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Understanding the nuclear controversy: An application of cultural theory

Shashi van de Graaff [1]

School of Political Science and International Studies, University of Queensland, St Lucia, Brisbane, 4072 QLD, Australia

HIGHLIGHTS

- There is little evidence of a nuclear renaissance taking place in Western Europe or North America.
- Public opinion on nuclear power continues to be deeply divided.
- Pro-nuclear arguments are dominated by a particular cultural rationality.
- A broader range of cultural perspectives needs to be recognised for the nuclear debate to progress.

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ABSTRACT

The need for a secure and sustainable energy future has become firmly entrenched on the global political agenda. Governments worldwide are seeking solutions that will ensure security of their energy supplies, while reducing carbon emissions in the fight against climate change. Advocates of nuclear power have reframed the technology as the most reliable, cost-effective and immediate solution to both of these policy problems, and predicted the emergence of a 'nuclear renaissance'. However, there is little evidence to date that suggests a nuclear renaissance has actually taken place. Public opinion polling demonstrates that many remain unconvinced of the need for nuclear power. This paper uses Cultural Theory as a heuristic to understand why the arguments for a nuclear renaissance have been largely unsuccessful. It argues that the failure of nuclear advocates to engage with a wider cross-section of world-views has prevented the controversy surrounding nuclear power from being resolved, and the nuclear renaissance from becoming a reality. In doing so, this paper builds upon a growing recognition of the contribution that social science research can make to understanding public acceptance of energy policy choices.

1. Introduction

Nuclear power has long been a highly controversial political issue. For more than half a decade, nuclear power has come under fire from those who view it as a threat to the safety and security of society and the environment (Herring, 2010). While nuclear advocates, including pro-nuclear politicians and nuclear industry representatives, try to educate citizens about the benefits of nuclear power, not everyone is convinced by these arguments. The controversy surrounding nuclear power was most recently highlighted by the rhetoric depicting a'nuclear renaissance' that gained momentum throughout the 2000s (Bratt, 2012: 52). Nuclear advocates argued that the stagnation and decline afflicting many of the world's longest-standing nuclear industries would be replaced by a rapid upsurge in nuclear new build (Tagliabue, 2007; World Nuclear Association, 2015a). The expectation of a global nuclear renaissance was “promulgated at the highest political levels” (Stirling, 2015: 63), with many political leaders displaying an unforeseen level of ‘ung-ho’ enthusiasm for nuclear power.

The newfound enthusiasm for nuclear energy emerged from a belief that the logic underpinning why nuclear power plants should be built had fundamentally changed. Nuclear advocates presented two key arguments for why a resurgence of nuclear power was necessary for meeting the challenges of contemporary society. Firstly, the growing importance of climate change as a policy problem meant that governments needed an affordable energy solution that could help to reduce carbon emissions. Advocates of nuclear energy capitalised on this by reframing nuclear power as a ‘green’ energy technology because of its low greenhouse gas emissions (Bickerstaff et al., 2008; Doyle, 2011).

E-mail address: shashi.vandegraaff@uqconnect.edu.au
[1] Current Postal Address: Apartment 116, 185 Upper Allen Street, Sheffield S3 7GT, England.

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Secondly, increasing geopolitical instability in Russia and the Middle East raised concerns about an over-reliance on fossil fuel imports, prompting policymakers to seek alternative energy solutions that would improve their energy security. Nuclear power appeared to pose an ideal solution for countries seeking to improve their energy independence (Adamantiades and Kessides, 2009: 5150). The combination of these two arguments – environment and energy security – were meant to be 'game-changers' in the nuclear debate that would convince sceptics of the need for nuclear energy. Public information campaigns and lobbying efforts were undertaken to advertise nuclear power as a low-cost, low-carbon and highly secure source of energy generation.[2]

However, an examination of nuclear development since 2000 reveals little evidence of a nuclear renaissance occurring, particularly in Western Europe and North America. Political enthusiasm for nuclear power in these regions has waned, and the deep divide in public opinion over nuclear power remains. Journalists and political commentators have attributed the failure of the nuclear renaissance to the Fukushima nuclear disaster, which reignited public concerns over nuclear safety, raising the political transaction costs that are required to convince voters that a nuclear renaissance is beneficial for society. The German newspaper *Der Spiegel (2011)* likened Fukushima to the "9/11" of the nuclear industry, while an article in the *Energy Economist* described Fukushima as the "end of the nuclear renaissance in the West" (Thomas, 2012b: 6). Despite these claims, solely attributing the failure of the nuclear renaissance to Fukushima obscures the fact that there was little evidence of a renaissance occurring *prior to* the disaster taking place in March 2011.[3] Moreover, opinion polling demonstrates that the long-standing divide in public opinion over nuclear power remained firmly entrenched even when the rhetoric of a nuclear renaissance gained momentum.[4] Even the 'game-changer' arguments presented by the nuclear industry were not compelling enough to convince large segments of the public of the need for nuclear power.

This paper uses Cultural Theory as a heuristic to examine why the debate over nuclear power remains entrenched. Why does public opinion continue to remain divided over nuclear power? Why has the controversy surrounding nuclear power not been resolved? In order to answer these questions, this paper uses the four "cultural types" identified by Cultural Theory as a lens through which to examine the major arguments that have dominated the nuclear debate. In doing so, this paper builds upon a growing recognition of the contribution that social science research can make to understanding public responses to energy policy choices.

Three conclusions are drawn from this analysis. Firstly, there is a 'ground-hog' element to the nuclear debate. The arguments that dominated the nuclear debate during the renaissance period have changed little from the arguments that have historically been invoked to support or oppose nuclear power. Rather than being a turning-point in the troubled fortunes of nuclear power, the debate that occurred during the renaissance period played out much the way it always has, polarising public opinion. Secondly, little progress has been made in the nuclear debate because of the degree to which advocates and opponents of nuclear power are embedded in their own particular cultural worldview. Specifically, the arguments which are typically used to promote nuclear power have been highly reflective of the beliefs and values underpinning a hierarchicalist rationality, with little recognition of the values and beliefs of alternative egalitarian, individualist and fatalist cultural types present in society. Finally, little progress has been made in the nuclear debate because of the hierarchicalist nature of pro-nuclear arguments. Arguments that are grounded in a hierarchicalist worldview will be ineffective in convincing alternative cultural types – egalitarians, individualists, and fatalists – of the benefits of nuclear power. In order for the nuclear debate to progress, policymakers need to better recognise the broader cross-section of cultural rationalities present in society.

2. Cultural theory

Cultural Theory was developed to better understand how individuals perceive risks. The theory was first developed by Douglas (1970, 1982, 1992, 1999), and advanced by Aaron Wildavsky and Michael Thompson (Douglas and Wildavsky, 1982; Thompson, 1997; Thompson et al., 1990; Wildavsky, 1987; Wildavsky and Dake, 1990). The theory is based upon two core ideas. First, Cultural Theorists argue that "culture matters" – that every aspect of human thought and action is influenced by culture (Mamadouh, 1999: 396). Second, Cultural Theorists argue that there are a limited number of "cultural types" within which each individual can be categorised (Mamadouh, 1999: 396). Cultural Theorists have constructed a "grid-group" typology delineates four possible cultural types (see Fig. 1 below). This typology is based on two coordinates: 'grid' and 'group'. The group coordinate refers to *who* it is that an individual interacts with. That is, the degree to which an individual is incorporated into a social grouping. The grid coordinate refers to *how* an individual interacts within a group. That is, the extent to which an individual's actions and relationships are regulated within that particular social context.

The grid-group typology allows for four possible combinations of these coordinates in order to identify four possible cultural types. The first cultural type, hierarchicalists (high grid/high group), place their faith in government and authority structures, which they see as necessary for maintaining social order and preventing chaos. The high group quality of hierarchicalists means they are likely to privilege expert knowledge and scientific reasoning (Smullen, 2010: 160), and trust the recommendations proposed by authority figures (Oltedal et al., 2004: 20). Hierarchicalists are sceptical of self-organising or community-driven process (Hood, 1998: 73). They view structures and rules as the best solution to managing any societal problem (van Rensburg, 2013: 35). In contrast to hierarchicalists, egalitarians (low grid/high group) distrust bureaucrats and any kind of 'expert' decision-makers. They perceive bureaucrats and industry officials as inherently greedy and corrupt, misusing their positions of power to advance their own interests rather than the interests of others (Oltedal et al., 2004: 20). They are suspicious of large organisations

[2] For example, in 2006, a 'nuclear renaissance' themed advertising campaign was run by the US nuclear industry to support President Bush's nuclear energy initiative and to increase public support for nuclear new build (Fialka, 2006). The Nuclear Energy Institute launched a newspaper, radio, and web-based campaign to convince the public and politicians of nuclear energy's economic value, its contribution to the country's energy security, and its environmental credentials (Nuclear Energy Institute, 2010). In Germany, multiple nuclear companies ran full-page newspaper advertisements to convince voters that the nuclear industry was necessary for Germany's energy security (Dempsey, 2010). In the UK, accusations have been made of covert lobbying conducted by journalists and politicians with close connections to the nuclear industry. For example, Sir Bernhard Ingham (former Secretary to the pro-nuclear lobby group Supporters of Nuclear Energy) became Vice President of the Country Guardian, an anti-wind energy pressure group. The Country Guardian, and Ingham himself, have been accused of deliberately blocking wind energy projects to support the rival nuclear industry (Barnett and Townsend, 2004). Ingham has continued to lobby the government to "change its tune on nuclear power" (The Daily Mail, 2012).

[3] The World Nuclear Industry Status Report 2010–11 concludes that "even prior to March 11, when the Fukushima crisis began…the international nuclear industry has been unable to stop the slow decline of nuclear energy" (Schneider et al., 2011: 7). Data on the decline of nuclear power prior to the Fukushima nuclear disaster is discussed in Section 3 of this article.

[4] Data from public opinion polling on nuclear power is discussed in more detail in Section 3 of this article.