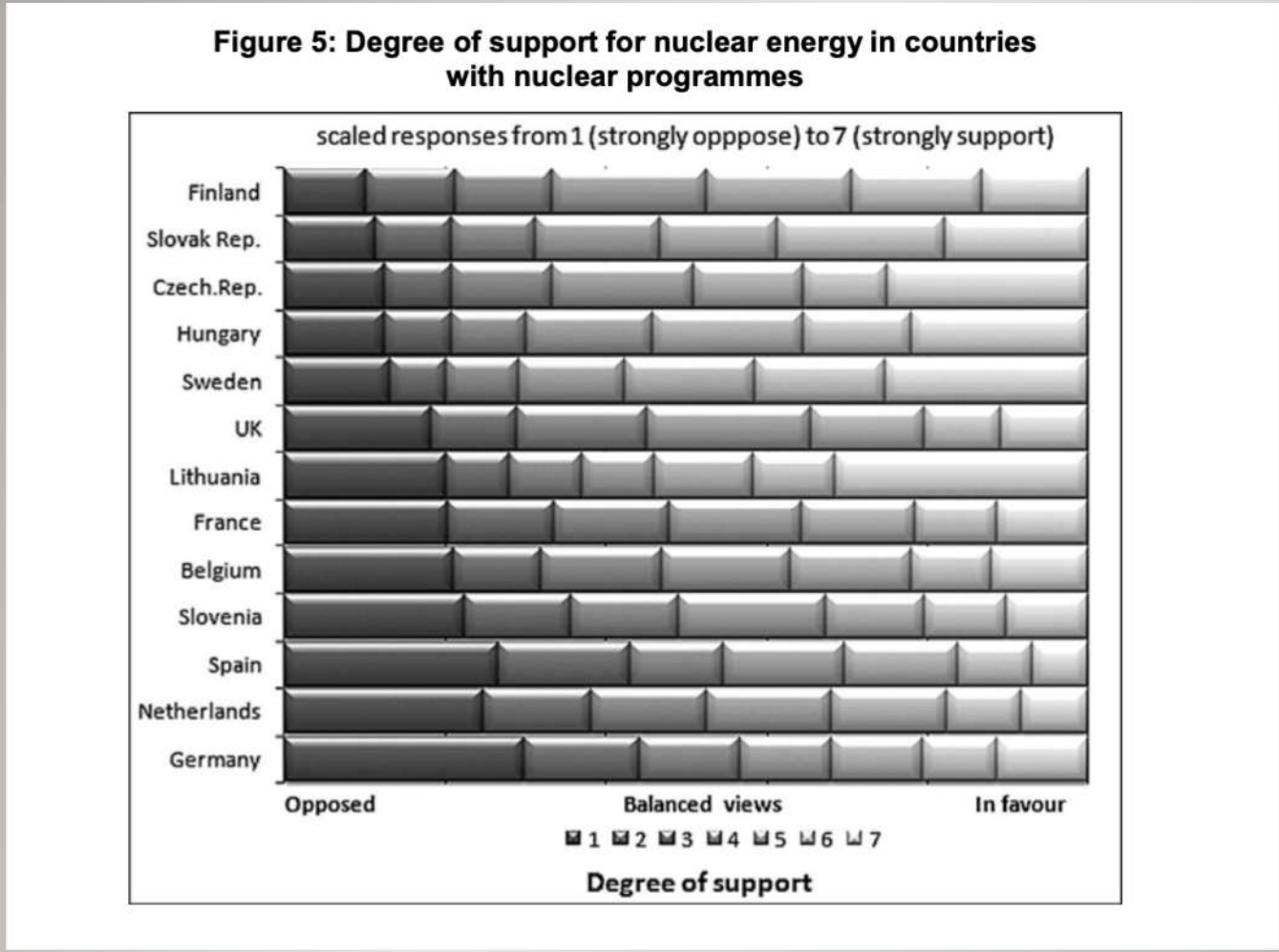
GREIFSWALD

- Decision-making in authoritarian regimes involves essentially only promoters and operators.
- Poorly developed civil society + censorship prevents opposition
- The German Democratic Republic built one station of its own design, but then turned to Soviet VVERs (PWRs) that had to be shut down by West Germany after unification. There had been no protest in the East.
- Especially the Soviet Union and socialist states
  - Specialists were often pressured to meet targets
  - the first generation Soviet VVER has no containment vessels
  - the RBMK Chernobyl-type channel graphite reactor

Forscher im Zentralinstitut für Kernforschung in Rossendorf, 1990 Bildrechte: imago/Ulrich Hässler ↑

Concerns of anti-nuclear groups are important, of course, but throughout the world publics have generally supported nuclear power or are indifferent to it



Slow Erosion of Public Support, Especially After TMI and Chernobyl

President Jimmy Carter (US) tours the TMI control room

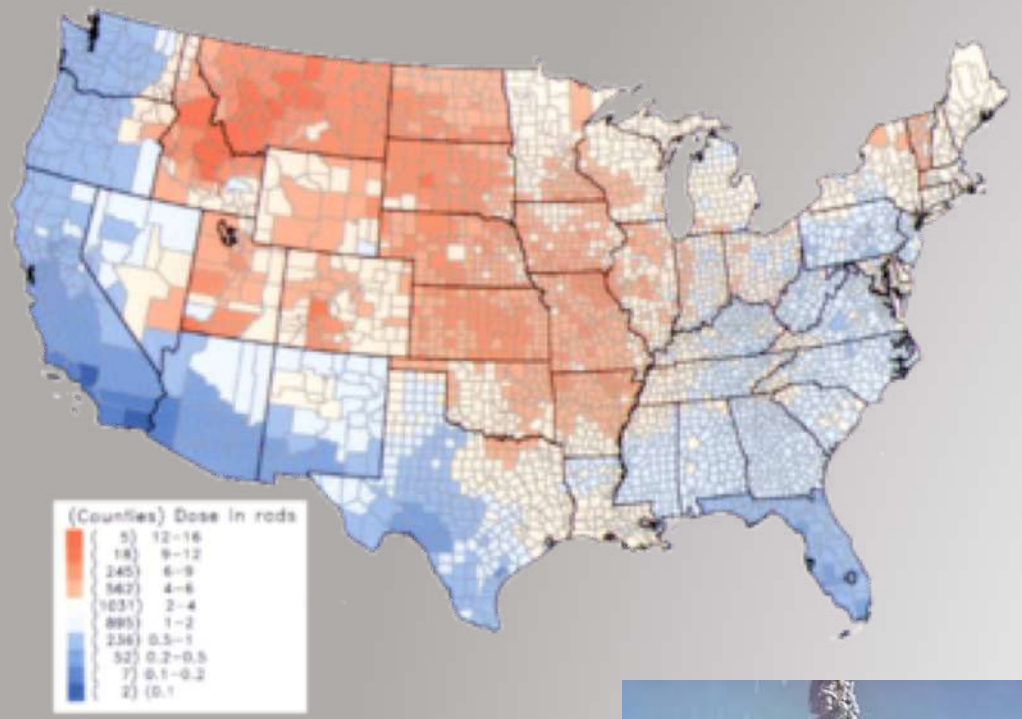
- In the 1950s pollsters hardly studied the issue, while in the 1960s several opinion polls noted that less than a quarter of the public opposed nuclear power. In the 1970s substantial majorities of the public still favored nuclear power, even as anti-nuclear referenda appeared on ballots in eight States.
- The 1979 partial meltdown at Three Mile Island (TMI) led to a sudden decease in the percentage of people who had been in favor of or uncertain about continued construction of reactors, with the percentage opposed increasing.
- Polls since mid-1982 indicated a slow erosion in support for nuclear power with over 50 percent opposed, and a large majority opposed construction of new plants in or near their communities. (OTA, 1984: chapter 8)
- According to Gallup polls, nuclear power seemed fully to recover its standing among citizens in the 1990s and 2000s, with those in support of maintaining nuclear energy in a strong majority, even after the Fukushima disaster until 2016.

First Controversies:

Siting and Earthquakes, Accidents, the Disruption of “Pristine” Nature, and the Absence of Qualified Experts to Just Safety and Risk

Fukushima Tsunami and Explosion

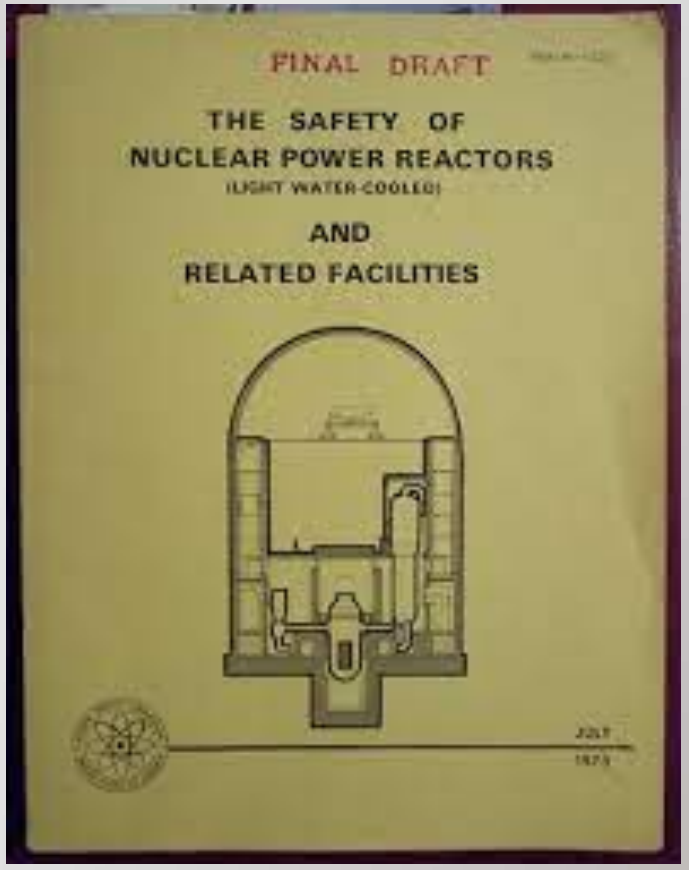
Several factors contributed to the rise of nuclear dissent

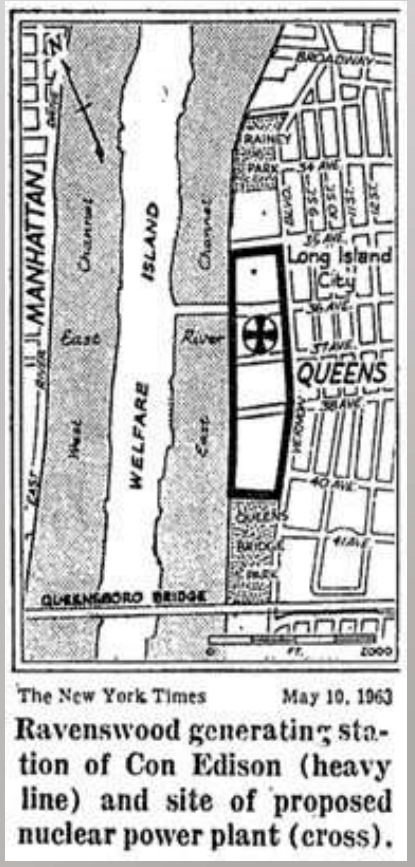


These included: 1) growing awareness of the dangers of nuclear fallout; 2) the rise of the environmental movements across the world triggered by Rachel Carson's *Silent Spring* (1962) and Earth Day (1970 - present); 3) the horrors of the devastation of Vietnam carried out almost on television including chemical defoliation; and 4) a number of other major technogenic disasters –oil spills, chemical explosions (Bhopal), etc. – that raised the question, could powerful nuclear reactors also be among sites future catastrophes.

First oppositional concerns are about siting and accidents

- Some in scientific community had doubts about safety and efficacy.
- The US AEC had actually suppressed publication of a 1964 update of WASH-740 (1957), a reactor safety study, that estimated a worst-case scenario accident leading to at least 3,400 deaths and $7 billion of property damage, well over the amounts covered by the indemnities of the Price-Anderson Act (1957) with a limit on liability of $560 million.
- Reactors proposed for pristine Bodega Bay, CA, and densely urban Ravenswood, NYC





The New York Times May 10, 1963

Ravenswood generating station of Con Edison (heavy line) and site of proposed nuclear power plant (cross).

Siting: Ravenswood NPP would be but a mile from the United Nations

CANPOP pickets against Ravenswood

- In the early years of nuclear power, utilities and regulators rarely gave a second thought to the possibility of siting an NPP in an urban area. The goal was to build close to demand and keep transmission and infrastructure costs down. Perhaps they thought that the small reactors initially built were safe enough for population centers. Yet organized resistance to nuclear power plants emerged in New York, California and elsewhere over plans for such NPPs.
- One of the first controversies concerned the application of the Consolidated Edison (ConEd), Inc. to build a 1,000 MW NPP in Ravenswood, Queens, NYC. A former chairman of the AEC, David Lilienthal, said, "I would not dream of living in the borough of Queens if there were a large atomic power plant in that region, because there is an alternative — a conventional thermal power plant as to which there are no risks."
- The group "CANPOP" -- Committee Against Nuclear Power Plants -- formed to protest. ConEd's Ravenswood application made the AEC consider more systematically whether to permit the construction of nuclear power plants in large cities. Eventually ConEd withdrew its application for a construction permit.

Bodega Bay, CA, NPP: Protest over nature and earthquakes

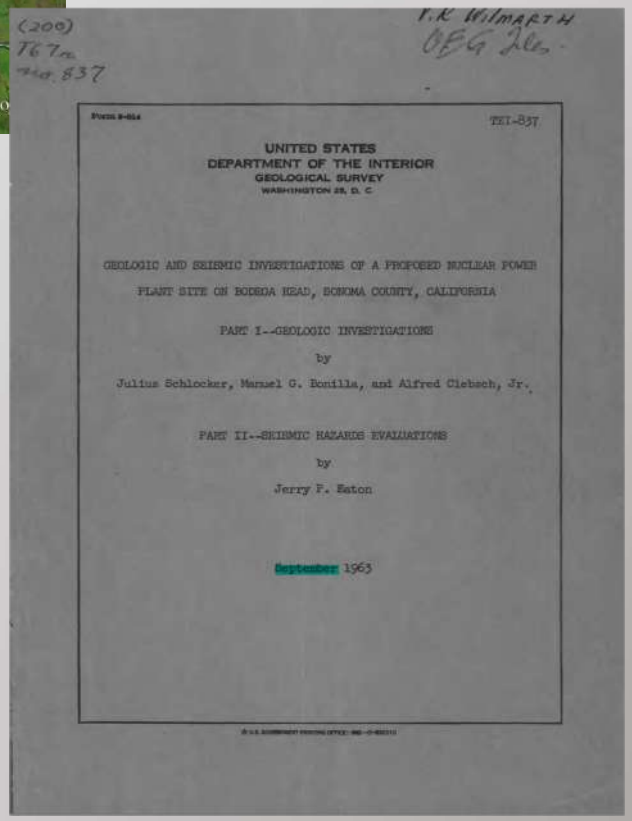
- Another early project that triggered anti-nuclear protest – and demonstrated the AEC's weaknesses in assessing risk and safety without internal experts – was request of Pacific Gas and Electric Company (PG&E) in 1963 for a permit to build a 340 MW nuclear plant at Bodega Head, about 50 miles north of San Francisco. PG&E jumped on the nuclear wagon to meet regional rapid growth in population and energy demand.
- Opponents initially opposed the plan to preserve the natural beauty of the oceanfront site for parkland. They uncovered a more serious issue that ought to have disqualified the site: an earthquake fault not far from the station. PG&E for its part had already begun excavation of the site.
- Public involvement was crucial here. By December 1963 the Northern California Association to Preserve Bodega Head and Harbor had grown to about 800 members who opposed the station. Its success had much to do with its executive secretary, David Pesonen. Pesonen worked at the Sierra Club and represented it at hearings on Bodega Bay at the California Public Utilities Commission.
- Personen noted that the reactor would be only a few hundred feet of the San Andreas fault, and even PG&E experts admitted that a major earthquake like the 1906 San Francisco earthquake was possible within a century.
- As protests grew, PG&E played hardball accusing the association of being a communist front organization.

Bodega Bay NPP Proximity to San Andreas Fault

Initially concerned that the power plant would ruin scenic views of the bay, the Northern California Association to Preserve Bodega Head and Harbor determined the reactor would be near the San Andreas fault line that caused the catastrophic San Francisco earthquake of 1906

They concluded that PG&E had falsely reported the false distance of the proposed plant to the fault line.

According to US Geological Survey's Jerry P. Eaton, "Because we cannot prove the worst situation will not prevail at the site, we must recognize that it might."



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEOLOGIC AND SEISMIC INVESTIGATIONS OF A PROPOSED NUCLEAR POWER PLANT SITE ON BODEGA HEAD, SONOMA COUNTY, CALIFORNIA

PART I--GEOLOGIC INVESTIGATIONS

by

Julius Schlocker, Manuel G. Bonilla, and Alfred Clebsch, Jr.

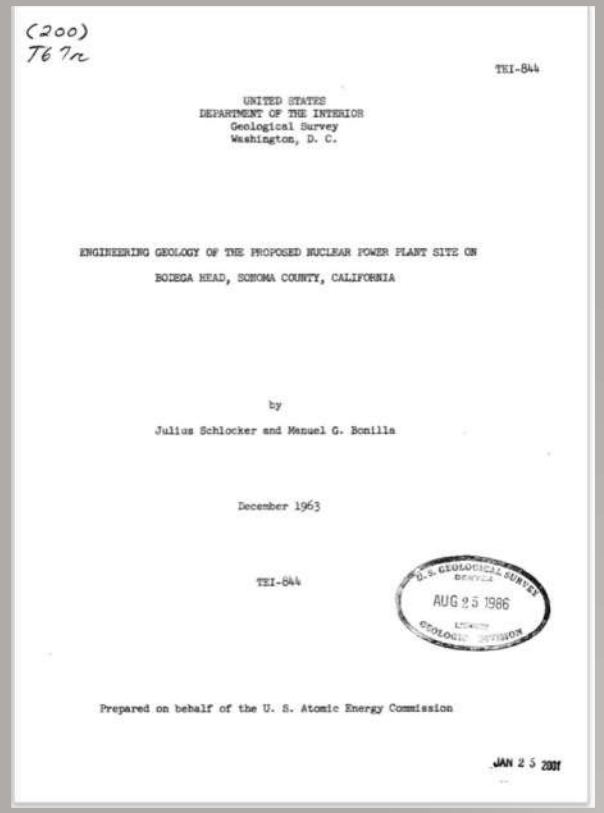
PART II--SEISMIC HAZARDS EVALUATIONS

by

Jerry P. Eaton

September 1963

Outside Experts and Activists Derail Bodega Bay NPP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UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
Washington, D. C.

ENGINEERING GEOLOGY OF THE PROPOSED NUCLEAR POWER PLANT SITE ON BODEGA HEAD, SONOMA COUNTY, CALIFORNIA

by

Julius Schlocker and Manuel G. Bonilla

December 1963

TEI-844

U.S. GEOLOGICAL SURVEY AUG 25 1986 GEOLOGIC DIVISION

Prepared on behalf of the U. S. Atomic Energy Commission

JAN 25 2001

← the Alaska quake; outside interveners Hazel Mitchell and David Pesonen ↑

The Advisory Committee on Reactor Safeguards (ACRS, established 1947, statutorily from 1957) and Atomic Safety and Licensing board initially supporting PG&E's application.

But the AEC lacked the expertise, tools and regulations to assess such new problems as viability in a seismic zone.

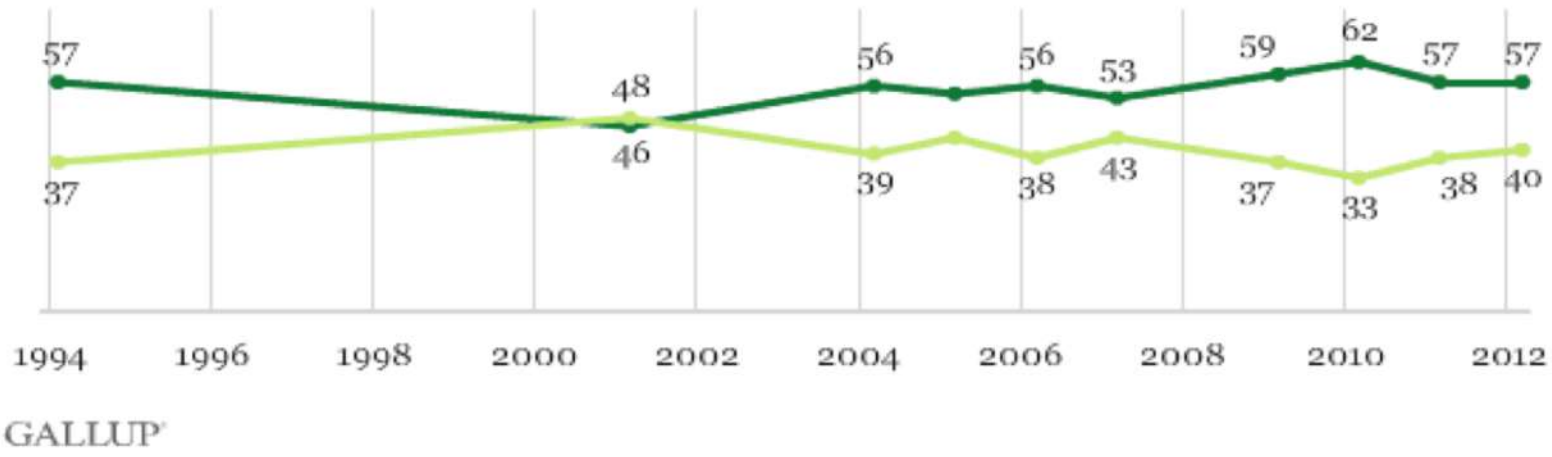
But learning from the opposition's precautions and a devastating March 1964 earthquake in Alaska at 8.6 magnitude, the AEC rejected PG&E's assertions, and construction ended.

In 1964 USGS scientists Julius Schlocker and Manuel Bonilla highlighted the many uncertainties of earthquake science

Yet, in spite of early protest, skyrocketing costs and the meltdown at Three Mile Island NPP, the US public generally supports nuclear energy

Table 1. Support for Nuclear Power Among US Citizens, 1994-2012

Overall, do you strongly favor, somewhat favor, somewhat oppose, or strongly oppose the use of nuclear energy as one of the ways to provide electricity for the U.S.?



Source: (Newport. 2012.)

Nuclear Protest Breaks Out Across the Globe

As part of rebuilding from World War II and seeking rapid modernization through advanced industry, virtually all European nations turned to nuclear power, in the East with the assistance of the USSR, in the west through “Atoms for Peace” programs underwritten by the US. These programs, east and west, involved acquisition of isotopes, experimental reactors, advice on training programs, and so on. A number of the nations – Germany, France, Sweden, Spain – sought power programs. Others – Denmark, Austria, Italy, for example – ultimately decided not to pursue nuclear power. But in all of these countries, protest accompanied national decisions about nuclear futures. Owing to the proximity of these nations, which border one another, the decision to build NPPs might provide opposition not only internally but abroad (Denmark and Sweden, Austria and Czechoslovakia, and so on). The main determinants of oppositional protest were, again, questions of safety, and also concerns about the nature of nuclear power. To opponents it was costly, authoritarian, and unproven. Violent protests broke out in many places, although not all countries.

Protest in the United States grew out of the environmental movement of the 1970s, concerns about safe operation of stations, and anger that opponent/activists were left out of decision making processes in a democratic society.

Nuclear Protest Spread Rapidly from 1970s Onward: Zwetendorf, Austria: One of the first nations to reject the atom

Austria completed only one of three nuclear plants originally planned, and it was nearly brought on line. But in a national referendum on November 5, 1978, Austrians rejected nuclear power by a narrow majority of 50 to 47 percent.

Following the 1978 referendum, no commercial nuclear power plant (built for the purpose of producing electricity) ever went into operation in Austria, and Austria remains the most anti-nuclear country in Europe.

https://www.dw.com/en/nuclear-power-plant-becomes-a-museum/av-19281075

Barsebäck NPP, Sweden

- When Barsebäck was proposed in the mid-1960s planners thought the location was ideal with short distances to many consumers in both Sweden and Denmark. But by the early 1970s Barsebäck had become a symbol of the risks of nuclear energy that precipitated protest in both countries. Once Denmark decided not to pursue nuclear power in the mid-1980s, the Danish Parliament demanded Barsebäck's closure. Indeed, Barsebäck was the first Swedish nuclear power plant to be phased out.
- Arne Kaijser, Jan-Henrik Meyer, "The World's Worst Located Nuclear Power Plant": Danish and Swedish Cross-Border Perspectives on the Barsebäck Nuclear Power Plant," https://doi.org/10.1484/J.JHES.5.116795, pp. 71-105

From Denmark Across the Sound to Barsebäck, Sweden

- The Danish anti-nuclear movement's attitude was characterized by political dialogue, non-partisanship, scientifically founded critique, and peaceful demonstrations.
- In August 1978, 50,000 Danes ple came together in two marches to protest plans to build NPPs. In the aftermath of the marches, opinion polls showed that 53% of the Danish population favored a non-nuclear future for Denmark, and only 32% favored nuclear energy.
- Through the activities of the Organization for Information about Nuclear Power (Organisationen til Oplysning om Atomkraft, OOA, 1974-2000) and its allies, Danish protestors successfully prevented nuclear power plants in Denmark.
- The movement was internationally orientated – toward the Swedish nuclear power plant Barsebäck, only twenty kilometers from Copenhagen on the other side of the Sound.

See Melina Antonia Buns, "Marching Activists: Transnational Lessons for Danish Anti-Nuclear Protest," *Arcadia*, Summer 2017, no. 18, at https://www.environmentandsociety.org/arcadia/marching-activists-transnational-lessons-danish-anti-nuclear-protest; Meyer, Jan-Henrik. 2014. "'Where do we go from Wyhl?' Transnational Anti-Nuclear Protest targeting European and International Organisations in the 1970s." *Historical Social Research* 39 (1):212-235, and https://danmarkshistorien.dk/vis/materiale/organisationen-til-oplysning-om-atomkraft-ooa-1974-2000/

German Protests in Gorleben

German protesters opposed what they saw as the inherent authoritarianism of nuclear power.

Gorleben, Germany, is the site of a controversial interim intermediate radioactive waste storage facility initially planned to serve with the nearby salt dome as a final future deep repository. (The site was finally rejected in 2020 for geological reasons.) The first shipments of SNF arrived in April 1995, and included spent fuel from several French and German facilities.

An anti-nuclear protest of 4,000 people met the trains of waste -- and 7,600 police; the protests escalated in number and violence over the years, with the broader public finding the government's response disproportionate and inappropriate.

Photos: WIkiwand

Wyhl, Germany, Protests

Activists occupy construction site at Wyhl (February 1975)


Demonstration against the planned construction of the nuclear power plant at Wyhl. (August 1974)

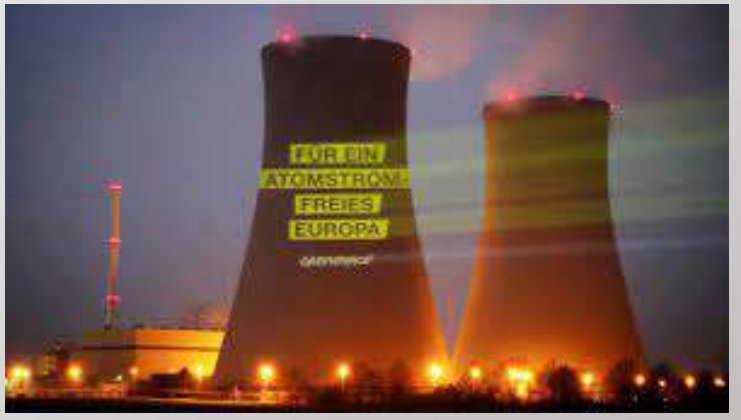
- In 1974, at Wyhl, West Germany, 28,000 people occupied the site of a proposed nuclear station to stop its construction in a nature preserve. People remained on site until the project was abandoned.
- Again on 18 February 1975, some 300 local people—most of them middle-aged farmers and vintners—made their way to a clearing in the woods outside the of Wyhl and occupied the construction site. By evening ”tents and trailers dotted the site, and protesters traded stories around a roaring campfire.” A full-fledged occupation was underway.
- Occupied Wyhl became a symbol of this unorthodox and diverse “popular politics.” People from across western Europe were drawn to the occupation and its example of alliance building.
- The police, too, learned from Wyhl and were better prepared to defend other construction sites. The met attempted occupations near the northern German towns of Brokdorf and Grondhe with violence that led to pitched battles with protesters.
- Ultimately the grassroots movements against reactors that took place along the Upper Rhine “played a major part in making nuclear energy a hotly contested issue throughout Western Europe.”
- Milder, Stephen. “The New Watch on the Rhine: Anti-Nuclear Protest in Baden and Alsace.” Environment & Society Portal, *Arcadia* (2013), no. 6. Rachel Carson Center for Environment and Society.

Nearly 170,000 people attended an anti-nuclear protest in Bonn, West Germany, on October 14, 1979, following the Three Mile Island Accident

There had been publications in the German press from the 1950s about reactor safety and soon about the problem of waste.

Can Germany Abandon Nuclear Power?

- When East and West Germany united in the 1990s after the fall of communism and the Berlin Wall, the West forced all Soviet-design reactors in the East to be closed.
- Giving in to social pressure – and growing concerns about nuclear safety after Fukushima, in 2011 German Chancellor Angela Merkel decided the nation would phase out nuclear energy by the 2020s.
- When Russian leader Vladimir Putin attacked Ukraine in 2022, this forced Germany to rethink nuclear shutdown – since the atom could meet energy needs as the country tries to wean itself from Russian oil and gas.



- "Germany prepared to keep nuclear plants open in a turning point for its energy policy," *The Telegraph,* February 28, 2022, at https://www.telegraph.co.uk/business/2022/02/28/germany-prepared-keep-nuclear-plants-open-reduce-reliance-russian/

Diablo Canyon, CA, and Seabrook, NH, NPPs

- In the US protest against nuclear power reflected a number of concerns: environmental and the despoliation of nature by NPPs, safety and risk, especially after Three Mile Island, and skyrocketing costs of power station with those costs passed on to consumers even before thy had received a kilowatt.
- Protests occupied the two coasts from the 1970s
- Building on the anti-war and environmental movements of the 1960s, and especially since the 1970s, the establishment of the Environmental Protection Agency, the Occupational Safety and Health Administration, and other regulatory and safety bodies, many American citizens have sought to participate in the regulatory process directly through petitions and lawsuits.
- → Abalone Alliance and Clamshell Alliance
- https://www.youtube.com/watch?v=N3rS8hzW2pA

The California “Abalone Alliance” protest against the destruction of “pristine” nature – and vs. Diablo Canyon NPP

"Circling up" at a Diablo Canyon protest, 1979.
Photo: Jessica Collett

- One of the first public protests against nuclear power gelled around the Diablo Canyon station. The Abalone Alliance (1977-1985) took its name from the multitudinous red abalone massacred in Diablo Canyon in 1974 when the utility carried out a hot flush of the reactor unit’s plumbing. The Alliance, “a loose coalition of 60 anti-nuke organizations,” staged blockades and occupations at the reactor site.
- In June 1979, 30,000 people attended an anti-nuclear rally headlined by singer Bonnie Rait.
- Nearly two thousand people were arrested during a two-week blockade in 1981, including singer Jackson Browne, making this the largest number arrested at an anti-nuclear protest in the United States. Perhaps as many as 30,000 protestors descended on the site. *Newsweek* headlined, “Diablo Canyon: The Assault That Failed.”
- The Alliance sought not only demonstrations, but resistance to ensure that Diablo Canyon never operated. Opposition here – and to the Bodega Bay plant north of San Francisco (not built) – and at Seabrook – required that protestors become technologically sophisticated in identifying risk factors and in understanding the law and administrative procedures needed to pursue opposition.

Protest Handbooks and calls for Direct Action!!

DIRECT ACTION WEB FEATURE

A special feature from DirectAction.org

from the DA Archives

Diablo Canyon 1981 Handbook

In 1981, the Diablo Canyon nuclear power plant — being constructed by PG&E astride an active earthquake fault — was nearing completion. A 1979 protest drew attention to the project and resulted in over 100 arrests. In Summer 1981, Abalone Alliance, a statewide network of affinity groups and community organizations, called for a blockade of the site.

Hundreds of people responded. An action encampment was set up near the site, and over the course of several weeks the protest led to over 2000 arrests.

Near the end of the action, whistle-blowers within PG&E alerted the media that earthquake safety plans were seriously flawed. This information delayed the plant's opening by several years. Diablo Canyon was finally licensed in 1984, after hundreds more citizen arrests, which have continued to this day.

This handbook (produced by Abalone Alliance and adapted from earlier Diablo and Seabrook publications) includes background, site, and organizing information that is still timely and valuable for a new generation of organizers.

Download more direct action handbooks at: DirectAction.org/handbook/

Photo: April 2011 protest at CPUC hearing on Diablo Canyon. By Luke Hauser.

DIRECT ACTION

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Handbooks contain site-specific information, plus a wealth of articles and tips for actions at any site. Pages are copyright-free and can be adapted for your organizing.

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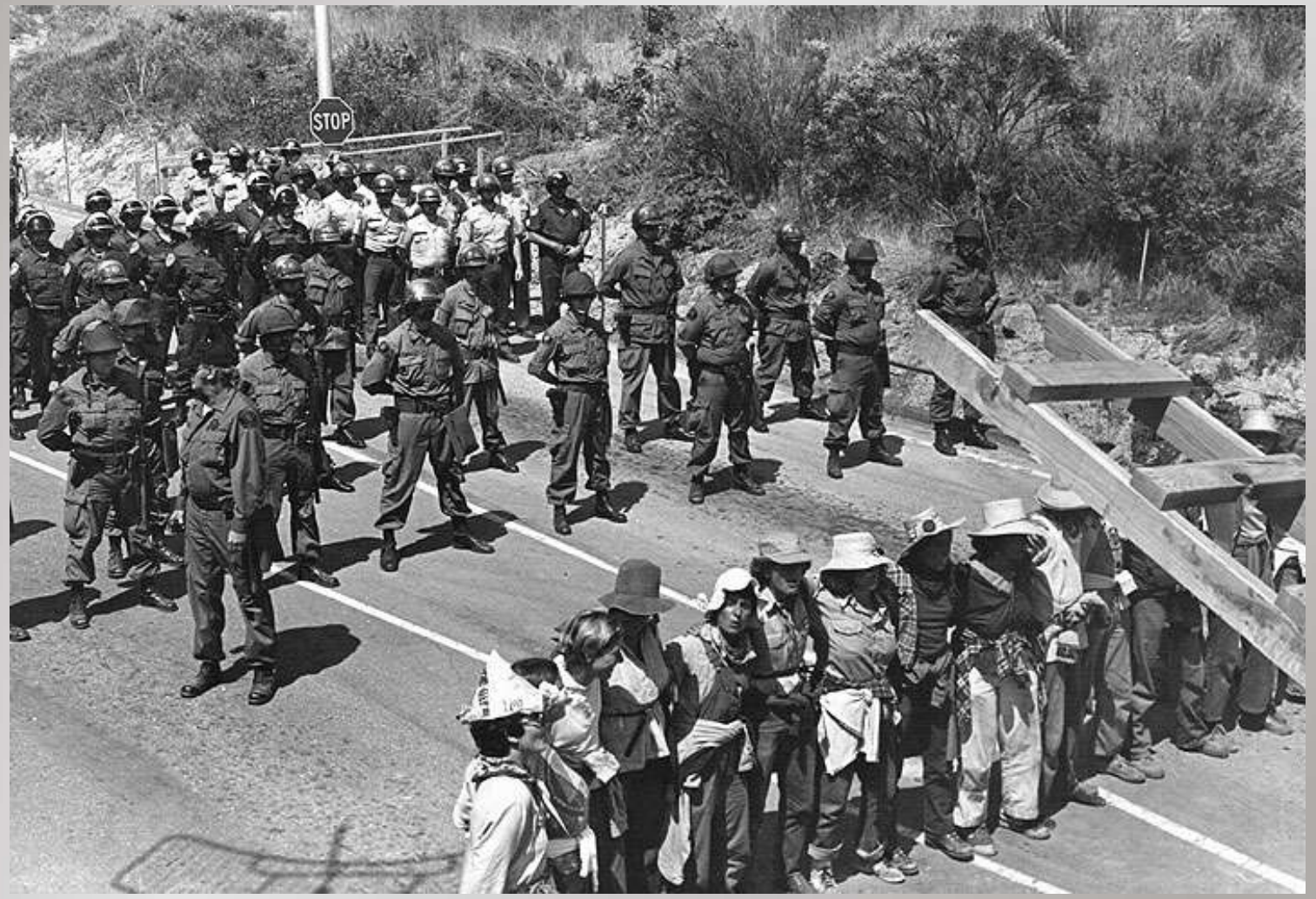
Diablo Canyon NPP Demonstration, view of the Pacific Ocean

Photo: Found SF Digital Archive

Abalone Alliance, September 1981

The Mother Bear Brigade meets the Sheriff's Department inside the main gate.

Photo: Steve Stallone at Found SF Digital Archive



Seabrook, NH, USA NPP: The Clamshell Alliance

- In response to safety and environmental concerns, activists on the East Coast organized the “Clamshell Alliance” to work against Seabrook NPP.
- During the heyday of nuclear power projects, in May 1968 the Public Service Company of New Hampshire (PSNH) announced plans to build a nuclear plant in Newington, NH, on the Great Bay (the site now of multitudinous shopping malls). A year later, in the face of local opposition and higher costs, PSHN gave up this plan. In 1972 the company proposed instead to build two reactors on the Hampton-Seabrook estuary, of salt marshes and critical habitat for birds and other fauna, along the Atlantic Ocean in Seabrook, NH, the first to come online by 1979, the second in 1981, with a total cost of less than $1 billion. Meeting safety and other requirements, the total cost was eventually $16 billion that bankrupted PSNH.
- To alleviate public grievances, the government of New Hampshire negotiated the opportunity for the Clamshell Alliance to hold pro-solar power and music festival at the Seabrook site. The aim of the governor was to avoid bad publicity and the cost of law enforcement. Twenty thousand people attended.

Photo Credit: Boston Globe via Getty Images.

The Clamshell Alliance drew inspiration from 1974 German anti-nuclear protests.

Yet protests snowballed. Hundreds of demonstrators descended on the plant when PSNH began the first power tests in June 1985, with 627 arrested for trespassing. The protesters included children and handicapped people. The plans generated extensive public opposition, protest, and occupation of the construction site by the Clamshell Alliance. Protests continued into the 1990s.

Flier for Clamshell Alliance protest, at https://inzanetimes.wordpress.com/tag/clamshell-alliance/ as accessed Nov. 14, 2018

- Due to the large success of the protest in 1977, and the massive incarceration, the media spread the story all over the country, sparking national interest.
- In 1978, twenty thousand people protested on the site legally after they got permission from the governor.
- In 1979, such local groups from around the country as the Clamshell Alliance gathered in protest in Washington DC. 120,000 people attended.

Clamshell and the Groundswell of Nonviolent Protests

- 1976: construction license issued by NRC, hundreds protested and were arrested
- 1977: Record 1,414 Clamshell protestors arrested after 2-day protest
- June 1978: 20,000-person rally
- June 1989: 1st low-power reaction, 627 arrested
- Clamshell grew from 15 to 53 local groups from 1976-1978

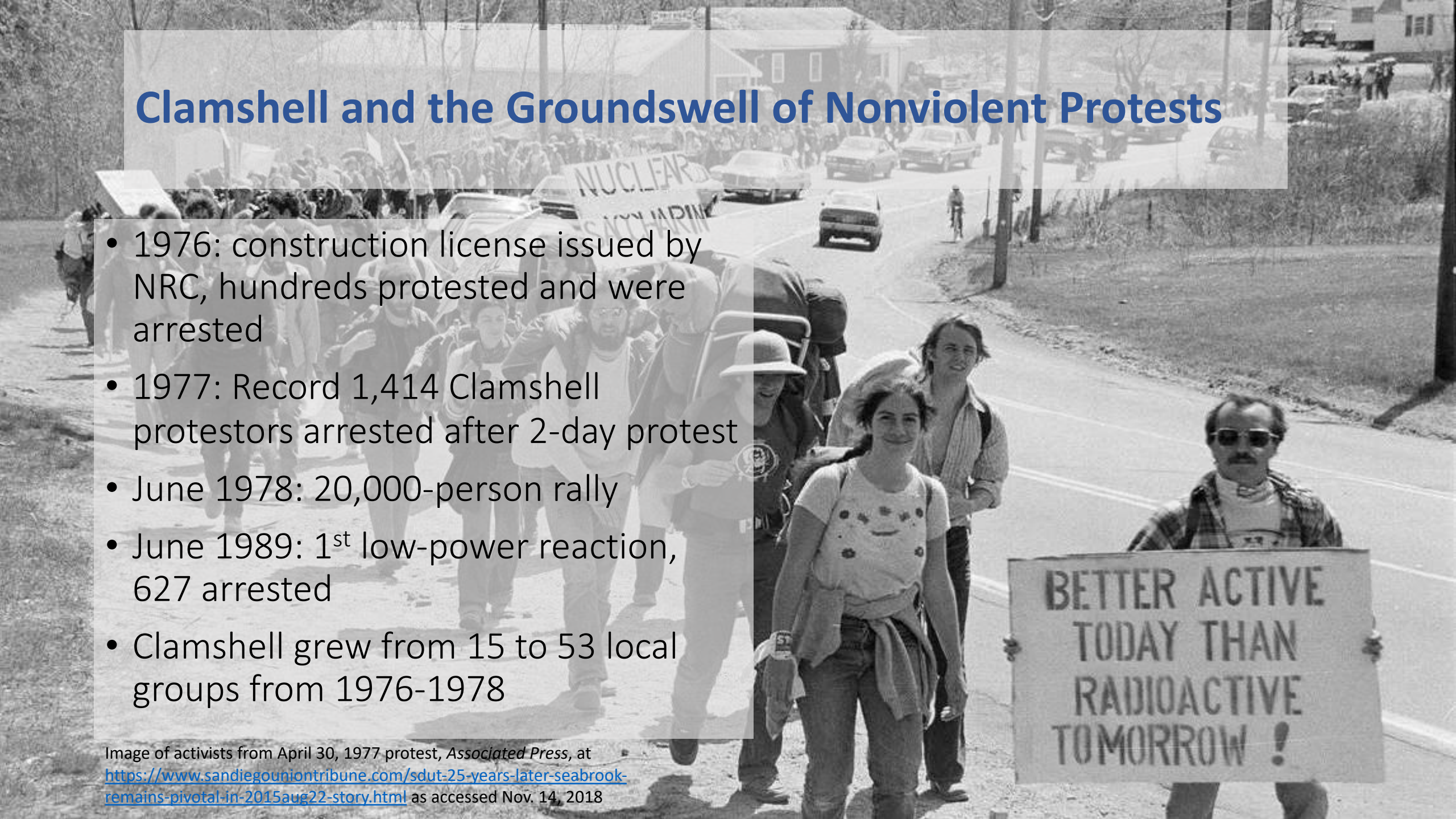
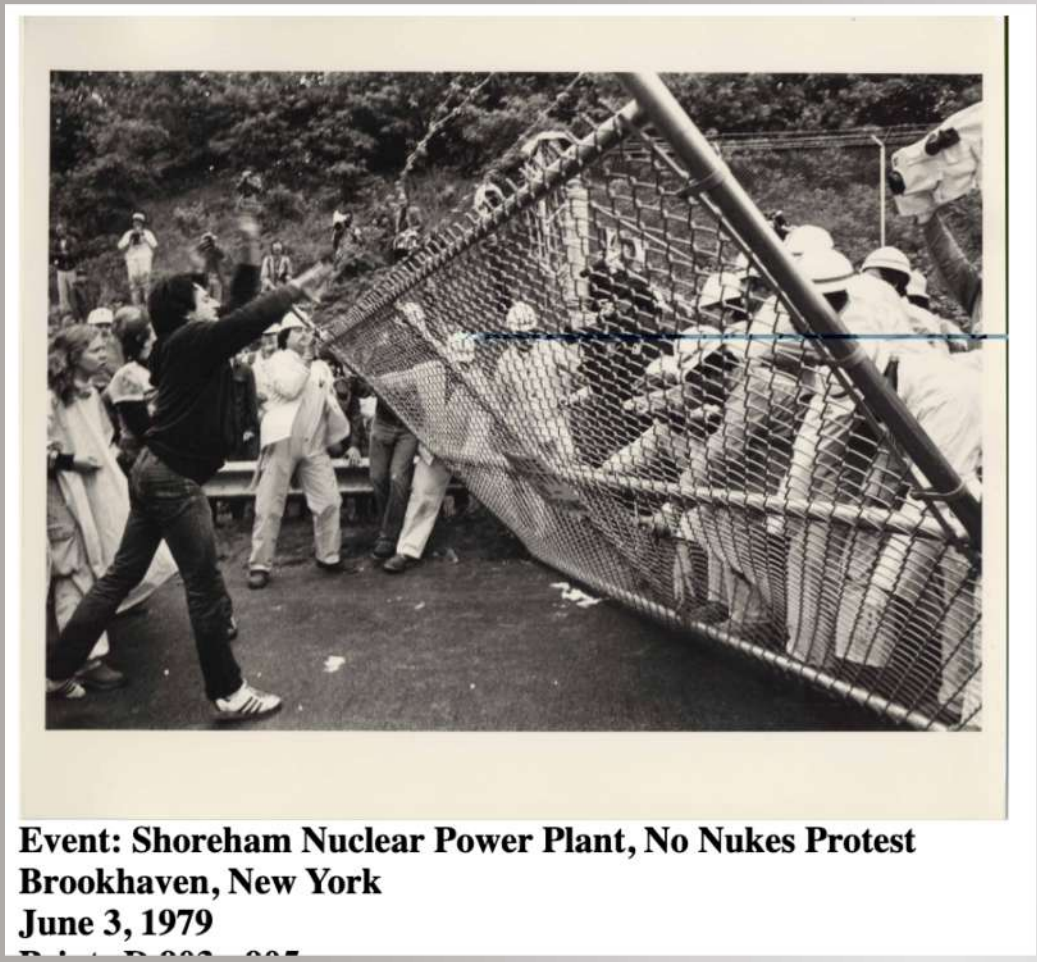


Image of activists from April 30, 1977 protest, *Associated Press*, at https://www.sandiegouniontribune.com/sdut-25-years-later-seabrook-remains-pivotal-in-2015aug22-story.html as accessed Nov. 14, 2018

A $5 billion White Elephant Never Opened: Shoreham, Long Island, NY, NPP demonstrations, June 1979



Event: Shoreham Nuclear Power Plant, No Nukes Protest
Brookhaven, New York
June 3, 1979

- On June 3, 1979, over 15,000 people protested outside the unfinished plant; this was a reaction to a partial meltdown and radiation leaks from TMI. This was a huge number of people in a town of 600 inhabitants, and perhaps the largest in Long Island history. Despite rain, anti-nuclear protestors of all ages came together to make a statement against the plant. More than 600 people were arrested.
- The demonstration reflected growing anti-nuclear sentiment in the United States, and throughout the world, in the 1970s. Additional safety concerns regarding the Shoreham plant contributed to further delays. There was worry that in the event of a meltdown, residents would not be able to evacuate. In early 1983, the state agreed that safe evacuation was indeed not feasible.

Photo: https://www.swarthmore.edu/library/peace/Exhibits/Dorothy%20Marder/MarderExhibit3_files/MarderExhibit3.html

Anti-nuclear Protest and “Nuclear Colonialism”

Indigenes and other local people were forced to give up the lands for nuclear testing: nomads in Algeria (the French), Aborigines in Australia (the British), the Marshallese, Tahitians and others in Pacific islands (US, French and British), Nenets in Novaia Zemlia and Kazakhs in Kazakhstan (Russia and the USSR).

Many of these people have also been involved in the nuclear enterprise around the world as laborers in uranium mines on their lands in these countries and in Niger, Namibia, Canada and elsewhere with significant public health costs: cancers, respiratory ailments, disabling injuries and high mortality. The operation of mines – excavating, explosions, bulldozing, transport of ore, its processing and pulverizing, the dumping of riffraff and so on and on – have likewise left behind lands scarred and polluted by industrial runoff, including of radon, uranium and other hazardous and toxic wastes.

Anti-nuclear indigenous movements arise toward the end of the Cold War

- Owing to the political power and economic strength of the authorities, and often owing to powerful arguments about the need to support the national defense that miners and their communities usually embraced during the burgeoning Cold War, indigenes in testing lands and mining regions found it difficult to organize in protest against the nuclear enterprise, and to call for fair, equitable and just public health and cleanup measures to be taken.
- Only with the end of the Cold War did such groups as “Nevada-Semilpalatinsk” (1989) come together to redress the damage of nuclear colonialism.

https://www.environmentandsociety.org/tools/keywords/nevada-semipalatinsk-movement

Environmental Impacts of Uranium Mining

Nuclear energy and nuclear bombs require extensive mining for uranium ore to use in the reactors and for enrichment. Mining activities may result in impacts to streams and other habitats. Habitat is lost, disturbed or fragmented. Streams may be crossed or buried. Soil placed in streams may change the water chemistry, affecting aquatic species. Uranium-bearing formations are usually associated with strata containing high concentrations of selenium.

- USFWS, “Nuclear Power,” at https://www.fws.gov/node/265255

Canadian Nuclear Mines and First Nation Peoples

Elliot Lake Wildcat Labor Action


ELLIOT LAKE STANDARD

Denison Mines Remains Paralyzed
As Mine Workers Strike Goes On

- Many hundreds of miners have already succumbed to the long-term effects of radiation exposure and tens of thousands more deaths are expected as a result of radioactive pollution in the coming decades. For example, in Canada, one of the largest uranium producers of the Cold War, twelve mines were opened in Elliot Lake, Ontario, in the 1950s. Mining activities peaked around 1959 and 1960 to respond to a US military needs.
- By the 1970s uranium miners noted the high incidence of lung cancer and silicosis and went on strike in protest. The Elliot Lake wildcat miners' strike in 1974 involved 1,000 uranium miners . The Ontario government appointed a commission to investigate the health effects of radiation. Studies found that by 1984, a total of 274 uranium miners had already died of lung cancer. Radionuclides from Eliot Lake operations have migrated into the Great Lakes. A Royal Commission report in 1976 finally led to introduction of occupational safety regulations in 1979.

The Nuclear Chain, "Elliot Lake, Canada, Uranium Mining Site," http://www.nuclear-risks.org/en/hibakusha-worldwide/elliot-lake.html. See also Kusiak, R A et al. "Mortality from lung cancer in Ontario uranium miners." *British journal of industrial medicine* vol. 50,10 (1993): 920-8. doi:10.1136/oem.50.10.920, and Dewar, Dale et al. "Uranium mining and health," *Canadian family physician Medecin de famille canadien* vol. 59,5 (2013): 469-71; Royal Commission Report on the Health and Safety of Workers in Mines (Ontario: Ministry of Attorney General, 1976); Elliot Lake Mining Museum at https://www.elliotlake.ca/en/recreation-and-culture/nuclear-mining-museum.aspx;

In Saskatchewan uranium mining destroys First Nation people and their land

The Denesuline have long suffered and protested against the treatment of their people from industrial organisations causing damage to their territories and the environment. Photo: ItzaFineDay via Flickr (CC BY)

Storage of nuclear waste on traditional Wolastoq territory

- In Canada, the Assembly of First Nations informed the Nuclear Waste Management Organization that attempts to incorporate indigenous knowledge into their own agenda was selective, misguided and incompatible.
- The deadly radioactive poisonous waste materials from the Lepreau reactor sitting next to the Bay of Fundy are in temporary storage units and require more permanent and safe storage to protect the land, water, air and all life into the future.
- The nuclear industry claims that the proposed nuclear reactors will “recycle” and reduce the nuclear waste from the Point Lepreau nuclear generating station. On the contrary, they will create new, dangerous radioactive waste streams that will be expensive to manage and will have to be kept out of the environment and away from people for thousands of years.

- https://theecologist.org/2016/mar/30/sacred-land-unholy-uranium-canadas-mining-industry-conflict-first-nations; https://ejatlas.org/conflict/proposed-nuclear-waste-dump-located-on-indigenous-territory-in-Saskatchewan; http://www.ccnr.org/AFN_Resolution_2017.pdf; https://nbmediacoop.org/2021/03/12/wolastoq-grand-council-resolution-on-nuclear-energy-and-waste-on-traditional-wolastoq-territory/

Mules to Missiles: Protest Against ICBMs Near Native American Lands

- The lands near reservations to which Indians were been forced to live to make room for white settlers in the Dakotas and elsewhere are sometimes the home of still-existing ICMB missile silos ready to destroy the USSR (and Russia?) in a nuclear war. But the installation of the missile silos “in the farm fields of South Dakota’s Western Plains…went largely unnoticed. Housed underground, the missiles were largely inconspicuous.” Hundreds of them also filled fields in Missouri, Montana, North Dakota, Wyoming, Colorado, and Nebraska.
- “Most residents generally accepted the nearby missile sites, and whether driven by patriotism, lack of information, indifference, fear of the missiles themselves, or preoccupation with daily life, local residents mostly ignored the missile presence … ”Organized opposition to the placement of Intercontinental Ballistic Missiles (ICBMs) from local residents during this period was virtually nonexistent.
- Local residents accepted the nuclear weapons, and local officials welcomed the economic benefits of increased military activity, but others did not like having ICBMs in the land.

Individual Protests and Small Groups Against the Missile

The missile sites appear to be empty

- In 1958 the Committee for Non-violent Action, a Philadelphia-based group, sought to stop the construction of Atlas missile sites in the Cheyenne area at Warren Air Force Base and to raise the level of public awareness and concern about nuclear weapons.
- Additional campaigns mounted against the missile silo sites and the United States nuclear arsenal included actions by the War Resisters League. In 1959 this group's "Omaha Action" drew national attention to the early Atlas ICBM deployment in Nebraska. The War Resisters League distributed pamphlets encouraging Nebraskans and others to protest nuclear weapons.
- Anti-missile protests typically involved vigils, praying at the site or on the silo cover, trespassing, damaging the surface installations by either hammering on the covers or pouring blood on the site to produce a symbolic disarming, or the delivering of statements from the activist to the military.

  According to the US National Park Service, "Throughout the protests of the 1970s and 1980s, relations between the protestors and the military personnel guarding the silo sites largely remained professional and civilized. Young guards often displayed some nervousness around the activists, perhaps because they didn't know what to expect. Protests were often planned and announced in advance, which contributed to a more controlled response from both sides of the protest line. In the words of John LaForge, an activist with Nukewatch, 'the people [guards] in charge generally understood that we weren't a threat to them.'"
- https://www.wyohistory.org/encyclopedia/wyomings-nuclear-might-warren-afb-cold-war. Photo: *Peace activists in downtown Cheyenne in August 1958 protest the construction of six new Atlas missile sites within a 20-mile radius of the city. Wyoming State Archives; and* https://www.nps.gov/articles/antinuclearactivism.htm

Indigenous Anti-Nuclear Summit (IANS)

- From 1996 IANS brought together a global network of Indigenous Peoples who had been negatively affected by the nuclear chain. These impacted areas of the nuclear chain include: uranium mining with its devastating health and environmental impacts on Navajo and Pueblo peoples in New Mexico; uranium mining industry in northern Saskatchewan with negative implications on the Chipewyan, Metis, Dene, Blood, and other Indigenous Peoples in the region; conversion fuel fabrication, and enrichment have impacted Indigenous Peoples in Oklahoma who live near the Sequoyah Fuels Uranium Processing Plant; Indigenous people, whose way of life depends upon the Columbia River where Hanford Nuclear Reservation is located (Washington/Oregon); and many others.
- The participants in IANS included: Citizen Alert Native American Program; Columbia River Education, Economic and Development; Dine' CARE; Ejit Iep Jeltok Women Club; International Indian Treaty Council; Laguna Acoma Coalition for a Safe Environment; Nuclear Free Future Campaign – Indigenous Lands – Greenpeace; Ohana Koa/NFIP Hawaii Chapter; Rural Alliance for Military Accountability; Sovereign Dineh Nation – Dineh Alliance; Tribal Environmental Watch Alliance; Uranium Radiation Victim Committee; and others.
  Indigenous Anti-Nuclear Summit Declaration September 8, 1996, at https://www.ienearth.org/indigenous-anti-nuclear-summit-declaration/

Church Rock Uranium Lagoon Spill

- The opening of underregulated uranium mines within the Navajo Nation resulted in widespread uranium contamination and exposure. The focus on the anti-nuclear movement on weapons detracts from the dangers of mining and other processes in fueling the nuclear industry and diverts public attention from environmental injustices occurring in rural, indigenous lands. Damage has been short-term and long term. The Church Rock Spill at the United Nuclear uranium mill, east of Gallup, New Mexico, on morning of July 16, 1979, involved the collapse of man-made lagoons resulting in 1,100 tons of uranium waste and 94 million gallons of radioactive water flooding into the Puerco River. This was largest radioactive release in the history of the United States and greater than the amount of radiation released at TMI.
- Eventually, the Navajo Nation banned uranium mining on its reservation that spans parts of Arizona, New Mexico and Utah.

"Navajo Nation Pushes for Uranium Cleanup," May 30, 2008 at https://www.npr.org/2008/05/30/90959034/navajo-nation-pushes-for-uranium-cleanup.
https://en.wikipedia.org/wiki/Church_Rock_uranium_mill_spill

Source. Photograph courtesy of Southwest Research and Information Center.

The nuclear industry “has poisoned our lands for fifty years”

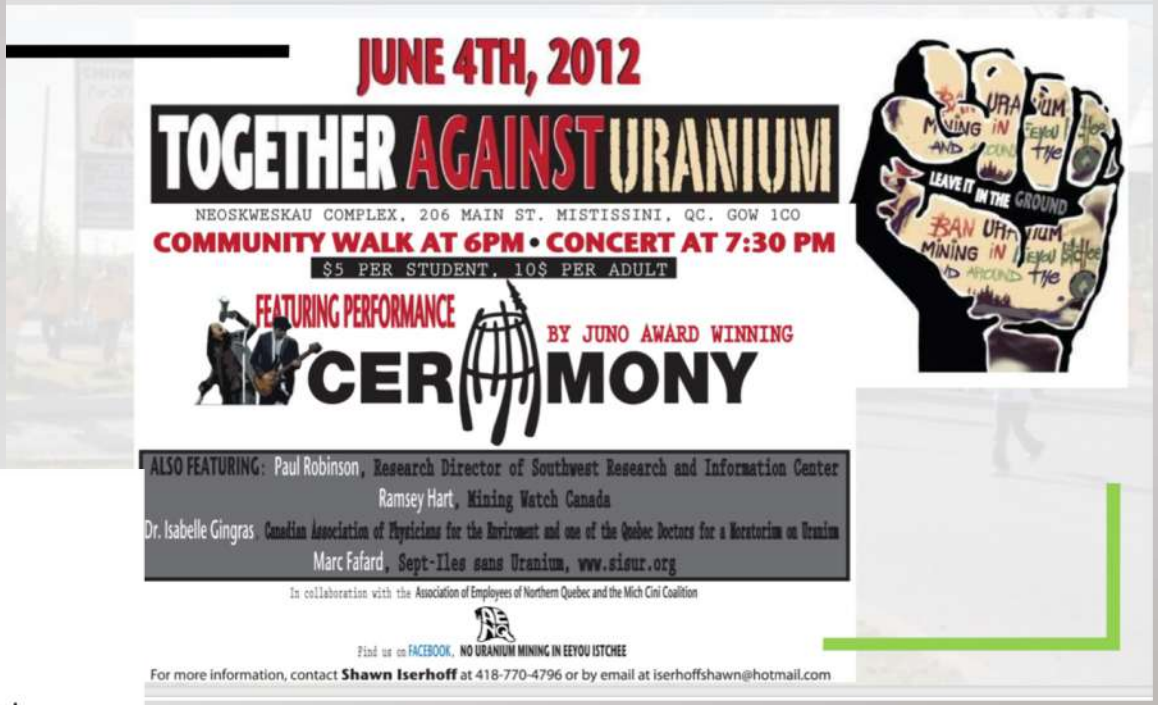
- IANS notes that “the nuclear industry which has waged an undeclared war has poisoned our communities worldwide. For more that 50-years, the legacy of the nuclear chain, from exploration to waste has been proven, through documentation, to be genocidal and ethnocidal and a most deadly enemy of Indigenous Peoples. United States federal law and nuclear policy has not protected Indigenous Peoples, and in fact has been created to allow the nuclear industry to continue operations at the expense of our land, territory, health and traditional ways of life. This system of genocidal and ethnocidal policies and practices has brought our people to the brink of extinction and amongst some Indigenous Peoples it is believed that if they die, all life on Earth will stop.”
- IANS demanded that “all levels of governments, including tribal, state, national and international…do whatever possible to stop all uranium exploration, mining, milling, conversion, testing, research, weapons and other military production, use, and waste disposals onto and into Mother Earth. We further demand increased research and development, funding allocations and utilization of sustainable energy such as solar, wind, and appropriate technologies that are consistent with our natural laws and respect for the natural world (environment).

Indigenes, Protest and the Atom: Cree People at James Bay

Stand Against Uranium Campaign

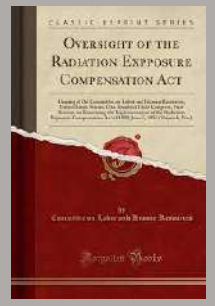
- In October 2014, the Grand Council of the Crees launch a web-based campaign to generate more awareness and gain support
- Addresses the risks associate with uranium mining that includes videos to share at the international level

Together Against Uranium!



Together Against Uranium – June 4th, 2012

- Event organized the day before the commencement of the **Canadian Nuclear Safety Commission** Public Hearings on June 5th, 2012



Years of Fear and Worry Finally Produced Compensation for Some Americans: RECA

- Only at the end of the Cold War were such nuclear veterans as miners and their families remunerated for their personal and family health and safety losses. The Radiation Exposure Compensation Act (RECA, 1990 and expanded 2000), established an administrative program for claims relating to atmospheric nuclear testing and uranium industry employment. The Act delegated authority to the Attorney General to establish procedures and make determinations regarding whether claims satisfy statutory eligibility criteria.
- Uranium miners and miners and those who worked at a processing plant or transported uranium between 1942 and 1971 qualified for $150,000 to $275,000 in compensation. But proving entitlement was a long and often unsuccessful process for Native Americans.

https://www.justice.gov/civil/common/reca#:~:text=RECA%20Covered%20Areas&text=Uranium%20Miners%2C%20Millers%2C%20and%20Ore,compensation%20of%20up%20to%20%2475%2C000.

NIMBY: Not-in-my-backyard

Of course, many people oppose, any technology, particularly a large scale one, that seems “dirty,” risky or dangerous, like a garbage incinerator or a hazardous waste dump. Those facilities are often located in or near to minority or indigenous communities because these communities often lack the wherewithal and political acumen to fight them. This is “environmental racism.”

Communities where NPPs are located often embrace them for the obvious benefits: jobs, a huge tax base, relatively inexpensive electricity,

But others do not oppose nuclear power. Rather they oppose siting reactors in their region. This is the “NIMBY” view, “not-in-my-backyard.”

NIMBY: Portuguese residents stop the Ferrel NPP

- The residents of Ferrel, Portugal, in true NIMBY fashion, sent telegrams to various officials, politicians and institutions as soon as they became aware of the intentions to build a nuclear where they lived. They angrily watched as the construction of the plant began. In the telegrams, the people expressed their opposition to the NPP and warned that they would use all legal means to stop it. Yet, answers never came and none of the politicians issued any statements on the matter.
- On March 15, 1976, a peaceful demonstration halted the construction. The protestors argued that nuclear energy posed a risk to human health and the environment. They gathered in the Ferrel church square, and to the sound of its bells, marched to Moinho Velho - the intended location for the plant - to demand that construction be stopped. They halted the works. They filled ditches and sabotaged equipment. They warned of their return to destroy everything all over again.
- The support committee for the fight against the nuclear threat (Comissão de Apoio à Luta Contra a Ameaça Nuclear, CALCAN) was established in the Peniche region to maintain pressure. In February 1977, the movement Viver é Preciso (To Live is Necessary) launched an appeal entitled "We are all residents of Ferrel" to contest the pro-nuclear policies adopted by the government at that time. The following year, approximately 3,000 people came together to attend the Festival pela Vida e Contra o Nuclear (Festival Yes to Life, No to Nuclear Power) in Caldas da Rainha. No stations have been built in Portugal.

BARCA, STEFANIA, and ANA DELICADO. “Anti-Nuclear Mobilisation and Environmentalism in Europe: A View from Portugal

Temelin: Austria's NIMBY

- Temelin NPP was a typical socialist nuclear project. Planning and construction lagged behind glorious socialist targets. Fifteen years of discussion led to the start of construction of four Soviet VVER (PWRs) in 1987 to be completed in an unheard of four years. The authorities raised six villages to start work.
- For Austrians, who rejected nuclear power in a referendum in 1978, the construction of NPPs on the Czech-Austrian border triggered extensive protest.

The Fall of the Berlin Wall, the Velvet Revolution and the end of Temelin?

- But after the Velvet Revolution (1990) the new Czech government ceased units 3 and 4, and 1 and 2 were completed only after long delay with the help of Westinghouse.
- Over the years local and international protests arose against the plant's construction, including large civil disobedience actions in the 1990s.
- In September and October 2000, Austrian anti-nuclear protestors blocked all 26 border crossings between Austria and the Czech Republic, and the reactors were commissioned in 2000 and 2002.

Temelin Blockade, 1997: “Sit here, like this!”

- “Many will come to the construction site of this monumental building, sit down on the road and put their bodies in the way of cars, trucks, and trains going in and out. Peacefully, but boldly, we will insist on not leaving until our demands that the plant be closed are met. If others want us to leave, then they’ll have to drag away those who hold firm for their ideals.”
- “In a place of rolling green hills and playful streams, this concrete monster has come invading skyline and the space where three villages once stood.”
- “In case of an accident, many of us will be forced to leave our contaminated land and homes. If the scientists don’t discover a safe way of dealing with radioactive waste, then we will be left with it.. Thousands of future generations will contend with this waste - waste that contains the most toxic substances known … Whoever is a democrat -- they can sit here like this!
- ‘Westinghouse is only after profits. … Those who don’t want decisions about the future of South Bohemia being made by investors living in Moscow or Washington - they can sit here like this!”

https://web.archive.org/web/20100917090032/http://www.ecn.cz/temelin/blockade.htm

The Clean Energy Brigades Camp - Positive Action Against Temelin

- Clean Energy Brigades encouraged local people to “winterize” their homes and employ other energy efficiencies to cut the demand for electricity as one other way to stop the Temelin NPP: “window and door insulation, energy effecient light bulbs, and heating pads. This service is done voluntarily and free of charge - the home owner only has to pay for the materials.”

June 23rd - the blockade (July 6th), 1997, at https://web.archive.org/web/20100917090106/http://www.ecn.cz/temelin/BRIGADES.HTM#How%20do%20I%20get

What is nuclear power? Is it green? Is it energy and jobs?

- Is it peaceful? Is it authoritarian and risky?
- The Czech government's decision to proceed with a controversial nuclear power station has angered Austria, only 60 km away.
- See Video at:
  http://euscreen.eu/item.html?id=EUS_1A4B4F90CCB04F29A87C5DACCD3ABFB9

Temelin Bikini Contest: Industry fights protest with feminity?

In the effort to show a peaceful, perhaps even feminine side of nuclear power, the Temelin operators held a bikini contest in 2017 to attract young girls for summer internships at the station. The operators apologized for any misunderstanding and agreed to hire all of the contest participants to work with the peaceful atom, thereby getting what they wanted in the first place: young women to work at the station.

http://www.praguemorning.cz/nuclear-power-plant-in-temelin-hosts-bikini-competition-to-choose-interns-RAdq5aEbgu

Finland: A nuclear nation, dating to Soviet-built reactors from the 1970s

- Finland has five operating nuclear reactors.
- A further reactor was planned toraise the contribution of nuclear power to 60% of the nation's capacity and replace replace coal.
- Provisions for radioactive waste disposal are well advanced.

- Here Loviisa NPP→

Reactor Name	Model	Reactor Type	Net Capacity (MWe)	Construction Start	First Grid Connection
Loviisa 1	VVER V-213	PWR	507	1971-05	1977-02
Olkiluoto 1	ABB-III, BWR-2500	BWR	890	1974-02	1978-09
Olkiluoto 2	ABB-III, BWR-2500	BWR	890	1975-11	1980-02
Olkiluoto 3	EPR	PWR	1,600	2005-08	2022-03
Loviisa 2	VVER V-213	PWR	507	1972-08	1980-11

Onkalo Waste Repository

- Under the forests of Olkiluoto, an island off Finland's west coast
- Finland had about 2300 tons of waste in 2019, and about 263,000 tons of spent fuel sit in interim storage facilities worldwide
- Up to 450 meter below ground level, Onkalo will store spent fuel from all of Finland's nuclear power reactors for thousands of years. The repository is based on the 'KBS-3' disposal concept developed by the Swedish Nuclear Fuel and Waste Management Company (SKB), working with Posiva Oy, the Finnish company responsible for the disposal of spent nuclear fuel.

Protests against Olkiluoto NPP and Onkalo Expanded after Fukushima

- In the morning of August 20, 2011, activists blocked the roads to the Olkiluoto NPP. About 100 people twice prevented access to the main road to the nuclear site and also a smaller access road with a tripod. Some 50 people were detained by police and released until the evening.
- Olkiluoto is well over cost and long-delayed.
- The Onkalo Repository is only 3 km from the Olkiluoto NPP.

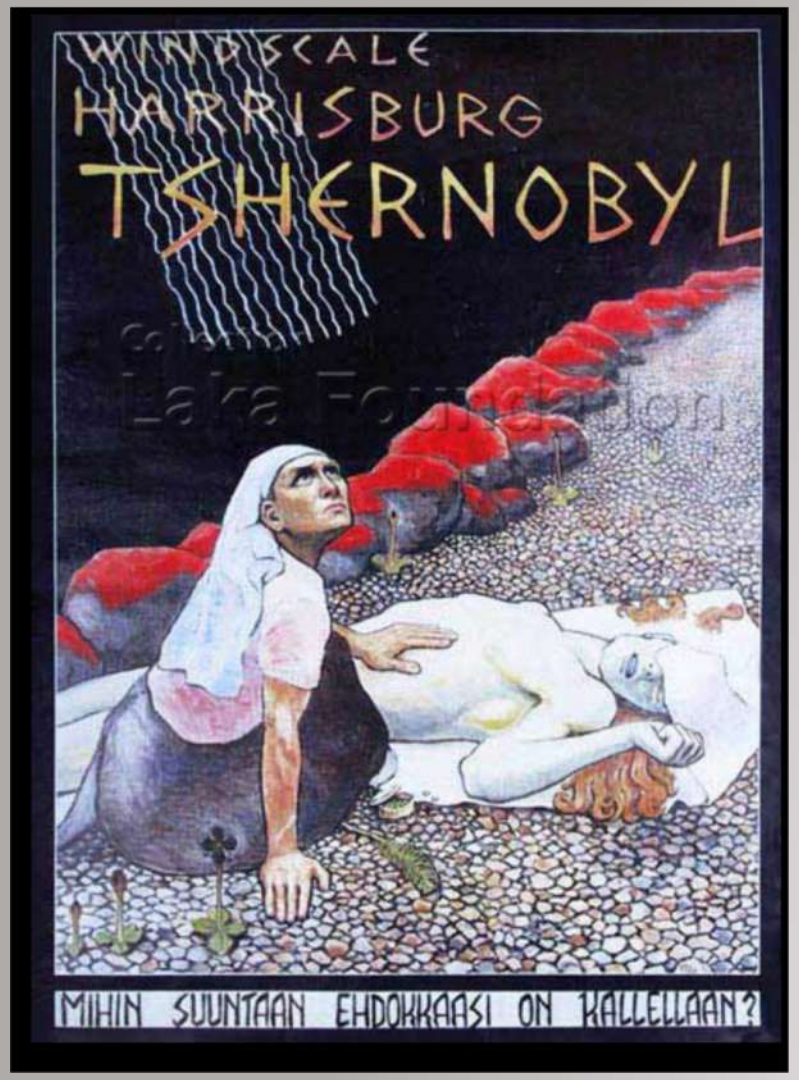
Finland Abandons Russian-built Reactor

Finnish Group Cancels Rosatom Nuclear Plant Contract Over Risks Exacerbated By Ukraine War

An illustration shows the planned Hanhikivi nuclear plant

- National protest: the planned Hanhikivi 1 reactor, a 1,200 MWe Russian-built VVER has been canceled in protest against Russia’s war and genocide in Ukraine in 2022

Protests against mining in minority districts of Finland commenced after Chernobyl



The French Technocracy and the Nuclear Protester

Producing 70% of its electricity from the atom, France fully embraced nuclear power in the postwar years in part to achieve energy independence, in part to accelerate recovery from the humiliating defeat to Nazi Germany. The atom would confirm France's scientific greatness and its stature next to the other nuclear powers: the US, USSR and UK. But building over fifty reactors came with social protest over siting in small rural communities, concerns over waste storage, worries about safety, and rejection fo reactors as interrupting bucolic nature.

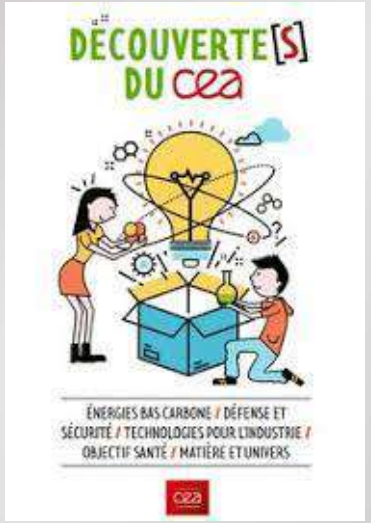
France: a Thoroughly Nuclear Nation

Belleville 1 NPP on the Loire

- Industry built on secrecy and close ties of military and civilian nuclear enterprises
- Industry is state-centered, run in a technocratic fashion with the goal to reach energy independence
- In the postwar years, France sought the atom to be an equal with US, USSR and UK, in part to put the embarrassing defeat to Germany in World War II behind. as leaders
- Ultimately embraces the US PWR; France derives about 70% of its electricity from nuclear energy, due to a long-standing policy based on energy security
- Presently there are 56 operating reactors at 61,370 MWe total capacity

France's Atomic Visions Collide With National Protests

- As in other countries infatuated with the atom, France advanced unrealistic plans as part of the March 1974 government plan announced by prime minister Pierre Messmer plan to build 100 reactors on 40 sites by 2000 at an estimated cost of 177 billion francs. The unrealistic "Messmer Plan" triggered protest against nuclear power at planned NPPs around the country.
- In November 1969, strikes broke out at the sites in Marcoule and Saclay, and workers, technicians, scientists, and engineers gathered in Paris, to protest against the decision to terminate the gas-graphite program for PWRs.
- Other protests culminated in 1977 in violence between the activists and the polices at the planned site for an LMFBR, Superphénix", at Creys-Malville →
- In response, the French industrial leader, EDF, mounted a PR effort to educate the public that rekindled public faith.



The Breeder Reactor Superphénix: Site of Confrontation

- Superphénix became the symbol and key target of anti-nuclear opposition. Plans to construct Superphénix advanced quickly in the early 1970s. But mandatory local “public inquiries” required by law to obtain licences enabled interveners to postpone the facility. The intervention revealed mounting opposition against the project, composed primarily of academics from the large cities close to the planned site in Creys-Malville (Lyon, Grenoble, and Geneva). Roughly 100 “Malville committees” were created.
- In summer 1976, the first large demonstration attracted over 15 000 participants, including farmers from the nearby regions, and ended in violent confrontation with the police.

France: Tens of thousands of protesters

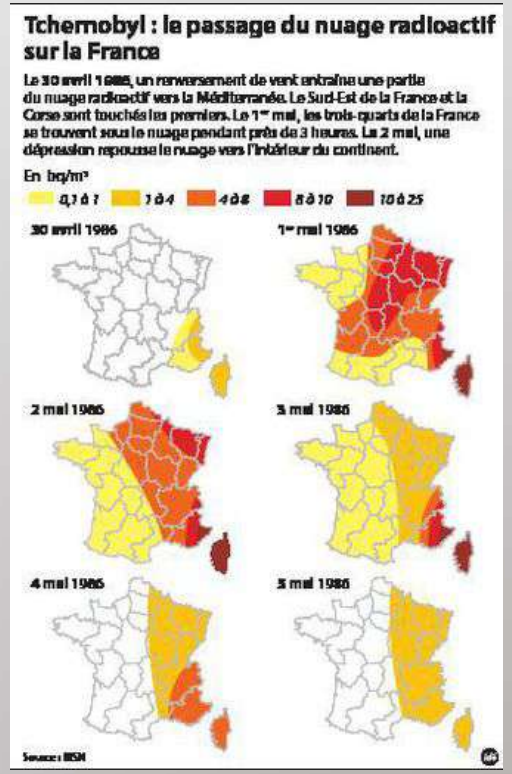
- A second major demonstration in Creys-Malville in July 1977 gathered almost 90,000 opponents. A clash with the police led to the death of one demonstrator, Vital Michalon, a 31-year-old physics teacher. This violent confrontation left enduring marks in society and paralyzed the anti-nuclear movement, and many sympathizers turned away from anti-nuclear action.
- Over ten years later, in 1988, environmentalists and consumer organisations launched a “Grenoble petition” demanding the closure of Superphénix. In 1989, the Comité européen contre Superphénix, consisting of organizations from France, Switzerland and Italy joined the battle.
- The breeder reactor itself suffered cost overruns, delays and accidents, operated very poorly, and was eventually mothballed.

Where to store the waste

- Another protest arose over the efforts of the national radioactive waste management agency, Andra, established in 1979, for construction of long-term waste disposal facilities, and research on the methods and processes of long-term management of radioactive waste.
- In 1987, ANDRA launched investigations to identify suitable disposal sites. The test drillings at four potential sites led to vehement opposition and protests.

Controversy over French Handling of the Chernobyl Disaster (1986)

- In support of nuclear energy at home, the French government downplayed the true extent and dangers of the Chernobyl fallout in France. This engendered mistrust towards the government and industry as sources of information especially on the risks of nuclear power.
- The government response strengthened the authority of counter expert among citizens in two organizations, ACRO and CRII-RAD.
- (In late 1996, a random veterinary analysis of a wild boar shot by a hunter in the Vosges revealed significant levels of contamination by cesium-137. Further research by ISPN found greatly elevated levels of radioactivity also in mushrooms and berries, and to the discovery of further 'hot spots' in the mountains near the Italian border, and in Corsica.



See also Cui, Limeng et al. "Radiocesium concentrations in wild boars captured within 20 km of the Fukushima Daiichi Nuclear Power Plant." *Scientific reports* vol. 10,1 9272. 9 Jun. 2020.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Japanese Protest Against Nuclear Power

While the victim of two nuclear bombs on Hiroshima and Nagasaki in August 1945, Japan and its leaders still chose to pursue nuclear power from the 1960s and 1970s. They sought energy independence, and believed through proper management they could build and operate several score reactors in pursuit of energy security. Anti-nuclear sentiment was present among Japanese citizens from the start, however, some of which was tied to Hiroshima.

Eventually local groups more actively fought siting of NPPs, and urban residents came to sympathize with them. A number of national groups tied to environmental concerns also opposed nuclear power, waste handling and fuel reprocessing facilities which they likened to other industrial polluters, as did exposes of government secrecy over several accidents. The Fukushima disaster (March 2011) led to a shutdown of NPPs, although several were restarted from 2015. The clean-up is costly, never ending, and it too has generated protest.

Japan: After Hiroshima and Nagasaki, Pursuit of Nuclear Power for Energy Independence

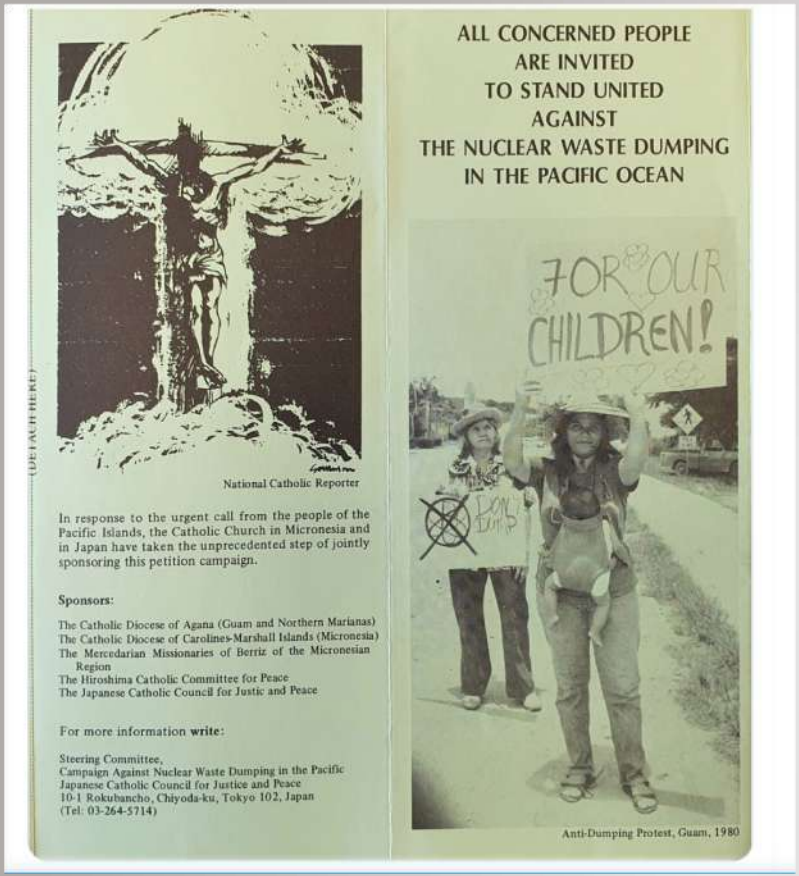
First World Conference Against Atomic and Hydrogen Bombs, 6 August 1955

- In 1953, US President Dwight Eisenhower made his famous "Atoms for Peace" speech, encouraging the development of civilian nuclear power. The Japanese government introduced the Atomic Energy Basic Act in 1955 and Japan's first experimental nuclear reactor commenced operation in 1958. The Atomic Energy Damage Compensation.
- Guidelines for siting nuclear reactors were established in 1964 and it was decided that nuclear reactors would only be built in depopulated areas. Despite recognize of the potential for earthquakes to cause accidents at NPPs, the government rapidly pursued nuclear power.
- The first commercial nuclear reactor began operations in 1970. On the eve of Fukushima there were 33 reactors in operation with total capacity of 32 GWe.
- The following five slides: source: Oguma Eiji, "A New Wave Against the Rock: New social movements in Japan since the Fukushima nuclear meltdown," trans. Alexander Brown, *Asia-Pacific Journal*, vol. 14, Issue 13, no. 2 (July 2016), at At https://apjjf.org/2016/13/Oguma.htm

From the Start Nuclear Power Generated Opposition in Japan

- Despite the Japanese government's firm support for nuclear power, and the financial rewards to localities that accepted nuclear power plants, a 1969 survey by the prime minister's office revealed that only 18% were in favor of a nuclear reactor being built in their neighborhood while 41% were opposed. At that time, no serious nuclear power accident had occurred anywhere in the world.
- Environmentalism triggered concern about NPPs. Japan's rapid economic growth led to widespread water and air pollution problems. These issues spurred the development of an antipollution movement. Growing local opposition to nuclear power occurred in this context.
- In 1973, the government was forced to introduce the first system of subsidies to host municipalities in order to promote the construction of nuclear power plants.

Anti-nuclear Movements were limited owing to Communist Support for NPPs



- Another reason for the lack of a significant antinuclear power movement in Japan prior to the 1960s was that the Japan Communist Party (JCP), which exercised a powerful influence on Japan's social movements up until the 1970s, was in favor of nuclear power. In international affairs, the JCP also supported the right of the socialist camp to possess nuclear weapons and opposed that of the capitalist camp. In this context, support for the "peaceful use" of nuclear power did not pose a contradiction for the JCP.
- The Japan Socialist Party (JSP), on the other hand, was opposed to nuclear power because of pollution; many people regarded nuclear reactors as yet another large-scale industrial facility that might cause environmental damage.

Local Opposition Among Japanese Farmers and Fishers Grows

- Residents in areas designated for nuclear power plant construction came to oppose nuclear power, in particular farmers and fisher folk.
- Students, workers and urban intellectuals came to support local residents in areas designated for nuclear power plant construction.
- From the late 1960s, housewives based in the cities formed the core of the citizens' environmental movements. After the 1986 Chernobyl nuclear accident, middle-class housewives joined the antinuclear movement when reports emerged of imported foodstuffs being contaminated with radioactive materials.

NIMBY and all-national protest against building a repository for SNF has long been active

- Japan has about 20,000 tons of SNF with 35,000 expected by the mid-1930s
- It turned to study of the SNF issue only in the 1980s and 1990s
- Japan ships MOX fuel to France, and will also send SNF from the decommissioned Monju breeder to France by 2034. But a large scale storage facility is required.

Citizens' Nuclear Information Center (CNIC)

- Anti-nuclear groups include the Citizens' Nuclear Information Center (CNIC), Stop Rokkasho (fuel recycling facility), Sayonnaro Nuclear Power Plants and Hidankyo (Hiroshima survivors).
- The protests have had some success. Ninety-five projects resulted in only 54 NPP completions.
- Those canceled included: Maki, Kushima, Ashihama, Hōhoku and Suzu NPPs.
- CNIC members demanded closure of stations, publicized information about earthquake dangers and held symposia, for example on "Acute and Late Consequences of Nuclear Catastrophes: Hiroshima-Nagasaki and Chernobyl."
- In 1982 Chugoku Electric Power Co. proposed building an NPP in Iwaishima. Local residents opposed it, and the island's fishing cooperative voted overwhelmingly against it. In January 1983, almost 400 islanders staged a protest march, the first of more than
- https://cnic.jp/english/. https://cnic.jp/english/newsletter/nit123/nit123articles/kkearthquake.html; https://cnic.jp/english/publications/jco_residents.html; https://cnic.jp/english/publications/proceedings.html; http://cnic.jp/english/topics/cycle/rokkasho/index.html. Photos from CNIC webpage.

Another Group, "Stop Rokkasho," Sought to Prevent a Nuclear Fuel Reprocessing Facility from Operating

- "Stop Rokkasho" activists fought to close the Rokkasho Nuclear Fuel Reprocessing Facility with its annual capacity of 800 tons of uranium or 8 tons of plutonium, located on the Pacific coast of the northernmost part of Honshu. Construction of the plant began in 1993, and was originally expected to be completed in 1997, but the completion date has been postponed 23 times by 2017. The costly project is at least four times over the original cost at $28 billion.
- Consumers Union of Japan and almost 600 organizations and groups participated in a protest on January 27, 2008, in Tokyo against the plant, including fishery associations, consumer cooperatives and surfer groups.
- Critics also worry about plutonium proliferation – and Rokkasho could separate several tons of plutonium per year while a nuclear weapon requires only several kilograms.
- See http://stop-rokkasho.org/ and http://www.nishoren.org/en/?p=35. See "Japan Nuclear Fuel Skipped Safety…For 4 Years," at https://www.japantimes.co.jp/news/2017/10/12/national/japan-nuclear-fuel-skipped-safety-checks-rokkasho-plant-14-years/

Japan Nuclear Fuel Ltd.'s Rokkasho reprocessing plant in Rokkasho Village, Aomori Prefecture, allegedly violated safety rules for over a decade. | BLOOMBERG

Note the "green" wind turbines that power the reprocessing plant.

“Sayonara Nuclear Power Plants!”

Anti-nuclear protesters stage a rally Tuesday outside City Hall in Satsumasendai, Kagoshima Prefecture, before the municipal assembly voted in favor of restarting Kyushu Electric Power Co.'s Sendai nuclear plant. | KYODO

- Sayonara Nuclear Power Plants (in Japanese “10-Million People Action [to say] Goodbye to Nuclear Power Plants") was a signature drive to end nuclear power in Japan. After the Fukushima disaster in March 2011 most Japanese people came to support the zero option on nuclear power, and the government promised to make the country nuclear-free by the 2030s.
- The government promised no new construction of nuclear power plants, a 40-year lifetime limit on existing nuclear plants, and any further nuclear plant restarts will need to meet tough safety standards of the new independent regulatory authority.
- But former PM Shinzō Abe (from 2012) put nuclear energy back on the political agenda and planned to restart as many reactors as possible in part to reduce greenhouse gas emissions with the goal for nuclear power to meet at least 20% of Japan's electricity consumption by 2030.

https://thebulletin.org/2015/08/why-was-the-sendai-nuclear-power-plant-restarted/;
https://www.japantimes.co.jp/news/2014/10/29/national/local-government-gives-ok-restart-sendai-nuclear-power-plant-kagoshima-prefecture/

A series of serious accidents raised concerns, even as the Japanese government shielded information

- Interestingly, TMI and Chernobyl had much smaller effect on the Japanese industry than in several other countries. But from the mid-1990s several nuclear related accidents and cover-ups in Japan eroded public perception of the industry, resulting in protests and resistance to new plants.
- 1) In the Tokaimura nuclear accident In 1999 three workers received high doses of radiation when preparing fuel for an experimental reactor. The criticality accident continued intermittently for 20 hours. A total of 119 people received a radiation dose over 1 mSv from the accident. Two people died. (http://www.nuclear-risks.org/en/hibakusha-worldwide/tokai-mura.html)
- 2) The Mihama steam explosion involved the sudden rupture of a pipe carrying pressurized water in the secondary circuit of the power station. Eleven persons who were in the turbine hall at that moment were seriously burned (scalded). Four of them died. The pipe had eroded over years and was not replaced. (http://www.shippai.org/fkd/en/cfen/CB1011025.html)
- 3) Coverups of accidents at Monju breeder reactor that included a leak of some 700 kg of non-radioactive sodium to be spilled which led to a two-year shutdown

Mihama Steam Explosion; 800 tons of coolant were released.

The Earth Quaked Before Fukushima: A Carefully-studied Risk

Protest over earthquake dangers ↑
Seismologist Katsuhiko Ishibashi →

- In 2007 the largest station in the world, Kashiwazaki-Kariwa NPP was completely shut down for following an earthquake.
- In 1997 the seismologist Katsuhiko Ishibashi analyzed a likely NPP disaster scenario near a major population center resulting in an uncontrollable release of radiation that made damage control and rescue impossible, and severely impeded the evacuation of the population,
- In January 2011, five Japanese young people held a one-week hunger strike outside the Yamaguchi City Prefectural Government offices to protest site preparation for the planned Kaminoseki plant. https://www.panorientnews.com/en/news.php?k=716
- It was to be built on landfill in a national park at the picturesque Seto Inland Sea. For over three decades, local residents, fishermen, and environmental activists have opposed the plant.
- https://web.archive.org/web/20110902124656/http://mdn.mainichi.jp/mdnnews/news/20110813p2g00m0dm011000c.html

Japan Sits on the "Pacific Ring of (Seismic) Fire"

- Real time seismic activity provided on the internet at https://www.jma.go.jp/bosai/map.html#11/33.651/130.43/&elem=int&contents=earthquake_map&lang=en
- After Fukushima, protesters called for the Hamaoka nuclear-power plant, about 200 km southwest of Tokyo, to be shut down; it was likely to experience an earthquake of magnitude 8.0 or higher within 30 years.
- With its low sea wall and close proximity to the ocean on Japan's east coast, the plant shares characteristics that made Fukushima Daiichi so vulnerable.
- Prime Minister Naoto Kan ordered the NPP closed, but the operator, Chubu Electric Co., waited three days to follow the order.

Growing Protest About Nuclear Safety in the 2000s Before Fukushima

- NIMBY, but also well-founded concerns about Tsunamis and earthquakes
- The growing antinuclear movement that called for a moratorium on new NPPs, shutdowns to ensure seismic safety, greater openness about accidents and worries about safety and proliferation provided a backdrop to protests that spread throughout the nation after the Fukushima Daiichi disaster of March 2011 when a Tsunami destroyed the NPP leading to meltdowns, explosions and extensive pollution on land and in the ocean. The plant simply was not prepared for any Tsunami, let alone the one that struck the station.

Nationwide Protest After Fukushima

The Fukushima disaster has likely changed attitudes toward nuclear power in Japan forever. There has been " "nothing short of a nationwide loss of faith, not only in Japan's once-vaunted nuclear technology but also in the government, which many blame for allowing the accident to happen." Stabilizing the destroyed reactors came first, then clean up began. And then protests gripped the nation.

Sixty thousand people marched in central Tokyo on 19 September 2011, chanting "*Sayōnara* nuclear power" and waving banners calling Japan's government to abandon nuclear power.

As would Catholic leaders in the Philippines, the Bishop of Osaka, Michael Goro Matsuura, called on Christians worldwide to support the anti-nuclear campaign. In July 2012, 75,000 people gathered near in Tokyo for the capital's largest anti-nuclear event yet. "Organizers and participants said such demonstrations signal a fundamental change in attitudes in a nation where relatively few have been willing to engage in political protests since the 1960s."

https://en.wikipedia.org/wiki/Anti-nuclear_power_movement_in_Japan

Fukushima Protest

- Protesters represented all of the social strata of society, and not only nearby residents. These included farmers and fisher folk confronting radioactive contamination, housewives alert to the radioactive contamination of foodstuffs and the special risk to infants and children, intellectuals critical of nuclear power in an earthquake-prone nation, and other social groups that engaged in anti-nuclear movements.

Fukushima Wastewater: *Tritium-kun* Cartoon

- The cleanup accumulated 1.37 million tons of radioactive water that is stored on site, and continues to accumulate. But the utility for Fukushima, TEPCO (Tokyo Electrical Power), intends to release some of this water into the Pacific Ocean.
- Space is finite and TEPCO claims it has no room to build new tanks, leading to a decision to release some of this treated water into the Pacific Ocean.
- The local fisheries cooperatives fiercely oppose releasing contaminated water into the sea because this will further undermine consumer trust in the safety of Fukushima seafood.
- In response, the Japanese Government and TEPCO have tried to raise public understanding of tritium and its danger, through *Tritium-kun*, a cartoon mascot of a tritium molecule intended to familiarize the public with the idea that tritium is naturally occurring and regularly released into the water from NPPs. Public response was furious and negative as patronizing and insulting, and Tritium-kun was withdrawn a few days later.

Leslie Mabon, “Fukushima, fishing and the future of coastal communities: can the clean-up of a nuclear disaster help rethink the role of place and community in tackling climate change?” the British Academy BLOG October 26, 2021, and Tritium-kun, 「信じられない」「超かわいい」福島県でも賛否両論　復興庁が作ったトリチウムを説明する動画 , https://www.youtube.com/watch?v=QcoG0nzTnm8, April 14, 2021, at https://www.youtube.com/watch?v=QcoG0nzTnm8

Korean Power and Protests

Nuclear power is a major power source in South Korea, providing 29% of the country's electricity with a total capacity of 20.5 GWe from 23 reactors. In 2012 South Korea had plans for significant expansion of its nuclear power industry, and to increase nuclear's share of generation to 60% by 2035 based on Korean-built reactors. Eleven more reactors were scheduled to come online in the period 2012 to 2021, adding 13.8 GWe in total.

But in 2013 the government cut back significantly in plans following a huge safety scandal involving falsification of safety documentation that led to the shutdown of two nuclear reactors after discovering that they were using parts supplied with forged quality certificates. This came at the time of the fallout of the Fukushima Daiichi NPP disaster in March 2011. The new plan still involved increasing 2035 nuclear capacity by 7 GWe to a forecast 43 GWe. But this, too, was scaled back and abandoned. In 2020 the government announced that the number of nuclear reactors would be reduced to 17 by 2034, after a peak of 26 in 2024.

Korean anti-nuclear sentiment was relatively muted until the Fukushima disaster, and in any event environmental activism was limited until democratization of Korean politics in the 1980s. In grew upon government efforts to locate an SNF repository in poor, remote regions. Now the anti-nuclear movement in South Korea consists of environmental groups, religious groups, unions, co-ops, and professional associations. Catholic groups, for example, see military and civilian technologies as closely connected and that both must be abandoned.

NIMBY: No repository.


청와대앞 반핵 집회 12일 전북 부안군 핵정책반대 부안기독교모임 회원들이 청와대 앞에서 핵정책 전면 전환을 요구하는 집회를 열고 있다. 서울/뉴시스

아시아포럼 반핵 시위

- Until 2003, civil activists, with the support of environmental organizations, appeared to have succeeded in preventing the government from locating nuclear waste storage facilities in poor or remote areas, such as Yeongdeok, Anmyeon-do, Guleop-do and Buan.
- In November 2003 in Buan resistance by roughly 5,000 civil activists and local residents ended in violence, and 20 people, including the local mayor, Kim Jong-gyu, were injured.
- The government and KEPCO's cooptation strategy overturned that trend of civil resistance in 2005 when they offered US$250 million to any city prepared to host a storage facility for low- and medium-level radioactive wastes such as work clothes, gloves, and waste filters. Four cities came forward, attracted by the prospect of funds to boost their stagnating economies.
- Despite strong protests by anti-nuclear activists, Gyeongju became the winner after 89.5 percent of its voters came out in support of the project in a local referendum. The issue of where to locate radioactive waste storage facilities, by its very nature, was unable to attract national attention or prompt joint anti-nuclear demonstrations.

Sung Chull Kim, "The Spectrum of Nuclear Environment in the Korean Peninsula: Military Security, Energy Security, and Civil Activism," Draft Essay, May 2022; and http://kfem.or.kr/?p=54421. See also Seungmi Chung, Kun Hee Kim, Yeseul Park & Hyomin Kim (2021) A Site of Bounded Imaginaries: Local Narratives of Buan after Protests against a Nuclear Waste Repository, East Asian Science, Technology and Society: An International Journal, 15:3, 354-376

Anti-nuclear sentiment grows after Fukushima; Korea fishing grounds are endangered.

- The anti-nuclear movement consists of environmental groups, religious groups, unions, co-ops, and professional associations. In December 2011, protesters demonstrated in Seoul and other areas after the government announced it had picked sites for two new nuclear plants.
- Among the most active South Korean anti-nuclear organizations the Korean Federation for Environmental Movement (KFEM). KFEM leads campaigns for a denuclearization, both in terms of weapons reduction and power generation solutions.
- In March 2012, on the first Fukushima nuclear disaster anniversary, South Korean environmental groups rallied in Seoul against nuclear power. Over 5,000 people attended, demanding that President Lee Myung-bak abandon a pro-nuclear policy.

지.구.의.벗 www.kfem.or.kr Friends Of the Earth Korea
환경운동연합
Korea Federation for Environmental Movements

- https://en.wikipedia.org/wiki/Anti-nuclear_movement_in_South_Korea

Korean Parts & Equipment and Fisheries Scandals

- Fishermen forced the state-owned utility Korea Hydro and Nuclear Power (KHNP) to change the names of two NPPs when their catches were associated with those stations. The public believed their catch had been tainted by being hauled in near the reactors. The public connected the main catch of yellow corvine fish with the Yonggwang plant in South Jeolla province. It was renamed the Hanbit plant. Crabbers near the Ulchin plant in North Gyeongsang province had lost their market; it was renamed the Hanul NPP.
- This came at a time in 2013 when the government cut back significantly in plans following a huge safety scandal involving falsification of safety documentation that led to the shutdown of two nuclear reactors after discovering that they were using parts supplied with forged quality certificates

Role of the Korea Green Foundation

- Choi Yul, president of Korea Green Foundation, founded in 2002, contended that Fukushima made clear the need to abandon nuclear power. He said "The March 11 disaster has proven that nuclear power plants are not safe." Choi noted anti-nuclear sentiment had grown amid the Fukushima crisis, and there is a chance to reverse the country's nuclear policy. He called for spreading the anti-nuclear movement internationally and the creation of the Network for Nuclear Free East Asia.

환경재단
K-GREEN FOUNDATION

Catholic Religious Groups and Women's Groups – as in other countries – call for a Non-nuclear World

- The South Korean "East Coast Solidarity for Anti-Nuke Group," formed in January 2012, grew from the efforts of the Justice and Peace committees of the four Catholic dioceses of Andong, Busan, Daegu, and Wonju. The group rejects both nuclear power and nuclear weapons. The group asked the government to cancel its plans for new nuclear power plants at Samcheok and Yeongdeok, and demanded the closure of existing nuclear reactors in Wolseong and Gori, and release of information about them.
- In January 2012, 22 South Korean women's groups appealed for a nuclear-free future, saying they believe nuclear weapons and power reactors "threaten our lives, the lives of our families and all living creatures". The women said they feel an enormous sense of crisis after Fukushima which demonstrated the destructive power of radiation in the disruption of human lives, environmental pollution, and food contamination

Socialist Governance and the Beginning of Public Protests

The socialist nations of Eastern Europe sought and embraced the peaceful atom in the 1950s. They willingly accepted aid from the USSR -- equipment, isotopes, experimental reactors and particle accelerators, and support for their training programs. They became members of the Joint Institute for Nuclear Research in Dubna, Russia, that was intended for the fraternal socialist countries. They assumed that nuclear power would bring them socialist modernity: a higher standing of living, cutting edge science and international prestige.

Under socialism, dissent was strictly limited, and any kind of criticism had to be muted and offered through existing channels of the Communist Party apparatus. Since atomic energy was state-approved and –advanced program, fully supported and a frequent subject of propaganda, no protest against the atom was tolerated. There was virtually no public protest or questioning as in the US or European democracies, until the Gorbachev period of pererstroika and glasnost.

With the Chernobyl disaster and the collapse of the USSR, authoritarian rule gave way to society-wide protest over nuclear power and the feeling that Soviet-designed reactors must be unsafe. Nuclear specialists believed this was "radiophobia," not rational thinking on behalf of the public. It did not help that the governments misled their publics about the dangers of Chernobyl fallout. If Gorbachev had called for glasnost, then in the handling of Chernobyl the USSR failed to be open and honest about the nature of the disaster. In Eastern Europe, too, socialist governments were reticent to be forthcoming about the accident. After all, they had nuclear reactors in Hungary, Bulgaria, Czechoslovakia, Lithuania. But protest burst forth in the march up to the fall of the Berlin Wall.

The paths of Bulgaria and Belarus, the former now a democracy, the latter a reconstituted dictatorship, to nuclear power reveal the promises and challenges of protest to shape public policy toward nuclear power.

The Case of Bulgaria

- Bulgaria sought nuclear power from the mid-1950s as a path to modernization and energy independence. Bulgaria presently has two operating Soviet-designed PWRs at Kozlodyu NPP; four other Soviet PWRs were shut down between 2002-2006 as a condition to enter the EU.
- For over fifteen years, Bulgaria has considere
  1000 MW units at Kozlodyu, perhaps to be b
  Westinghouse or Areva. The Russians insiste
  agreements that they build the station, but t
  happen because of the Russian war on Ukrai
- In 1987 site work at Belene near the Danube
  Romania started in 1980 for construction Soviet VVER-1000s V-320 unit. The project was mothballed in 1991 due to lack of funds and the collapse of the USSR.
- Since the mid-2000s the Belene project for two PWRs has been on again, off again with confusion and competition among a series of manufacturers, governments and the EU, and also with public dissatisfaction over cost and siting.

The failure of socialist Bulgaria to response to Chernobyl

- During the first weeks after the Chernobyl disaster at the end of April 1986, rain fell repeatedly in Bulgaria, bringing radioactivity with it. The vast majority of Bulgarian population was left unaware and received no advise on safety measures that might be taken. As a result, hundreds of thousands Bulgarians were exposed to the increased levels of radiation with lasting negative health impacts. This was shockingly a hypocritical response like that of the French government.
- As in Ukraine, Lithuania and other countries in the socialist orbit, in Bulgaria several NGOs were established to combat disinformation. One of the first was the Ekoglastnost movement from 1988, the first mass political opposition against the communist rule. Similarly to the green movements in Western Europe, Ekoglatnost rejected nuclear energy.
- the members of Ecoglastnost have been elected in Bulgarian parliament and contributed to the expansion of public resistance against the Belene. This also made possible the “Chernobyl” process in 1990, where the Bulgarian court issued effective sentences against the former Deputy Prime Minister Grigor Stoichkov and Lubomir Shindarov, First Deputy Minister of Public Health and chief state sanitary inspector for the non-acceptance of necessary measures to protect the public following the Chernobyl accident 1986.

Protest over the Long-simmering Belene NPP

- The Belene Nuclear Power Plant (NPP) in northern Bulgaria was originally proposed in the mid-1980s. The project was cancelled in the 1992, after significant environmentalist campaigning, when it became clear that the seismic risk in the region was unacceptable. Indeed, 120 people had died in an earthquake only 14km from the project site in 1977. There was also concern that the project would not be economically viable.
- Hence for the period of several years at least the Chernobyl disaster and construction of Belene NPP became related in the public perception. Bulgarian green activists protested against the inadequate measures of the Communist party in the days after Chernobyl accident and the lack of any information provided to the public. This led to protests against nuclear establishments in the state.

Svishtov earthquake, 1977

Protest and Economic Crisis Buffet the Belene NPP

- The rapid political changes in autumn of 1989 and the fall of the Berlin Wall weakened the position of all socialist nations until they, too, fell. In this environment of political crisis and economic uncertainty the Bulgarian government could no longer support the Belene NPP project. In 1990 the government suspended wages of workers on the NPP site who went on strike.
- Simultaneously, citizens of nearby Svishtov organized protests against the Belene NPP. The event was organized by the Napred (“Forward”) Movement and supported by Bulgaria’s largest trade unions, the Confederation of Independent Trade Unions in Bulgaria (CITUB) and Podkrepa Labor Confederation.

BeleNe! has struggled against deep industry pockets that keep the station alive.

- The BeleNe! Campaign is organized by the NGOs Za Zemiata, the Foundation for Environment and Agriculture and Blue Link. Main goal is to inform the Bulgarian society on the environmental and economic dangers inherent in NPP Belene construction at 3 levels – regional (including part of Romania near the border), national and international.
- Despite the project's cancellation, Bulgarian state utility, NEK, maintained the partially-built facility in the hopes that the political will would return to finish the job. Their hopes were met in 2002, when the Prrime Minister (and former King) Simeon Saxe-Coburg-Gotha unexpectedly revived the project. The government signed a $4 billion contract with the Russian state-owned firm Atomstroiexport to construct the Belene NPP.

Protest over Belene NPP continued into the 1990s

- On April 26 1995, on the eve of the ninth anniversary of Chernobyl, the BeleNE! coalition organized a march, moment of silence, and rally to commemorate the Chernobyl explosion. Roughly 100 people attended The event doubled as a protest against construction of the Belene NPP.
- Public education continued in August 1995 through Greenpeace's "Energy Revolution Tour," as the "SV Anna" floated along the Danube during a two-week tour of Northern Bulgaria, stopping in each city to educate people on the risks of nuclear and upsides of renewable energy. The tour concluded by dropping a 50-foot tall banner reading "Stop Belene" near the construction site.
- Campaigners held another Chernobyl vigil on the 10th anniversary on April 26 1996, this time at the Bulgarian Ministry of Economy and Energy. They wore white nuclear protection jumpsuits for visual and dramatic effect.
- Later that year, campaigners intensified their pressure on banks to defund Belene. On October 23, activists in 23 countries held rallies at banks owned by UniCredit Group, a main investor. In June 2007, the same action was taken against BNP Parabas.

An Earthquake and Elections Shake Belene NPP

- Bulgaria was required to submit a revised NPP project to the European Commission for a nonbinding, but important, opinion to ensure high safety standards. Anti-nuclear activists received crucial support from Georghi Kashchiev, the former head of the Bulgarian Nuclear Regulatory Agency and former operater of Kozloduy NPP, whose knowledge of the Bulgarian nuclear enterprise helped explain to banks and investors what a complete swamp that the Belene project had become, and he was convinced that Belene should not go forward.
- But despite anti-nuclear campaigners' efforts, the European Commission issued a favorable opinion on the project in December 2007. Protests continued, directed toward investors for the next two years. Eventually 13 of 14 mayors of the nearby towns opposed the plant. In April 2009, the project was dealt a PR blow when the region near Belene was shaken by a minor earthquake.
- The turning point was the 2009 elections after which the new government "stepped away from the cronyism and pro-Russian lines of the earlier socialist government and the 1990s right-wing parties, and ordered a financial analysis of the project." The project was likely to be cancelled, though construction continued for the time being.

георги касчиев

Friends of the Earth, Europe. (2007). BNP Paribas, stop funding nuclear power. Retrieved from http://www.foeeurope.org/press/2007/June5_DM_BNP-Paribas.htm. Accessed March 3, 2013.

Another controversy involved, as in virtually all countries, the search for a repository for SNF, in this case at Novi Han (2005)

- The Novi Han radioactive waste repository is the only national radioactive waste disposal site in Bulgaria, located 6.5 km from the village of Novi Han and 35 km from the capital, Sofia. The repository accepts radioactive waste generated from nuclear applications in industry, medicine, research and education. The 4.25 hectare facility was constructed according to a modified Soviet design that was licensed in 1959 and commissioning in 1964. It was specially built for the needs of the IRT-2000.
- The Institute for Nuclear Research and Nuclear Energy (INRNE), as the central authority for the collection and disposal of radioactive waste from nuclear applications. Novi Han repository site covers an area of 4.25 ha.1 The site is divided into two areas separated by a fence. One area contains the administrative buildings, garage and maintenance shops; disposal facilities, radiochemical laboratory and decontamination station. It is small, consisting of (1) a concrete vault for low and intermediate level solid wastes with a total volume of 237 m^3, (2) a concrete vault for biological wastes with a volume of 80 m^3, (3) four steel tanks for storage of low level liquid wastes with a total volume of 48 m^3, (4) a special 1 m3 concrete vault for spent sealed sources and (5) a concrete trench for solid waste with a total volume of 200 m^3.

See https://inis.iaea.org/search/search.aspx?orig_q=RN:38108489

Over 100 people from the Novi Han village protested on Sunday against the expanding of an existing nuclear depot located near their village. Photo by bTV

Novi Han referendum rejects nuclear waste depot

- Residents of Novi Han overwhelmingly voted (99%) in February 2008 to shut the nuclear waste facility. The turnout for the referendum was 66.2 per cent, passing the 51 per cent threshold for it to be considered valid.
- Bulgaria's Cabinet had announced plans to modernize the facility, but locals feared it was only a cover-up for plans to expand the depot.
- The mayor of Novi Han, Sashka Nenova, expected announcement within two weeks of tangible steps to close the radioactive waste depot. The town's residents long campaigned against radioactive storage, concerned with health and safety impacts, including migration of radionuclides in ground water into the town’s municipal supply.
- http://skandalno.net/prokoba-ili-yadreni-otpadatsi-seyat-smar-18584/

The “Radiana” Nuclear Waste Repository, Scheduled to Open in 2030.

- SD NRRAW was officially registered on November 1, 2012. The division’s scope of work is related to the construction, commissioning and operation of a repository for long-term storage of low- and intermediate-level radioactive waste in Bulgaria.
- Initially, the goal was to commission SD NRRAW at the end of 2015. After the performance of regional and detailed geological and geophysical, geochemical, engineering and hydrogeological surveys, a site for construction of the national repository was selected – “Radiana.”
- On 29 August 2017, SERAW officially started the construction of a National Disposal Facility for Low- and Intermediate Level Radioactive Waste (NDF) and is supposed to be commissioned in 2030. Located in Harlets (Хърлец) not far from Kozlodyu, the Danube and the Romanian border
- See “15 ГОДИНИ ДП ‘РАО’”at http://dprao.bg/video/6646 and

https://dprao.bg/дейности/дългговременно-съхранение-на-рао-2.html

ДП РАО
Държавно предприятие
“Радиоактивни отпадъци”

Radiana Facility, Groundbreaking 2017

Bulgaria started construction of a national repository for low- and intermediate-level radioactive waste yesterday, marking the occasion with a ceremony. The repository is being built at the Radiana site, close to the Kozloduy nuclear power plant.

SERAW's Petrov (left) and energy minister Petkova address the ceremony (Image: SERAW)

On 23 December 2016, the Ministry of Environment and Waters (MEW) issued a Decision regarding Environmental Impact Assessment (EIA) No. 7-7/2016 approving the implementation of Investment Proposal Construction of National Disposal Facility for Low- and Intermediate Level Radioactive waste – using the technology for the disposal of Low- and Intermediate level radioactive waste (RAW) into a near surface multibarrier trench type repository with the State Enterprise Radioactive Waste as Employer.
On 5 May 2017, the Chairman of the Bulgarian Nuclear Regulatory Agency issued aNDF Construction Permit .

← Екологичното съоръжение ще бъде с многобариерна защита за трайно съхраняване на предварително обработени, обезопасени и опаковани радиоактивни отпадъци

Belarus Choses the Peaceful Atom 30 years after Chernobyl

- On the eve of his effort to steal the election in Belarus in August 2020, dictator Aleksandr Lukashenka, and his government, announced the loading of nuclear fuel into the station. That announcement was intended to show leadership, modernity and strength in country beset by political crisis.
- Yet the Astravets (ANPP) station has a troubled history. These include significant and continuing social, public health and economic impacts of the Chernobyl disaster for which Belarus cannot pay; difficulties in site selection for any reactor in Belarus; the presence of Russian nuclear influence with its reactors being built on the border of the EU; and an increasingly authoritarian government that sought to limit public involvement in any decision about the future of nuclear power in the nation.

The Astravets NPP

Lithuania Protests ANPP as Unsafe

- The selection of the Astravets site, some twenty kilometers from the border with Lithuania, has long troubled Belarus's European neighbors, especially in Vilnius. Lithuanian officials have described the plant as a threat to the environment and public health.
- Lithuania tried to force Belarus to handle the ANPP with more circumspection. The energy minister Zygimantas Vaiciunas warned the International Atomic Energy Agency over the haste to launch the project as incompatible with safety standards. Lithuanian also encouraged Estonia and Latvia to boycott electricity from the plant, or at least add surcharges. (Lithuania may be getting ANPP electricity through these Baltic nations.)
- Ukraine has agreed to join Lithuania's boycott of electricity from Astravets. The Baltic nations intend full decoupling from their Soviet-era common power system by 2025. Poland has also refused to buy electricity imports from the plant.
- BNS, "Ukraine Joins Lithuania's Boycott," *LRT*, August 5, 2020, at https://www.lrt.lt/en/news-in-english/19/1176403/ukraine-joins-lithuania-s-boycott-of-belarusian-nuclear-energy

Even in authoritarian Belarus, NGOs protest ANPP for Lack of Openness

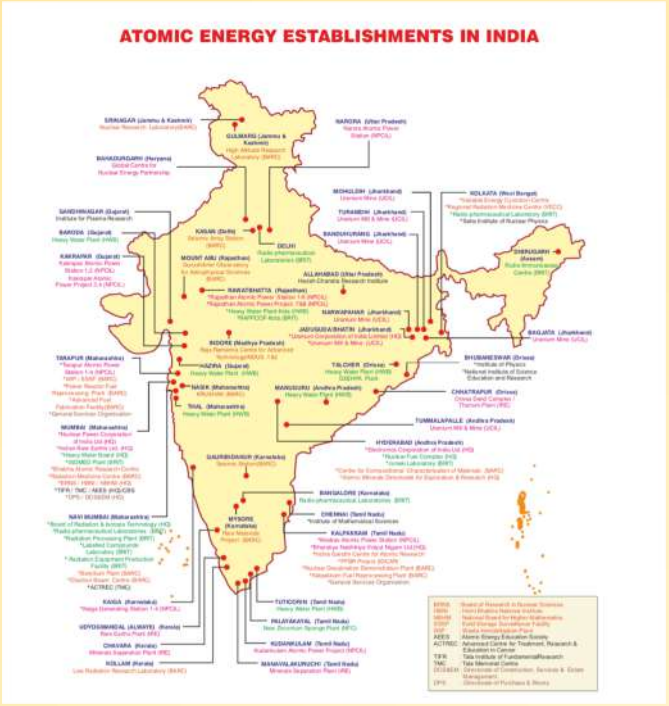
- One of the criticisms of the ANPP has been the lack of openness about site selection, the absence of environmental impact statements, and, in general, limited public participation in any kind of technical assessment process. While the ANPP is obviously strongly supported by the government, a variety of NGOs and other groups protested against the station from the start.
- No sooner had an agreement between Russia and Belarus to build ANPP been signed than on November 18, 2011, pickets appeared in Moscow to protest Russian involvement in the matter. The forty picketers indicated that they saw the ANPP project as more than a nuclear agreement, but rather as growing economic and political interference of Russia in Belarusian affairs. The picket was organized by the Belarusian anti-nuclear campaign with the participation of the NGO "Ecodom," the Belarusian Green party, “Scientists for Nuclear Free Belarus,” the regional group “Astravets Nuclear is a Crime!" and several Russian environmental organizations.
- The picketers demanded that Rosatom abandon the Astravets project, expressing outrage that an agreement was signed “without taking into account public opinion.”

Indian Authoritarianism and Big Technology Projects

Since Indian independence, its leaders have pursued large scale projects to modernize the economy in pursuit of energy and agricultural production for the burgeoning population that has almost tripled in size since 1970 to 1.4 billion people, and the means to support the "world's largest democracy." Jawaharlal Nehru, Indira Gandhi and in the 21st century Narendra Modi have seen such projects as hydropower stations, irrigation systems and nuclear reactors as a key to the country's future.

Yet these projects have had significant social, cultural and environmental impacts. They have required millions of people to relocate from land inundated by reservoir water and removed for landtakings for NPPs, currently 23 reactors at seven stations and another ten under construction. India's powerful nuclear establishment has made use of CANDU (Canadian), Westinghouse (US) and Atomstroiexport (Russian) reactors.

Those reactors have risen mostly on the east and west Indian Ocean coasts where they have altered the quality and pattern of life of fishers in multitudinous villages and where they run the risk of accidents from Tsunamis. In response an extensive anti-nuclear movement has developed over the last thirty years. The Modi government has cracked down on dissent with violence and state-sponsored thugs.



Displacement of Local People

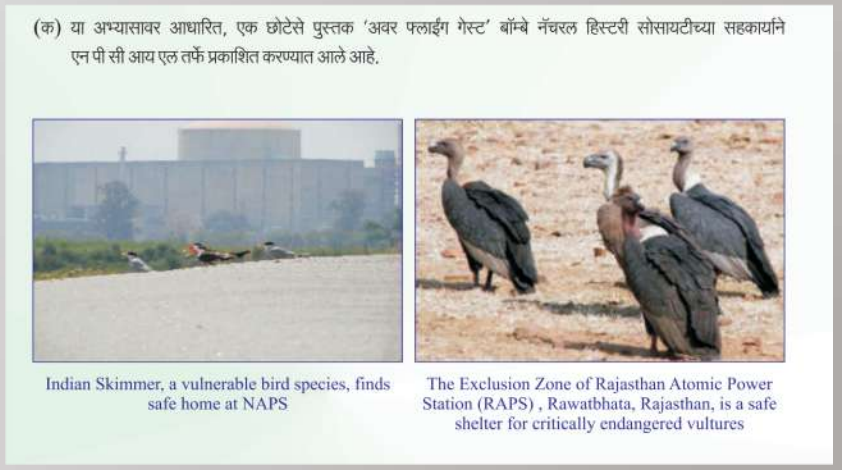
Jaitapur NPP ↑
See https://www.dianuke.org/nuclear-power-projects-displacement/

- India intends to build dozens of new reactors on the shores of the Indian Ocean, and several inland, in the next thirty years in gleaming “fleets” of stations with four, five, and six reactors (PWRs) at each site, with French, Russian and American companies providing the reactors. These projects have had significant social and environmental impacts that are decidedly undemocratic. Big projects displace people, especially poor people, often illiterate agriculturalists, and they have disrupted self-sufficient farming and fishing communities from Koondankulam to Jaitapur to Gorakhpur in Fatehabad district.
- Displacement usually occurs without compensation for the loss of home and memories, retraining, or other programs that might make displacement somewhat tolerable. India’s past record in rehabilitating the communities displaced by various big projects – dams, mines, thermal power projects and so on – has been decidedly poor, and the decision to build nuclear power stations along India’s coasts has led to displacement and loss of livelihood again. Yet the powerful Indian nuclear energy industry has determined to expand capacity, with 23 operating reactors at seven plants with a total capacity of 7,500 MWe; another 6,000 MW under construction; and 33,000 MW in various stages of planning

Growing Protest and Government Intransigence

- The government has chosen sites for stations not only for their geographic characteristics (large, potentially open and relatively flat spaces with proximity to water, and so on), but because of the political weakness of local residents who might more easily be cowed by the government and its police into passivity.
- Indian protests have more often been triggered by hasty government land acquisition, displacement and loss of livelihoods than by fear of nuclear power's potential safety risks – at least initially.
- Such groups as Konkan Bachao Samiti (KBS) in Jaitapur, the Gandhian "National Alliance of People's Movement" (NAPM) and the People's Movement Against Nuclear Energy have moved to challenge the NPPs. The Shiv Sena group and several left parties joined protests against Jaitapur.
- A series of urban-based NGOs joined the movement, distributed pamphlets and conducted educational meetings in villages to build anti-nuclear solidarity

According to Nuclear Power Corporation of India Limited (NPCIL), nuclear power is safe and environmentally sound. Its exclusion zone for the Narora Atomic Power Station (NAPS) provides habitat for endangered specials. Source of images: NPCIL, "Misconceptions about nuclear power and Jaitapur in specific," n. d., at https://npcil.nic.in/WriteReadData/CMS/20171223022626835 3353Misconceptions_final_low_res.pdf



With six Russian PWRs, the massive Kundankulam NPP has upset regional culture and daily life.

- The Fukushima accident of March 11, 2011, that people watched on TV, shocked them into renewed protest. They worried about the potential for a horrific accident at the Kundankulam (KKNPP) station, too. Efforts to calm concerns through evacuation drills did not settle the residents down. Instructions during a mock drill for them to cover their noses and mouths and run for their lives in case of an emergency in July 2011, led to massive demonstrations on August 11, 2011, followed in September by mass hunger strikes and by demonstrators blocking state roads.
- Tamil Nadu police broke up the September 9th protest, attacking "unarmed, nonviolent and peaceful protesters with batons, tear gas and gun fire, killing one man, and another man was struck by a low-flying plane. On September 10th people gathered on the Idinthakarai beaches to protest against fuel loading at KKNPP, just two kilometers away. They had reasonable fears, recalling the Boxing Day Tsunami of 2004 that destroyed their village. The protestors, mostly women, were tear gassed and fired upon. Sixty were arrested, several of them on charges of sedition. Protestors claimed that the plant's effluent, discharged into the sea, released toxins and destroyed fisheries. They maintained that since the NPP reduced the quantity, variety and quality of fish.
- Daga, "The Women Protesting the Kudankulam Nuclear Plant."

Thousands of Fishers Engage in Mass Demonstrations

- On October 8, 2011, tens of thousands of fishermen from Tirunelveli, Kanyakumari and Thoothukudi districts organized an amphibious assault on KKNPP from the sea in fishing vessels. The strikers "laid siege in front of the KKNPP on October 13-16, 2011, when the KKNPP authorities did not halt work at the site as per the Tamil Nadu state cabinet resolution."
- The provincial government responded by cutting electricity "to drive home the message that nuclear power plant is badly needed for steady power supply." This had instead the opposite effect of generating support from other groups.
- A few weeks later the protestors entered the Tamil Nadu Legislative Assembly building "to insist on justice." The resistance campaign relied on Gandhian non-cooperation and civil disobedience, the resignations of village councilors, boycotts, demonstrations, and the like.
- "When teachers were ordered to teach pupils about the safety of nuclear reactors, parents withdrew children from school for a week." Yet the government insisted that the station was safe, relying on "an extraordinarily sloppy environmental assessment report on Jaitapur [that did not] consider biodiversity and nuclear safety, or even mention radioactive waste."

Dianuke, "Why are We Fighting in Koondankulam"; Udayakumar, "People's Movement Against Nuclear Energy" and Bidwai, "The Truth Behind India's Nuclear Renaissance."

People's Movement Against Nuclear Energy (PMANE)

- PMANE mobilized the local community through massive rallies, village campaigns, public meetings, seminars, and conferences, and by burning replicas of the NPP. Some protestors sat in tents to prepare food and drink for the others. According to PMANE, these activities were a "classic people's struggle to defend local rights to life and livelihood. Local fishermen, farmers, workers and women made small voluntary donations in cash and kind to sustain this 'Gandhian struggle. The protest program required few expenses and few needs, only local transport and drinking water, especially as people from all over Tamil Nadu came."
- The government's response was repressive crackdown, police harassment, and surveillance, the planting of false news stories, abuse of family members, hate mail, death threats, police-supported vandalism and even physical attacks. Like the Russia authorities at home who distrust anti-nuclear protest and see links with opponents abroad, so Indians ones have accused PMANE and other groups of being front organizations for foreign interests.
- The culmination of these police crackdowns was an attack on the leaders of PMANE and a group of 15 women supporters on January 31, 2012, at Tirunelveli by Congress Party operatives and right-wing Hindutva fascists and vigilantes. The government arrested over 1,800 protestors who had arrived to support PMANE leaders, and charged them with sedition for "war against the Indian state" for having rejected the claims of station spokespeople, the government, and the Russian partners about the seismic safety of the station.

Udayakumar, Udayakumar, "People's Movement Against Nuclear Energy" and Dianuke, "Why are We Fighting in Koondankulam."

Limited Dissent in the Authoritarian USSR

- As a closed society, the Soviet Union did not tolerate dissent or criticism of state-sponsored views and programs. To a small extent, citizens might express divergent opinions, for example, about the failure of bureaucracies to serve them as the law directed. Citizens were rarely permitted to protest against state programs and generally the Soviet development model with emphasis on heavy industry and poor returns for light industry, food and housing. In the case of nuclear power, at least until the Chernobyl disaster (1986-present), citizens believed that the atom had secured the nation's borders and provided cheap, safe and plentiful energy. A series of accidents and disasters that predated Chernobyl were kept secret, although local people know about them – having lived through them.
- Mikhail Gorbachev sought to reform the economy and political system in the mid-1980s through perestroika and glasnost. This had the effect of encouraging the Soviet people more willingly to identify and condemn a series of technogenic disasters, and also generally the Soviet development model. Journalists, too, freed from the constraints of secrecy, began openly to dig into industrial disasters. The Chernobyl disaster occurred against the backdrop.
- The initial failure of the authorities openly to level with the Soviet people about the extent and mortal danger of the Chernobyl disaster showed the limits of glasnost. It was three days for the initial evacuation to take place, and months later for others to be announced. Gorbachev later said that the accident was a key contributor to the collapse of the USSR, not only because of the lack of honesty, but because of the great economic costs.
- Protest broke out across the USSR in response to the Chernobyl failure – in Ukraine, Lithuania and elsewhere as part of environmental and independence movements. The USSR disintegrated five years after Chernobyl on December 25, 1991.

Chernobyl: Nuclear Disaster Brings the Downfall of the USSR

Gorbachev Addresses Nation on TV, May 14, 1986, Two Weeks After the Disaster ↑ in a Test for glasnost and perestroika

Glasnost About Chernobyl and Other Disasters Triggers Society-Wide Protest

- As news of accidents and disasters, past and present, spread cross the USSR, demonstrations broke out. By 1988 environmental and anti-nuclear movements had broken out across the nation, from Ukraine to Lithuania, and to autonomous republics, with some activists seizing on the claim that Moscow had exploited the periphery with dangerous extractive industries and unsound technologies. (Lithuania abandoned its two RBMKs in the 2000s as a requirement to enter the EU).
- In Bashkirostan construction of two PWRs was frozen in 1990 (although the Russian government has begun pressing to open the project again). In Lithuania, a major impetus to the independence movement was the presence of the Ignalina NPP with plans to build perhaps a third Chernobyl-type reactor; the Saujudis national liberation movement, founded in June 1988, built on worries of another Chernobyl to push for true independence from the USSR.

Central Kyiv Protest, 1989

Protest against Bashkir NPP

Rise of Ukrainian Mass Movement for Independence and Environmental Accountability

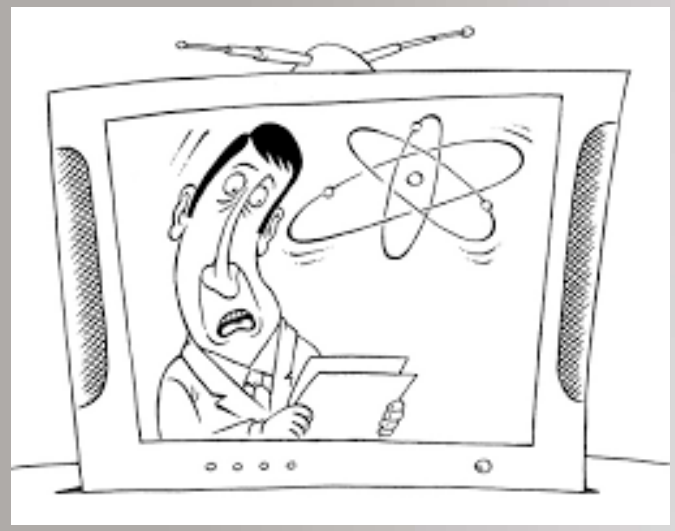
- In Ukraine glasnost and revelations about the true scale of the Chernobyl disaster fueled anti-nuclear, environmental and nationalist movements. Greens were represented by the organization Zelenyi Svit created in 1987 that came to life as an organization of Ukrainian writers preoccupied by the environmental degradation of nation and the consequences of the Chernobyl disaster. The writers were soon joined by the scientists and other representatives of the Ukrainian intelligentsia.
- Yuri Shcherback, a Ukrainian writer and a medical doctor who published a novel on the Chernobyl disaster in 1988, became the chairman of the Zelenyi Svit. Ukrainian nationalists were represented by Ukrainian Popular Movement (Rukh), established in early 1989. The two movements were closely linked in the period between 1989-1991, with Rukh members strongly supporting anti-nuclear claims and protest actions.

Citizens in Soviet Republics Protested What they Perceived to be the Kremlin's Exploitation of Their Nations

- Both nationalists and environmental activists saw Chernobyl his as representative of colonial power: officials in Moscow made decisions about building NPPs in the republics without consideration of the dangers and risks for Ukraine. Further, Ukraine did not have its own branch of Minsredmash, nor its own regulatory agency. This colonial attitude of the Moscow authorities fueled resentment.
- In Ukraine in 1989 and 1990 anti-nuclear activists gathered petitions, organized strikes, pickets and blockades against the construction of the new units at Kmelnitsky, Chigirin, Crimean, South Ukraine and Chernobyl. The anti-nuclear mobilization led the Ukrainian Parliament (Verkhovna Rada) in August 1990 to declare a moratorium on the construction and commissioning of new nuclear power units. (By the 2000s Ukraine had embarked on the difficult path to achieve energy independence in part through nuclear power.)
- The Lithuanian independence movement and anti-nuclear movement were connected. Eventually Lithuania abandoned its two RBMKs in the 2000s as a requirement to enter the EU.

Andrei Stsiapanau, "Nuclear Energy in Transition. The Ignalina Nuclear power plant from Soviet under Lithuanian Rule," in S. Liubimau, B. Cope, eds., *Re-tooling Knowledge Infrastructures in a Post-nuclear Town* (forthcoming, 2021?), pp. 44-57

Nuclear Discontent in Post-Soviet Russia



- In the 1990s the Russian nuclear power enterprise, the inheritor of the Soviet one, fell on hard times. Construction projects were mothballed and canceled. The public mistrusted official pronouncements about the safety of nuclear power as “radiophobia” spread among them.
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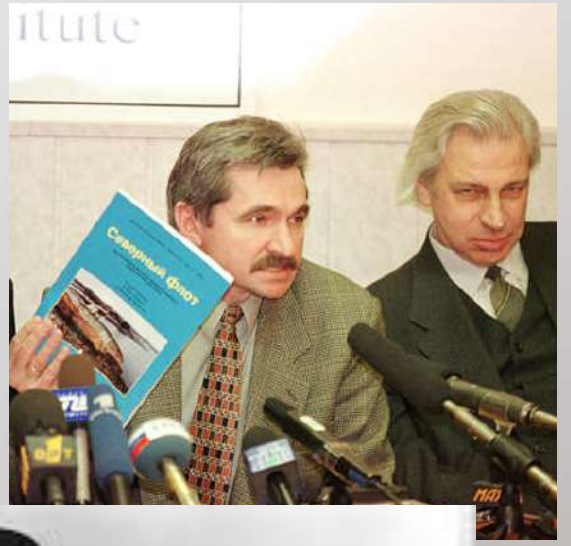
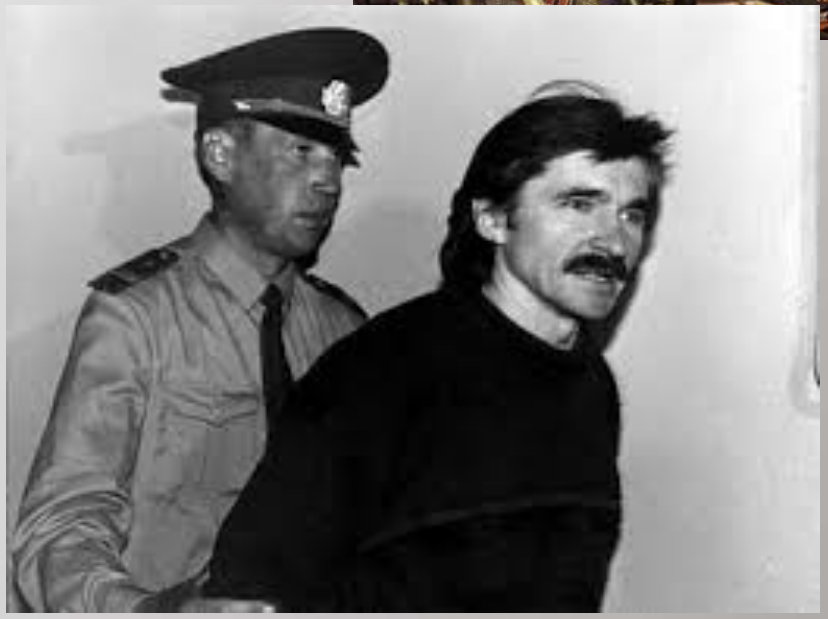
In the 1990s the Russian government prosecuted activist Aleksandr Nikitin For Publicizing *Declassified* Materials on Radioactive Waste





- Aleksandr Nikitin, a former naval officer, worked for the Inspectorate of the safety of the nuclear installations in the Soviet and later Russian Defense Ministry from 1987 to 1992. In 1994 Nikitin began to cooperate with the Bellona foundation to document Soviet nuclear waste dumping practices in the Arctic Ocean. As a result of this publication of non-secret documents about Soviet – not Russian – waste dumping practices Nikitin was charged with treason. He spent 10 months in pre-trial detention in St. Petersburg in 1996, was ordered to be released, and then faced several other trials, each time was acquitted, and each time the government tried to prosecute him again and again in 1998, 1999, and 2000. The Supreme Court eventually rejected further prosecution and Nikitin was finally fully acquitted Nikitin's case remains the only example in contemporary Russian history of a person acquitted of espionage charges.
- KASPERSKI, TATIANA. "FROM LEGACY TO HERITAGE: The Changing Political and Symbolic Status of Military Nuclear Waste in Russia." *Cahiers Du Monde Russe* 60, no. 2/3 (2019): 517–38.

Nationwide Protest: Rosatom Imports Spent Nuclear Fuel (SNF) for Money

- To earn billions of dollars, Russia set out to import SNF to store. Activists opposed using Russia as a "nuclear sewer."
- Environmental activists led a campaign beginning in 2000 to bring the spent nuclear fuel and radioactive waste issues to public attention. Given the Putin administration's crackdown on demonstrations of any sort from around 2010, it is hard to recall that in 2000-01 activists succeeded in mobilizing the public against notorious legislation to allow the import of foreign spent nuclear fuel (SNF) for money.
- Yet the parliament eventually adopted the new law in spite of a massive public campaign that led over 90% of Russians to oppose the practice.
- Even if failing to prevent passage of the law, the campaign heightened public awareness of the unresolved problems of Russian nuclear industry that resulted in continued efforts to monitor the industry, its handling of wastes and spent fuel, and other related environmental and health hazards.
- Protests in various forms On May 29, 2001, in St. Petersburg, at the Museum of Soil Science scores of activists gathered in an extraordinary conference of youth organizations in St. Petersburg and Leningrad Region to protest the proposed importation. In November 2003, on the third anniversary of the failed referendum, protestors gathered in cities across the nation to target duma deputies who voted for the adoption of the law.

A major NGO, Ekozashchita (EcoDefense) has push a broad environmental agenda, including the battle against the importation of waste for money. The members of Ekzashchita pushed November 2000 demonstrations as an appeal to civil society to mobilize against the Duma's approval to import 20,000 tons of SNF. Thirty non-governmental environmental and human rights organizations, including Greenpeace Russia, "Keepers of the Rainbow", the Militia of Nature Protection of Tatarstan, "In the Name of Life", and others urged the deputies to repeal the law. Pickets gathered with signs and collected petitions to remove those deputies from office in more than 20 cities - Moscow, Kazan, Vladimir, Voronezh, Kaliningrad, Yekaterinburg, Novgorod, Nizhny Novgorod, Ryazan, Izhevsk, Rostov-on-Don, Stavropol, Vladivostok, Apatity, Orel, Saratov, Syktyvkar, St. Petersburg, Kamensk-Uralsk, Chelyabinsk, Ozersk and Krasnoyarsk.

Industry PR Efforts and Public Engagement: Regional and Local Information Centers

- With the rise to power of Vladimir Putin and the economic recovery of Russia on the pipelines of oil and gas, the nuclear enterprise recovered. It employs over 250,000 people, and its military and civilian nuclear power programs are among the most ambitious in the world. The industry masterfully used newly-created information centers and PR programs to combat public mistrust. At the same time, the state cracked down on dissent, waged war against NGOs, and forced critics into retreat through arrest and intimidation.
- And it moves forward with few checks on its programs. Some of the public is skeptical of these hubristic applications, and citizens have essentially been deprived of the right to protest against the nuclear enterprise – or to engage in any kind of protest – in Putin's Russia

The Kursk NPP Info Center, Kurchatov, Russia

Ekozashchita and other NGOs and Individuals Were Attacked as Sinister “Foreign Agents”

The government has sought to weaken NGOs that might contribute to dialogue about Russia’s environmental, industrial, and resource-intensive future. A 2011 law requires any NGO that receives funding from abroad to register as a “foreign agent,” a term that sounds as suspicious and disturbing as the government intends.

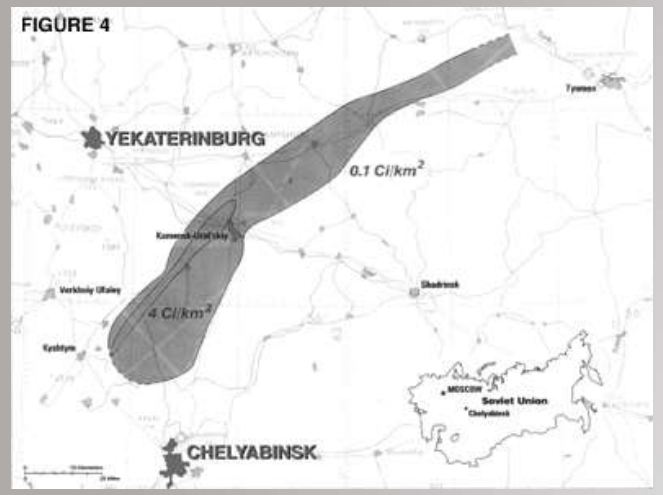
This allows the government by arbitrary criteria to determine that an NGO is a foreign agent. These NGOs are hardly foreign agents and in fact stand up for Russian interests; a number of them, Ekozashchita, the World Wildlife Federation, and others, for example, continue to work toward a clean future.

Another NGO, Planet of Hopes, Ozersk, Russia, tarred as a “foreign agent.”

- Nadezhda Kutepova fought to defend the rights of local residents whose rights were violated as a result of poorly monitored nuclear weapons and energy production enterprises. Official safety measures were insufficient in factories, and waste dumping practices in no way isolated the Techa River and other bodies of water which were so contaminated as to be hardly distinguishable from waste storage facilities.
- She was helping to address the human health costs not only the secret Kyshtym explosion of September 1957 that spread plutonium, cesium and other radioactive waste over tens of thousands of kilometers, but of continued, illegal waste dumping into the Techa River from 2001-2004.
- In 2004 Kutepova established an NGO, *Planet of Hopes*, in Ozersk, in part with funding from US and European organizations. Not only director of Planet of Hopes, Kutepova was public adviser to the ombudsman of Cheliabinsk region. She has represented victims of the nuclear industry in court in Russia and the European Court of Human Rights in Strasbourg.

▲ Kutepova (right) stands with a villager in Muslyumovo, one of Russia's most lethal nuclear dumping grounds. Photograph: Denis Sinyakov/Greenpeace/The Moscow Times

Planet of Hopes Focuses on the radioactive devastation of the Urals region both by accidents and by purposeful dumping of radionuclides into waterways.



- For her work, Kutepova won the Nuclear-Free Future Award 2011.
- In April 2010, Kutepova and a lawyer from the NGO “Ecozashita!” assisted 23 residents Musliumovo to file a lawsuit in Moscow against the government, Rosatom, the Emergencies Ministry and the Ministry of Health. The plaintiffs demanded to recognize the Techa River as a “storage site for radioactive waste” and to build a 240 km long sarcophagus to completely block access to the radioactive river.
- Law enforcement agents began to harass Kutepova. They accused her of tax evasion. They designated Planet of Hopes a “foreign agent” to destroy it and fined it for failure to register with the authorities. The government carried out a public campaign against her including on TV. After being accused of “industrial espionage” in a show on state TV, Kutepova didn’t wait for formal prosecution for treason or espionage and fled to France in 2015.
- The authoritarian government of Russia had determined to silence Kutepova as it had Nikitin.

Putin's Russia will tolerate protest against nuclear power no longer

Russia's nuclear program moves forward with few checks on its programs. Some of the public is skeptical of these hubristic applications, but citizens have essentially been deprived of the right to protest against the nuclear enterprise – or to engage in any kind of protest – in Putin's Russia. Most of them accept post-Chernobyl nuclear power as safe and important to the nation's energy balance. Whether Rosatom has gained public acquiescence or simply can ignore what it believes are misplaced safety concerns, the nuclear enterprise can and will embrace the largesse of the government as it advances its programs and those of a nuclear-powered resource state.

Political Legitimacy, the Atom: Southeast Asian Authoritarianism

Both the USSR and the US used “Atoms for Peace” to support the development of nuclear power in the countries in their sphere of influence. For the USSR these were the socialist countries of East Central Europe and the Baltic states that received complete R and D programs and power reactors, and several other nations of the socialist camp. For the US these were not only the European democracies, but also dictatorial and occasionally anti-communist regimes. Whether East or West, socialist, democratic or authoritarian, the nations sought nuclear programs for economic reasons – electricity production, applications of isotopes in medicine, industry and agriculture -- and generally as a symbol of modernity and a prop to the legitimacy of the regime.

Two such Southeast Asian countries with dictatorships that sought nuclear technologies from the US were the Philippines and Indonesia. If both states violently limited dissent on general questions of political participation, neither was able to prevent manifestations of anti-nuclear protest. Both built nuclear R and D programs; both sought to build NPPs. Both to this day, under new, more open political regimes, pursue nuclear power in on-again, off-again fashion in the face of persistent public opposition over issues of safety and siting. The Philippines built the Bataan Nuclear Power Plant (BNPP) – which never opened – but faced constant protest.

One of the reasons that nuclear power provokes protest is that stations tend to be sited in smaller rural communities with less political power than the wealthier, urban communities that electricity will serve. This is true for both Indonesia and the Philippines. In addition, opposition for nuclear power is tied in many groups, for example leading Catholic church officials, to rejection of the military atom – nuclear weapons.

As for scientific consensus: in both countries, well before Fukushima, engineers and planners asserted that their plants were safe against the risk of earthquake and tsunamis.

Authoritarian Regimes: The Philippines

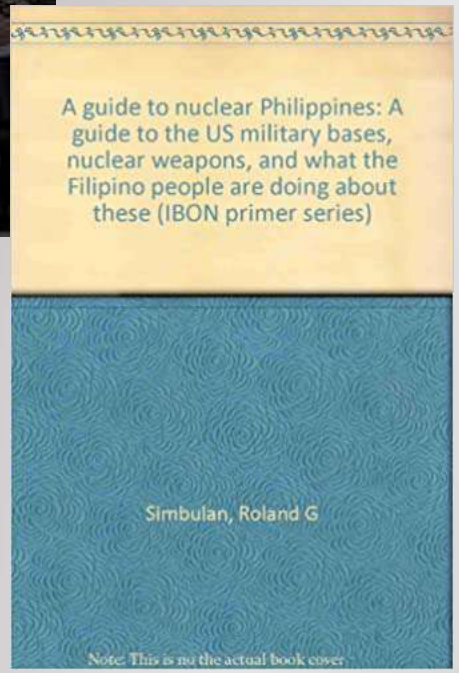
- The Philippine nuclear program dates to the Philippine Atomic Energy Commission (1958). Dictator President Ferdinand Marcos, who ruled from 1965 to 1986, redoubled efforts to build NPPs in the country.
- Marcos was notorious for targeting political opponents, student activists, journalists, religious workers, farmers, and others, many of whom ended up being tortured in detention centers. Marcos introduced martial law to protect against "disorder and chaos" but the Marcos administration worked with the World Bank to implement national development projects that prioritized technocratic implementation, leaving many of the poor and working populations out of the process, and thus removed from the economic benefits. The displacement, poverty, and hunger from this development debacle led to mass civil protests – and state repression. http://archives.law.hawaii.edu/exhibits/show/jvd-scholarship/human-rights-advocacy
- Under martial law in July 1973 Marcos announced the decision to build the Bataan NPP (BNPP) with two NPPs at 620 MWe to support Luzon, the country's largest and most populous island known for its mountains, beaches and coral reefs, with two-thirds of the nation's population. The major goal was energy independence in the face of the OPEC oil embargo. One Westinghouse PWR was completed in 1984 at $1.2 billion, but never started up because of safety concerns that were underlined by Chernobyl.

Ferdinand Marcos Jr., the front-runner in next month's Philippine presidential election, has vowed to bring nuclear power to the Philippines for the first time. Image is of the Tianwan nuclear power plant in China.(Nikkei montage/AP/Getty Images)

Filipino Anti-nuclear Activists Gathered Strength in the 1980s

- In January 1981, Philippine environmentalists established the Nuclear Free Philippines Coalition (NFPC). The activists' initial goal was to stop the construction and operation of BNPP. Under the organization of Lorenzo Martinez Tañada, a well-versed politician, the activists participated in a nationwide campaign utilizing lobbying, protest actions, media, and international solidarity.
  http://japan.nonukesasiaforum.org/nfpc/
- Throughout the anti-BNPP campaign, the activists began to expand their goals to target the U.S. military bases as well. On October 26, 1983, over 200 protesters marched through Manila from the University of the Philippines to the U.S. Embassy, a trek of several miles. The total number of protesters at the Embassy was about 500. During this time, the activists also engaged in an anti-nuclear disarmament conference to rouse public opinion on the issue.

Protests Against the Corrupt, Kleptocratic Marcos Regime Gained Allies in anti-nuclear fervor



- Bataan residents and citizens more broadly fiercely opposed the BNPP. They worried about the NPP's location in an active earthquake zone connected with the dormant volcano Mount Natib in the Bataan National Park established in 1945, a place of tropical jungle, mountain, and great biodiversity. Like the Chernobyl NPP, the authorities determined to site reactors within a protected area. And they were angry about the increasing poverty of the nation.
- On June 13, 1984, approximately 2,000 activists rallied in front of the Embassy while burning an effigy of Uncle Sam, a symbol of the US military, and also of US nuclear programs. On October 6, about 2,000 activists burned an effigy of a skull in front of the Bataan Plant.

Welgang Bayan Laban sa Plantang Nukleyar – June 20, 1985, the “Moster of Morong”

- June 18, 1985, marked the beginning of a three-day protest called “Welgang Bayan Laban sa Plantang Nukleyar” in Balanga, the capital of Bataan. On June 20, approximately 33,000 activists and Filipino citizens from many walks of life participated in a march, rally, and a strike. This historic demonstration forced the entire province of Bataan to a standstill. The strike mobilized 22 anti-nuclear organizations. During its climax it nearly immobilized the entire nation. In September the activists protested in the Bataan Peninsula again over two days. (The Communist insurgency of the New Peoples Army killed seven activists.)
- In April 1986 in the wake of the Chernobyl disaster, and as a result of public pressure and the political climate following the ousting of the Marcos regime by the People Power Movement, the BNPP was mothballed by the succeeding administration of President Corazon Aquino.

The 620 MW Westinghouse PWR Was Mothballed and Shuttered

- The Marcos government likely sought kickbacks on the BNPP, and the Aquino government brought charges of corruption and graff against Westinghouse of which it was cleared. But several government officials and the estate of Marcos were ordered to pay back significant sums.
- In any event, the project was plagued with problems throughout construction, including location, welding, cabling, pipes and valves, permits, and kickbacks, as well as setbacks.
- Already in March 1975, Westinghouse's cost estimate doubled to US$1.2 billion without much explanation. The final cost was $2.2 billion for a single reactor producing half the power of the original proposal. To give a sense of scale, the GDP of the Philippine economy I was only $17 billion USD and the government budget was $1.5 billion. The BNPP was responsible for 10% of the country’s external debt.

The Return of the Atom to the Philippines – and Rekindled Protest in the 2000s

- If many Filipinos remember BNPP as a site of corruption and waste, and a sore reminder of the repressive regime of Ferdindand Marcos, many others see in the revival of the Bataan Nuclear Power Plant the potential an improved energy balance and meeting targets to reduce carbon emissions.
- Like many stations around the world, the BNPP has had tremendous subsidies, direct and indirect, and the support of powerful international, multinational and other organizations, in this case: the IAEA,the US and Philippines governments, such corporations as Westinghouse, utilities and the atomic research establishment. They maintain that the BNPP is tsunami safe and, at $1.5 billion to fuel – a great bargain.
- There is broad legislative support from the Philippine congress, although the Fukushima disaster put plans on hold.

https://www.rappler.com/business/industries/107377-reopen-bataan-nuclear-power-plant/; https://legacy.senate.gov.ph/lisdata/88978092!.pdf

Scientists and environmentalists hold a picket in front of the House of Representatives to oppose the revival of the Bataan Nuclear Power Plant. *(Photo by Ronalyn Olea)*

Opposition from the Left, from Local People, and From the Catholic Church

No to Bataan Nuclear Power Plant
A Pastoral Statement

- It is hard for NGOs and other groups to oppose this power. Yet anti-nuclear NGOs have held new marches to urge the public to recall past harassment and repression, and to reflect on the lessons of the 1985 Welgang Bayan demonstrations. And militant organizations in Central Luzon, Catholic Bishops, environmental groups, and scientists are one in saying that the planned revival of the mothballed Bataan Nuclear Power Plant is costly and unsafe. They surmise that the nuclear power plant, from which the former dictator Marcos and his cronies earned $80 million in kickbacks, is being revived to become another source of corruption.
http://europe-solidaire.org/spip.php?article14104
- Roman Polintan, chairperson of Bagong Alyansang Makabayan (Bayan), an alliance of left-wing organizations dating to 1985, said they would launch a massive campaign against the proposed reopening of the BNPP
- In February 2009, the Catholic Bishops' Conference of the Philippines (CBCP) urged the Philippine Congress to "completely and irrevocably reject the opening of the nuclear plant as the most dangerous and expensive way to generate electricity." The Church recommended with other groups, anti-BNPP congressmen and the Greenpeace Forum that the facility in BNPP remain mothballed. And on March 17th 2011, the Catholic bishops of the Philippines issued a statement claiming Fukushima vindicated their opposition to the development of peaceful nuclear power.

https://earthcaremission.wordpress.com/category/nuclear-power-in-the-wake-of-fukushima/; https://cbcponline.net/no-to-bataan-nuclear-power-plant/

The Lure of Nuclear Power Continues to Draw Finance from the Philippine Government

- In the 2010s and beyond the Philippines government has considered project proposals of Korea Hydro and Nuclear Power (KHNP) and Rosatom to resume the project. Several cooperative agreements and memos of understanding have addressed the possibility of restarting BNPP, and even the purchase of modular units (Korea) or ”floating” NPPs (Russia.
- Already in 2008 an International Atomic Energy Agency (IAEA) mission commissioned by the government advised that Bataan could be refurbished and economically operated for 30 years. Refurbishment, with upgrade of safety and instrumentation & control systems, was estimated to cost $800 million to $1 billion.
- Opposition again arose because of health and safety worriers, reliance on imported fuel, waste and decommissioning concerns. Supporters point to energy independence and climate change as reasons to support nuclear power with smaller modular units a possibility.https://www.world-nuclear.org/information-library/country-profiles/countries-o-s/philippines.aspx
- Ferdinand Marcos’s son, Bong Bong, sees nuclear power as the way to fight rising energy prices.

KHNP
KOREA HYDRO & NUCLEAR POWER CO., LTD

Indonesia Sukarno and Nuclear Power

- Sukarno in Indonesia established an autocracy, “Guided Democracy,” to bring together the nation’s 1,300 different peoples on 17,000 islands. He established a military dictatorship that lasted for over 30 years under his successor Suharto. The latter’s political acumen to create stability over the diverse archipelago with an avowedly anti-communist stance won the economic and diplomatic support of the West during the Cold War. This support included technologies of the atom.

Indonesia's Strong Nuclear R and D Establishment and the Pursuit of NPPs

- Indonesia established a Commission for Radioactivity Research in 1954, an Institute for Atomic Energy (LTA) in 1958, and an Agency for Atomic Energy (*Badan Tenaga Nuklir Nasional*, BATAN) in 1965.
- It built a Triga-Mark II reactor in Bandung in 1961 through the US "Atom for Peace program." It later acquired other research reactors.
- In 1972 with the assistance of the IAEA, Indonesia's Joint Preparatory Committee for Nuclear Power Construction began the search for sites for NPPs, with 14 possible locations reduced to five candidates, all along coastline of Java, the island with 55% of the country's population and greatest energy demand. The committee recommended that 8 to 18 reactors to be built between 1978 and 1982. Suharto initially opposed the nuclear program.

batan
BADAN TENAGA NUKLIR NASIONAL
REPUBLIK INDONESIA

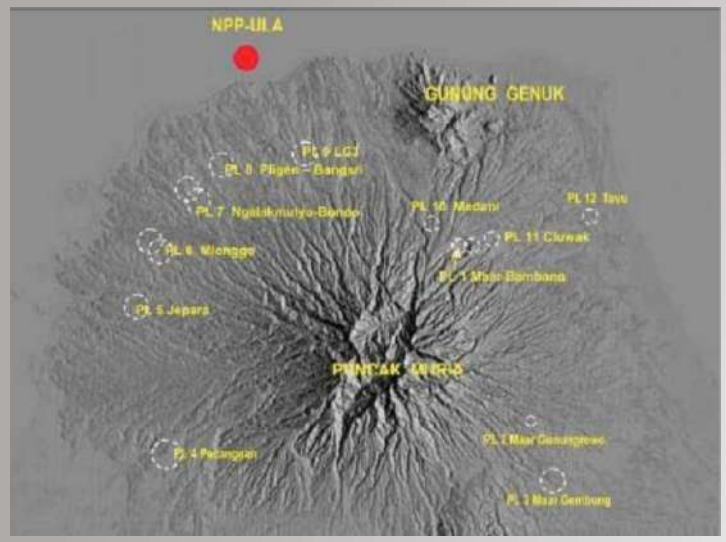
See Amir, Sulfikar. "The State and the Reactor: Nuclear Politics in Post-Suharto Indonesia." *Indonesia*, no. 89 (2010): 101–47, and https://www.batan.go.id/index.php/id/hasil-litbang-batan/energi/134-hasil-

The Late 1990s: a Temporary Interregnum for Nuclear Power

- The Indonesian Government shelved plans to develop nuclear energy in 1997 in the face of mounting public opposition and the discovery and exploitation of the Natuna gas field with an estimated 1.3 trillion m^3 in reserves
- Nuclear dreams commenced anew in 2005 amid growing power shortages and as part of a government drive to develop and diversify energy resources.
- The International Atomic Energy Agency has continued to back Indonesia's plans to build nuclear plants, despite opposition from environmentalists.
- Activists from Greenpeace and Walhi Bangka Belitung, together with the local anti-nuclear community celebrate the postponement of plans to build nuclear power plants in Bangka Belitung province. The banner reads "Don't Nuke ASEAN" (Association of Southeast Asian Nations). Greenpeace is urging the Indonesian government to cancel the plans completely.
  https://www.abc.net.au/news/2007-06-12/thousands-protest-against-indonesian-nuclear-plant/66650

← © Donang Wahyu / Greenpeace

In Pursuit of Nuclear Power in the 4th Most Populous Country in the World



- Seeking more balanced energy picture
- A 1970s Italian geological study led to a proposal for a 4,000 MW NPP at the dormant coastal volcano of Muria. A Mitsubishi 1990 proposal called for up to twelve 600MW reactors to be built between 1996 and 2003.
- Into the 2000s other proposals, also for the Muria site, have been advanced to achieve 6 GWe of capacity, with the goal to achieve greater energy independence from imported oil and gas. In July 2007 Indonesia signed a memorandum of understanding with KHNP to consider three sites, all on the north shores away from the tectonic subduction zone.
- BATAN officials have also recently considered modular units at 30 MW sited in areas with a relative lack of grid infrastructure there and where most electricity is imported from Malaysia, while KHNP has suggested exploration of 500 MW units built in parts in a Korean shipyard and transported to site for assembly.

Local communities, NGOs and religious groups reject nuclear power over safety issues

- Yet local communities and environmental activists reject it precisely for safety reasons, and BATAN determined to consider a site in the Bangka Belitung region, in addition to Muria, with little history of tsunamis or earthquakes or volcanoes.
- Among the anti-nuclear NGOs are WALHI (Wahana Lingkungan Hidup, (https://www.walhi.or.id/), Greenpeace Indonesia, Masyarakat Reksa Bumi (MAREM), the Central Java Anti-Nuclear Alliance, the Indonesian Anti-Nuclear Society (MANUSIA), Other Opposition groups include the Guard of Muria, United People of Balong (Persatuan Masyarakat Balong), and the West Kalimantan Alliance to Oppose Nuclear Power Plant (Aliansi Kalbar Tolak PLTN). The latter rejects the claim that nuclear power is "renewable."
- The Islamic organization Nadhlatul Ulama (NU), supported by the community in the area around Muria, rejected the construction of the reactor with support from WAHLI.
- https://pontianakpost.jawapos.com/metropolis/10/10/2019/aliansi-tolak-pltn-audiensi-ke-dprd-kalbar/; https://www.bbc.com/indonesia/berita_indonesia/2011/03/110314_indonesia_pltn; https://nautilus.org/apsnet/muria-nuclear-power/ and https://sains.kompas.com/read/2010/02/11/15255268/indonesia.tak.punya.kapasitas.bangun.energi.nuklir

Indonesian Protestors are as Determined as Industry Representatives

- BATAN insisted that nuclear power will be pursued owing to certainty of the seismic stability of the designated site in the Muria mountain range in Central Java, the development of Indonesia's own uranium supplies, energy independence and carbon neutral status of NPPs
- Fukushima led to pressure on BATAN not to pursue NPPs at Muria, although the agency maintained that the Muria site was safe.
- In 2007 nearly 4,000 local residents, students and anti-nuclear activists marched in the streets of Kudus, about 30 km from the volcano. The district government also opposes the station over worries about nuclear waste.
- Students hold photographs of Chernobyl nuclear disaster victims. Activists from Greenpeace and Walhi, together with the local anti-nuclear community light candles arranged to spell out the message: "Don't Nuke ASEAN" (Association of Southeast Asian Nations) to celebrate the postponement of plans to build nuclear power plants in Bangka Belitung province. plans completely.
- © Donang Wahyu / Greenpeace

Strong Public Support for the Atom?

- Public support seems strong: The National Research and Innovation Agency (BRIN) claims that the vast majority of West Kalimantan people support the construction of this nuclear power plant (87%).
- BATAN holds an annual festival, in 2021 a “Nuclear: Green and Sustainable Energy Festival”
- Yet local communities and environmental activists reject it precisely for safety reasons, and therefor BATAN has explored another site in the Bangka Belitung region with little history of tsunamis or earthquakes or volcanoes.

https://www.alinea.id/bisnis/pembangkit-nuklir-pertama-indonesia-akan-dibangun-di-kalbar-b2fg09BIw

Protest in Jakarta Against Russia's Attack on Ukraine Will Likely Limit Rosatom's Efforts to Sell Technology to Indonesia

It seems unlikely that Indonesia will turn to Rosatom after the Russian attack on Ukraine

In 2015 Rosatom signed two memos of understanding with BATAN to promote nuclear energy among the public and to promote higher education in related fields.

Rosatom's small modular reactor projects were featured at the ASEAN Energy Business Forum in September 2020 in conjunction with 39th ASEAN Ministers on Energy Meeting and brought together major players on the global energy arena.

Concluding Comments: The Atom and Dissent

Nuclear energy appears to be making a comeback in the early 21st century because of its promise as a green technology, that is, one that does not contribute to global warming, and its potential to offer a broader, more stable energy balance in the runup to cutting fossil fuel use.

Yet the industry has provoked protest, sometimes violent, since the dawn of the nuclear age, at first against proliferation of weapons of mass destruction, and then against the main symbol of the peaceful atom: the civilian nuclear power reactor. Protest has occurred across the globe, although more freely in open political systems -- the world's democracies, but also in rightwing authoritarian regimes. It has been less extensive – repressively prevented -- in the socialist world.

Protest arose in response to a series of concerns that have yet to be fully managed. The world's nuclear industries face concerns about the disposition of growing quantities of radioactive waste, concerns about safety and environment related to the possibility of catastrophic accidents and siting in geographically unstable areas, or perhaps any site close to a large population center, and long terms fears about the meaning of the close connection between peaceful and military uses of the atom.

Protest Spans the Globe

South Africa: Koeberg Alert Alliance

- The South African Koeberg Alert Alliance reports that low and medium level waste from the Koeberg NPP is dumped at Vaalputs. The people who live around Vaalputs were not consulted when this site was selected.
- About once a week a truck containing radioactive arrives. High level waste is also a very real source of concern. Koeberg produces about 30 tons of high level waste per year, and all of it is currently stored at Koeberg – over 1000 tons. All of the world's stations face the intractable problem of high level radioactive waste.

https://koebergalert.org/nuclear-waste/; https://www.facebook.com/koebergalert/

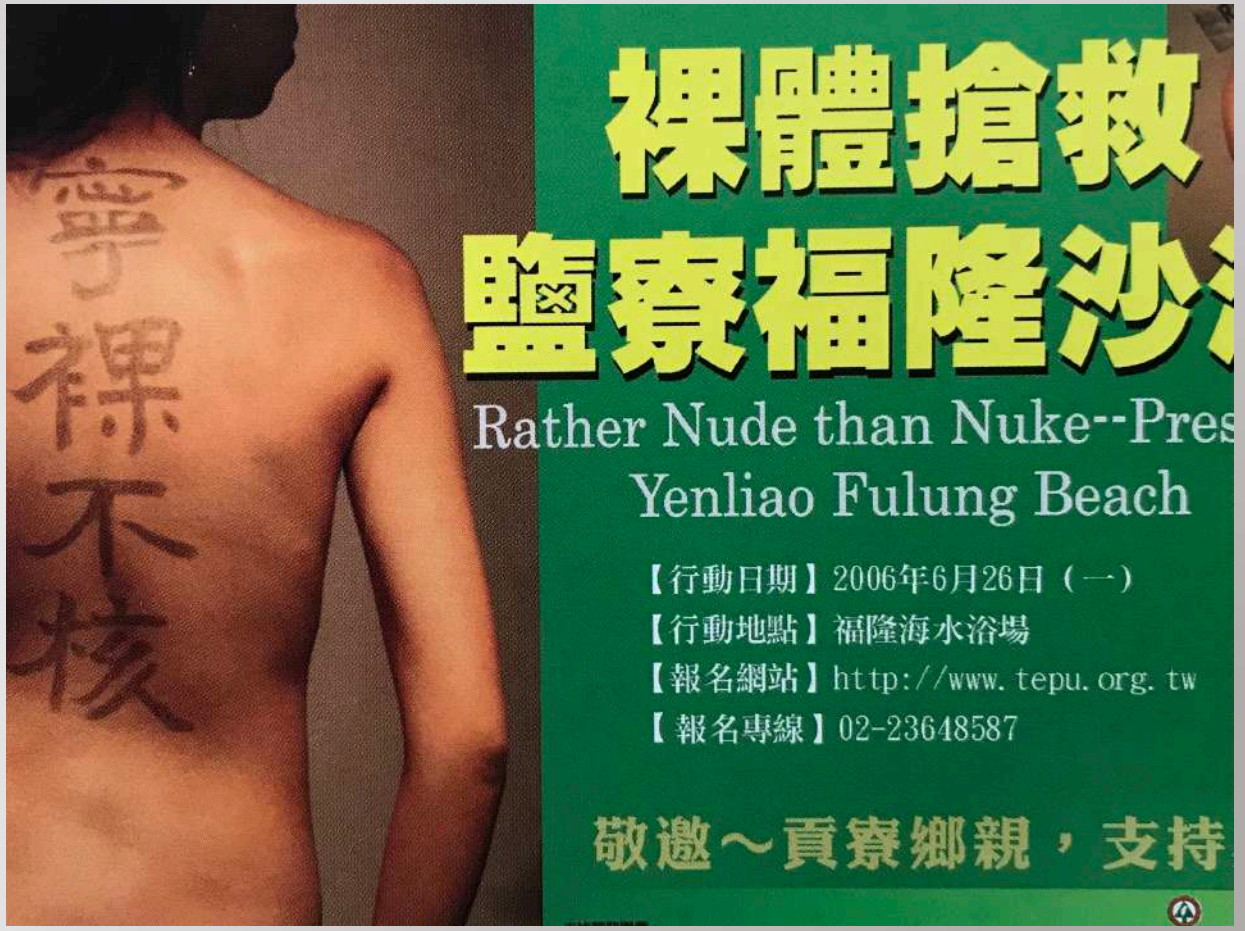
The Close Relationship Between Peaceful and Military Nuclear Technologies Has Led to Protest Since the Dawn of the Nuclear Age

- The Catholic Church has been a leading proponent of the Treaty on the Prohibition of Nuclear Weapons (TPNW), which 122 states, including the Vatican, voted to adopt at the United Nations in July 2017.
- At a Vatican-sponsored symposium in November 2017, the Pope said that the treaty “filled a significant juridical lacuna” and showed that “a healthy realism continues to shine a light of hope on our unruly world”

https://www.icanw.org/the_catholic_church_and_the_treaty_on_the_prohibition_of_nuclear_weapons

In an Environment of Uncertainty about the Benefits, Costs and Risks of Nuclear Power, Many Nations are Abandoning the Atom at a Time When the Industry Promises to Help Slow Global Warming

- Germany, Belgium and Taiwan are phasing out nuclear power. South Korea and Japan recently determined not to phase out, while the Philippines, Indonesia and other countries have determined to return to the atom, once again provoking protest.



Cooling Reactors at a Destroyed NPP: Fukushima