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Richard Burleson Stewart and Jane Bloom Stewart
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Nuclear power remains controversial on many levels. On the up side, the lifecycle emissions for nuclear power are second lowest only to wind in comparison to all other primary sources of electricity generation.[1] Nuclear power compares favourably against coal-generated electricity on additional fronts including fewer transport impacts[2] and lower historical radiation releases.[3] Its land footprint per kilowatt hour is the smallest for any generation source, including renewables.[4] Last, but not least, the United States, a huge consumer of electricity, has significant domestic reserves of uranium to fuel the plants.[5]

On the down side, the civilian nuclear power industry is not competitive in the United States (some would argue not viable) despite the advantages of being developed through military research funding and almost 60 years of liability caps,[6] loan guarantees and government infusions of cash.[7]

1 Roland M Frye Jr, 'The Current Nuclear Renaissance in the United States, Its Underlying Reasons, and its Potential Pitfalls' (2008) 29 Energy LJ 279, 299 (6 grams of CO_2 per kilowatt hour, citing the International Energy Agency).

2 William Tucker, *Terrestrial Energy* (Barleby Press, 2008), 38 ('Every three days, a 110-car unit train arrives [at a 500MW plant south of Omaha] each car is loaded with 125 tons of coal'. In contrast, 'Every 18 months, a single tracker trailer arrives carrying several dozen bundles of 18-foot nuclear fuel rods to the 750MW nuclear plant 12 miles away').

3 Fred Bosselman, 'The Ecological Advantages of Nuclear Power' (2007) 15 NYU Environmental LJ 1, 35 ('Uranium, radium, and thorium found in coal are naturally radioactive elements, and it is estimated that 500 tons of uranium are left in the ash produced by coal-fired power plants each year, some of which will decay, releasing radon gas. The amounts of radioactivity involved are probably harmless, but the amount of radioactivity released by a coal-fired power plant exceeds that of a nuclear power plant, a fact that few people realize'). See also, Jeff Goodell, *Big Coal: the Dirty Secret Behind America's Energy Future* (Mariner Books, 2007), xii.

4 KK DuVivier, *Renewable Energy Reader* (Carolina Academic Press, 2011), 384, Figure 8.10.

5 US Energy Information Administration, *US Uranium Reserves Estimates* (July 2010), at www.eia.gov/cneaf/nuclear/page/reserves/ures.html accessed 17 February 2012.

6 Joseph P Tomain and Richard D Cudahy, *Energy Law in a Nutshell* (2nd edn, West, 2011), 434 (GE threatened withdrawal from nuclear development activity because of potential liability, so in reaction Congress passed the Price-Anderson Act of 1957, which limited industry liability in the event of a nuclear accident).

7 See, eg, Douglas Koplow, 'Nuclear Power Still Not Viable Without Subsidies' (February 2011), at www.ucsusa.org/assets/documents/nuclear_power/nuclear_subsiside_report.pdf; John M Deutch et al, 'Update on the MIT Interdisciplinary Study 2003 Future of Nuclear Power' (2009), at http://web.mit.edu/nuclearpower/pdf/nuclearpower-update2009.pdf accessed 17 February 2012 (baseline costs of nuclear power greater than coal or natural gas, but if carbon emissions are taxed, then nuclear can become economically competitive).

Also, before the current nuclear renaissance sparked by government incentives,[8] 1978 marked the last year a new nuclear plant was ordered in the United States, and all plants ordered after 1974 had been cancelled or converted, costing ratepayers billions for utilities' miscalculations.[9]

The cost and safety of nuclear power leaped into the headlines again when on 11 March 2011, a tsunami struck the Fukushima nuclear reactor facility in Japan. Hundreds of thousands were evacuated from a 12-mile zone around the plant, and many will never be able to return to live on or farm this land. Radioactive releases into the air and sea have contaminated water and food up to 200 miles from the accident. In addition, some estimates place the cost of cleaning up the Fukushima disaster and compensating its victims at as much as US$257bn.[10]

Much of the radiation released during the Fukushima disaster was not from the power generation part of the reactor, but instead from spent nuclear fuel (SNF) at the site. The United States has been concerned for decades about these 'swimming pools in the backyards of the nation's nuclear reactors... filling up with... deadly radioactive waste'.[11] Richard Burleson Stewart and Jane Bloom Stewart tackle the disposal issues of SNF and other wastes from nuclear power generation and nuclear weapons in their book *Fuel Cycle to Nowhere: US Law and Policy on Nuclear Waste* (hereinafter *Fuel Cycle*).[12]

Thirty-nine US states currently contain nuclear wastes at 129 different sites – including commercial nuclear reactor sites, a commercial storage site, research sites and US Department of Energy sites.[13] Tens of thousands of tonnes of SNF are stored at power plants across the United States,[14] and at least 77 of these plants are 'without a disposal destination or even a plan for one'.[15]

Fuel Cycle is billed as a 'comprehensive history and overview of US nuclear waste law and regulation',[16] and it certainly appears to have been a massive

8 Frye, note 1 above.

9 Tomain and Cudahy, note 6 above, 462–469. (Furthermore, the cost of decommissioning and dismantling spent nuclear plants is estimated at US$500m per plant.)

10 'Japan sees atomic power cost up by at least 50 pct by 2030 – Nikkei' (Reuters, 6 December 2011), at www.reuters.com/article/2011/12/06/japan-nuclear-cost-idUSL3E7N60MR2011120 accessed 17 February 2012; see also Mycle Schneider, Antony Froggatt and Steve Thomas, 'The World Nuclear Industry Status Report 2010–2011: Nuclear Power in a Post-Fukushima World' (Worldwatch Institute, April 2011), at www.worldwatch.org/system/files/WorldNuclearIndustryStatusReport2011_%20FINAL.pdf accessed 18 February 2012.

11 Pelham, 'Government Groping with Waste Disposal' [1977] *Congressional Quarterly* 2555.

12 Richard Burleson Stewart and Jane Bloom Stewart, *Fuel Cycle to Nowhere: US Law and Policy on Nuclear Waste* (Vanderbilt, 2011).

13 Tomain and Cudahy, note 6 above, 462.

14 Stewart and Stewart, note 12 above, 5.

15 *Ibid* 2.

16 *Ibid* front jacket cover.

undertaking. This tome contains an introductory table of approximately 140 nuclear acronyms and 305 pages of text, supported by 81 pages of detailed reference notes.

Chapter 1 deals with 'The Evolution of US Nuclear Waste Law and Policy'. From a legal perspective, one of the most interesting discussions in this chapter addresses some of the legal strategies used by nuclear power opponents.[17] According to the Stewarts, early lawsuits challenged the Atomic Energy Commission's (AEC's) licensing and regulatory decisions on the basis of safety. This approach failed to win in the courts, but the costs, delays and uncertainties created by the litigation were effective deterrents in many instances.[18]

In the next phase, opponents challenged new reactor licensings based on the AEC's failure to consider the environmental impacts of storage and disposal of nuclear wastes. This line of challenges ended when the US Supreme Court found that the US Nuclear Regulatory Commission (NRC) had complied with the National Environmental Policy Act and had provided adequate reasons for its conclusions about waste disposal.[19]

The legal challenges began to have traction when states tied their concerns about the disposal of wastes to economic outcomes. In response to threats of a citizen initiative, the California legislature placed a moratorium on all nuclear plant construction in the state until the wastes had a proper disposal method.[20] The legislature justified the moratorium as a way to protect ratepayers against the high costs of waste disposal.[21] The utility that proposed to construct a nuclear plant, Pacific Gas & Electric (PG&E), brought suit arguing that the NRC's[22] permit pre-empted and controlled all nuclear plant decisions.[23]

PG&E's confidence about winning its lawsuit was justified because, before this case, the Supreme Court had been fairly consistent in giving deference to NRC decisions as pre-empting state concerns. But the PG&E decision marked a watershed. The Court sashayed around the pre-emption issue by stating that the NRC had only occupied the field of 'nuclear safety'. By styling its legislation as 'economic', California's statute addressed legitimate state issues that were not pre-empted, and therefore, could stand.[24]

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17 *Ibid* 48.

18 *Ibid*, 51.

19 *Ibid* 53 (citing *Baltimore Gas & Electric Co v Natural Res Def Council*, 462 US 87 (1983)).

20 *Ibid* 44.

21 *Pacific Gas & Elec Co v State Energy Res Conservation & Dev Comm'n*, 461 US 190 (1983); see also Stewart and Stewart, note 12 above, 55.

22 42 USCA § 5801 (1974) shifted the AEC's permitting role to the new NRC in 1974.

23 *Pacific Gas*, note 21 above, 198.

24 *Ibid* 212–216.

After receiving the PG&E green light, at least 13 states followed California's lead and also enacted moratoria to the construction of new nuclear plants.[25] These moratoria sounded the death knell for US nuclear development until the current nuclear renaissance of relicensings[26] and government incentives to develop new nuclear facilities.[27]

These relicensings and incentives are tainted in that the problem of waste disposal still plagues us three decades after PG&E and more than five decades after the first civilian wastes were generated in the United States when the Shippingport Reactor in Pennsylvania entered operation in December 1957.

Furthermore, the responsibility for the nuclear waste problem shifted from the private companies generating the wastes to the shoulders of every US taxpayer when Congress mandated that the Department of Energy (DOE) take ownership of civilian SNF for disposal beginning in 1998.[28] To address these problems and report on possible methods to dispose of nuclear waste, the Obama administration appointed a Blue Ribbon Commission on America's Nuclear Future. On 29 July 2011, the Commission issued a draft of its report and recommendations for public comment.[29] *Fuel Cycle* was released approximately two weeks later.

In many respects, *Fuel Cycle* is simply a descriptive report. It was an offshoot of a project by the Consortium for Risk Evaluation with Stakeholder Participation

25 Stewart and Stewart, note 12 above, 55 (Oregon, Maine, Montana, Connecticut, Massachusetts, West Virginia, Wisconsin, Kentucky, Kansas, Illinois, New Jersey, Minnesota and Pennsylvania (many of these laws are still on the books)).

26 In mid-February 2012, the Vogtle nuclear power plant near Waynesboro, Georgia, received the first NRC licence approval in more than 30 years. See also Tomain and Cudahy, note 6 above, 444 (61 of the 104 reactors in the US had received 20-year renewals on their licences); Richard Webster with Julia Le-Mense, '40 Years and Counting: Relicensing the First Generation of Nuclear Power Plants: Spotlight on Safety at Nuclear Power Plants: The View from Oyster Creek' (2009) 26 Pace Envt'l L Rev 365; Frye, note 1 above.

27 Fred Bosselman et al, *Energy, Economics and the Environment* (3rd edn, Thomson Reuters, 2010) (noting that the Energy Policy Act of 2005 encouraged the building of new reactors by guaranteeing the Department of Energy would pay up to 100 per cent of delay costs, including principal and interest on any debt obligation up to US$500m per reactor for the first two licensed reactors and 50 per cent for the next four. Also noting that the Obama administration's 1 February 2010 budget proposed an additional US$36bn in loans for the construction of new nuclear plants, twice as much as the previous loan guarantee programme), 1014; Tomain and Cudahy, note 6 above (Obama's budget for 2011 proposed to increased the loan guarantees to US$54bn and also proposed approximately US$825m to fund research for advanced reactors and new fuel cycle technologies), 438.

28 Nuclear Waste Policy Act of 1982, 97 Pub L 425, 96 Stat 2201, 2257–2261 (1982). Section 302 mandates that utilities must pay a fee for disposal; see also Stewart and Stewart, note 12 above, 77.

29 Blue Ribbon Commission on America's Nuclear Future, *Draft Report to the Secretary of Energy* (29 July 2011), at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf accessed 26 February 2012.

(CRESP). CRESP is a Vanderbilt University-led, multi-university consortium funded by the DOE, Office of Environmental Management.

After the initial overview, Chapters 2, 3 and 4 of *Fuel Cycle* exhaustively cover the issues of 'Radioactive Waste Classification', 'Regulation and Nuclear Waste Transport' and 'Low-Level Waste Disposal', respectively. Although not very accessible for general audiences, these chapters may be especially valuable for governmental agencies and initiated insiders who specialise in this area. However, the tone shifts with Chapters 5 and 6, taking the form of an argument to support the report's final chapter on conclusions and recommendations, as illustrated by their titles. Chapter 5 is titled 'WIPP: The Rocky Road to Success', while Chapter 6 is 'Yucca Mountain: Blueprint for Failure'.

Chapter 5 – WIPP: the rocky road to success

WIPP is the acronym for the Waste Isolation Pilot Plant in Carlsbad, New Mexico. According to the Stewarts, WIPP is 'the only operating deep geologic repository for disposal of long-lived nuclear waste in the world'.[30] The incentive that spurred research into finding a disposal site for defence-generated transuranic (TRU) wastes was a 1969 fire at the Rocky Flats nuclear weapons facility in Colorado. By 1975, the federal government had focused on New Mexico for the disposal site after Carlsbad's political leaders had actively supported this choice. In May 1998, the US Environmental Protection Agency issued its final certification of the WIPP, and on 26 March 1999, Secretary of Energy Bill Richardson approved delivery of TRU wastes to the repository.[31]

The pathway from initial conception to actual employment of the WIPP site for waste disposal was bumpy. The State of New Mexico frequently sought power to control the choice, even threatening to amend the state constitution to ban the storage of any imported radioactive wastes.[32] Although the New Mexico legislature did not put authorisation of the WIPP to a statewide referendum nor did it pass an amendment to the state constitution that would ban the storage of imported radioactive wastes as it had threatened, it did pass the New Mexico Radioactive Waste Consultation Act. This legislation prohibited disposal or storage of waste without state concurrence.[33] Despite this legislation and some political gestures of conciliation, the federal government made it clear that New Mexico had no veto authority over a federal facility on federal lands.

30 Stewart and Stewart, note 12 above, 162.
31 *Ibid* 180–181.
32 *Ibid* 164.
33 *Ibid* 166.

The Stewarts attribute the ultimate success of the WIPP to 'the step-by-step evolutionary process by which the facility was developed, and the state's ability to gain leverage in decision making at key stages of the process through successful litigation that challenged DOE actions and through legislation won by its congressional delegation'.[34] From the Stewarts' description, two key components of this process were: (1) a consultation and cooperation (C&C) agreement; and (2) the Environmental Evaluation Group (EEG).

C&C agreement

After much debate, members of Congress agreed on language in the 1980 WIPP Authorization Act that required the Secretary to 'consult and cooperate with the appropriate officials of the State of New Mexico, with respect to the public health and safety concerns'.[35] In 1981, when the federal government refused to agree to a legally binding implementation agreement, New Mexico sued the DOE. This litigation and political pressures within the Reagan administration convinced the DOE to enter into a stipulated C&C agreement that guaranteed New Mexico access to DOE data, gave New Mexico additional clout for enforcing its concerns and established a conflict resolution process.[36] The C&C agreement 'did not immediately produce cooperation' as the DOE continued to resist its terms.[37] However, it did seem to provide a conduit for much of New Mexico's input into the process.

EEG

The second primary mechanism the Stewarts credit with the success of the WIPP facility is the EEG. The EEG was an independent scientific body established through a memorandum of understanding between New Mexico and the DOE in 1978.[38] 'EEG became a trusted and independent source of technical expertise. Its willingness to critique flaws in the WIPP project ultimately worked to reassure the state and other stakeholders of the repository's technical soundness and to bolster the credibility of the project.'[39] The Stewarts believe that the EEG was 'the single most effective reviewer, expositor, and facilitator in the project's multiparty dynamic structure'. However, the DOE apparently thought the EEG was 'a thorn

34 *Ibid* 185.
35 *Ibid* 170 (citing § 213(b)(1) of the 1980 WIPP Authorization Act).
36 *Ibid* 172–173.
37 *Ibid* 173.
38 *Ibid* 168.
39 *Ibid* 169.

in its side' and was able to defund it in 2004.[40]

Despite praising the WIPP as a model for success, the Stewarts admit the result was a 'mixed dynamic of contention and cooperation'.[41] They also describe some of the unique background conditions that probably played as much, if not more, of a role in the WIPP success than the procedural mechanisms described above: 'Carlsbad's depressed economy, the weakness of the state economy, and New Mexico's generally positive past and then-present experience with federal nuclear activities and facilities within the state. These favorable conditions may not be replicated in other settings.'[42] Although New Mexico has indicated that it may be willing to accept SNF in the future, its past position has been that it would only accept defence TRU wastes. This is why New Mexico was happy to join others who sought to railroad SNF to the Yucca site.

Chapter 6 – Yucca Mountain: blueprint for failure

Chapter 6 describes the Yucca Mountain project as a contrasting failure to the WIPP's success. The Stewarts characterise Yucca as a failure because it 'has been abandoned'.[43] Later they admit that Yucca's current status as a failure is only because, in 2008, President Obama deprived the DOE of funding needed to pursue licensing of the project before the NRC. On 3 March 2010, the DOE filed a motion seeking permission to withdraw its Yucca Mountain repository request, but the NRC Atomic Safety and Licensing Board denied that request on 29 June 2010. On 9 September 2011, the NRC issued a memorandum and order neither overturning nor upholding the board's denial of the DOE's request, and then suspended the proceeding 21 days later.[44]

The Yucca Mountain site, located in Nye County, Nevada, approximately 100 miles northwest of Las Vegas, was placed on the shortlist of waste depositories through a deliberative process set out in the Nuclear Waste Policy Act of 1982

40 *Ibid* 182.

41 *Ibid* 184.

42 *Ibid* 184–185. Earlier in the chapter, the Stewarts mention the federal laboratory at Sandia as part of New Mexico's positive experience with nuclear activities and facilities: 'Because of its role in development of the atomic bomb and the ongoing presence of government nuclear facilities, including Sandia, in New Mexico, the state was less averse to hosting defense wastes.' *Ibid* 164. Additional positive nuclear experiences that the Stewarts did not specifically mention here are that New Mexico also housed the Los Alamos laboratory and that New Mexico is second only to Wyoming as the state with the most uranium reserves. US Energy Information Administration, note 5 above.

43 Stewart and Stewart, note 12 above, 186.

44 US Nuclear Regulatory Commission 'High-Level Waste Disposal: Update on Status of High-Level Waste Disposal Program as of September 30, 2011', at www.nrc.gov/waste/hlw-disposal.html accessed 26 February 2012; Stewart and Stewart, note 12 above, 187, 228, 462–471.

(NWPA).[45] In many respects, the process described for Yucca does not seem to diverge significantly from that for the WIPP. In the NWPA, Congress gave states a greater say than New Mexico had to veto the project; section 116 of the NWPA allowed states a right of 'disapproval', which could only be overridden by a vote from both Houses of Congress. Consequently, when the DOE formally recommended the Yucca site to President Bush in 2002, Nevada exercised its right under section 116 and disapproved.[46] However, Nevada was politically weak at that time, so both houses of Congress overrode Nevada's disapproval.

Section 117 of NWPA provided the same 'consult and cooperate' language as was in the WIPP Act, and the DOE was required to enter into negotiation for similar C&C agreements with each state being considered for the repository.[47] This reviewer could not find any discussion in *Fuel Cycle* where the Stewarts explain why the C&C process in the WIPP situation was good and why the comparable Yucca process was ineffective. Similarly, no objective technical advisory group similar to the EEG appears to have been set up in the Yucca situation, but this reviewer could not find anywhere in the book where this comparison with WIPP was specifically developed. In fact, the primary problems and distrust in the Yucca process seems to have been spawned by political, not technical, stimuli.

In April 1986, the Chernobyl plant exploded, triggering the worst nuclear power plant disaster in history. The reactor, which was not encased in a containment vessel, spewed radioactive contaminants throughout Ukraine, Belarus, Russia and Europe. Over 350,000 people were evacuated, and areas near the site remain tainted today. Worldwide, the catastrophe undermined public confidence in the government control of nuclear activities and made it difficult to find communities willing to embrace anything nuclear, especially not an untested waste facility.

The Chernobyl accident and a number of other factors converged to convince the US Congress to short-circuit the deliberative process set up under the NWPA. 'In light of the delays in meeting the NWPA siting schedule, escalations in the costs of detailed characterization of the final three candidate sites, mounting state and local opposition to repositories, growing SNF inventories, and the looming 1998 deadline for federal assumption of responsibility for SNF, key members in Congress became convinced that NWPA needed a drastic overhaul'.[48]

The rationales for designating Yucca as the sole site for going forward

45 Nuclear Waste Policy Act of 1982, Pub L No 97-425, 96 Stat 2201 (1983), codified as amended at 42 USC §§ 10101–10270.

46 Stewart and Stewart, note 12 above, 222.

47 *Ibid* 204.

48 *Ibid* 207.

as a waste repository may have been good.[49] However, the raw politics of amending the NWPA through a rider to an omnibus budget bill created outrage. According to the Stewarts, Nevada developed 'a deep and abiding sense of grievance that fueled its unrelenting and finally successful opposition to the implementation of the 1987 amendments'.[50]

Therefore, based on what is presented in *Fuel Cycle*, it seems as likely that the success of WIPP and failure of Yucca were both as much a result of circumstances as they were a result of any particular process. However, the last chapter, 'Lessons Learned and Future Choices', reiterates some of the points made in earlier chapters and provides insights. In addition to recommendations for public input, such as C&C agreements, and designation of a neutral, technical advisory organisation, such as the EEG, the Stewarts note, 'WIPP was not developed in accordance with an advance plan. It proceeded haltingly, step-by-step, through an iterative process of contention and bargaining'.[51] In contrast, 'NWPA's unilateral, detailed blueprint for rapid development of federal SNF and HLW repositories and storage facilities, on the other hand has proved a failure'.[52] Finally, '[c]ontrary to the assumptions underlying NWPA, it is now clear that attempting to designate a site by fiat tends to lengthen, not shorten, the siting and development process'.[53]

Perhaps the arguments to support the *Fuel Cycle* conclusions could have been better fleshed out if the release of book had not been rushed to coincide with the Blue Ribbon Commission report timetable. From a non-substantive perspective, *Fuel Cycle* would have benefited from more time for editing as well. The writing contains distracting repetitions and hard-to-track citation forms. Tighter organisation and more vivid imagery could also have made this less of a perfunctory report and more of a lasting historical resource. As it is, this reviewer must agree with Thomas R Wellock's assessment: 'I cannot recommend it for general reading or classroom use for undergraduates or graduates. Poor organization and jargon-laden prose make for tedious reading. ... The book's ostensible strength, its comprehensiveness, produces a scattered narrative that jumps from one subheading to another.'[54]

But if the goal of the book was to provide input for the Blue Ribbon Commission, then it may have succeeded. The Commission published its final

49 *Ibid* 208 (distance from population centres, adjacent to Nevada test site, geologic and cultural advantages).

50 *Ibid* 208.

51 *Ibid* 256.

52 *Ibid* 257.

53 *Ibid* 274.

54 Thomas R Wellock, 'Fuel Cycle to Nowhere: US Law and Policy on Nuclear Waste Environmental History' (2012) 17 *Environmental History* 189, at http://envhis.oxfordjournals.org/content/17/1/189.short accessed 26 February 2012.

report to the Secretary of Energy ahead of schedule on 26 January 2012.[55] The Committee made the following eight recommendations:

1. A new, consent-based approach to siting future nuclear waste management facilities.
2. A new organisation dedicated solely to implementing the waste management programme and empowered with the authority and resources to succeed.
3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
4. Prompt efforts to develop one or more geologic disposal facilities.
5. Prompt efforts to develop one or more consolidated storage facilities.
6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.
7. Support for continued US innovation in nuclear energy technology and for workforce development.
8. Active US leadership in international efforts to address safety, waste management, non-proliferation and security concerns.[56]

Some of the *Fuel Cycle* recommendations seem to have been incorporated into the final report, especially with respect to recommendations 1 and 2. For example, under recommendation 1 (the consent-based approach to siting), the July draft of the Commission report contained some language that anticipated the *Fuel Cycle* advice – such as recommending an 'adaptive, staged, and consent-based' approach to siting that might be 'slow and open-ended' as well as 'frustrating'. Furthermore, the draft report noted that '[e]xperience, however, leads us to conclude that there is no short-cut, and that any attempt to short-circuit the process will most likely lead to more delay'.[57]

The final Commission report goes on to reflect more of the *Fuel Cycle* advice with respect to legally enforceable C&C agreements. For example, the final report states:

> 'It would be desirable for these negotiations to result in a partnership agreement or some other form of legally enforceable agreement with the organization to ensure that commitments to and by host states,

55 Mark Holt, Congressional Research Service, *Nuclear Energy Policy* (10 May 2011), at www.fas.org/sgp/crs/misc/RL33558.pdf accessed 26 February 2012 (according to its charter, the Commission's report was due in March 2012).

56 Blue Ribbon Commission on America's Nuclear Future, *Report to the Secretary of Energy* (26 January 2012), vii, at www.brc.gov/sites/default/files/documents/brc_finalreport_jan2012.pdf accessed 26 February 2012.

57 *Ibid* x.

> tribes, and communities are upheld. All affected levels of government must have, at a minimum, a meaningful consultative role in important decisions; additionally, both host states and tribes should retain – or where appropriate, be delegated – direct authority over aspects of regulation, permitting, and operations where oversight below the federal level can be exercised effectively and in a way that is helpful in protecting the interests and gaining the confidence of affected communities and citizens. At the same time, host state, tribal and local governments have responsibilities to work productively with the federal government to help advance the national interest. In this context, any process that is prescribed in detail upfront is unlikely to work.'[58]

Likewise, recommendation 2 of the final Commission report, concerning the creation of a new organisation to implement the waste management programme, seems to have benefited from the Stewarts' insights. Although the new organisation does not seem to be as independent and science-oriented as the EEG, the Commission appreciates that a neutral organisation with technical expertise can help dispel distrust and create confidence in the process. For example, the final report states:

> 'For the new organization to succeed, a substantial degree of implementing authority and assured access to funds must be paired with rigorous financial, technical, and regulatory oversight by Congress and the appropriate government agencies. We recommend that the organization be directed by a board nominated by the President, confirmed by the Senate, and selected to represent a range of expertise and perspectives. Independent scientific and technical oversight of the nuclear waste management program is essential and should continue to be provided for out of nuclear waste fee payments. In addition, the presence of clearly independent, competent regulators is essential.'[59]

Finally in response to criticism of fixed deadlines, the final report recognised a criticism of such deadlines in *Fuel Cycle* by stating:

> 'Obviously there is an inherent tension between recommending an adaptive, consent-based process and setting out deadlines or progress requirements in advance. But we agree that it will be important – without imposing inflexible deadlines – to set reasonable performance goals and milestones for major phases of program development and implementation so that Congress can hold the waste management organization accountable and so that stakeholders and the public can

58 *Ibid* ix.

59 *Ibid* x.

have confidence the program is moving forward.'[60]

'... [O]ne of the most telling statements'

Perhaps one of the most telling statements in *Fuel Cycle* comes in the very first pages of the book: 'The history shows that the most important and difficult challenges are not technical but political, institutional, and social.'[61] This observation could apply beyond the nuclear waste debate to so many other aspects of our nation's dilemma over developing sustainable energy sources.

Although we have been struggling with nuclear waste for over half a century, we can only hope that the recommendations laid out by *Fuel Cycle* and the Blue Ribbon Commission on America's Nuclear Future make a difference this time. If not, broader ethical issues are raised: will unchecked consumption of energy and uncompromising rejection of solutions that have an impact on us locally leave future generations, who had no part in creating these wastes, with a toxic legacy that has no solution?

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60 *Ibid.*

61 Stewart and Stewart, note 12 above, 4.