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Energopolitics and nuclear waste: Containing the threat of radioactivity

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ABSTRACT

Managing the back-end of the nuclear fuel cycle continues to be a systemic issue for nuclear states. This paper examines some of the rationales and justifications for communities that choose to accept nuclear waste, focusing specifically on the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. The negotiations that the federal government undertook with residents of the town closest to WIPP demonstrate the complex interplay of scientific information, economic and cultural benefits, and trust in governance, in order to make risks from radioactive waste understandable and manageable for a local community. Using the concept of "energopolitics" (Boyer, 2014), this paper seeks to understand how residents of nuclear communities discursively negotiate their relationships to their local environment, technoscientific expertise, and visions of the future through the materiality of nuclear waste, by using interviews, site visits, and public meeting testimonies from various stakeholders.

1. Introduction

Radioactive waste has been, is, and will most likely remain into the far future, a problematic legacy of the existence of humans on earth. The majority of nuclear waste was created in the last 70 years, but in some cases will last for thousands of years. These time-scales present an intergenerational challenge, requiring perpetual management. Whether one sees nuclear waste management as a technological, environmental, political, and/or ethical issue frames the discourses of containment that are used to address nuclear waste management by different stakeholders. In 1957, American scientists proposed that there was one method that would most likely be the most expedient for containing risks from nuclear waste: geologic repositories [1]. To contain the threat to life from radioactive contamination, scientific experts and the governments that rely on their assessments continue to pursue geologic repositories as the most effective way of negating the threat of radioactive contamination.

The Waste Isolation Pilot Plant (WIPP) is currently the only operating permanent geologic repository for nuclear waste globally. Due to this fact, it is important to understand how the United States (US) Department of Energy (DOE) managed to operationalize this particular plant, which began accepting waste shipments in 1999, despite the fact that no other nuclear waste repository has opened in the US. WIPP was first proposed in 1972 as a potential site for permanently storing spent nuclear fuel (SNF), but over the ensuing 27 years, the state of New Mexico negotiated with the Department of Energy to limit the waste stored in WIPP to only transuranic (TRU) waste produced by the American military during the Cold War. This is specific category of radioactive waste that generally consists of long-lived radioactive particles, necessitating sequestration from the environment for thousands of years. Because of this limited license, WIPP cannot store SNF produced by commercial nuclear power plants, which continues to sit in SNF ponds and in dry cask storage at nuclear power plants across the nation [2]. Despite this, WIPP is a site of much interest to federal agencies tasked with locating a site for SNF, as well as other nuclear waste projects. WIPP is viewed by federal agencies and many local residents as a means of not only containing the environmental threat of radioactive contamination but also containing the political threat of nuclear waste that is spread across the US landscape, at Cold War sites, national nuclear laboratories, and in the case of SNF, at existing and shuttered nuclear power plants. Federal attention has returned repeatedly to Southeastern New Mexico for different programs grappling with the persistent problem of nuclear waste, including storage of SNF from commercial plants stored at nuclear power plants across the country, so that the DOE can close the nuclear fuel cycle.

Nuclear waste is a wicked problem that requires persistent management [3]. WIPP is the only facility in the US that addresses at least some of the physical risks from radioactive waste, making it a model for federal agencies. The main question in relation to nuclear waste policies is: how do we, as humans, contain the risks of radioactive contamination of the environment? In the past, this question was presumed answerable with technical and scientific information, but recognition has increased that it is an explicitly political and human-based one. It is therefore critical to understand how different stakeholders who support

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nuclear waste repositories rationalize hosting a project like WIPP. These stakeholder discourses are manifold and diverse, ranging from predictable claims about economic benefits to more intangible ideals related to fulfilling ethical obligations to the present and future, local environmental knowledge, and the regional nuclear history of Southeastern New Mexico. I hope in this article to elucidate the ways that nuclear waste is both discursively and materially made and re-made by both federal agencies and community members of Carlsbad into a mundane and manageable object in order to highlight the ways that national discourses around nuclear energy are taken up and refracted through local experience. I do this by first discussing the concept of energopower and energopolitics, and subsequently connecting the theory of energopolitics to other nuclear legacies of the Southwest, such as the impact of national nuclear laboratories in Northern New Mexico, uranium mining on Navajo lands, and monitored retrievable storage sites on other tribal lands. Next, I place energopolitics in the context of the development of WIPP by using this concept to describe the major discourses that ran through public meetings, interviews, and site visits related to WIPP, and how those relate to the energopolitics of nuclear waste management. These discourses are important to identify, because they show how local environmental conditions, history with nuclear projects, and economic and political goals interact with larger national goals in relation to a containment discourse. While all other plans and projects for nuclear waste repositories have failed in the US, this study offers insights into why WIPP has support from many local stakeholders.

2. Energopower and the materiality of radioactive waste

The situation of WIPP offers insights into how residents of a nuclear waste community view not only the value of having a nuclear waste site as a major defining factor of their locale, but also how localized discourses contain the risks from nuclear waste by refracting federal discourses of containment, especially that of "sound science" as an arbiter of safety, through their own understandings of local environmental and political conditions, including discourses of materially containing risk, patriotism and ethical obligation, and safety culture and local social benefits. Dominic Boyer's concept of energopower (2014) offers a means of understanding how power is exerted by federal agencies to assuage the fears of nuclear communities like Carlsbad, but also how community members also exert political power by engaging in discourses over nuclear waste to articulate their own centrality to containing the risks from WIPP. For Boyer, energopower connects discussions of energy production to Rabinow and Rose's articulation of biopolitics, which they define as "the specific strategies and contestations over problematizations of collective human vitality, morbidity and mortality; over the forms of knowledge, regimes of authority, and practices of intervention that are desirable, legitimate, and efficacious." (Rabinow and Rose, 2006, 197, quoted in [4], 321). Biopolitics builds on Foucault's concept of biopower, where the state exerts "numerous and diverse techniques for achieving the subjugation of bodies and the control of populations" ([5], 140), including the production of facts and figures through scientific methods that underlie policies and laws, such as designating certain places for nuclear waste repositories. Relating this definition to nuclear waste discourse, biopolitical actors can be seen to engage in energopolitics by challenging, responding to, uptaking, and refracting techniques of the state that rationalized and demanded the expansion of the development of nuclear technologies in the US. These include the production of scientific knowledge, hierarchical authority and expertise, and material practices that define the cohesive message of national security of the Cold War era. In doing so, they use local narratives that reproduce or amend fissures in national discourses that rationalize energy production as a wholly beneficial human enterprise by exerting their own local knowledge into national discourses around nuclear waste production.

A focus on energopower, and by extension the energopolitics that shapes the deployment of energopower, also brings into focus "the organization and dynamics of political forces across different scales" ([4], 326), and complements Gabrielle Hecht's use of the term technopolitics to "highlight the distribution of power in material things and symbolic circulations" ([6], 3). Hecht is concerned here with the "nuclearity of things," and how radioactive substances can be seen as threatening or non-threatening, depending on political context, such as negotiations over the control of global uranium markets. The concept of energopolitics can be seen as connecting Gabrielle Hecht's use of the term technopolitics (the politics of things) to Foucault's expression of biopolitics (the politics of life) through flows of energy. From the national to the individual, energopolitics illuminates how risks are created at the national level, and then dispersed throughout society. In a modern neoliberal political context, risk is often reduced to individual choice, rationalizing the ways that risk is produced through the governmentality of the state. Nadesan [7] states that, "governmentality stresses how common rationalities of government and technologies of power align the institutions, authorities and technologies of everyday life, the market, and the state (de jure governmental apparatuses), it also recognizes discontinuities, sites of divergence, and contradictions within and across social realms" (4). To produce and use energy, especially on a national scale, is to exert power in ways that allow some to access cheap and reliable electricity from nuclear energy or security from a nuclear arsenal, but designates others to live with the radioactive legacy of that production. Examination of local scales of nuclear activity over seven decades in New Mexico, allows further understanding of how individuals and communities conceptualize and localize their own relationship to energopolitics, based on their knowledge of local environments and their own lived experiences. For many in New Mexico, such as communities adjacent to Los Alamos and Navajo uranium miners, the effort to secure national borders through the production of nuclear technologies was detrimental to their local environment and physical health. For others, such as national nuclear lab employees and researchers, the flows of power and authority have been more beneficial. Attending to these unequal distributions of power reveals the movement of political power that follows the production of nuclear technologies, as well as the production of nuclear waste.

Boyer encourages this "rethinking of political power through energic power" (2015, 315), noting that "there could have been no consolidation of any regime of modern biopower without the parallel securitization of energy provision and synchronization of energy discourse" (327). The US government established a rationale for nuclear weapons and energy production during the Cold War, using national security concerns and the threat to democracy from the Soviet Union [8]. By the 1950s, the US had also embarked on developing "atoms for peace," such as using bombs for earthmoving and excavation projects, as well as nuclear energy [9]. These projects enmeshed much of the nation into myriad nuclear projects, both for security and energy, and power over these discourses was uni-directional, coming from the federal government while shaping the materiality of nuclear communities across the US. By the end of the Cold War, the resistance of some communities that had born the brunt of nuclear development challenged the idea of securitization of the state through nuclear technologies by focusing on the ways that it destabilized local life practices, and compromised the very existence of local environments. In the following discussion, I contextualize energopolitics through the establishment of nuclear projects in Northern New Mexico, the Navajo Nation, and with temporary waste storage projects, to demonstrate how energopolitics offers insights into the ways that nuclear technologies shape cultural and environmental experience for vulnerable groups in the American West.

The concept of energopolitics provides insight into the ways that nuclear communities in New Mexico have resisted national narratives of progress and modernization in relation to nuclear projects, and into the creation of communities who are contributing to destabilizing expert narratives of progress and modernization [10]. The formal