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Progress and economy: the clash of values over Oregon's Trojan Nuclear Plant

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ABSTRACT

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From 1976 to 1992 Portland General Electric (PGE) -- a private utility based in Portland, Oregon -- operated the Trojan Nuclear Plant near Rainier, Oregon, on the bank of the Columbia River. Trojan was the first commercial nuclear facility in the Pacific Northwest and was the largest such facility in U.S. history. From its origins, Trojan was the focus of growing conflict over atomic energy facilities and their environmental effects, risks, and costs. This thesis traces the history of Trojan, including the conditions in which PGE decided to build the plant as well as the changing conditions in which the environmental movement in Oregon worked to impact the operation of Trojan and the development of further atomic energy facilities in the region.

Two sets of values, largely endemic to the region, came into conflict in the debate over Trojan: one which valued preservation of vital natural systems over all else, and another that elevated technological progress to supreme importance in achieving the ultimate social good. Supporters of Trojan and anti-nuclear activists both viewed misinformation about nuclear

power as one of the central problems in the way that Oregon residents viewed nuclear power. Although there were many loyal supporters of Trojan, particularly in Columbia County, there were also a great number who viewed the technology cautiously. While both PGE and nuclear opponents worked diligently to sway public opinion, many activists did so by attempting to uncover and publicize hidden information about the design and operation of Trojan, and the nuclear fuel cycle in general. This included efforts throughout the plant's lifetime to develop opportunities for intervention in administrative proceedings, government hearings, and other arenas which often discourage citizen involvement. Related to the public debate over Trojan were ongoing operational difficulties and changing economic conditions, which contributed to the decision PGE announced in 1993 that Trojan would be permanently shut down.

This study is based primarily on coverage from newspapers and periodicals, new and extant oral history interviews, documents from the personal files of activists, as well as various archival materials associated with PGE, activist groups, and government agencies.

PROGRESS AND ECONOMY: THE CLASH OF VALUES OVER OREGON'S TROJAN NUCLEAR PLANT

by

GREGORY NIPPER

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List of Abbreviations

AEC: Atomic Energy Commission (became NRC in January 1975)

ASLB: Atomic Safety and Licensing Board

BPA: Bonneville Power Administration

CSP: Coalition for Safe Power (initially called Citizens for Safe Power)

DWO: Don't Waste Oregon

EFSC: Energy Facility Siting Council

FOB: Forelaws on Board

NRC: Nuclear Regulatory Commission

ODOE: Oregon Department of Energy

OEC: Oregon Environmental Council

PGE: Portland General Electric Co. (no relation to General Electric)

TDA: Trojan Decommissioning Alliance

TMI: Three Mile Island

WPPSS: Washington Public Power Supply System

Introduction

Commuters traveling along U.S. Highway 30 or 1-5 approximately thirty miles northwest of Portland are accustomed to an imposing sight: the 499-foot cooling tower that remains standing where it functioned as part of Portland General Electric's Trojan nuclear power plant from 1976 to 1993. In several important ways, the tower is a monument. As it dominates the landscape -- looming over the surrounding town of Rainier, Oregon, the nearby Columbia River landscape, and the public park that now occupies the Trojan site -- it is a marker of what many in the energy industry once thought of as one of the great achievements of nuclear engineering.

At the time of its construction, Trojan was the largest commercial nuclear power ever built. Today, the tower marks a significant failure. Although the Atomic Energy Commission (AEC) licensed Trojan to run for forty years, Portland General Electric (PGE) decided to shut the plant down after less than seventeen years. It was the largest U.S. nuclear power plant ever decommissioned.[1] Finally, the tower that made Trojan such an impressive sight remains as a monument to environmentalism in the Pacific Northwest. Had it not been for pressure from a number of groups concerned about the impact of the plant on the temperature of the Columbia River, PGE would have preferred the far simpler process of "once-through" cooling and would not have included the cooling tower in Trojan's engineering plans.[2]

At its root, the conflict over commercial nuclear power in the Pacific Northwest, to a great extent initiated by the dispute over the Trojan plant, was a conflict between two opposing views of how society should ensure a promising future. One side held that it must develop nuclear energy in order to reach that goal, whereas the other held that a safe and prosperous future would only be attained when society protected its environment by eliminating the risks that nuclear technology involved. These views of social progress correspond to conflicting notions of economy. One is the socially dominant notion embodied by modern capitalism and counter to this is a related group of other conceptions embedded in variety of poetic, political and philosophical traditions.

Henry David Thoreau's *Walden* inaugurated a concept of economy that prefigured the development of modern ecological praxis in the United States in the twentieth century. In his classic cultural study *The Machine in the Garden,* Leo Marx explored the ways these sets of ideals have defined how people in the United States have conceived of their nation's landscape, society and future.[3] For Marx, the "pastoral" ideal conceived of society as a garden, a kind of middle-ground between the domains of art and nature, while the "progressive" ideal was characterized by belief in the promise of technological progress. These ideals, which have conflicted in the United States since the advent of the industrial revolution, lie at the basis of the ongoing disagreements over nuclear power and environmental principles.

This study will consider the Trojan conflict, what it meant to residents of Oregon, and why it remains significant today against the background of these two conflicting visions in U.S. culture. The history of the Trojan conflict is of vital interest not only because of the specific elements it touches upon -- the influence of the plant itself in the region, the reasons for its failure, the effect on the utility and the regional economy, and the impact of these events on the environmental movement -- but also because these elements broadly illustrate different values and ideals, and the social divides that exist between them.

Within this broad framework, this thesis will examine the environmental organizations that were actively opposed to Trojan, the ideas and experiences of key activists within them, and the extent to which their anti-nuclear activities succeeded in attaining their goal of defeating Trojan and in developing an environmental-political praxis -- a set of actions or practices based in a coherent set of ideas that in turn further the evolution of the original concepts.

The first chapter of this work opens with a pre-Trojan history, both of PGE in the post-World War II period and the Northwest environmental movement on the threshold of the age of nuclear power. This segment then traces the origins and development of PGE's nuclear program, including the construction of Trojan, as well as the emergence of the conflict over the utility's plans. It considers a number of significant events and changes in this period that help to explain the ideological and political conflict over Trojan and

shows that as environmental activists struggled to build up a viable anti-Trojan movement and journalists and interveners raised safety questions about the plant, PGE undertook a variety of public relations efforts in response.

The second chapter explores in greater detail the development and organization of activism in response to Trojan, beginning with forerunners such as the Oregon Environmental Council and continuing with profiles of two key anti-Trojan activists who greatly determined the course of opposition to nuclear power in the Northwest during the Trojan era. In the context of PGE's early difficulties operating Trojan, this chapter documents and explores the efforts of the Trojan Decommissioning Alliance to mount a series of direct-action sit-ins.

The third chapter then outlines changes and rifts in the anti-Trojan movement as it continued to pursue every possible avenue of legal and political involvement. It also considers key events, such as the company's 1978 announcement that the plant did not meet federal earthquake standards as well as the Three Mile Island accident, and their impact on the Trojan dispute. Following the disintegration of much of the organized opposition to the plant in the 1980s, the third chapter explores how anti-Trojan activities, including protests and ballot measures to close the facility, continued up to, and beyond, PGE's 1993 announcement that the plant would remain permanently closed.

The conclusion to the thesis brings together a final assessment of both sides of the conflict. It includes a consideration of the values, tactics, and effectiveness of nuclear power proponents and critics and an overview of how this history adds to a broader political analysis of the Pacific Northwest.

This study is based primarily on coverage from a variety of newspapers, periodicals, and newsletters; new and extant oral history interviews; documents from the personal files of activists; and various materials associated with Portland General Electric, activist groups, and government agencies derived from the Stanley Parr Archives, the Oregon State Archives, the Oregon Historical Society Research Library, and the Millar Library at Portland State University. Additionally, William Nichols, a professor of English and Environmental Studies at Denison University, has graciously provided an unpublished manuscript on the subject of Trojan dating from 1981 as well as transcripts of numerous interviews he conducted in the course of his research, including several with representatives of Portland General Electric. During the research of the current study, active or retired employees of PGE were not available for interview. The utility has also closed its research library and the company's records are not currently available to researchers.

Chapter 1

Trojan's Arrival and the Seeds of Anti-Nuclear Activism in the Northwest

To understand Portland General Electric's determination to become a leading supplier of nuclear energy and the company's decisions relating to the Trojan plant, it is important to consider the changes in the corporation during the period following World War II. In the years between the end of the war and 1960, the birthrate, population, and gross national product of the United States grew drastically, and the Pacific Northwest offered no exception to these trends. Population in the region increased from 3.3 million in 1940 to 5.2 million by 1960. As the population of the Northwest multiplied so did consumption of goods and energy per capita.[1] Both commercial and domestic energy consumption soared in the 1950s and '60s as regional power suppliers promoted electricity for every imaginable use.[2] This meant a growing need not only for residential electrical service but also power to fuel the rapid industrial and commercial growth.

When PGE and other suppliers were unable to construct new facilities and expand existing ones quickly enough, brownouts resulted in Central Oregon in 1947. Polls revealed widespread concern among the business community and the public at large about power shortages and the potential harm they could inflict on economic development in the region.[3] Political pressure for the construction of new hydroelectric dams, amplified by the disastrous Vanport flood of 1948, resulted in the passage of the Flood Control

Act of 1950.[4] This legislation permitted the Army Corps of Engineers to proceed with a multitude of dams along the Columbia River.

Even in 1949, however, it was not imperative that PGE build new dams in order to remedy the regional power shortage. A solution to the crisis was already on the horizon, as both the McNary Dam -- on the Columbia river near Umatilla, Oregon -- and the addition of additional turbines to the Coulee Dam -- also on the Columbia river in north-central Washington -- were both underway.5 Yet executives at PGE had been planning a long-range strategy for the company, which they believed required a vast expansion of its generating capacity. Their purpose was not merely to develop new facilities in order to add to the base power supply but to add to the company's ability to control the flow of power in the region. PGE previously had served as a small retail supplier of power purchased largely from the Bonneville Power Administration -- a New Deal federal agency founded in 1937 that marketed wholesale power to smaller utilities. The company boasted in the 1940s that it was the leading supplier in the regional power system and it endeavored to become a leading producer.[6]

With these aims at the forefront of its agenda, PGE pushed forward in 1949 with plans to build a new dam on the "Pelton" site on the Deschutes River, near Madras, Oregon, in Jefferson County. Because of the controversy over how the Pelton Project would affect migrating populations of salmon and trout, however, the dam became the center of an exceedingly complex,

protracted struggle -- involving PGE, the Federal Power Commission, the Warm Springs tribe, the Oregon Fish and Game commissions, the United States Fish and Wildlife Service, the Oregon Hydroelectric Commission, and both commercial and sport fishing interests -- that continued for nearly a decade before it was secure and operating.

There was a stark contrast between PGE's public relations posturing about the Pelton Project's impact on fish and its statements to the Oregon Hydroelectric Commission. In its brochure, "Oregon Needs the Pelton Power Project," the company mentioned the need to develop power, "and still preserve a fishing resource of great value both commercially and recreationally.,,7 It also provided a few brief details of the new hatchery, presumably as evidence of the company's good faith with respect to fish preservation. However, in its statements to the Hydroelectric Commission, PGE discussed the hatchery as if it was only so much red tape. The company dismissed the value of any anadromous fish that might exist, saying that "the benefits from the migration of fish are wholly speculative and based on a nebulous hope that the propagation of salmon may become successful in this particular stream at some uncertain future.„8 Statements by the United States Fish and Wildlife Service painted an entirely different picture. The Service described in detail how the dam's construction would place in jeopardy some 680,000 pounds per year of anadromous fish then migrating on the Deschutes.[9] PGE's statements about the dam and its environmental impact

revealed a company that was eager to advance its construction plans and was dismissive of opponents' concern, but also careful to guard its corporate image. The company executives' strong belief in the rightness of their construction and generation strategies with Pelton was a prominent feature of the "culture" at PGE that shaped the manner in which the firm pursued Trojan. In the background of the company's actions was its goal of progressing from a mere supplier to a leading producer in the energy industry.

The Pelton conflict also revealed that PGE possessed extraordinary determination. After two years of struggle with the state fish commission and the Oregon Hydroelectric Commission, PGE's partners in the Pelton endeavor decided to cut their losses and withdrew their investments -- yet the company showed no intention of discontinuing its construction plans and battled on. Because the conflict involved both water use, which fell within the purview of state government, and the federal lands bordering the river, the dispute between the Oregon Hydroelectric Commission, which opposed Pelton, and the Federal Power Commission, which favored it, required the U.S. Supreme Court to settle the problem of state vs. federal jurisdiction. Although the Court's decision permitted PGE to construct Pelton, U.S. Senator Richard Neuberger proposed a congressional amendment that would block the dam's completion.[10] After the Neuberger amendment failed, the dam went on line on May 22, 1958.[11]

The Pelton dispute also serves as a striking reminder of the clash of values that has existed in the background of every debate over technological development and the environment since the industrial revolution, when new and existing technologies pervaded broad cross-sections of U.S. society and posed a challenge of values to the pastoral ideals in which the nation was rooted.[12] The sets of values at odds in the Pelton dispute pitted a view that future prosperity depended upon implementation of new technologies against a view of civilization as a "garden," a natural environment that its inhabitants could only preserve by protecting it from the risks that new technologies brought.

Following PGE's executive reorganization in 1948, a new company president, Thomas Delzell, replaced the entire board of directors. As historian Craig Wollner wrote in his portrait of the company, these changes constituted a "complete break with the recent past."13 The corporation progressed into the post-World War ll period strengthened and financially secure. Its vision of itself as a firm, and as part of its community lay solidly within a set of values emphasizing technological progress and the responsibility to ensure the state's power needs. Prior to the postwar construction boom, PGE executives had been uncertain how long the company could continue to operate in the capacity of a small-scale retail supplier of electricity from the SPA. The SPA chiefly provided power to public utilities, and thus private energy firms such as

PGE would be last in line and would be first to feel the effects of a power shortage. As a result, there was a strong possibility that the impending shortages could lead Oregon residents to seriously question the value of having a private utility. After the Oregon Legislature passed a bill in 1931 allowing for the formation of people's utility districts (PUDs), four such districts were formed.[14] Private utilities saw a far more menacing example in the state of Washington, where PUDs accounted for the majority of the state's electric needs. Nevertheless, the public power threat diminished greatly for PGE when the company signed a twenty-year contract with the SPA in 1953.[15]

In 1952, the Truman Administration's Paley Commission urged "aggressive research" in solar energy, an area in which "the U.S. could make an immense contribution to the welfare of the whole world. The commission estimated that such efforts could heat 13 million homes and offices by 1975.[16] However, the federal government did not implement the recommendations and by the following year had undertaken what became a decades-long push toward nuclear energy. As large chemical companies started to research ways of using atomic power commercially, the Atomic Energy Commission (AEC) undertook similar studies. In early 1954 President Dwight D. Eisenhower began to outline an "Atoms for Peace" program for commercial nuclear power.[17] It was with the U.S. government's implementation of Eisenhower's initiatives that the nuclear machine fully entered the garden.

PGE was compelled make plans for its future once the BPA contract was due to expire in 1973, and the company made nuclear power research part of its agenda from the beginning stages of these atomic energy initiatives. As consumption of electricity continued to grow steadily in the postwar period, PGE remained fearful that the regional hydroelectric system was no longer able to produce a broad surplus of power to share among the utilities. The company's 1968 Annual Report announced a major shift toward thermal generation of which nuclear power would "inevitably" be "a major factor.,,18 According to Bart Withers, who came to PGE in 1974 and served as vice president of its nuclear division, the company feared being cut off from the BPA and decided to continue to develop its own generating facilities.[19] PGE saw a need to take "a really big step forward," Withers said. He went on to explain that "there was a lot of faith by people in responsible positions at that time that nuclear power was the coming thing." The construction of one or more nuclear plants offered PGE a way to secure a source of power for itself, regulate rates, and develop the firm into a major producer of electricity in Oregon.

It is difficult to pinpoint the precise moment when PGE formally decided to actively pursue construction of its first nuclear plant. It is likely that PGE's extensive research on nuclear power options went on so long that, eventually, the company's management decided that it was past the point of no return with respect to developing nuclear power; a plant *would* be built. In addition to

PGE's contributions to the research and development efforts of utilities across the country, it employed Bechtel, a large engineering firm located in San Francisco, to conduct studies of potential sites, mostly in the Willamette Valley. For a period of roughly five years, the company evaluated possible locations on the basis of proximity to rail and water transportation, access to cooling water and to labor, geological and seismological features, and other criteria. In February 1967 PGE announced its decision to build a 1-miliion-kW nuclear plant and in May chose a site near Rainier, Oregon, which geologists and engineers from Bechtel deemed to be completely satisfactory.[20] The location had previously been the site of an explosives warehouse of the Trojan Powder Company, and PGE decided the plant would bear the Trojan name.

The selection of a site on the Columbia River immediately aroused concern by organizations from within the environmental movement and the commercial fishing trade fearful of the effect of cooling turbine condensers directly with river water. As a result, new water quality standards enacted by the Oregon State Sanitary Authority (later to become the Department of Environmental Quality) prohibited utilities from discharging water into the river when its temperature was above 68 degrees Fahrenheit. This policy prompted PGE's October 1968 decision to add a $13 million cooling tower to the plant facilities.[21]

In October 1970, while PGE was in the midst of engineering, site preparation, government licensing, and training of personnel, the company

also settled the plant's ownership: the Eugene Water and Electric Board would have a 30 percent share, the Pacific Power & Light Company 2.5 percent, and PGE would retain controlling ownership with 67.5 percent.[22] Meanwhile, PGE continued to voice concern over energy shortages. In 1971 President Frank Warren predicted that by 1979-80 PGE would have an energy deficit of 652,OOO-kilowatt hours, which was twice the amount needed to serve a city the size of Salem.[23] Citing these concerns and its faith in the promise of nuclear technology, Warren reinforced the firm's position as a regional leader in the shift to nuclear power, telling the Oregon Nuclear and Thermal Energy Council that "time was of the essence. The need for a second nuclear power plant by 1979 is very, very critical.„24

Although Trojan's one million kilowatt capacity was triple that of the Round Butte hydroelectric project, which had been PGE's largest generating plant, Trojan merely marked the beginning of the company's "big step forward." The firm's projections of limitless increases in electricity consumption in the foreseeable future were shared by numerous regional utilities (such as those in the Washington Public Power Supply System) and government agencies, many of which proclaimed in 1966 and '67 that nuclear generating facilities of one million kilowatt capacity or higher would be required at the rate of approximately one per year beginning in the next decade.[25]

In future years nuclear critics frequently would charge that the AEC was an active promoter of nuclear power instead of a mere regulatory agency. Indeed, a prevailing idea of the AEC was that nuclear energy offered the promise of the fulfillment of a new culture based on ever-increasing energy consumption. Speaking to the San Francisco elite at the Commonwealth Club in 1968, AEC Chairman Glenn Seaberg observed that "this great social, cultural industrial complex that has blossomed here on the West Coast is in the real sense of the word a 'High Energy Society.' [It is] a truly modern technological culture whose measure of advancement can almost be equated to its consumption of energy.„26 Shared by many in the AEC and in the nuclear industry, such a view formed part of the progressive technological ideal that drove the pursuit of commercial nuclear power.

Before the mid-1960s only a small outcry over the nation's move toward commercial nuclear power had surfaced,27 The environmental effects of uranium mining and purification remained largely unknown at this time and not enough radioactive waste had accumulated to push the problem of storage onto the agendas of environmental organizations.[28] For these reasons the vast majority of those involved in environmental issues during those decades viewed nuclear power as not only a favorable alternative to fossil fuels but as a positive means for a growing population to save its environment. In 1966 Will Siri, the director of the Sierra Club and a biophysicist at the University of

California, called nuclear power "one of the chief long-term hopes for conservation," adding that "cheap energy in unlimited quantities is one of the chief factors in allowing a rapidly growing population to preserve wildlands, open space, and lands of scenic value."[29]

In Trojan's lifetime, the vast majority of anti-nuclear activism involved members of local, grassroots environmental organizations, as opposed to national, mainstream groups such as the Sierra Club. These groups must be understood within the context of the emergence of the environmental movement in the twentieth century. In *Forcing the Spring* (1993), Robert Gottlieb, a professor of environmental policy and analysis in the Urban Planning Program at UCLA, has set out a number of historical distinctions between different segments of the environmental movement.[30] As a whole, environmentalism arose as an expression of the pastoral ideal and in response to industrial development in the East and the large-scale expansion of the U.S. economy into the western territories after the 1880s. For Gottlieb, this response manifested itself in separate but related areas of the environmental movement: the public health movement exemplified by Alice Hamilton -- a professor at Harvard Medical School, social reformer, and pioneer of the fields of occupational and public health -- and the wilderness preservation movement exemplified by Sierra Club founder and naturalist John Muir.

Key transformations within the environmental movement took place in the years following World War II. Historian Samuel P. Hays has observed that rapid industrialization, urban and suburban growth, an increase in the standard of living, and rising education levels occurred in the United States after the war fostered environmental values by prompting more people to change their consumption habits to fit the new standard of living and to make greater efforts to improve community life, health and well-being.[31] A parallel trend in the conservation movement was a shift away from the "commodity values" of resource conservation toward "environmental values" those that prized entire environmental systems such as the nation's wildlands for the beauty and amenities they offered. These shifts led to greater social concern over toxicity and the preservation of human health, including growing anxiety over the problems of potential nuclear accidents and the disposal of radioactive waste, which prompted the Nixon administration to enact several environmental reforms after 1968. Among these was the National Environmental Policy Act, which required agencies to report details of the environmental effects of major developments before proceeding with them.

These changes in social and political context and the ideological framing of environmental issues and their influence were accompanied by transitions in the makeup and activities of environmental organizations. According to Gottlieb, mainstream environmental groups that had begun as recreational associations for the professional class started in the late 1940s to

develop resource policy, as in the case of the opposition to the Echo Park hydroelectric project within Dinosaur National Monument along the Colorado-Utah border.[32] At the same time these large organizations became institutionalized as part of the environmental policymaking process, a multitude of grassroots environmental groups sprang up across the nation and began utilizing new tactics including boycotts, guerrilla theater, and civil disobedience.

These trends prefigured much of the history of the anti-nuclear movement in the 1970s and '80s, including the movement against Trojan. Indeed, some segments of the anti-Trojan movement derived from the direct action movement, the subject of Barbara Epstein's *Political Protest and Cultural Revolution* (1991).[33] The methodology of the direct action movement included nonviolence, consensus decision-making, and mass civil disobedience and was exemplified by groups such as the Clamshell Alliance on the coast of New Hampshire.[34] While this methodology was to some extent rooted in pacifist and civil rights groups such as Congress of Racial Equality (CORE) and the Fellowship of Reconciliation, Epstein argued that such an approach was fully formulated in the anti-nuclear energy campaigns of the 1970s and '80s and later spread to the peace, ecology, and women's movements.

The emergence of anti-nuclear campaigns, however, involved a slow and difficult process. Disagreements by activists over nuclear energy -- such

as the one in the Sierra Club over its endorsement of the plant in Diablo Canyon, California, in 1966 -- created rifts within the environmental movement, spinning off new organizations. Stanford biologist Paul Ehrlich's bestselling book *The Population Bomb* (1968), advanced the claim that unchecked population growth, enabled by the accessibility of large amounts of cheap energy, entailed increased pollution and would likely lead to massive die-offs. Meanwhile, nuclear energy's pollution-free image was shaken by controversies over the issue of thermal pollution -- the effects of power plants' discharge of warmer water into water habitats.

Doubt spread in environmental and sporting organizations that had once supported nuclear power when the AEC asserted that it lacked the jurisdiction to respond to the thermal pollution problem, which it attempted to trivialize by euphemistically referring to it as "thermal enrichment." Activist charges that the AEC had a fundamental conflict of interest as both a promoter and regulator of nuclear energy intensified as a result of the thermal pollution debate, and in 1968 many media outlets began reporting for the first time on the harmful side-effects of nuclear power -- an extension of the general fear that had been prominent since the 1940s over the threat of nuclear weapons and their effects.[35] The first Earth Day in 1970 strengthened burgeoning anti-nuclear sentiment immeasurably by diversifying and galvaniZing the broader environmental movement. Still, in cases where large protest movements formed in response to new nuclear projects -- those in Seabrook, New

Hampshire, and Diablo Canyon, for example -- the movements typically lost momentum when the plants reached completion and went on line.[36]

As evidenced by the adoption of stricter state water quality standards regarding thermal pollution from power plants, the debate over the environmental impact of nuclear power raged in the Northwest just as PGE announced its plans for Trojan, resulting in stricter water quality standards requiring construction of the cooling tower at Trojan. Anthony Netboy, then an assistant professor of English at Portland State College, published two articles in national magazines about thermal pollution in the Columbia and the potential threat of Trojan to salmon runs.[37] As it had elsewhere, the outcry over thermal pollution furthered skepticism about the AEC and fed concern about the potentially harmful effects of Trojan, both of which strengthened the growing regional anti-nuclear movement. *The Oregonian,* which normally published little that put Trojan in a negative light, was moved to briefly strike a watchdog pose with respect to the utilities. "As matters stand," an editorial proclaimed in 1967, "the utilities are making the decisions. The people of Oregon would be unwise to disregard the approaching problems of thermal pollution and to depend upon the future decisions of the utilities themselves to act when conditions become acute." The editors stated that although the effect of Oregon's first commercial nuclear plant might be negligible by itself,

"new sources of pollution should be prevented, not allowed to grow to the acute stage.,,38

The most serious opposition to Trojan surfaced in 1970, roughly two years after construction of the facility began, when a small group of middle-aged activists founded the Coalition for Safe Power (CSp).39 Initially called Citizens for Safe Power, the group's genesis came as PGE was in the midst of the elaborate process of obtaining construction permits from various government agencies and an operating license from the AEC. Representatives from CSP attended hearings, circulated petitions, and made efforts to publish and circulate information about the risks associated'with Trojan. In 1974 CSP would sponsor a 1DO-mile walk from Portland to Longview, Washington, and back to spread information about nuclear power and energy alternatives, all of which was covered in the "underground" *Portland Scribe.*40

Another forum for these efforts was the *Willamette Bridge,* an alternative underground weekly founded by Portland activists and published between 1968 and 1971. A series of *Bridge* articles acknowledged that there was little hope of preventing government agencies from licensing Trojan but that it was imperative to spread information about the environmental effects the plant would have. PGE responded in 1970 with extensive public relations campaign asserting the environmental benefits of nuclear energy through advertisements in Oregon newspapers and mailed pamphlets to ratepayers.

Coverage in the *Bridge* countered these materials point-by-point and argued that instead of helping residential customers improve their standard of living through abundant electricity, the utility would end up selling the majority of the plant's energy to business, industry, and California utilities. The risks assumed by Oregon residents, a story in the newspaper charged, were numerous: climate change as a result of large quantities of vapor from the plant, radioactive contamination resulting from the AEC's lax safety levels, toxicity associated with the problem of radioactive waste disposal, and the risk of damage to the reactor in the event of an earthquake.[41]

In December 1970 nine members of CSP met with GovernorTom McCall, a supporter of Trojan, to discuss a report from the AEC which the group believed raised serious questions about the safety of the plant. Members of the organization also attended AEC licensing hearings. "The purpose of the hearings escaped me," one member of the Coalition wrote, because "PGE and the AEC have been in consultation for years over an acceptable plan." Furthermore, "the AEC can issue a construction permit for Trojan even if the plans do not meet up to the AEC's safety standards." Regardless of such a bleak outlook, CSP maintained opposition to Trojan for the influence it might have on nuclear projects planned for the future. "The Trojan is a test case," a Coalition member reported, citing AEC plans to license nuclear plants equivalent to 700 Trojans by the year 2000.[42]

According to Jane Reitz of CSP, "the most critical problem" facing Oregon nuclear power opponents in the late 1960s and early '70s was "public ignorance." In an attempt to reverse this problem, the organization conducted an extensive public outreach campaign, which included information tables at colleges and in supermarkets as well as presentations to school classes and church groupS.43 In response to House Bill 1065, designed to grease the wheels for state approval of nineteen other Oregon nuclear plants by 1986, the Coalition for Safe Power collected 23,000 signatures in 1970 on a petition that called for a four-year moratorium on construction of atomic facilities. Another petition, signed by 300 health care professionals, urged Governor McCall to halt the construction of Trojan on the grounds that radioactive contamination of the Portland area would lead to increases in cancer and birth defects.[44]

The actions of Citizens for Safe Power throughout the period of Trojan's licensing were those of an organization fighting an uphill battle, aware that nothing short of massive opposition from Oregon residents at-large would succeed in halting Trojan. Moreover, as CSP employed conventional strategies-intervention at hearings, petitions, public outreach-some activists began to feel that only direct resistance would be able to disrupt what appeared to them to be a perfunctory licensing process. An article by Michael O'Brien in the *Willamette Bridge* pointed out that "the futility of struggling within

a political system dominated by corporations like PGE has undoubtedly led some people to consider more desperate actions.,,45

Some activists were intent on demonstrating that the very survival of the Northwest was at stake. Seeking to use worst-case scenarios in order to spread information about the risks of nuclear power, some manifested these scenarios in terms of prophecy.46 In a poem titled "The Trojan Nuclear Power Plant Hearing," Barbara la Morticella -- a local poet who later achieved regional acclaim, especially among activists -- suggested that the machine-in-garden conflict would resolve itself through a natural comeuppance:

> All these men with shirts and ties-
> Who would ever guess
> There are earth people, air people,
> Fire people, water people
> Gathered in this room.
>
> Men who've forgotten their very natures
> Who are going to split the atom.
> On the frieze outside, the star
> Of empire leads, while a horse
> Tramples on an Indian woman's foot.
>
> Only the atom knows what its nature is
> And while men talk and buds open in the rain
> The atoms of the earth and air and fire and water
> Gather and wait and quietly contain
> The moment when, shattering, they'll reveal
> Their ultimate enlightenment for
> Arrogant men.[47]

La Morticella's poem elucidated the opposition between active proponents of nuclear technology in government and industry and those who identified foremost with elements of nature, those largely outside government

proceedings and the board meetings of large corporations. Nevertheless some opponents of Trojan and nuclear power were impressively credentialed scientists and engineers who at some stage of their careers had become critical of nuclear power. Barry Commoner, one of the world's most well-known biologists during the 1970s, was involved with civilian and military uses of nuclear technology beginning with World War II's Manhattan Project but did not become actively concerned about commercial nuclear power until nearly thirty years later. Commoner asserted that Eisenhower created his "Atoms for Peace" program merely to lend credibility to Cold War policies and that "the government never developed nuclear power out of a coherent analysis of the energy question ... because all they were interested in were bombs.,,48

David Lilienthal was another prominent member of the federal nuclear program. In the years immediately following World War II, Lilienthal served as chairman of the Atomic Energy Commission and was a leading proponent of government-sponsored civilian nuclear power plants, particularly in the Columbia River Valley. Subsequently, the former administrator came to oppose nuclear power because of its inherent hazards and the grave risks of human error it brought. John Gofman was another AEC scientist who, while generally supporting nuclear power, became an outspoken critic of what he considered lax AEC safety standards. The *Bulletin of Atomic Scientists,* representing the voices of dissident atomic physicists and chemists, was also generally critical of commercial nuclear power plants.[49] However, despite

such exceptions, people from the nuclear regulatory apparatus and the scientific community generally remained committed to nuclear power throughout the 1970s and '80s.

One expert who sided with the anti-Trojan movement was Ivan Bloch, an engineer specializing in energy resources who served as chief of the Division of Industrial Resources and Development of the SPA from 1938 to 1947. There he was responsible for bringing aluminum and other chemical industries to the Pacific Northwest to take advantage of inexpensive hydroelectric power.[50] Ironically, these same industries became major energy consumers in the region and contributed to the utilities' push toward nuclear power, which Bloch vehemently opposed.[51] Predicting that engineering flaws would hinder the operation of Trojan, Bloch wrote in 1971 that there had been no indication of how local agencies would monitor and supervise the design and manufacture of reactor components which PGE purchased from energy firms elsewhere in the country. "This is crucial," he wrote, "because it involves a general rule that no product of highly developed technology can be any better than each detail of its execution."52

Aside from the plant's reactor, another contested area of Trojan's design was site geology. Initial warnings about the possibility of earthquakes in the region came out in hearings on Trojan's potential risks, held in March 1971, after the AEC granted PGE construction approval. One witness on the

opposition side was a geologist at Portland State University named Leonard Palmer, who had just completed a study of a recent earthquake in the Los Angeles area, which he noted had destroyed a number of "earthquake-proof' buildings. Trojan was designed to withstand quakes of 8.0 on the Richter scale and "accelerations" of 0.25 times the force of gravity, he said. Noting that the Los Angeles quake had measured only 6.25 on the Richter scale but had produced accelerations of 1.0 times the force of gravity, Palmer concluded that Trojan could be exposed to earthquakes larger than it could withstand and that construction should be postponed because "geologists don't know enough about acceleration." Palmer claimed that "no detailed map" of Trojan's site geology had been completed but that his own survey revealed that there were "faults going through the foundations." In 1971, however, geologists had little understanding of plate tectonics, and Palmer defined faults as possible "lines of ground breakage."s3

The earthquake problem was central to the Oregon Environmental Council's 1971 attempt to get a court ruling appeal of the AEC construction permit for Trojan. The OEC, a non-profit group founded in 1968, was Oregon's first statewide environmental organization. In response to the charge that PGE had not done sufficient environmental research, PGE nuclear plant engineer Don Broehl responded that "any crack in a rock can be considered a fault" but that there was "no reason to reasonably suspect faulting of the type that would effect [sic] the integrity of the project."S4

Although the OEC suit was ultimately unsuccessful in halting Trojan's construction, the U.S. Court of Appeals for the District of Columbia stated that the AEC had made a "mockery" of the National Environmental Policy Act in its licensing procedures for nuclear plants. When the Commission restructured its environmental impact review regulations in September 1971, the court ruled that it must reexamine the environmental impact of all such plants being built. However, the AEC determined that it would not be necessary to halt construction pending the new review and, of all the plants in progress nationally, it selected Trojan as the first to resume erection.[55]

One principal source of evidence anti-Trojan activists used to identify the faults running through the Trojan site was the U.S. Geological Survey, a division of the Department of the Interior. Ironically, Secretary of the Interior Rogers Morton visited the Trojan site in 1971 and after being briefed by PGE officials observed that "this probably represents the most carefully thought out nuclear plant from an environmental viewpoint that's ever been designed." Morton dismissed fears of radioactivity with the explanation that "there's always that kind of reaction with these sort [sic] of developments.,,56

The main achievement of environmentalists in the early 1970s was to raise questions about the environmental risks of nuclear plants and to sustain the debate over Trojan. The controversy received national attention in 1972 when a front-page story in the *Wall Street Journal* placed it within the context of other nuclear scandals and confrontations across the nation and reported

several events behind the scenes of the licensing process that cast doubt on the AEC and the utility industry's regard for public welfare. First, Raymond Corcoran, the Oregon state government's geologist, wrote a five-page report in late 1970 that expressed uncertainties about the geologic integrity of the site and stating he needed more scientific studies before he could rule on the matter. Corcoran's superiors "ordered all copies of the memo returned and destroyed" and issued a new memo stating that the State Department of Geology was not in a position to submit an opinion on the Trojan site due to a lack of resources.[57]

Second, John Ziegler, an engineer at Bechtel, the principal contractor for Trojan, contacted the AEC in late 1970 with what he believed to be a major safety flaw in Trojan's cooling pumps. After convincing Ziegler that it would be preferable to conduct an "in-house" investigation of the problem, Bechtel asked the AEC to return the letter unopened. The AEC complied. Ziegler was later fired and claimed that "the full-scale, in-house investigation turned out to be a farce. I realized I had been had." Peter Karpa, who headed Bechtel's Trojan design team, dismissed Ziegler's concerns and asserted that "the plant meets all safety rules the AEC lays down.... When you have a set of laws on the books, you hope the lawmakers know what they're doing.,,58

Third, Portland State University geologists Gilbert T. Benson and Len Palmer recommended a "boomer survey" (the use of sonic wave data) of the area of the Columbia River neighboring the site to confirm the existence of the

fault projected by the U.S. Geological Survey. "The Trojan site is too close to the Portland metropolitan area to be approved on the basis of anything less than a full and satisfactory investigation," they asserted. PGE later denied that they had conducted a boomer survey of the Trojan site, possibly because they feared the impression that such evidence might give. When a California-based engineering firm claimed that it had conducted such an assessment for PGE in 1967, the company promised to look for a copy of the sonic echo data but later responded that they were inconclusive and had been lost,59 In spite of such doubts, the AEC granted PGE a license for Trojan because the commission then had no seismic standards for nuclear plants, even though seismology had factored heavily in a controversy about the siting of another nuclear plant five years earlier.[50]

In response to critical reports, PGE fought to protect its image by blaming looming energy shortages on environmentalists. Warnings of power deficiencies rose to public prominence during the 1973 Arab oil embargo. Yet the curtailment of imported Arab oil was equivalent to only 7 percent of U.S. oil consumption-enough of a reduction to create headaches for retail gasoline consumers but not enough to strangle the economy.51 Although there were fuel shortages, the harm that accompanied them largely took the form of psychological uncertainty. The embargo in fact had no long-term negative

effects and the short-term impact was kept to a relatively harmless level by virtue of alternate sources of oil.[52]

The price hikes, however, were indeed a separate phenomenon, which aided both oil companies and producers. Evidence internal to the government and the energy industry neatly dispels the common belief that the higher prices were a punitive measure originating from hostile Arab states.[53] Most high-ranking government officials predicted higher prices but spoke in favor of them.[54] U.S. energy companies themselves had been calling for price increases, and there is evidence that they worked with the U.S government to achieve higher rates.[55] According to some estimates, the oil companies reaped an additional $420 billion in 1973 because of increased prices.[55]

As widespread anger spread across the United States over higher prices and energy shortages, the nuclear industry attempted to focus the problem on environmentalists, even though they had not yet succeeded in sloWing the proliferation of new plants. Yet as electricity rates went up and profits soared, many became angry at the government and the energy industry rather than environmentalists and undertook drastic conservation efforts rather than calling for relaxed environmental standards. By 1974, utilities began to realize they had overestimated the number of nuclear facilities that would be profitable, and the financial consequences of decreasing demand for electricity forced them to cancel a large percentage of the facilities they had ordered. These developments opened the perfect opportunity for the anti-nuclear

movement, and the environmental movement at large, to make its greatest strides yet.[67]

To many at PGE, the determination with which the antinuclear movement undertook its efforts was based on ignorance or even maliciousness. From President Frank Warren down to the technicians who staffed Trojan's control room, the company was characterized by long-held ideals of technological progress. The Trojan plant was not only a milestone in the achievements of engineering, according to PGE, it was a contribution to a thriving regional economy and a key source of abundant electricity to which everyone in the United States was entitled. Therefore, anyone who would oppose Trojan was at best woefully misinformed about nuclear power and at worst hostile to the fulfillment of the "American dream." In a candid statement in response to a customer letter inquiring about the nuclear power debate Roland Gabel, a manager at PGE, replied that, in his view, opponents of nuclear power

> belong to a different political philosophy than Americans do and are doing things like preventing needed electrical energy [in order] to destroy our country. If I were on the other side, I'd follow their footprints of destruction exactly. First, I'd get all our kids to use drugs and dress like tramps ... then I'd start a campaign to convince the populace that nuclear power is a killer. With youth and dwindling energy resources, we'd be ripe for destruction.[68]

Although Gabel was not speaking on behalf of PGE, his view was echoed by many leaders of the utility industry regionally and nationally.69

As is typical in many areas that involve specialized knowledge, many who worked in the field of nuclear power believed that laypersons lacked the requisite expertise to qualify to speak about nuclear technology. Thus the dismissive attitudes at PGE about the validity of outsiders' views of nuclear power were directed not only toward activists but by the early '80s to the citizenry at large as well. PGE devoted substantial resources to project a positive image of Trojan and to overcome the perceived ignorance and fear about the plant. In addition to its routine public relations work, the company constructed and maintained a Visitors Information Center on the Trojan site filled with exhibits, games, and presentations that instructed about the plant and its equipment. William Nichols, a professor of English and environmental studies at Denison University, studied Trojan's Visitors Center and the ways that schools tended to utilize class tours of the center and school presentations by its staff -- of which there were over 800 in 1979, a typical year. His research found little evidence that teachers supplemented these programs with additional material. Thus the Trojan Visitors Center operated as a primary source of nuclear education in the region and garnered criticism from several journalists and scholars as a source of misleading propaganda and unfair dismissals of anti-nuclear positions.[70]

Another public relations program involved the chair of nuclear engineering at Oregon State University, directly endowed by the same utilities that had invested in Trojan. PGE thus possessed a highly advantageous

position in the area of education regarding nuclear issues in a region that, according to public opinion polls it sponsored, already overwhelmingly favored nuclear power. According to a 1975 poll of Oregon residents conducted for PGE by an outside firm, 66 percent of those surveyed were in favor of the Trojan plant, 23 percent were opposed, and 11 percent were undecided. The poll also showed that a margin of more than 2 to 1 supported further development of nuclear plants in the state.[71]

Perhaps because of these advantages and the company's own belief in the rightness of its nuclear endeavor, PGE was caught off guard by the gradual development of an organized opposition to Trojan backed by those Oregon residents who were increasingly suspicion of nuclear power. Yet in the mid-1970's, although the growing environmental movement was raising questions about nuclear power, the utilities were forced to abandon planned nuclear projects through financial factors rather than political ones. The anti-nuclear movement's task was to continue and intensify the nuclear debate, to push it into new arenas, and eventually to bring sufficient public pressure to bear on the nuclear industry to hasten its demise.

Meanwhile, on Nov. 22, 1975, the Nuclear Regulatory Commission (formerly the AEC) granted Trojan's operating license. Exactly a month later, the facility began producing power in a series of tests. On May 20, 1976, Trojan officially went into commercial operation. After numerous construction delays and a final cost that, at $460 million, was roughly double PGE's initial

projections, Trojan's completion provided a distinctive victory for Oregon's leading private utility. Yet many in the fledgling anti-Trojan movement were not ready to admit defeat.

Chapter 2

The Development of Anti-Nuclear Activism:

Legal Intervention and Direct Action

The moment Trojan went on line marked a significant victory for commercial nuclear power in the Pacific Northwest. The facility was now a formal part of the local economy and infrastructure and undoing it presented activists with a much greater task than preventing its opening. As Nina Bell, one of the major opponents of Trojan, has observed, people generally tend to accept the status quo.[1] Those "living next to an operating nuclear power plant ... are more likely to accept it than to accept a new one being constructed." "If citizens wanted to stop it in droves," she stated, "the time would have been a lot earlier.,,2

Stopping the facility, however, had seemed an impossible task to many critics of the plant long before it opened. Portland General Electric's plans for nuclear energy already had a great deal of momentum at the time the company announced Trojan and it took several years before the opposition developed the forcefulness and know-how to effectively respond. Prior to Trojan's opening, many of its most active critics were not opposed to atomic energy *per* se but merely wanted to make it safer. This "safeguards movement" provides a necessary context in which to understand the activities of those who organized to shut down the plant after it began operation.

The floundering efforts of the movement to express its views in a way that would be taken seriously by others were clearly evident in early

discussions about the plant. One of the first of these was Governor McCall's Nuclear Plant Siting Task Force hearings held in St. Helens on July 2, 1970. At the time PGE built Trojan, there was no clearly defined state role in regulating nuclear power. A proposal to create a state licensing agency with the authority to approve, reject, or modify private utilities' plans for nuclear power plants had been defeated in the state legislature in 1969.[3] McCall was a strong believer in nuclear power and called it "the wave of the future" after deciding that solar and wind energy would not be feasible to meet the state's demand for energy in the immediate future.[4] Although not required by statute, McCall voluntarily created the task force to review PGE's plans for Trojan. It is likely that a large part of the reason he did so was his belief that an airing of viewpoints would quell fears. It also helped preserve the pro-environmental image the governor had earned by supporting the state bottle bill and requiring the Boise Cascade paper mill to comply with Department of Environmental Quality pollution regulations.

The Task Force was made up of the state geologist and representatives from an array of health- and environment-related state agencies. The state geologist was Raymond Corcoran, whose report on the site's potential geological hazards had been recalled by his superiors in the Department of Geology. Evident in the hearing, which might have served as an evenhanded exchange of information and ideas, was a marked difference in tone in the task force's questioning of PGE representatives and supporters and that of

speakers who criticized the plans for Trojan. Following his presentation, company Vice President E.C. Itschner responded to a series of technical questions in a friendly exchange with the task force. However, the first speaker to criticize PGE's plans, Dr. Robert Bacon of the University of Oregon Medical School, faced a notably more antagonistic discussion. For example, when Bacon presented findings about the risks of increasing environmental levels of tritium, a radioactive byproduct of nuclear fuel cycle, the task force representative from the State Board of Health remarked that he would personally worry much more about pollution from raw sewage than from tritium.[5]

John Gofman, the anti-nuclear side's foremost expert witness, had spent seven years in part under AEC auspices researching the risks posed by nuclear plants and began with a review of his qualifications. Following his statement, task force chairman Larry Wilkinson replied, "Dr. Gofman, I always question people that open their testimony claiming to be an expert." What Gofman had actually said was that no one could be sure what radiation's long-term effects would be. The members of the task force, whose duty was to hear all points of view and make an informed recommendation to the governor, proceeded to vigorously cross-examine Gofman in what appeared to be an effort to cast doubt on his findings.[6] The task force's difference in tone was not lost on Oregon Environmental Council Executive Director Lawrence Williams, who divided his testimony between offering an extensively

documented series of questions about the plant and lamenting that the hearing was meaningless. The task force, he said, seemed "entirely limited to the role of promoter." To dismiss the question of hazard "out of hand" at that stage in Trojan's development, he asserted, was akin to "locking the barn door after the horse has been stolen."?

Evident in Williams's statements was a paradox that captured anti-Trojan efforts, especially in the period after the plant opened -- that of activists going through the regulatory process and other establishment channels to achieve their goals while expressing serious doubts about the efficacy of those methods.[8] "There was this strange sort of dichotomy of 'the system doesn't work,' 'the system works,' all completely justifiable," Nina Bell has recalled. "Back then, one could make the licensing process do some good, but it was also true that it was not going to do that much good."g However, what generally distinguished Bell and other activists from those who had spoken against Trojan in 1970 and '71 was an ability to find opportunities to intervene legally that provided some hope of altering the course of nuclear power in the region.

PGE's 1971 shareholders' meeting was another example of early efforts to publicize concerns over nuclear power in spite of a utility that appeared to hold all the cards. The meeting, far longer and larger than those of previous years, was conducted behind locked doors, and shareholders were searched for cameras and tape recorders. Attendees had the opportunity to

speak but could take no steps to alter PGE's plans because a ruling by the Oregon Supreme Court concerning another PGE power project had given President Frank Warren the authority to rule out-of-order any motion he wished.[10] One shareholder, Ann Morgenstern, outlined a detailed set of problems about the risk of accident and the issues of radioactive waste transportation and disposal. When these concerns were largely rebuffed by the utility's speakers, who spoke almost exclusively on the subject of radioactive emissions from the plant's operation, Morgenstern unsuccessfully introduced a resolution ordering the company to halt construction and undertake a more thorough examination the risks involved.'

It is instructive to note the way the press generally presented nuclear power critics' early attempts to bring attention to the uncertainties about plant safety. The day after the 1971 shareholders' meeting, a news article in the *Oregon Journal* referred to Morgenstern's resolution as "an effort by environmentalists to embarrass officers and directors of Portland General Electric.,,11 Earlier, *Oregonian* coverage of the Governor's Task Force hearing in St. Helens by reporter and editorial writer Wayne Thompson seemed to ignore the testimonies of Bacon, Williams, and many others, suggesting that "despite Gofman's vehement arguments," testimony "generally favored construction of the plant, with 15 witnesses testifying in support and 12 offering no protest." Thompson reported that Gofman spent an hour "explaining his extreme view that the risk of building nuclear reactors 'is too

great and the consequences too severe.",12 The irony in the press's characterization of Gofman as an extremist is that at the very same hearing he had made clear his general support for nuclear power. "I think I'm one of the few real friends of atomic energy, because I want to proceed safely," he explained.[13] It was indeed this more limited view of the problem of nuclear power held by many the early critics of Trojan that set them apart from those who emerged later to demand no less than an end to commercial nuclear energy.

The more limited goals of the Oregon Environmental Council (OEC) and similar groups with respect to Trojan contributed to a greater willingness to compromise with PGE, leading to another major defeat for activists wholly opposed to the plant. In March 1971 OEC, Friends of the Earth, and two other environmental and sport fishing organizations had spearheaded an appeal of the Atomic Energy Commission's licensing of the plant on grounds that it violated federal environmental guidelines, an appeal that later went to federal court. According to Williams, the goal was not necessarily to defeat Trojan but to make it as safe as possible.[14] Faced with new AEC hearings on the environmental impact of the plant on May 1, 1972, PGE sat down with the environmental groups to negotiate a compromise. The next day the organizations announced the agreement later described as the "Trojan Compromise." PGE agreed to prevent discharges of zinc, chromates, and residual chlorine and phosphates; conduct further geophysical testing of the

plant site; and limit radioactive waste discharges to five millirems per year, regardless of whether the AEC adopted this as its final standard. In turn, the environmental organizations agreed to drop their suit and to refrain from taking any further action that would challenge the licensing, construction, or operation of the facility. The utility also agreed to pay the groups' legal fees up to $15,000.[15] The compromise was celebrated as a win by OEC and the other groups because it required PGE to pursue a few of the safeguards the groups had been advocating.

However. because most of the risks and problems from the nuclear fuel cycle and the operation of the plant that anti-nuclear activists had been working to address were not, many viewed it as a large-scale sell-out. Bell recalled asking an activist from Friends of the Earth why the group had supported the compromise "and the explanation was something about 'It was costing us a lot of money,' or whatever." From her perspective and that of CSP, "that anybody would compromise on an issue like nuclear power safety in order to get their bills paid was just abhorrent.[16] With the signing of the compromise, any hopes of challenging the licensing of the plant were lost, and several of the key environmental groups that had so far challenged Trojan were suddenly removed from the picture. It took several years for the remaining opposition to regroup and find viable political arenas in which to intervene.

While the Trojan compromise was indeed a setback for the anti-nuclear movement in Oregon, it also set the scene for the emergence of a different type of activist than its predecessors, who had focused on safeguards and had objected to the plant merely because of where it was sited. Anti-nuclear activists such as Lloyd Marbet and Nina Bell were fundamentally opposed to nuclear power. Marbet was born in 1947 in Columbus, Ohio. and grew up in Binghamton, New York. His father -- who Lloyd described as a dominant, authoritative person -- flew 852s in the Army Air Corps during World War ll and met Marbet's mother, a Red Cross nurse, in a wartime hospital.[17] In 1966, a year after finishing high school, Marbet remembered, "my father decided that I should join the service so he took me down and joined me up in the United States Navy.,,18

At the time Marbet was shipped out to Vietnam he had never questioned the institutional knowledge he had learned. However, when he observed that the people he was ostensibly there to protect were more afraid of him than of their supposed enemy, he recalled, "I realized there was something wrong; there was a disconnect.,,19 The experience led him to the conclusion that "the whole philosophy of questioning authority was necessary in order to survive."zo After refusing to serve, he was amazed to find out that the Navy was giving him an honorable discharge. Upon returning to Binghamton, he completed a year of college in the liberal arts program of a local community college, but the disillusionment he had experienced in

Vietnam War led him to devote himself to antiwar activities. Deciding in 1969 to broaden his horizons further, Marbet bought a Volkswagen Bus and set out for the West Coast with his pregnant partner of two years. They planned on settling in California, but were so taken with Oregon's natural beauty that they decided to stay, and soon found a house in Portland. Marbet continued his antiwar work and worked to produce art supplies used in Portland public schools. However, it was a separate event that led Marbet into anti-nuclear activism, not his work against the Vietnam War.[21]

In 1970, just as Trojan was gradually gaining public attention, Marbet and his partner, Diane, read a book about the hazards of commercial nuclear power entitled *The Perils of the Peaceful Atom* by Richard Curtis and Elizabeth Hogan.[22] The experience of reading it left an indelible impression on Marbet, and it is a story he often tells.

> I remember looking up from that book and saying, 'Diane, if they build the Trojan plant, I think we ought to go to Canada.' I turned the chapter, and the title of the seventh chapter was 'Don't Bother Running.' It literally shocked me. And at that point for the first time in my life, I just suddenly realized there was not going to be a way to get away from the destruction on our environment, and I realized I was going to have to do something about this.[23]

However, what he realized he must do at that moment was not to go out and stop Trojan but verify what he had read. "Ever since I was born," Marbet told an interviewer in 1980, "I was always running away from the harsh things that I discovered .,,24 This time, he decided to determine the truth, face it, and act on it. For approximately two years thereafter Marbet spent much of his time

reading about nuclear power from all sides of the issue and attended meetings and hearings, where he met Oregonians who could share their knowledge about the subject. When he finally determined the accuracy of the horrifying account of the atomic industry in *The Perils of the Peaceful Atom* and decided that he needed to do something about it, he recalled, "I became an activist."

Although Marbet later became Oregon's most visible opponent of nuclear power, his beginnings were inauspicious, unassuming', and at times hesitant. In 1973, after being on the periphery of efforts organized by early anti-Trojan activists John Bartels and Beulah Hand, Marbet decided to participate in a hearing on the construction of PGE's Pebble Springs nuclear plants, which the utility originally sited next to an active military bombing range near the town of Boardman in eastern Oregon. "I figured, I'll go, I'll testify against this, they won't listen to me, I'll go home, end of story," he remembered.[25] The proceeding turned out to be a pre-hearing conference to identify the parties for and against the licensing of the Pebble Springs plants. When the judge asked who was there to intervene against the facilities, Marbet looked around and, seeing no other volunteers, raised his hand.

Swarmed with lawyers wanting to know what he thought he was doing, Marbet found out that he needed a written petition to intervene and wrote one out on the spot in pencil. Still, he realized he was not prepared in the least for what he had committed himself to do. When he spoke with lawyers who had

done anti-nuclear work, he recalled, "they said to me, 'You don't have a prayer in hell. We've already done this; look what happened with Trojan!'"[26] When Marbet approached Robert Cobb, a local entrepreneur who was loyal to the anti-nuclear cause, Cobb offered his office for Marbet's activities. The time came for the licensing hearing, and Marbet was so flustered that he accidentally rode the bus up to Boardman a day early and had to sleep on the bank of the Columbia River the night before the hearing. Gregory Kafoury, a Portland lawyer and fellow anti-Trojan activist, recalled Marbet's attendance at the hearing

> in a room with a bunch of 'blue suits,' powerful, Important, serious people, and they all knew the reality. We were going to have 20 nuclear plants in Oregon. It was a done deal. And this hippie shows up with one year of college and he said, 'It says here that citizens can intervene and can ask questions and can be a party. I would like to be a part of this process.' They thought he was a joke.[27]

As Marbet's self-confidence abandoned him, he raised his hand. " was so full of fear," Marbet remembered, "and I just said 'I can't do this, I can't do this. I withdraw my petition to intervene.'" Nevertheless, the would-be activist stayed to see what happened and soon recognized he had made a horrible mistake. When the Siting Council began questioning PGE's plans to construct nuclear plants adjacent to a bombing range, Marbet saw that all he had to do was ask questions. When the council required the corporation to designate a new site for the Pebble Springs plants the licensing process started over again and Marbet realized he had another chance. His confidence restored, he explained, "I came into my own at that point." Marbet now began to teach

himself administrative law and to study the rules and regulations for legal proceedings. "That's how I became involved in this movement, because no one else thought that it was possible," he recalled. "I didn't even think it was possible, I just thought it was important to raise the concerns, because the concerns didn't go away."

In 1973 Robert Cobb had enough faith in Marbet's abilities to form a new organization under whose auspices the activist and a few allies worked to confront nuclear power in the Northwest. In order to remain incorporated under the name of FOB Clearinghouse, Cobb's freight auditing company, the businessman came up with the name "Forelaws on Board," which reflected a conviction that the laws of the earth come before human law. The "Four Laws of Ecology," which appeared on Forelaws on Board's letterhead and were taken from a book by Barry Commoner, consisted of the following:

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. Nature knows best.
4. There is no such thing as a free lunch.[28]

Although Marbet has tended to carefully avoid espousing any particular philosophy or social vision, to a great extent his work as an anti-nuclear activist seems to have been guided by a reverence for these principles.[29]

Nina Bell, like Marbet, has spent most of her life working on various environmental and political issues. However, her introduction to activism, her specific activities, and her strategies were all quite different than Marbet's.

Bell was born in 1957 and, after living in various parts of the United States and Europe at a very young age, grew up in Seattle. Her parents were both environmentalists and she remembered having many political discussions at home. One of Bell's lessons in being an active citizen came in 1971 when the federal government announced that nuclear weapons tests would be carried out on Amchitka Island, one of the Aleutian Islands off the coast of Alaska. Bell's parents helped her send a telegram to President Nixon to register her protest of the tests. Following a trip to British Columbia to visit Greenpeace organizers, Bell's father returned with buttons, bumper stickers and information, which the family distributed at various places. Bell was inspired by her father's environmental convictions but for a long time felt too shy to be outspoken about her own ideas. She wore a Greenpeace button to junior high school one day and other students, not knowing what it was, poked fun at her. "So I was forced to respond," she said, "even though I didn't want to talk to anybody.,,30

One anecdote about Bell's formative years shows both her continued environmental commitment and individualist tendencies. Involved in a "save the whales" group in high school that she found too "wishy-washy," Bell proposed a direct strategy: a boycott of Japan. When the group found this too confrontational, she remembered, "I painted myself a sign and took it down on the bus and walked around Seattle's waterfront with my own sign saying 'Boycott Japan, save the whales!'" Part of her individualism may have come

from her shyness. "I was sort of being provocative," she acknowledged, "but I didn't necessarily want to have to talk to anybody about it."[31]

Bell came to Portland in the mid-1970s to attend Reed College, hoping to study and engage in political activities, but found that the institution did not live up to its reputation for activism and that most students were too busy studying to organize politically outside the school. "They call it the 'ivory tower' for a reason," she has observed.[32] During a summer break in Washington State in 1976, she got involved with a Christian organization that was working to put nuclear safeguards issues on ballot initiatives. She remembers the group -- which included quite a few doctors, lawyers and other professionals -- as a very "upbeat" assortment that, unlike her, was not committed to the goal of shutting down nuclear plants. Despite this fundamental difference, the experience afforded Bell further initiation in working on nuclear concerns and introduced her to the issue of Trojan.[33]

After another year Bell dropped out of Reed in the summer of 1977 and became active full-time in CSP and the newly-formed Trojan Decommissioning Alliance (TDA). Nineteen years of age at the time, she liked many of the CSP members because they stimulated her intellectually, challenged her politically, and shared her commitment to the nuclear power issue. "I wasn't looking for [just] *any* political experience; I was looking for this one," she recalled.[34] Formed in June 1977 by CSP members, the TDA sought to engage in collective action with a larger number of people from the general public to do

public outreach, and to engage in direct action, including civil disobedience. TDA was an unusual anti-nuclear group in that it drew connections between the often-separate issues of nuclear power and nuclear weapons, collaborating on rallies and other activities with groups such as American Friends Service Committee and Fellowship of Reconciliation.[35] The CSP, which focused on licensing proceedings and litigation, remained distinct from TDA but its members remained active in TDA. In effect, the groups worked in tandem but spoke to different forums. For Bell, part of the experience of being politically active was developing a broad array of skills and methods with which to participate.[36]

The startup of the largest commercial reactor in the nation was certainly a victory for proponents of nuclear power, but it was not as flawless and distinguished as the utility might have hoped. Immediately after test runs ended in May 1976, the plant was shut down until September for repairs and modifications. Ironically, while PGE had pitched the plant years earlier as the only answer to looming catastrophic energy shortfalls, nuclear energy was not in demand during the mid-1970s because low-cost hydro-generated power was available for purchase.[37] In July 1976 the Oregon Department of Energy (ODOE) released the first state-sponsored energy forecast. The OOOE figures indicated that PGE and Pacific Power and Light had drastically overestimated the amount of electricity Oregonians would need over the next

twenty years. For example, PGE and PP&L had asserted that in 1996 Oregon would use 106.5 million megawatt hours, while the ODOE forecast called for just thirty-four million megawatt hours.[38] In fact, Oregon consumption of electricity during that period would range from 45.7 megawatt hours in 1995 to 47.1 megawatt hours in 1997.[39]

This evidence supports Marbet's belief that one of the key underpinnings of PGE's nuclear program was a projection of perpetually increasing power consumption virtually unaffected by rate increases.[40] PGE had a vested interest in increasing consumption by convincing household consumers in the post-World War II era to use electricity for every possible purpose and by encouraging industries such as aluminum manufacturers. A larger number of consumers of electricity meant that the costs of building generating facilities would be defrayed and the unit cost of electricity would be lower. Oregon industry thus had an interest in the success of PGE"s plans to build a network of base-load generating nuclear facilities. Even moderate safeguards initiatives posed a threat to this system.

Although the post-Trojan compromise nuclear safeguards movement was in its death throes in 1976, increasing awareness among Oregonians of safety issues made conditions ripe for a safeguards ballot initiative, Measure 9.[41] This proposal would have made PGE fully liable for damages resulting from the operation of nuclear plants and would have required the utility to

convince a two-thirds majority of the Oregon State Legislature of two things: first that emergency systems in nuclear plants would perform successfully under operating conditions, and second that nuclear wastes would be safely managed with no reasonable chance of escape.

PGE and other opponents of the initiative deemed these tasks so impossible, that they simply referred to Measure 9 as a "ban" on atomic energy. Shortly before the election, an industry newsletter of regional aluminum producers sounded the alarm about the proposition and other "anti-nuclear measures." The article echoed the utility industry's predictions of looming energy shortages severe enough to threaten the economy of the Northwest and the way of life of its residents. The accompanying graph, which contained neither sources nor actual figures, showed energy consumption increasing consistently into the future.[42] *The Oregonian* provided little news coverage of the debate on Measure 9 but published a major editorial penned by reporter and editorial writer Wayne Thompson that opposed the measure as "potentially devastating to [the] energy supply."[43] The defeat of Measure 9 in the November 1976 election delivered a final blow to the moribund safeguards movement. Peter Bergel, an activist from Eugene, felt a great deal of disappointment in voters after the election. "I thought, 'God, they were bought off so easy,'" he remembered. Then Sam Lovejoy, a prominent nuclear activist, told him, "You've got to believe in the people. If you don't

believe in the people in this business, you might as well forget it." Shortly thereafter, Bergel got involved with TDA.[44]

By the mid-1970s an important change in the national context of anti-nuclear activities had begun to take place: the emergence of the nonviolent direct action movement. This phenomenon fully emerged with the creation of the Clamshell Alliance to oppose the construction of a nuclear plant in Seabrook, New Hampshire. Many activists had returned to New England in the early 1970s after organizing against the Vietnam War in various parts of the country. After attempting unsuccessfully to use legal means to prevent the plant's construction, activists formed the Clamshell Alliance and staged mass civil disobedience actions on the Seabrook site. The occupations began in August 1976 and culminated the following year with a sit-in that resulted in 1,401 arrests. Motivating the group's opposition to the Seabrook plant were a belief in libertarian-anarchist principles, the philosophy of nonviolence, consensus decision-making, advocacy of large-scale civil disobedience, and a commitment to implement the ethics of egalitarianism and nonviolence in social life as a whole. Nevertheless, conflicts over strategy and the principles of nonviolence arose as the group readied itself for a second large-scale occupation. Faced with the likelihood of locked gates, the group disagreed on principled and pragmatic grounds over whether to cut through the fences and how to face the police response. The organization found these disagreements insurmountable through consensus. The informal leadership began to

question the consensus process and to some degree circumvented it, which led to the dissolution of the group. Over the long term, these opponents of nuclear power were unable to maintain political efficacy and an uncompromising devotion to their values and did not succeed in stopping the construction of Seabrook.[45]

Despite such failures, the Clamshell Alliance paved the way for a mass movement based on nonviolent direct action with a vision of radical change.[46] Parallel to these developments and perhaps to some extent as a result, new alliances sprang up around the country to consolidate disparate anti-nuclear activities and explore new avenues of involvement. In the Pacific Northwest, these included the Olympia-based Crabshell Alliance and the Trojan Decommissioning Alliance in Portland, separate organizations that maintained close ties to each other.[47] Although Bell saw key differences between the Clamshell Alliance and the TDA, she acknowledged that the Seabrook occupations had been an impetus and that the Oregon group had used a film about Seabrook organizers as an educational device at their own nonviolence training workshops.48 Eugene Rosolie, who had long been an active member of CSP, remembers the beginning of TOA in the context of Seabrook and changes in the anti-Trojan movement after the failure of the Measure 9. The Coalition had not supported Measure 9 or any ballot measures because of the belief that PGE would always be able to use its vast influence and financial resources to defeat such initiatives. Rosolie was aware that once Trojan had

its operating permits and began operation there were fewer opportunities for legal intervention.[49] "I was about to drop out of the anti-nuclear movement," he remembered. "Basically, I felt like, I'm carrying this whole thing, besides Lloyd." He decided that unless more people got involved, he was out. Norman Solomon, another longtime anti-nuclear activist in Oregon, was staying at Rosolie's house and shared his view that something had to change. "Norman brought up the idea that what we should do is what they'd been doing at Seabrook. We should do an occupation."[50]

TDA activists now scheduled an occupation of the Trojan plant for the 1977 anniversary of the bombings of Hiroshima and Nagasaki. The number of respondents to the idea overwhelmed Rosolie. "Meeting after meeting just grew with people," he said. "The people said, 'We don't want to pass initiatives. We want to go out and do something. We want to make a statement.„[51]

Marbet, Rosolie, and Bergel had discussed the possibility of organizing an occupation as early as 1975, but it took time, and the Seabrook example, for the idea to come to fruition. Marbet decided not to participate at all in the occupations. According to a number of his contemporaries, his individualist personality made him out-of-place in TDA, which was committed to collective action, affinity groups, and mandatory civil disobedience training for anyone participating in the actions.[52] Although Marbet was greatly influenced by his studies of Gandhi, he did not personally believe that anti-nuclear civil

disobedience was justified at that time. "I didn't oppose the early demonstrations at Trojan," he explained, "but I think if you're going to do civil disobedience it's incumbent that you have to be able to demonstrate that you tried all of the other available processes that allow you to raise your concerns.,,53

In the time leading up to the first occupation, the TDA held training sessions for those who wanted to participate, formed affinity groups, and taught conflict resolution skills and knowledge about the relationship between the theory and practice of nonviolence. Members also arranged meetings with both the police and PGE so that there would be no surprises for anyone involved.[54] In July, activists sent a letter to President Frank Warren proposing negotiations "aimed at the permanent shutdown of the Trojan nuclear power plant" and advising that if this could not be accomplished the group planned to occupy the site. "All of us have difficult forces to manage in our lives," the letter stated, "but when solutions are mortally offensive to others they must be changed. If you cannot initiate those changes then others must initiate them, and this is where we find ourselves today.,,55 The group also issued a "Declaration of Nuclear Resistance" that outlined the reasons for the occupation, called for support and involvement, and enumerated a series of demands. These included: an end to nuclear power and to the centralized control of energy by private monopolies, the dedication of energy resources toward the development of clean and renewable power, and the compensation

of jobs lost in the nuclear energy field through the expansion of the field of natural energy.[56]

Early in the morning on Saturday, August 6, protesters arrived at the Trojan plant and positioned themselves at the main gate and each of the access roads. Instead of dispersing the protesters immediately, State Police officers decided to wait them out. As a result, activists remained all of that day and all the next. The company responded by transporting small numbers of Trojan workers on weekend shifts to the plant by tugboat from the Columbia River. Early Monday morning PGE became anxious as it readied the plant and Visitors' Center for the beginning of the work week. A large shift of 170 employees was due at 7 a.m. "We felt we could not tolerate this any longer," Trojan plant manager Bart Withers stated. "At 5 a.m. I requested them to leave the premises and take all their gear with them." As State Police converged, protestors locked arms and chanted and sang "We Shall Not Be Moved." The police arrested eighty-two demonstrators.[57]

"I think virtually everybody [in TDA] considered the first occupation to be a major success," Solomon remembered. It was shocking to people, he said, that that many people would choose to be arrested over the issue of Trojan.[58] The protest was the first occupation of an operating nuclear plant in the United States.[59] TDA members scrambled to make the most of the media attention they received and immediately looked ahead to another, larger action. TDA's plans for ever-larger protests used a model of successive growth designed to

counter PGE's plans for a succession of nuclear facilities to meet its projections of continuously increasing consumption of power. By the fall of 1977 both sides moved toward their respective goals in full force with no clear indication of the conflict's outcome.

Chapter 3

The Conflict Transformed

The first occupation at the Trojan Nuclear Plant was a historic occasion not just for local activists but for the entire U.S. anti-nuclear movement. As of 1977 no group had ever staged an occupation at an'operating nuclear facility. At the time, Nina Bell later recalled, the enterprise seemed "unbelievably impossible to achieve.,,1 When the first occupation went approximately as planned, the group considered it a major success. As Norman Solomon explained, the demonstration showed "that nonviolent direct action, in tandem with some clear media outreach and strategic public statements, could begin to make a dent and raise key issues.,,2 The media coverage of the event brought an unprecedented degree of exposure to the conflict over Trojan. As the Trojan Decommissioning Alliance focused the attention on the dangers associated with the plant, the group's ranks swelled and its ties with other organizations became stronger.

Throughout the entire time of the TDA's development the activities of the Coalition for Safe Power and Forelaws on Board continued unabated. FOB succeeded in forestalling the Pebble Springs nuclear facilities when the Oregon Supreme Court upheld the group's appeal of the Energy Facility Siting Council's license for the plants, ruling that additional hearings were needed. In addition to Portland General Electric's difficulties pursuing additional plants, the utility's problems maintaining Trojan became increasingly severe in 1977

and '78. Nuclear waste storage was one pressing issue. Trojan was designed to hold waste for a maximum of four years but delays in licensing spent fuel facilities meant that the plant would be required to store its waste for up to ten years. Because the plant's spent fuel pool was engineered to set dimensions that could not be enlarged, PGE filed an application with the Nuclear Regulatory Commission on January 4, 1977, to store the used fuel rods closer together.[3] Trojan opponents charged that expanding the waste storage capacity might mean lead to its acceptance as a permanent waste storage facility, violating one of conditions under which the plant had been licensed. The environmental effects of long-term waste disposal at the site had never been researched, and CSP members decided to intervene to push for a formal study. The intervenors also hoped that, because PGE was applying for a modification of its operating license, Trojan would be held to the seismic standards the agency had adopted after granting the facility its license.[4]

PGE had hoped for a prompt approval from the NRC so that the alterations could be made in April 1978 when the plant would shut down for its first refueling. However, the NRC was not prepared to handle the intervenors' petitions and established an Atomic Safety and Licensing Board to rule on them. When the board declared that geological questions went beyond the scope of hearings on the spent fuel pool, the intervenors voiced their concerns to others in the NRC, to the EFSC, and to Governor Bob Straub. "We tried as

hard as an underfunded, unpaid citizen group could possibly do," remembered Susan Garrett of CSP. "We just ran into blank wall after blank wall because nobody wanted to look under the rug.,,5 In October 1977 PGE began what it referred to as "preparatory work" to expand the pool's capacity beyond that allowed by the plant's operating license. Susan Garrett of CSP claimed that the company was beginning the work in order to present the NRC with "a 'fait accompli' which the NRC will be reluctant to reverse.,,6 After several lengthy recesses, the agency approved the new fuel racks in October 1978. The frustration that CSP activists experienced as they tried to raise their concerns through established channels contributed to their decision to develop the TOA to explore other avenues. "Back then one could make the licensing process do some good," Bell observed, "but it was also true that it was not going to do that much good.,,7 Paradoxically, at the same time CSP members pursued engineering questions in a way that depended on their having credibility, the activists also engaged in direct action under TOA auspices, which to many undermined their credibility, Bell acknowledged. "That seems like a very odd dichotomy," she explained, "but we wouldn't have gotten that kind of attention to the safety issues if we hadn't been jumping over fences."B

In addition to increasing awareness of nuclear issues, the TOA's demonstrations also focused greater attention on the anti-nuclear activists. Insofar as pUblic opinion was a factor in determining the outcome of the

conflict over nuclear power in the Northwest, anti-nuclear activists had to be just as concerned with projecting a positive image as the utilities, although they lacked the resources or influence to do so. PGE's advertisements were effective in convincing Oregon residents that atomic energy was safe, Bell remembered, but when the Union of Concerned Scientists tried to purchase a full-page ad in *The Oregonian* discussing nuclear safety issues the newspaper refused to run it.[9] Marbet told of an incident from his early days as an anti-nuclear activist when he asked someone to sign a petition to tighten limits on radiation releases and the person spit in his face. Marbet believed that for many people the government could do no wrong, that anyone who would question its regulatory practices was simply unpatriotic.[10] In order to overcome these barriers to debate it was the job of activists to call attention to concerns that had not been addressed to their satisfaction and to maintain some credibility in the process.

Lloyd Marbet serves as a good example of how those in the anti-nuclear movement were portrayed in the media and perceived by the nuclear industry and by the general public. When Marbet first began to intervene, many viewed him suspiciously because of his "hippie" appearance and lack of experience and formal credentials. Even as he became savvier, the press treated him as an anomaly. In September 1976, an *Oregon Journal* story reported that "Marbet, a hefty 20-year-old [in fact he was 29 years of age] who sports a beard and dresses in workman's denims" became "knowledgeable

enough to ask probing, occasionally embarrassing questions about the utilities' policies." PUC hearings officer Richard Sabin admitted that Marbet had done at least as well as professionals at the hearings.[11] Gregory Kafoury remembered that in the 1970s he was nicknamed "the prophet of doom" because of his bearded face and dire warnings about the dangers of nuclear power.[12] As Marbet gradually developed a great deal of knowledge and experience in administrative law during the Pebble Springs hearings, he began to dress more conservatively and win the admiration of some professionals who did not share his viewpoint.[13] However, his decision to face arrest when he believed his rights were being violated led many to assume that his strategy was merely to obstruct hearings, an assessment Marbet rejects.[14]

Rooted as they were in the methodologies of Thoreau, Gandhi, and the Civil Rights movement, TOA activities remained mysterious and suspicious to many, including the Portland Police Bureau. Well into the 1980s, the bureau's intelligence division conducted extensive surveillance operations on those involved in innumerable social, political, or religious activities. These files showed that, to Portland police, Marbet's pet dog, a medium-sized mutt, was a potential attack animal and the fuel can and hose he kept in his truck were "obviously components of fire bombs.,,15 Police agents had infiltrated many anti-nuclear organizations, including the TOA, and frequently issued reports with no supporting evidence about alleged "terrorist" and "extremist" elements

within the groups. For example, a June 1978 intelligence report charged that six years earlier Oregon peace activist Peter Bergel had masterminded a plan to seize hostages and bomb the partially completed Trojan plant.[16] In fact, Bergel was a lifelong advocate of nonviolence who had not become interested in anti-nuclear issues until 1974.[17] This practice was not unusual in intelligence programs across the country. For instance a 1977 report from the New Solidarity International Press Service, a wire service to which many intelligence agencies and surveillance units subscribed, reported that Washington's Crabshell Alliance j which consisted of conventional environmental groups such as Friends of the Earth, was actually a "terrorist front group.,,18 The stereotypes of members of anti-nuclear organizations such as the Trojan Decommissioning Alliance flew in the face of the broad coalitions such groups represented, involving people from a wide array of backgrounds such as middle-class professionals, students with experience in the anti-war movement, and farmers and fishermen who mistrusted utility projects and their environmental effects.

It is difficult to gauge to what extent these suspicions were shared by the general populace. But in the view of many who had witnessed the upheavals of the civil rights and anti-war movements without understanding their causes and intricacies, protest movements were generally suspect and there were no clear distinctions between demonstrations, riots, and sabotage. For many, these attitudes were confirmed in October 1977 when a pipe bomb

exploded in Trojan's Visitors Information Center, resulting in a mere $15,000 in damages and no personal injuries. A note was found claiming that the bombing had allegedly been carried out by the "Environmental Assault Unit" of an organization called the New World Liberation Front. Predictably, this type of incident was a setback to anti-nuclear groups because "guilt by association" in the minds of the public only threatened whatever credibility anti-nuclear organizations had developed. The TOA stayed its course, condemning the sabotage and "any threat to life, whether from bombs or nuclear radiation.,,19

Because the strategy of most in the nuclear industry was to simply dismiss anti-nuclear activists and their concerns through public relations pronouncements, it is also difficult to document executives' personal attitudes toward the opposition. Many executives of energy firms, such as PGE President William Lindblad, have revealed feelings that their industry and its representatives were the targets of misjudgment and unfounded suspicion. The same deep-seated feeling of being misunderstood may be the reason for the industry's reticence about nuclear issues.[20] The view that Lindblad expressed in a rare 1981 interview was that leaders on a technological path to the future understood nuclear power in a way that outsiders could not. Mere citizen activists who criticized nuclear energy, in his view, had simply found they could earn a good living by ignorantly grinding their axes on the issue and playing to the prejudices of the public.[21]

Another candid glimpse into the industry's views of people who actively opposed nuclear power surfaced when Mark Dowie, a writer for *Mother Jones* magazine, surreptitiously attended a national conference for nuclear executives on how to assuage and defeat their opponents.[22] Dowie reported that in lengthy discussions of how to define activists the two favorite characterizations were "itinerant crazies" and "destroyers," whom the group agreed were people who "really just want to destroy America and the system." The public relations head of Pennsylvania Power and Light insisted that not everyone in the antinuclear movement was crazy; some had just fallen under the spell of leaders who were "marching to an ideological drum played in Moscow, where most of their money comes from." No one disagreed. The group divided the opposition into three categories -- revolutionaries, misguided reformers, and social outcasts -- defined by lifestyles, hair lengths, and general attitudes toward mainstream society. The executives agreed with conference leader Irving Goldaber that a divide-and-conquer strategy would succeed if the largest category, the reformers, could be won over. "For the loud and unruly the only solution is war," he continued, and the use of violence "in this case is a legitimate solution, because society must survive." Dowie observed that it was the public relations and community affairs personnel at the conference who most readily accepted hard-line tactics whereas security officers preferred a "kill them with kindness" strategy. The meeting showed that many executives tended to have just as drastically Manichean a view of

the nuclear conflict as did some activists. It also revealed that industry executives had a clear sense that the strategies they had tried to use in the conflict were failing.[23]

Immediately following the first occupation of Trojan, the TDA began to organize training sessions and assemble affinity groups for a second action to be held on November 25, 1977. The group put a great deal more planning into the second occupation, developing intensive and ongoing interaction with the media that continued at least two years beyond the date of the sit-in.[24] The stated goal of the civil disobedience was to "block the gates until Trojan is permanently shut down." Bell has acknowledged that few who participated literally believed that a single sit-in would shut down the plant. "It really was modeled much more on a longer-term belief that if over time enough citizens got behind something, that things could change," she explained. Bell's belief was that change was seldom predictable or instantaneous, but that "if people put their bodies on the line," then "more people will be attracted to participate and question their own beliefs about things.,,25 With 123 arrests, the second occupation was considerably larger than the first, and many organizers viewed it as a great success. However, the protest lasted less than three hours, compared to the 38-hour first occupation, and seemed to some to be a rather dull, routine affair.[26] A column by Richard Meeker in *Willamette Week* referred to the protest as "one of those events that just plain failed." According to Meeker, the sit-in neither threatened the plant's operation nor generated

coverage in *The Oregonian* that detailed any of the issues that brought the protestors to the gates.[27] In response to the occupation PGE focused its stream of advertisements and public relations statements explicitly on the topic of the anti-Trojan protests. A half-page ad in *The Oregonian* and *The Oregon Journal* advised readers that although "Trojan is a good, safe and necessary power plant ... there are those who seek very high profile ways to express their concern and create headlines.,,28

The TDA continued to stimulate news coverage of the Trojan debate the following month when a Columbia County jury found ninety-six of its members innocent of the trespassing charges they faced from the first two occupations, much to the chagrin of PGE and local officials. State Representative Dick Magruder went so far as to propose that trespassing at Trojan be promoted to a felony offense.[29] A *Willamette Week* editorial by Russell Sadler made the argument that because Columbia County had been eager for the sizable economic windfalls that Trojan brought they should be willing to pay the costs that go with it, including a trial "that could charitably be described as a staged media event."[30] One of the key facts in dismissing the trespassing charges was that some of the protestors had been arrested after PGE ordered them off Burlington Northern Railroad property neighboring the Trojan site. The jurors voted for acquittal because there was reasonable doubt whether PGE stayed within its legal bounds and thus that all of the arrests were lawful. The defendants had also presented a "choice-of-evils"

defense, according to an Oregon statute which excuses some illegal acts if they are carried out with the intention of preventing an imminent danger.[31]

Although Columbia County District Court Judge James Mason had instructed the jury to disregard this defense, the TDA celebrated the verdict as a sign of solidarity with their cause. It is indeed possible that jurors had been swayed by the defense's experts such as nuclear physicist Ernest Sternglass and cancer research specialist Rosalie Bertell who had been permitted to take the witness stand as well as the testimonies of some of the defendants themselves.[32] Approximately three years after the trial Nina Bell told an interviewer, "I've never had a more powerful experience in my life than when some people I knew got up and explained with cracking voices and tears running down their faces why they had decided to join the occupation.,,33 Furthermore, after the trial two of the jurors expressed disappointment that they had not been permitted to consider the choice-of-evils defense. One juror added that he would like to have heard the rebuttal witnesses who had been on hand to testify that nuclear power was safe.[34]

District Attorney Martin Sells was candid about his disapproval of the acquittal of the first group. The results, he said, "could lead to a breakdown of law and order if it's not rectified." Ed Jones, one of the defense attorneys in the first trial said Sells' statements "clearly have prejudiced the right of the remaining defendants to get a fair trial.,,35 Subsequent trials of additional protestors were indeed less favorable for the defendants. In a non-jury

proceeding, JUdge Mason gave two of the demonstrators the maximum penalty for second-degree criminal trespass -- a $250 fine, a thirty-day jail sentence of which Judge Mason suspended twenty, and two years probation -- with the condition that neither could return to the Trojan site. When a TDA attorney charged the judge with prejudice against the defendants, JUdge Mason recused himself from any future cases involving Trojan opponents.[36]

Following these events in 1978, the TDA grew prodigiously in size and prominence, continued to develop outreach skills, and opened new offices in Eugene, Salem, and Corvallis. The group also refined and improved its affinity group structure. These small groups with rotating memberships were formed to aid the consensus decision-making process and to facilitate various tasks in a decentralized fashion. The operation of these units had been severely strained throughout the arrests and arraignments of second occupation when law enforcement officials attempted to overcome group solidarity by intimidating and dividing the arrestees. However, the group process had prevailed and the TDA moved ahead with its campaign to publicize the risks of nuclear power.

A perennial point of contention in the debate over Trojan was the ability of the plant to withstand earthquakes. Responding to concerns about this issue, Director of the Oregon Department of Energy Fred Miller requested input from the state Department of Geology and Mineral Industries, which reported that the plant site was geologically sound "based on presently

available information." Trojan opponents took this as a rather backhanded reassurance because the lack of mandatory seismological guidelines at the time of the site selection hearings meant that little such information had been required and reports of potential earthquake hazards had been buried from within by the Department of Geology, Bechtel, and PGE. The fact that the plant had not been properly engineered to withstand earthquakes surfaced conclusively in March 1978. At the request of the NRC the company had been drastically increasing security measures at Trojan, including large stockpiles of firearms, and decided to add a security window to the plant's control building while it was shut down for its first refueling. This building was a four-story structure that housed the control room and vital plant equipment. An NRC investigator referred to the building as the "sine qua non" of the safety systems at Trojan.[37] However, in the course of these modifications, Bechtel discovered that the control building had not been properly engineered to withstand an earthquake in accordance with NRC standards and consequently was in violation of the plant's operating license.

When PGE asked the NRC for permission to continue operating the plant while deciding how to strengthen the building, CSP and the Columbia Environmental Council (CEC) intervened in the hearings before the NRC's Atomic Safety and Licensing Board. Gregory Kafoury, the attorney for the CEC, was astonished by the documents presented in the proceedings. Steel "rebar," reinforcing bars the size of telephone poles supposed to be imbedded

in the walls, were simply missing or were discontinuous in places where regulations required them to be continuous. The documents stated that the building had "approximately one half' the earthquake resistance required by the original design specifications.[38] Nevertheless on December 22, 1978, the NRC issued a license amendment allowing full power operation of the plant during plant modification, which Bechtel estimated would cost $6.5 million and take up to a year to complete. Additionally, during the hearings the plant had remained off line for approximately nine months, requiring PGE to spend an additional $26 million to purchase hydro-generated replacement power during the worst drought in the history of the Pacific Northwest.[39]

Bechtel was not under obligation to pay for these expenses because, as documents circulated in the hearings had revealed, the $460 million plant Bechtel had built for PGE only came with a thirty-day parts-and-labor warranty. PGE sued, and each side spent the next two years readying documents and conducting depositions. Before the case went to trial, however, attorneys for PGE and Bechtel went before a federal judge to propose a settlement with a condition of secrecy. The judge agreed, ruling on March 18, 1981, that anyone involved in the litigation who revealed the outcome of the settlement or any of the evidence that had been submitted would face contempt.

As all this transpired, anti-nuclear activism continued. Lloyd Marbet continued to intervene on behalf of FOB before the Energy Facility Siting Council (EFSC) and the NRC in opposition to PGE's proposed Pebble Springs

nuclear facilities, which were abandoned in 1982.[40] Beginning in 1976, Marbet also began representing FOB in NRC hearings on Puget Sound Power and Light's application for the Skagit nuclear plants near Sedro Woolley, Washington, which the company abandoned in 1983. In addition to Trojan, these plants were to be the first of twenty in the region planned by the Joint Power Planning Council, a conglomerate led by the BPA and consisting of public and private utilities. The persistent opposition mounted by FOB spelled the end for the Pebble Springs and Skagit plants and the majority of the facilities proposed by the Washington Public Power Supply System (WPPSS) later failed due largely to high inflation, interest rates, unemployment, and construction costs. Two of these were in the advanced stages of construction, and WPPSS defaulted on $2.25 billion in revenue bonds. These events suggested that the entire regional nuclear program was doomed to catastrophic failure, but PGE made it clear that it would go on operating Trojan.[41]

The Coalition for Safe Power petitioned the EFSC in 1978 and '79 to revoke Trojan's license on the basis of insufficient earthquake resistance capacity and inadequate fire protection and safety equipment. By June 1979 when Robert Pollard testified before the EFSC, CSP had spent a year and a half attempting to petition the NRC on the same grounds but had received no satisfactory results. Pollard had become a nuclear safety engineer with the Union of Concerned Scientists after he resigned from his job as a reactor

engineer at the NRC -- where his duties had included reviewing the application from Trojan's construction license -- because his experience had convinced him that the commission was not concerned with nuclear safety. Pollard urged the council to review the evidence of Trojan's shortcomings contained in the petition and to stand on its own authority rather than deferring to the NRC's decision.[42] Nevertheless, the council asked no substantial questions following this lengthy testimony and proceeded to deny the petition. Nor was there any substantive press coverage of the hearing or questions raised about Trojan.

Anticipating these continued difficulties in stimulating awareness and action on the issues of Trojan's safety, activists carried out a third occupation between August 6 and 9, 1978. In addition to being the longest and largest of the TDA protests, as some participants remembered, it was in some respects the most chaotic. Protestors had to face new fences, which the utility had installed as part of the drastic increases in security measures undertaken since the previous occupation making it difficult to get near the plant. Instead of damaging the fences, Bell remembered, the group decided to construct portable staircases just before the protest to enable members to get where they wanted to be arrested.[43] In past occupations, Bell said, "I had all the reason in the world to jump over the fence at that time because I realized the system doesn't work.„44 Nevertheless, she had remained one of the activists who stayed out of jail in order to do organizational work to facilitate the

occupation, legal processing, and media relations. This time, the occupation had been going on for nearly four days, jails were filling all over the state, and Bell decided to join the occupiers being arrested. "It was really crazy and there was no way you could unscramble it by then," Bell recalled.[45] Participating in a demonstration of that size was intimidating despite the group's preparations and the songs they sang to calmly affirm what they were doing, she said. "But after all that, when I actually got over the fence, you couldn't believe how good it felt, the sense of satisfaction.„[46]

While the TDA hailed the demonstration as a major success, PGE attempted to diminish any public support for it by stating that it had only succeeded in wasting tax dollars. The TDA countered that "the astronomic rate increases we have seen since Trojan went on line dwarf the costs of prosecuting trespassers."47 After the second occupation, many journalists took to describing them as charades in which the participants on all sides played routine parts.[48] However, PGE clearly did not take a cavalier attitude toward the protests and sought an injunction to prevent arrested activists from returning. Circuit Judge Albert Musick stated that although he could not issue a sweeping injunction he could order twenty-seven of the key prior arrestees to refrain from future protests at the plant or face severe contempt of court charges. "In my opinion the public is fed up with unlawful demonstrations," Musick said in his order. He condemned journalists who covered the protests

for giving notoriety to civil disobedience demonstrations, stating that such reports "belong on the obituary page.„49

It was clear that the utility, ever sensitive of its image, was fearful of negative attention. Anti-Trojan activists continued to scrutinize the plant and helped bring several crucial facts to light about its operation. An April 5, 1978, an accident at Trojan had exposed two workers to seventeen rems of radiation. The federal limit for exposure was three rems in any three month period and five rems per year. NRC spokesperson James Hanchett concluded that it was the largest such exposure ever to occur in a commercial nuclear plant.[50] In addition to efforts by local activists to publicize this event, anti-nuclear groups elsewhere in the nation petitioned the NRC to penalize PGE and forbid the restarting of the plant. Representatives from Ralph Nader's Health Research Group and Critical Mass Energy Projects noted that the radiation exposure followed thirty other safety irregularities over the previous year. Many instances of the plant's non-compliance with federal safety requirements were a result of systematic procedural errors, many of which were tied to the spent fuel system. Critics of nuclear power quoted Dr. John Bailer, editor of the *Journal of the National Cancer Institute,* who cited radiation doses of fourteen to seventeen rems as a clear cause of cancer of the breast, thyroid, and many other organs.[51] According to the ODOE, during the refueling there were leaks that persisted for several days until PGE finally identified them.[52] Instead of informing the Department of Energy of the

accident immediately, however, PGE delayed reporting it for eighteen hours. Furthermore, the utility failed to begin its own investigation of the incident and waited for ODOE and NRC inquiries to establish the details of the accident. On the basis of these facts, ODOE Director Fred Miller concluded that Trojan's problems stemmed from problems in the utility's management.

Management problems may also have been at the root of ongoing problems with the Trojan staff, which nuclear opponents also monitored in building their case against the facility. In the interest of improving management, PGE had developed a feedback program whereby employees could write memos to company administrators under protection of anonymity. On March 7, 1979, an operations staff member submitted feedback criticizing the general lack of accountability in the control room. Only one out of the six shift supervisors really did his job, the employee said, and the rest of the operators were equally inattentive most of the time to the point of sleeping in the shift supervisor's office.[53] PGE hired a psychologist to do a thorough study of the problem of boredom in the control room but ended up entirely rejecting his major proposals.[54]

A separate issue emerged the same year when investigation of a Columbia County drug ring led to the arrests of eleven security guards at Trojan, who had been selling large amounts of cocaine, amphetamines, and LSD at the plant.[55] PGE public relations denied that there was a problem with drug use at Trojan, but an investigative report by *The Oregonian* revealed use

of nitrous oxide, LSD, and amphetamines -- the latter as a result of being required to work long hours, guards said. The story also indicated low staff morale and a general lack of physical fitness, which combined with the drug problem could severely impair the guards' ability to respond in case of an emergency.S6 None of these problems had been identified by the NRC, whose routine inspections were always announced with ample'time for the Trojan staff to prepare a good appearance. "We usually knew a week in advance they would be coming and what they were coming for," one guard said, and "if there was a problem that would put them in trouble with the NRC, PGE could have it under control."S? Anti-Trojan activists seized upon these developments as further evidence that the nuclear plant was a "disaster waiting to happen."[sa]

The most significant event during this period influencing discussions of nuclear power in Oregon was the accident at the Three Mile Island nuclear generating station near Harrisburg, Pennsylvania, in March 1979. For many people throughout the nation and around the world the accident -- a series of malfunctions, mishaps, and misinterpretations that nearly led to a total meltdown -- was a reminder that the debate over nuclear power had real life-or-death consequences. In addition to the intense news coverage of Three Mile Island (TMI), the effect was intensified by a Hollywood film titled *The China Syndrome* that by coincidence opened less than two weeks before the TMI accident. Such a film would have been unimaginable just a few years prior, when the anti-nuclear movement had not yet captured national attention

and primed the media to dramatize nuclear accidents. It was a disaster-themed thriller about a fictional nuclear plant, which was based largely on Trojan. PGE had allowed the producers to tour Trojan and take photographs which served as the basis for the movie's set design. Many people at PGE had hoped that the film would stimulate factual consideration of the benefits of atomic energy and were dismayed when the film turned -out to be a portrayal of irresponsibility and corruption in the nuclear industry and the NRC.[59]

The company's defensiveness about its nuclear division and its image increased by drastic proportions in the aftermath of these developments. As far as public opinion was concerned, the TMI disaster marked a turning point in PGE's long campaign to win long-term acceptance for atomic energy in Oregon. Even Bill Babcock, the utility's most prominent public relations spokesperson at Trojan, resigned himself to the view that it was "impossible to inform the public well about nuclear power" because it would have required a level of education beyond that which the company's pUblic relations sector and even the schools could accomplish.[50] Donald Kielblock, manager of plant services, told an interviewer in 1980 that Trojan operators felt like pariahs even in the relatively favorable community of Columbia County. One operator told of going grocery shopping and when the cashier asked how things were at the nuclear plant, the person in line behind the Trojan employee called him a mass killer.[51] Babcock also described feeling great pressure from the media following TM!. After an accident in April 1981, one shift supervisor told an

interviewer that around fifteen minutes after the incident began the major television networks began calling the control room to ask about the accident, leading PGE to the conclusion that someone at Trojan was supplying the media with immediate information.[52]

Anti-nuclear sentiment had caught up to PGE, but the company was by no means willing to give up. In March 1980 the firm issued a sixteen-page response to the Three Mile Island disaster. The report summarized several studies on the root causes of the accident, which placed a great deal of the blame at the feet of the NRC. PGE's document attempted to reassure the reader that Trojan's safety equipment and emergency response procedures had been augmented to make them even more effective. Major questions about plant safety "have been answered in the year since the accident," the statement read.[53] What the vast majority of citizens did not realize, however, was that there had already been another major accident in the United States roughly four months after TM!. In July 1979 the erosion of a dam at the Church Rock uranium mining operation in New Mexico allowed ninety-five million gallons of radioactive water to spill out of holding tanks.[54] This was the worst nuclear accident in history, including TMI, but mainstream news outlets deemed it unworthy of considerable press because it did not occur in a high-population area. If it had received such coverage it is likely that it would have focused even greater scrutiny on the nuclear industry.55

In the fearful climate following TMI, it was the task of supporters of nuclear power to call for cool heads and open minds. Innumerable editorials and op-eds appeared throughout the state arguing in favor of Trojan, and PGE distributed these to ratepayers as part of its public relations defensive.[66] Governor Vic Atiyeh also attempted to assuage fears about the plant, stating that one of the major problems at Three Mile Island had been public confusion. He attested that if the accident had occurred at Trojan instead of TMI, "we would have known about it within minutes and would have understood its significance better." Gov. Atiyeh and Steve Loy of PGE public relations argued that the governor should act as the "single voice" for disseminating information during an emergency, a strategy that would prevent conflicting information. Nevertheless, at least one reporter at the press conference registered distrust of this idea on grounds that journalists would never stand for such management of the news.[67]

The TMI accident added to the feeling of protracted upheaval created by the third occupation and gave anti-Trojan activists an opportunity to consolidate public doubts about nuclear power that the movement had encouraged since its inception. Ironically, it was at this time that TDA began to disintegrate. Members of the group began pursuing disparate strategies and drifting into other political and environmental issues that took them away from the narrow anti-Trojan effort on which the group was founded. For example, Norman Solomon was drawn more directly to nuclear-weapons

issues including scrutiny of Hanford Nuclear Reservation, which had been a secondary concern of the TDA from the outset.[58] Other TDA members began to work on issues such as uranium mining, people's utility districts, and utility rate hearings. Solomon likened the TDA to a college, which gave large numbers of people direct experience in organizing, media outreach, and many other arenas of activism.[59] Yet the organization seemed to be plagued by a large graduating class and too few teachers willing to remain indefinitely at the same institution.

The largest cause for the TDA's disintegration was a schism over whether to devote the group's efforts to legislative strategies. Bell remembered that after the third occupation state legislators "were sitting up and paying attention to the situation at Trojan." She remembers many TDA members thinking that "'there must be something we could do that's different We can't do the same thing year after year after year.',,70 Some activists south of Portland began pursuing legislative tactics in Salem. Bell and several other leading TDA members denounced this as antithetical to the group's fundamental direct-action ethic. Because the Coalition for Safe Power worked within the established channels of the regulatory system, it had always remained separate from the TDA. The coalition continued to explore and publicize problems with Trojan such as a crucial flaw in the emergency core cooling system that had gone unnoticed for more than ten years.[71] However, the organization also branched out from and focused less and less on Trojan

and other energy issues throughout the early 1980s, finally changing its name to Northwest Environmental Advocates around 1987 to reflect this evolution. These changes in the environmental movement of the Pacific Northwest brought an end to the direct action phase of anti-nuclear activism in the Trojan era. From 1973 on, Forelaws on Board had opposed numerous atomic energy facilities that regional utilities eventually abandoned as well as plans by Teledyne Wah Chang to dispose of radioactive waste in unlined sludge ponds on the Willamette River flood plain. Much of FOB's anti-Trojan work was centered on ballot measures -- a tactic that CSP had universally opposed -- resulting in a November 1980 ballot measure by which Oregon voters banned future nuclear plants in the absence of permanent waste storage facilities. Eugene Rosolie later explained that he never believed a ballot measure to close Trojan would pass and that even if it did PGE would be able to challenge it in the courts.[72]

In 1986 FOB and the Don't Waste Oregon Committee, a membership organization that worked in support of FOB efforts, sponsored Measure 14, which would prohibit operation of nuclear facilities in the state until the federal government opened a permanent radioactive storage facility. Modeling their efforts directly on utility referenda that had succeeded elsewhere in the country, including Oregon and California, FOB devised media strategies on the basis of two arguments against Trojan: that energy surpluses which had accumulated since the 1970s made the plant unnecessary, and that severe

design flaws rendered it unsafe.[73] The safety issue had been underscored in many people's minds by the Chernobyl disaster that took place that year. Yet the measure met a sound defeat when, in Marbet's view, PGE used its immense resources to outspend grassroots opponents and manipulate the electoral process with its preponderance of political influence.[74] While FOB and Don't Waste Oregon had only minimal funds at their disposal, PGE spent $1.8 million to defeat the measure.[75] Despite vigorous debate by activists and utility representatives and detailed studies of shutdown costs, the public remained largely confused about the initiative. A poll commissioned by *The Oregonian* two months before the election showed that the public was largely unaware that Measure 14 would entail closing Trojan; 62 percent supported the measure (with 11 percent undecided), but 51 percent in response to another poll question said they opposed closing Trojan (with 18 percent undecided).[76]

Following the Measure 14 effort, activists focused primarily on the perennial issue of Trojan's general design flaws and specifically the possibility of earthquakes. Two sources of information emerged that permitted them to shed new light on these problems. The first was a three-inch stack of crucial documents from the sealed *PGE* v. *Bechtel* case file, which someone had serendipitously dropped off to Marbet in a paper bag on condition of anonymity. To a great extent, Marbet, Kafoury, and other activists were already familiar with the plant's design flaws but were astonished at much of

what the smuggled documents revealed. For example, they disclosed that at the time of Trojan's design Bechtel was building so many reactors that it had no qualified engineers to do the job for PGE and had to turn to "job shops" for personnel, which one Bechtel supervisor referred to as "the engineering equivalent of a Kelly Girl.,,77 Initial designs for the control and turbine buildings were done by someone named Muhammad Ali, who designed the shear walls with a single layer of masonry blocks without making any calculations for earthquake resistance. When Ali's incompetence became clear to Bechtel, the firm brought in a replacement named James Edmunds to patch Ali's design with added reinforcement. Edmunds' own testimony revealed that before this assignment he had designed neither shear walls, nor earthquake resistant structures, nor any complete structure, and indeed had never designed any kind of wall prior to Trojan.[7a] Edmunds made numerous design errors, but due to understaffing Bechtel did not check any of his calculations until after the reactor was built.

PGE suspected the extent of the design deficiencies at least a year-and-a-half prior to its mid-1978 report to the NRC. In fact, it had requested seismic calculations at the end of 1976 following the discovery of the control building flaws.[79] Bechtel replied that it would not be in their "mutual best interest" to reveal the calculations because they "could easily mislead one to a wrong conclusion."ao A confidential engineering study for PGE in January 1981 described an array of design errors in great detail and in the strongest

possible terms. The report showed that Trojan's walls failed even to meet the Uniform Building Code and concluded that the designers were "either naively ignorant or intellectually dishonest.,,81 By then Bechtel had already discovered the seriousness of the situation, and admitted that "this is the worst mistake we have ever seen in a construction project of this size.,,82

The second piece of information about the earthquake issue was an April 1987 article in *Science* by two geophysicists from the U.S. Geological Survey that presented evidence of a vast "Cascadia Subduction Zone" in the Pacific Northwest. Subduction earthquakes are severe quakes that occur due to ruptures between oceanic and continental plates. This tectonic activity had not been studied in the Northwest when Trojan was built, but this new study compared the long fault off the coast of Washington and Oregon to similar areas of southern Chile, southwestern Japan, and Columbia where earthquakes ranging between 8 and 9.5 in magnitude had occurred. In 1700, the most recent Cascadia Subduction Zone earthquake sent a tsunami as far as Japan.[83] In May 1988 Richard L. Hill, editor of the Science section of *The Oregonian,* wrote two pieces reporting not only that a major earthquake was possible but that nobody in the region was prepared.[84] Meanwhile, FOB petitioned the EFSC for a "contested case" hearing to allow cross examination on the potential impact of a subduction earthquake on Trojan. The EFSC instead referred the issue to a subcommittee that held a single meeting. PGE consultants, neither under oath nor subject to cross examination, stated that

Trojan was built to withstand a subduction quake.[8s] FOB activists, on the other hand, estimated from the available evidence that the force of such a quake would be as much as one hundred times what the plant was designed to withstand.[86]

In addition to this information, NRC reports revealed the discovery that PGE had operated Trojan for fourteen years without a working emergency core cooling system. Inspectors found that sump pumps needed to keep water circulating to prevent exposure of the reactor core in the event of an accident had been clogged with tools and other debris since the plant opened. A PGE spokesperson admitted that this problem could have led to a meltdown. These major operational errors had gone unnoticed because the company not only failed to install integral parts of the system but also neglected to conduct routine inspections. In response, the NRC issued PGE its largest fine ever: $280,000.[87] To put this figure in perspective, FOB pointed out that in 1988 the company paid $90 million in dividends to stockholders.[88] FOB put these issues at the forefront of its 1990 campaign for Measure 4, another ballot initiative to decommission the plant, which was rejected by 59 percent of Oregon voters.[89]

One factor in PGE's victory in 1990 was its denial of longstanding charges that the steam generators that had been supplied by Westinghouse were failing. Yet after the election the plant was shut down for approximately a year for precisely that reason. PGE had to admit that a mysterious corrosion

problem was causing wearing away of steam tubes, many of which had cracks penetrating 90 percent of the original thickness.[90] The escape of steam from the generator could lead to loss of coolant sufficient to cause a meltdown. No longer able to be patched, the plant needed new steam generators that would cost hundreds of millions of dollars. As technical problems continued to plague Trojan, PGE consistently predicted dire costs and energy shortfalls if the plant were shut down, and a solid majority of voters continued to oppose ballot initiatives to do so. In 1992 DWO sponsored Measure 5 to decommission the plant. Marilyn and Jerry Wilson, who as proprietors of the local Soloflex company had become wealthy marketing home fitness equipment and endeavored to devote some of their resources to political goals they strongly supported, also petitioned for Measure 6, a ballot proposal that would not only have shut down the plant but would have additionally required PGE stockholders to pay decommissioning costs.[91]

In April 1992 PGE announced that after pursuing a lawsuit over the faulty steam generators it had negotiated an agreement whereby Westinghouse would replace the equipment at its own expense and take over operation of the plant until 2011. The proposal was condemned almost universally because Westinghouse had never run a nuclear facility and its operation of Hanford had long garnered harsh criticism. PGE then announced plans to run the plant with the deteriorating tubes in place until 1996, which would buy the company time to develop generating capacity elsewhere.[92]

Even as PGE searched desperately for an acceptable means to close Trojan, most Oregon voters held to their belief that the plant should remain open. Measures 5 and 6 faced resounding defeat, receiving 40 and 43 percent of the vote, respectively. Within a week of Election Day, defective steam tubes at Trojan began to leak. The original estimate of one hundred to two hundred gallons per day was upgraded to 7,200 within a few days. NRC inspectors attributed the leak to worker error and gave permission for the plant to reopen in ten days. Meanwhile, substantial disagreements over Trojan were brewing within the NRC. While the NRC had prevented the controversy from surfacing before the election, it was made public when dissenting scientists approached Robert Pollard with their concerns. Pollard then publicized NRC memos showing evidence that had produced widespread opposition to restarting Trojan among the entire NRC Nuclear Reactor Regulation Office and by Joseph Muscura, senior metallurgical engineer in charge of the agency's Steam Tube Integrity Program.[93]

On December 1, 1992, NRC officials held a hearing at Trojan in order to assuage concerns about steam tube damage and agency dissent. Yet demands from Marbet and other activists to hear from dissenting scientists were ignored by the NRC officials. Marbet then went to the governor, ODOE, and the EFSC to urge an evidentiary hearing to determine the plant's safety. Nevertheless, as he remembered, "every one of those agencies opposed me and wouldn't do anything. That's what led me to the gates of Trojan." Marbet

had never committed civil disobedience at the facility but by then, he said, "I'd had enough. There was no other way to express the concerns that we were having about this plant continuing to operate except to go to the gates of the plant.,,94 Protesting the plant's reopening, Marbet and fellow activists were arrested on December 1 and returned to the gates on December 4. Although the company initially announced plans to restart the plant immediately, they continued to postpone doing so.

On January 4, 1993, PGE announced that Trojan would never be restarted. For Marbet, the decision showed that the firm was forced to admit the nuclear option was wrong. "It's like the emperor has no clothes," he told an interviewer. "They realize they're standing naked in front of the public right now. There's no technology that's going to make this work." Ken Harrison, the company's chief operating officer, disagreed. "We're not making a statement about nuclear power," he stated. "I think somewhere down the road nuclear could well playa part again.,,95 However, the failure of the nation's largest commercial nuclear facility certainly was the era's death knell for nuclear energy in the Pacific Northwest.

Conclusion

Portland General Electric's January 1993 announcement that the Trojan Nuclear Plant would remain closed did not bring the controversy over the facility to a neat conclusion, nor did it provide an opportunity for more thorough investigations into the problems of design and operation. Amid conflict over the disposition of the plant's decommissioned equipment and its 450 tons of radioactive waste, PGE removed the steam generators in 1994 and the reactor in 1999, transporting them 270 miles up the Columbia River to a burial site at the Hanford Nuclear Reservation.[1] This move was unorthodox from the standpoint of Nuclear Regulatory Commission decommissioning protocol and garnered criticism from members of Don't Waste Oregoll, who favored mothballing the plant for fifty to one hundred years before dismantling the reactor in order to allow time for high level radioactive decay.2 "Nuclear power in Oregon is going out the same way it came in -- cutting costs and creating unnecessary danger," asserted activist Gregory Kafoury.3

Oregonians continued to experience reminders of Trojan's legacy. The spent fuel rods remained, awaiting the elusive national radioactive waste repository, as did the cooling tower.[4] Because Oregon voters had rejected Measure 6 in the 1992 election, the $435 million cost to decommission the plant fell to PGE ratepayers. The company also attempted to bill customers $550 million for its investment and the profits it would have made had the plant lasted until 2011. When a court ruled the charges illegal, the utility pushed

through a bill in the state legislature to override the ruling. Even after 88 percent of voters rejected the levy in a referendum in November 2000, PGE sought a settlement for $300 million through the Public Utility Commission.[5] This provided activists with solid evidence that the nuclear industry, like many U.S. industries, depended on privatized profits while costs and risks were socialized.

Because Trojan was in some respects unprecedented, PGE and the Bonneville Power Administration had pursued plans for a series of large nuclear facilities with little means to realistically forecast the costs and risks of waste disposal, decommissioning, accidents, operations, and maintenance. Trojan's severe economic impact was one of the most significant ways in which the plant was a failure. However, PGE's unwillingness to cut its losses resulted from much more than the facility's status as the largest private investment in Oregon history. According to the view the firm had promulgated for decades, Trojan's apotheosis represented not just the company's future but that of the whole society. The management believed it necessary to maintain the position that nuclear power was safe and efficient in order to avoid a catastrophic retreat into the Dark Ages.

In response, the anti-Trojan movement sought to bring about the end of nuclear power in Oregon by challenging the credibility of the nuclear industry's claims to safety and efficiency. It is ironic, however, as Lloyd Marbet has speculated, that protesters ultimately played only an indirect role in the final

outcome of Trojan's decommissioning drama. Two sets of circumstances may account for this paradox. The first concerns the anti-Trojan movement itself. First, activists had few funds relative to PGE's public relations apparatus. Marbet has cited this as the chief reason for voter rejection of his anti-Trojan ballot measures.[6] Second, the anti-Trojan movement worked to oppose an operating nuclear facility which had generated a great deal of momentum. Many nuclear plants throughout the nation, inclUding PGE's, navigated a relatively streamlined licensing process in the 1960s without facing significant opposition because student activism, public interest groups, and the modern environmental movement had not yet hit their stride. By the time Trojan went on line, opponents of atomic energy in Oregon had learned the importance of sustained action early in the licensing process to halt the development of further nuclear plants.

Third, Oregon anti-nuclear activists were frequently divided into factions by innumerable disagreements over means and ends. The large variety of often incompatible philosophies and strategies afforded the anti-nuclear movement a crucial measure of diversity but it also made it difficult to develop a coherent praxis. Prior to the formation of the TDA, active opposition to nuclear energy in Oregon was carried out by a sparse number of expert critics and activists. The plurality of interests needed to mobilize an alliance to decommission the plant could not remain focused on that specific issue long enough to directly achieve the organization's ultimate goal.

Fourth, opponents of nuclear power faced highly centralized control in nuclear policy. This was diminished somewhat between 1974 and 1977, when the Atomic Energy Commission and the Joint Committee on Atomic Energy were reconfigured into the NRC, the Energy Research and Development Administration, and several Congressional committees. However, the NRC's influence remained extremely far-reaching on both the federal and state levels. Activist efforts to intervene in licensing processes remained arduous but not without some victories, for example the eventual defeat of the Pebble Springs nuclear plants.

Finally, unlike most environmental issues, the debate over nuclear power (not including the early safeguards movement) was high-profile and less "flexible" in allowing for a negotiated settlement to which both sides would be amenable. Each side of the debate represented a core set of values representing a conception of the social good irreconcilable to the other. The society in which this specific conflict occurred was conflicted with respect to these sets of values, partially incorporating into its worldview both ecological values and a belief in a better society through technological control over natural systems. These values were present in the Pacific Northwest in especially stark contrast, where ecological values combined with a hopeful view of technological progress as a cornucopia to be relied upon -- often unquestioningly -- as a source of goods and resources.

These circumstances made it difficult for a social movement to have a decisive impact on Trojan's destiny. The second set of circumstances in the Trojan narrative involves the internal contradictions experienced by PGE and the plant's designers. As Lloyd Marbet has suggested, these parties may have brought about Trojan's doom on their own. Indeed, each type of nuclear plant design had its own Achilles' heel that grew worse with age.[7] It was only a matter of time before Trojan's weak spot, the steam generator, gave out, although the plant had been plagued with design and operational problems long before that occurred. Throughout the facility's life, PGE routinely shut the plant down due to both the plentitude of inexpensive hydroelectric power and innumerable problems and accidents. Because of a lack of standardization in the nuclear industry, it was difficult for engineers to make repairs or replace parts at Trojan.[8] These flaws were common to nuclear plants across the nation, such as the Millstone Nuclear Plant in Connecticut, where problems with many components of emergency systems eluded inspectors for many years.[9] In this way, Trojan was symptomatic of severe problems in the entire nuclear power industry. Operational difficulties at Trojan cropped up so regularly that the plant produced at an average of only 50 percent of its capacity, a figure that fell far short of the company's projections and translated into higher electricity rates. Three years after Trojan's completion, rates had already quadrupled.[10] Indeed, the inefficiency of nuclear power was so persistently evident that by 1986 even some utilities purchasing power from

Trojan began to endorse shutdown.[11] Furthermore, when conservation efforts brought regional power consumption far below the utilities' exaggerated projections Trojan proved unnecessary as a base load energy producer.

By 1992, anti-Trojan sentiment had spread to numerous NRC engineers. According to Eugene Rosolie, the leaked evidence of crumbling NRC support for the plant was a major factor in the firm's sudden reversal of its late 1992 decision to operate the plant until 1996.[12] Rosolie has also observed that as time went on and a significant number of the PGE executives who had been directly involved in Trojan's development had left the company, loyalties to Trojan within management became divided. Contention over the plant's safety and economy combined with the culmination of its technical problems to create a climate in which closing the plant was a far more viable option than it had ever been before.

Because the plant was shut down by its faulty equipment rather than by ballot, Marbet has suggested that the truths that emerged from the decommissioning drama actually vindicated activists. Norman Solomon has stated that nonviolent direct action and other opposition directly contributed to the plant's closure by "chipping away at the ignorance and deceptions," creating scrutiny and debate.[13] The result was that the plant's public and political standing was undermined, leading to a narrowing of options when the failure of the steam generators forced PGE to reassess the plant's future. Even though it proved too difficult for activists sway voters' faith in the plant

even as more and more facts surfaced about its flaws. the campaigns allowed activists to draw attention to Trojan's increasingly embarrassing operational record and stimulate sustained public debate over its potential and actual consequences. In the absence of such stiff political opposition, PGE may have deemed a new steam generator for Trojan, or even a new atomic facility, a worthy investment. The debate over nuclear energy also prompted the company and Oregon residents to scrutinize alternatives to nuclear energy. Although the company declared that the decision to close Trojan was not a repudiation of nuclear power, it immediately announced that it would invest substantially in windmills.[14]

Anti-Trojan activism breached the separation between two closely related factors in the fate of Trojan: the technical problems surrounding nuclear power and the influence of public opinion on utilities and energy issues. This gulf existed largely due to the quasi-monopoly on public information enjoyed by the pro-nuclear side, especially before the Three Mile Island accident, notably much of *The Oregonian's* editorial staff and PGE's own Visitors Information Center. Additionally, the growing number of activists opposing nuclear energy in Oregon and nationally in 1977 and '78 achieved a public reaction sufficiently intense to contribute significantly to a *de facto* moratorium in which no new commercial reactors were ordered after 1978.

The history of Trojan also underscored flaws inherent in the regulatory process. The plant was operated by a company that was fully aware of critical

problems with the plant's design and equipment and willfully ignorant of the extent of those problems because it often failed to perform the routine maintenance and inspections mandated by federal regulations. The NRC routinely cited PGE for such violations but consistently failed to raise questions about the problems underlying Trojan's design and operation. The agency too often deferred to the company and the Bechtel engineers when it came to investigation and correction of the basic causes of Trojan's problems. State agencies, in turn, deferred to the NRC. For many Oregonians, it was far easier to assume the plant was in good hands than to investigate complex questions about the safety of atomic power and act on the basis of their concerns. However, one can speculate that if it had been widely known that by 1992 the NRC estimated the likelihood of meltdown at Trojan was three hundred times the commission's own safety standards, large sectors of the public might have demanded to know why the agency continued to allow the plant to remain open.[15] Many people who were concerned about nuclear energy did not have the opportunity to take part in public protest or in utility proceedings. These opportunities were diminished further by government agency regulations that have tended to restrict meaningful public participation in determining energy policy.

The result of this fundamental lack of accountability on the part of regulatory agencies was that the watchdog tasks they were supposed to perform often fell to critics of nuclear power such as members of the Coalition

for Safe Power and Union of Concerned Scientists. Even the NRC itself grudgingly acknowledged that the UCS had made a valuable contribution by calling attention to technical matters the NRC had let fall through the cracks.[16] The systematic failure of utilities, contractors, regulatory agencies, and government officials to adequately guard the public interest in the case of Trojan is a salient example of the need for extensive and informed popular involvement in decision making in all arenas and at all levels of politics and society -- especially when the consequences involve the health, security, and well-being of the people and the environment.

NOTES

Introduction

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Chapter One

Craig Wollner, *Electrifying Eden: Portland General Electric,* 1889-1965 (Portland: Oregon Historical Society Press, 1990), 220.

2 William G. Robbins, "Cornucopian Dreams: Remaking Nature in Postwar Oregon" *Agricultural History.* v.76 (Spring 2002), 219.

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4 Public law 516,81[51] Congress, 2nd session.

5 Fish Commission of Oregon, Statement Regarding the Deschutes River and Tributaries, Table 1, Additional Power Developments to be Installed by End of 1950, PGE v. HC case file, OSA.

6 Wollner. *Electrifying Eden,* 221-225, 236.

7 Portland General Electric Co., "Oregon Needs the Pelton Power Project" pamphlet, Feb. 1, 1949, PGE v. HC case file, OSA.

8 Statement of Applicant in Rebuttal, PGE v. HC case file, OSA, 8-9.

9 Department of the Interior, Fish and Wildlife Service Policy When Considering Future Comprehensive Utilization of the Columbia River and its Tributaries, PGE v. HC case file, OSA,2.

10 *The Oregonian,* 14 June 1956,1.

11 Wollner, *Electrifying Eden, 245.*

12 In addition to Leo Marx, op. cit., an excellent exploration of the pastoral ideal is found in several essays by Wallace Stegner, such as "The Sense of Place" and "Variations on a Theme by Crevocoeur," in which he discusses the cultural landscape of the West in light of two archetypes: the Jeffersonian farmer and the wild man. Wallace Stegner, *Where the Bluebird Sings to the Lemonade Springs,* (New York: Penguin Books, 1992).

13 Wollner, *Electrifying Eden, 217.*

14 These were the Tillamook, Columbia River, Central Lincoln and Clatskanie PUDs. Oregon PUD Association, http://www.opuda.org/oregon-puds.html.

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