


## ARTICLE

# ‘No Solution to the Immediate Crisis’: The Uncertain Political Economy of Energy Conservation in 1970s Britain

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This article traces one aspect of Britain’s approach to the political economy of energy conservation. It focuses on the forecasting work of Royal Dutch Shell and the deliberations of the Heath government. In the late 1960s, the oil major Shell predicted that oil-producing states would impose an embargo on oil-consuming states. Energy conservation policies would be necessary. In tracing the reception of Shell’s ‘crisis’ scenario and its proposed resolution, this article details how these ideas were received by Edward Heath’s Conservative government, particularly its ‘think-tank’, the Central Policy Review Staff. In the short term, interventionist policies were proposed so as to demonstrate Britain’s ability to operate without ever-increasing oil consumption, while in the long term the idea was that the energy-saving capacities of a freely-operating market could address the problem. The article recounts the confusion these proposed conservation policies provoked, and how the second idea gradually coalesced and ultimately outlasted the Heath government, providing one justification for the eventual privatisation of Britain’s formerly nationalised energy industries.

## Introduction

The 1970s were distinctly futurological. Forecasting was rarely a disinterested act of prediction so much as an attempt to regulate the present. Much has been written about forecasts which addressed concerns about *the* environment.<sup>1</sup> At the time, corporations large and small were also involved in such work.<sup>2</sup> This paper recounts how, that same decade, the oil conglomerate Royal Dutch Shell (Shell herein) turned from conventional forecasting towards a looser method.<sup>3</sup> This story is well known in business management, where Shell has been praised for introducing the ‘scenario’ approach, in

<sup>1</sup> Paul Warde and Sverker Sörlin, ‘Expertise for the Future: The Emergence of Environmental Prediction c. 1920–1970’, in Jenny Andersson and Egle Rindzevičiūtė, eds., *The Struggle for the Long-Term* (New York: Routledge, 2015), 38–62; Elke Seefried, ‘Globalized Science. The 1970s Futures Field’, *Centaurus*, 59, 1–2 (2017), 40–57; Thomas Turnbull, ‘Simulating the Global Environment’, in Jon Agar and J. Jacob Ward, eds., *Histories of Technology, the Environment, and Modern Britain* (London: UCL Press, 2018), 271–99; Julia Lajus, ‘Soviet Official Critiques of the Resource Scarcity Prediction by Limits to Growth Report: The Case of Evgenii Fedorov’s Ecological Crisis Rhetoric’, *European Review of History*, 27, 3 (2020), 321–41; Jenny Andersson, ‘The Future of the Western World: The OECD and the Interfutures Project’, *Journal of Global History*, 14, 1 (2019), 126–44.

<sup>2</sup> Bretton Fosbrook, ‘How Scenarios Became Corporate Strategies: Alternative Futures and Uncertainty in Strategic Management’, PhD Thesis, York University, 2017; Thomas Chermack, *Foundations of Scenario Planning: The Story of Pierre Wack* (London: Routledge, 2018); John Williams, ‘World Futures’, *Critical Inquiry*, 42, 3 (2016), 473–546; Jenny Andersson, *The Future of the World: Futurology, Futurists, and the Struggle for the Post War Cold War Imagination* (Oxford: Oxford University Press, 2018).

<sup>3</sup> I refer to Shell for brevity, though at the time the company was called Royal Dutch/Shell Company, following a 1907 merger between Shell Transport and Trading and the Royal Dutch Petroleum Company.

which speculation, hunches, and an awareness of the broad constraints within a situation were used to qualitatively predict possible futures.<sup>4</sup> This article argues that Shell used scenario planning to warn the British government of the 1970s energy crisis.<sup>5</sup> In doing so, they delimited a range of futures which could be pursued by the company and those regulating it, thus scenarios temporarily became an artifact of economic statecraft.<sup>6</sup>

From its 1890 origins as a family-owned import-export business in London's Houndsditch, which dealt in West Indian seashells amongst other curios, Shell has become the fifth-largest CO<sub>2</sub>-emitting corporation in the world.<sup>7</sup> Like other big polluters, Shell pays lip service to the rhetoric of decarbonisation while resisting any meaningful restrictions on its operations.<sup>8</sup> Since the 1970s, scenario planning can arguably be seen as part of this subterfuge, as it has been used to portray the company as a bastion of heretical managerial thought, though not without criticism from others.<sup>9</sup> Literary scholar R. John Williams has argued scenarios differed little from systems thinking apart from their rejecting quantitative prediction in favour of more active reality creation and with an orientalist gloss.<sup>10</sup> Historian Jenny Andersson describes scenarios as an economic method on par with futures trading or double-entry book-keeping.<sup>11</sup> She argues Shell's method intentionally juxtaposed 'a world of perfect harmony, organized around a set of virtuous market relations, to an undesirable world of chaos and decline, dominated by state action'.<sup>12</sup> To add to these critiques, this article argues the oil company used scenarios to *enrol* the British state in the realisation of a specific form of market relations.

This article draws on the records of Shell's forecasting guru Pierre Wack and the British National Archives. These records are used to argue that the company employed scenarios to both mobilise and shape the policies of the Conservative government of prime minister Edward Heath during the 1970s energy crisis. A new notion of conservation was used to discourage further nationalisation of oil and to discourage interference in the company's operations in both oil-producing and consuming states.<sup>13</sup> Put simply, Shell hoped Britain could be transformed into a nation of energy conservers. This story has similarities to the situation in the United States, where neoliberals used the energy crisis to demonstrate the weaknesses of state-led fuel allocation programmes, but Britain's path was different.<sup>14</sup> Rather than the oil crisis marking the 'breakup' of traditional economic relations between once colonial states and their multinational commodity interests, as Andersson claims, this article argues the Heath government maintained an intimate relationship with Shell and that former and seconded oil-company employees introduced scenarios, and an associated notion of energy conservation into

<sup>4</sup> George Burt and Anup Karath Nair, 'Rigidities of Imagination in Scenario Planning: Strategic Foresight through "Unlearning"', *Technological Forecasting & Social Change*, 153 (2020), 1–14.

<sup>5</sup> Shell were not alone in doing so.

<sup>6</sup> Fosbrook, 'How', 135, ft. 1; Verena Halsmayer, 'Following Artifacts', *History of Political Economy*, 50, 3 (2018), 629–34.

<sup>7</sup> Anthony Sampson, *Seven Sisters: The Great Oil Companies and the World They Made* (New York: Viking Press, 1975), 44–9; Richard Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010', *Climatic Change*, 122 (2014), 229–41.

<sup>8</sup> Ben Franta, 'Early Oil Industry Disinformation on Global Warming', *Environmental Politics*, 4 (2021), 663–8; Martin Boon, 'A Climate of Change? The Oil Industry and Decarbonization in Historical Perspective', *Business History Review*, 93 (2019), 101–25; Brett Christophers, 'Fossilised Capital: Price and Profit in the Energy Transition', *New Political Economy*, 27, 1 (2022), 146–59.

<sup>9</sup> Art Kleiner, *The Age of Heretics: Heroes, Outlaws, and the Forerunners of Corporate Change* (New York: Doubleday, 1996), 177, 166; Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006), 187.

<sup>10</sup> Williams, 'World', 479.

<sup>11</sup> Jenny Andersson, 'Ghost in a Shell: The Scenario Tool and the World Making of Royal Dutch Shell', *Business History Review*, 9, 4 (2020), 729–51, 736.

<sup>12</sup> Andersson, 'Ghost', 750.

<sup>13</sup> *Ibid.*, 742.

<sup>14</sup> Meg Jacobs, 'The Conservative Struggle and the Energy Crisis', in Bruce Shulman and Julian Zelizer, eds., *Rightward Bound: Making America Conservative in the 1970s* (Cambridge, MA: Harvard University Press, 2008), 193–209.

British policy-making.<sup>15</sup> In doing so, it was argued that energy could best be conserved if the nation liberalised its energy industries.<sup>16</sup> This marked a radical departure from the post-war logics of state-owned industry.<sup>17</sup> It also suggests, rather than breaking up state-industry relations, the energy crisis reconfigured them in complex ways.

The energy crisis has conventionally been seen as an embarrassment for Edward Heath's Conservative government. His party's manifesto 'A Better Tomorrow' committed to overturning 'the detailed intervention of Socialism' with a 'vigorous competition policy' to increase economic efficiency.<sup>18</sup> Heath began with the Industrial Relations Act of 1971, which severely restricted unions' right to strike.<sup>19</sup> To conjure economic efficiency, he sought to cut taxes and get rid of the complicated system of wage and price controls that managed nationalised industries.<sup>20</sup> The consumer was central to this planned liberalisation. In March 1972, chancellor Anthony Barber relaxed the Bank of England's credit system to allow the easy issuance of loans.<sup>21</sup> It was hoped the 'Barber boom' would create a new consumer class who could manifest the disciplining forces of competition with each discerning purchase.<sup>22</sup> However, the influx of credit led inflation to rise to 10 per cent, and unemployment grew to one million by the year's end.<sup>23</sup> The government lost its nerve. The 1972 Industry Act returned to industrial intervention, including the reinstatement of wage and price controls.<sup>24</sup>

Historians disagree about the role energy played in stymying Heath's attempted liberalisation. His government began from a position of economic volatility. Inflation and commodity price rises were then exacerbated by the 1973 oil crisis, the combined effect of the imposition of price rises and production cuts by the Organization of the Petroleum Exporting Countries (OPEC). Oil prices quadrupled just as Britain's National Union of Mineworkers (NUM) began a nationwide strike.<sup>25</sup> Heath's biographer John Campbell argued this 'lethal combination' led to electoral defeat in 1974,<sup>26</sup> whereas historian Martin Holmes saw the oil crisis as 'an unconvincing alibi for a government

<sup>15</sup> Rüdiger Graf, *Oil and Sovereignty, Petroknowledge and Energy Politics in the USA and Western Europe in the 1970s* (Berlin: Bergman, 2014), 1–17; cited in Andersson, 'Ghost', 17.

<sup>16</sup> The Cabinet papers at the British National Archives (TNA) in Kew, London, were cross-referenced with papers from the Pierre Wack Memorial Library at the University of Oxford (WACK), and documents from the UK Conservative Party Archive at the University of Oxford (CPA).

<sup>17</sup> A useful synthesis of state-owned energy industries is John C. Wilson, 'A History of the UK Renewable Energy Programme, 1974–1988', PhD Thesis, Glasgow University, 187–8; he summarises Martin Chick, *Electricity and Energy Policy in Britain, France and the United States since 1945* (Cheltenham: Edward Elgar, 2007), 18; W. Ashworth, *The History of the British Coal Industry, 1946–1982: The Nationalised Industry*, Vol. 5 (Oxford: Clarendon, 1986), 55; David Edgerton, *The Rise and Fall of the British Nation: A Twentieth Century History* (London: Allen Lane, 2018), 197.

<sup>18</sup> CPO, *A Better Tomorrow: The Conservative Programme for the Next 5 Years* (London: Conservative Central Office, 1970).

<sup>19</sup> Sam Warner, 'Industrial Relations: Reappraising the Industrial Relations Act 1971', in Andrew S. Roe-Crines and Timothy Heppell, eds., *Policies and Politics under Prime Minister Edward Heath* (London: Palgrave Macmillan, 2021), 115–40.

<sup>20</sup> Alec Cairncross, 'The Heath Government and the British Economy', in Stuart Ball and Anthony Seldon, eds., *The Heath Government: A Reappraisal* (London: Routledge, 1996).

<sup>21</sup> G. R. Steele, 'Inflation Economics: The Heath-Barber Boom, 1972–74', *Economic Affairs*, 30, 3 (2010), 79–81.

<sup>22</sup> Christopher Payne, *The Consumer, Credit and Neoliberalism: Governing the Modern Economy* (London: Routledge, 2012).

<sup>23</sup> John Bruce-Gardyne, *Whatever Happened to the Quiet Revolution? The Story of a Brave Experiment in Government* (London: Charles Knight, 1974), 5.

<sup>24</sup> Anthony Seldon, 'The Heath government in history', in *Heath*, 7; A. S. Roe-Crines and T. Heppell, 'The Heath Premiership: Existing Academic Perspectives', in A. S. Roe-Crines and T. Heppell, eds., *Policies and Politics Under Prime Minister Edward Heath* (London: Palgrave, 2021), 6.

<sup>25</sup> Christopher Byrne, Nick Randall and Kevin Theakston, 'Edward Heath: Leadership Competence and Capability', in A. S. Roe-Crines and T. Heppell, eds., *Policies and Politics Under Prime Minister Edward Heath* (London: Palgrave, 2021), 331–2.

<sup>26</sup> John Campbell, *Edward Heath: A Biography* (London: Pimlico, 2013), 561.

whose economic strategy had already long since come off the rails.<sup>27</sup> On the Left, Seamus Milne argued Britain's mineworkers had delivered 'a humiliating and demoralizing' blow to Conservatism.<sup>28</sup> The 'New' Right agreed. Nigel Lawson, former *Spectator* editor, recalled the crisis left him 'determined to break the [industry's] dirigiste mentality'.<sup>29</sup> As Thatcher's energy secretary Lawson fulfilled this ambition in 1989 by privatising the Central Electricity Generating Board (CEGB).

Beyond such factional disputes, this article documents a more subtle development in the late twentieth-century British political economy. The energy crises created demand for a *national* energy policy rather than the discrete fuel policies, leading various figures to endorse liberalisation so that consumers could, purportedly, efficiently allocate their consumption in space and time and thereby conserve energy. Put simply, energy conservation became a justification for liberalising Britain's nationalised industries. If the reader accepts this argument, the impact of the energy crises appears less a victory for the Left than an early victory for an approach which might be considered neoliberal.<sup>30</sup> Here this term does not mean the ideology of the Mont Pelèrin Society, but rather the belief that competition could unleash the 'general pressures' of the market upon nationalised industries.<sup>31</sup>

Hydrocarbon industries and neoliberalism have long been closely connected.<sup>32</sup> Shell consistently sponsored the work of neoliberal think tank the Institute for Economic Affairs (IEA).<sup>33</sup> In material terms, economic geographer Brett Christophers argues that North Sea oil and gas in the Thatcher era provided an energy source that allowed a coal-derived 'carbon democracy' to be supplanted by an offshore oil-powered 'carbon neoliberalism', creating a polity in which flows of energy were controlled by financial actors rather than coal miners.<sup>34</sup>

The history of energy conservation policy detailed here reveals something close to historian Ben Jackson's argument that it was ministers and civil servants who realised neoliberalism rather than think-tank ideologues.<sup>35</sup> Amid material shortages in coal and oil, a diverse cast of Shell staff, think-tankers, economists, and civil servants came to embrace a new *idea* about the best way to provide and conserve energy. As Jacob Ward persuasively argues in relation to the privatisation of British Telecom, changing political circumstances challenged both the material and ideational components of British infrastructure.<sup>36</sup> In this case, the energy crisis, and drive to conserve energy, emboldened calls to liberalise its energy industries.

## Futures Align

Early in spring 1961, thirty-nine-year-old Pierre Wack arrived at Khana Junction, a West Bengal railway station.<sup>37</sup> The line was built in the 1850s to transport coal from northern Raniganj, where the British East India Company had mines.<sup>38</sup> Wack was there to extract a more profound resource:

<sup>27</sup> Martin Holmes, *The Failure of the Heath Government* (London: Macmillan, 1997), 13.

<sup>28</sup> Seamus Milne, *The Enemy Within: MI5, Maxwell, and the Scargill Affair* (London: Verso, 1994), 15.

<sup>29</sup> Nigel Lawson, *The View from No. 11: Memoirs of a Tory Radical* (London: Bantam, 1992), 163.

<sup>30</sup> The case of electricity bears this out (see ft. 227 below). David Edgerton, 'What Came between New Liberalism and Neoliberalism? Rethinking Keynesianism, the Welfare State and Social Democracy', in Aled Davies, Ben Jackson and Florence Sutcliffe-Braithwaite, eds., *The Neoliberal Age? Britain since the 1970s* (London: UCL Press, 2021), 30–51.

<sup>31</sup> Richard Cockett, *Thinking the Unthinkable: Think-tanks and the Economic Counter Revolution, 1931–1983* (London: Fontana Press, 1995); on Mont Pèlerin, Philip Mirowski and Dieter Plehwe, eds., *The Road from Mont Pèlerin: The Making of the Neoliberal Thought Collective* (Cambridge, MA: Harvard University Press, 2009); CPO, *Better*, 2.

<sup>32</sup> Jeremy Walker, *More Heat than Life: The Tangled Roots of Ecology, Energy, and Economics* (London: Palgrave Macmillan, 2020), 29; Benjamin Franta, 'Weaponizing Economics: Big Oil, Economic Consultants, and Climate Policy Delay', *Environmental Politics*, 31, 4 (2022), 1–21.

<sup>33</sup> Neil Rollings, 'Cracks in the Post-War Keynesian Settlement? The Role of Organised Business in Britain in the Rise of Neoliberalism before Margaret Thatcher', *Twentieth Century British History*, 24, 4 (2014) 637–59.

<sup>34</sup> Brett Christophers, *Rentier Capitalism: Who Owns the Economy, and Who Pays for It?* (London: Verso, 2020), 7.

<sup>35</sup> Ben Jackson, 'Intellectual Histories of Neoliberalism and their Limits', in Aled Davies, Ben Jackson and Florence Sutcliffe-Braithwaite, eds., *The Neoliberal Age? Britain since the 1970s* (London: UCL Press, 2021), 52.

<sup>36</sup> Jacob Ward, *Digital Nation: Privatizing British Telecommunications*, forthcoming, 9.

<sup>37</sup> Much of what follows regarding Wack's life draws on Chermack, *Foundations*.

<sup>38</sup> William Hunter, *The Indian Empire: Its Peoples, History, and Products* (London: Trübner, 1886), 619–21.

enlightenment. His journey had begun in wartime Paris, when Azerbaijani mystic George Gurdjieff reputedly cured Wack's tuberculosis. He had since sought other gurus, travelling to the Soen Roshi of Japan's Ryūtakū-ji monastery and to Satipatthana temples near Rangoon.<sup>39</sup> By 1961, he was on his way to Swami Prajnanpad's Bengalese ashram. A physicist and psychoanalyst, Prajnanpad fought the Raj in the 1920s before committing to Hinduism.<sup>40</sup> Wack was impressed by him and broke his rule of never staying at an ashram for longer than three weeks 'to avoid being brainwashed'.<sup>41</sup> After five weeks of fasting and meditation, Wack believed he had been taught to 'see' by Prajnanpad. *Darshan* is an important aspect of Hinduism, allowing its devotees to both see and be seen by a deity, an act of devotion and means to gain spiritual insight.<sup>42</sup> Wack considered seeing 'a function of pure consciousness', a skill that offered him something like objectivity, a means for 'not believing, speculating, or imagining, but seeing', for directly perceiving reality.<sup>43</sup>

Wack was no typical hippy. On his return from India, he began working at Shell Française, a small part of the broader conglomerate Shell International, which encompassed 300 sub-companies and 170,000 employees.<sup>44</sup> Wack's role was to produce forecasts about oil. Forecasts generally used econometric methods of the kind he had studied in Heidelberg and Frankfurt before the war, but which he came to believe were insufficient.<sup>45</sup> Wack's scenario method was essentially a spiritually-informed type of descriptive systems analysis.<sup>46</sup>

Prajnanpad was not Wack's only guru. In 1965 he travelled to Southern California where he met physicist and futurologist Herman Kahn, infamous for developing the nuclear strategy of 'mutually assured destruction'.<sup>47</sup> Having left RAND Corporation in 1961, Kahn formed the Hudson Institute to sell RAND's methods to corporations. Shell was an early client.<sup>48</sup> Kahn, a larger-than-life character, was known to give three-day seminars in which he was the only speaker.<sup>49</sup> In his new guise as corporate seer, he promoted a forecasting approach in which statistics were replaced by 'metaphors and historical analogues'.<sup>50</sup> He promised clients that futures could be actively constructed rather than merely awaited.<sup>51</sup>

Edward 'Ted' Newland, a former RAF pilot turned oil executive who oversaw Shell's Nigerian operations, was another influence. Wack first met him at a Hudson Institute meeting in the mid-60s and the two soon became close collaborators at Shell's futurological 'Group Planning' department.<sup>52</sup> There, Newland called for an in-house study of the company's prospects up to

<sup>39</sup> Chermack, *Foundations*, xvii.

<sup>40</sup> Swami Prajnanapada, Ramanuja Srinivasan, *Talks with Swami Prajnanapada* (Shaftesbury: Element, 1987).

<sup>41</sup> Pierre Wack, Memorial Library, Oxford Futures Library, Egrove Park, Executive Education Centre, Saïd Business School (WACK herein), Wack 1992, original text, as dictated to Eve by Pierre, in cream cover – files about Pierre and his guru, Drawer B4 – General Folder 85.

<sup>42</sup> On *darshan* see Christopher Pinney, 'Photos of the Gods': *The Printed Image and Political Struggle in India* (London: Reaktion Books, 2004), 9. I thank Nandita Badami for this explanation.

<sup>43</sup> *Ibid.*

<sup>44</sup> Joost Jonker, Stephen Howarth and Joost Dankers, *Powering the Hydrocarbon Revolution: 1939–1973. History of Royal Dutch Shell*, Vol. 2 (Oxford: Oxford University Press, 2007), 4.242; Fosbrook, 'How', 150.

<sup>45</sup> *Ibid.*, 26; WACK, 1992, Files about Pierre and his guru, Drawer B4 – General Folder 85.

<sup>46</sup> Williams, 'World', 478–9.

<sup>47</sup> Sharon Ghamari-Tabrizi, *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (Cambridge, MA: Harvard University Press, 2005), 41; Kahn also borrowed the doomsday idea, 354. ft., 21.

<sup>48</sup> Neil Pickett, *A History of Hudson Institute* (New York: Hudson Institute, 1993), 5, 15.

<sup>49</sup> *Ibid.*, 10.

<sup>50</sup> Herman Kahn, *The Alternative World Futures Approach* (New York: Hudson Institute, 1966), quoted in Fosbrook, 'How', 60.

<sup>51</sup> On the influence of Hollywood see Chermack, *Foundations*, 52.

<sup>52</sup> John Williams, 'World', 525; Kleiner, *Age*, 131; Fosbrook, 'How', 85; Richard Daglish, *Napier Collins: Memoir of a Networking Man* (Fife: Triarchy Press, 2018), 51; Shell paid oil royalties to the Igbo-Biafran movement in the bloody war which followed. Chibuïke Uche, 'Oil, British Interests and the Nigerian Civil War', *Journal of African History*, 49, 1 (2008), 111–35.



the year 2000, imitating Kahn's approach.<sup>53</sup> Around this time, Wack had developed his first scenario, a two by two matrix which set out four possible outcomes from the imminent Treaty of Rome for France's methane supply.<sup>54</sup> Newland's more extensive report suggested oil-producing nations were becoming increasingly assertive and might nationalise their oil and new fuels might threaten oil's supremacy. The study encouraged Shell to diversify into coal and nuclear power.<sup>55</sup> Newland's report also set out the fundamental problem of future energy demand. By 2000, he predicted that 110 million additional barrels would be needed daily to meet global demand.<sup>56</sup> Newland's report stressed the improbability that industry could achieve this without provoking geopolitical tensions.

### Realising Scenarios

Wack joined the Group Planning team's central London office in 1971. An opulent tower on the banks of the Thames, the Shell Centre had air-conditioning, an Olympic-sized swimming pool, and its own theatre.<sup>57</sup> One of the Frenchman's first tasks was to read a pre-publication version of the Club of Rome's *Limits to Growth*. After another spiritual sabbatical in Japan, Wack returned with a looser approach to forecasting than the *Limits* methodology.<sup>58</sup> Rather than civilisational ruin, Wack focused on obvious facts bearing upon the oil industry's future. Foremost was the daunting scale of forecasted rates of demand, second was that 'governments everywhere' were becoming 'increasingly concerned to regulate the operations of oil companies' to ensure profit and sufficient supply.<sup>59</sup> On the basis of these two fundamental facts, Wack formulated three likely scenarios for the future of oil that he presented to fellow executives in June 1971. These ranged from (i) a 'surprise free' scenario that predicted continued increases in oil demand, and which would mean producers' tax take would increase threefold by 1975, (ii) a 'crisis' situation in which demand would slow due to producer tariffs and rising oil nationalism, (iii) a scenario in which coal and nuclear energy would eventually outpace oil supply. Despite the gravity of all three scenarios, the presentation did little to stir his colleagues to action.<sup>60</sup>

To hone their powers of persuasion, Wack and his colleagues at Shell retreated to a monastery in Lurs, France. There he and Newland decided to persistently frustrate Shell's senior executives over four or five days, so that tensions grew to a breaking point and, so Wack believed, they could sway the executives' subconscious minds to see the logic of their scenarios (i.e. a strategy used by cults).<sup>61</sup> This monastic brainwashing revealed the 'crisis' scenario generated most interest amid the executives. Wack later noted with satisfaction how Shell's leadership had 'decided to warn Consumer Governments so that they could anticipate the way in which the situation might evolve and take appropriate proactive measures'.<sup>62</sup> Shell was not alone in pre-empting a crisis; other companies issued warnings about imminent shortages to the governments of oil-consuming nations, a logical fear given

<sup>53</sup> Herman Kahn and Anthony Weiner, *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years* (New York: Macmillan, 1967). The study predicted domestic oil shale could make North America one of the world's largest oil exporters by 2000; *ibid.*, 74.

<sup>54</sup> Chermack, *Foundations*, 46.

<sup>55</sup> WACK, Head of Group Planning, Jim Davidson, date unknown, Group Planning 1967–1976; WACK, Royal Dutch Shell (1967) Strictly Confidential: Post Objectives Period: A Special Survey of Energy in the World Political and Economic Environment for the years 1985–2000. Studies and Policy Division PL/2 Dec. 1967.

<sup>56</sup> Chermack, *Foundations*, 49.

<sup>57</sup> E. O. Measor and G. J. M. Williams, 'Features in the Design and Construction of the Shell Centre, London', *Proceedings of the Institution of Civil Engineers*, 21, 3, (1962) 475–502.

<sup>58</sup> *Ibid.*, 57; on the pre-publication leak of *Limits to Growth*, see Turnbull, 'Simulating', 2018, 283.

<sup>59</sup> WACK, Shell (1971) Group Planning Review 1971, 'Scenarios', 10 May, Drawer B3, General Folder 33.

<sup>60</sup> Chermack, *Foundations*, 59–60.

<sup>61</sup> *Ibid.*, 62; John Williams, 'World', 528; on cults see Eileen Barker, *Making of a Moonie: Choice or Brainwashing?* (Oxford: Blackwell, 1984).

<sup>62</sup> WACK, Stapled papers on the history of scenario planning, Drawer B4, General Folder 83.

OPEC's growing strength.<sup>63</sup> Like other forecasters, Shell's aim was not to predict the future so much as curate it.

Before Lurs, Shell's future had been largely dictated by the past. Since 1965, executives had used a forecasting system termed the Unified Planning Machine (UPM), an econometric model which extrapolated from past performance and used calculators and paper ledgers to map out six-year trends in oil prices.<sup>64</sup> Despite senior management's confidence in UPM, it could not account for unexpected events. It had no means to predict the emergence of OPEC in 1960, for instance. In forming a production cartel this organisation had unexpectedly imitated the United States' approach to restricting domestic petroleum supply, which dated back to the 1930s.<sup>65</sup> OPEC wanted to implement 'global prorationing', in which developing petrostates would limit production so as to reclaim sovereignty.<sup>66</sup> Newland had implemented in-house scenario planning to better anticipate such incalculable threats.<sup>67</sup> For example, chemist and later Gaia-theorist James Lovelock wrote a high-pollution scenario for Shell in 1966 which predicted an arms race in which ever more energy resources would be necessary to fight the worst effects of energy-related pollution.<sup>68</sup>

Among Shell's futurologists, Wack stood out because of his mysticism.<sup>69</sup> In September 1972, he gave an impassioned presentation to senior management which upped the stakes of scenario (iii), that of 'crisis'. He warned of an imminent 'major discontinuity' in the oil market. The various directions the future might take were depicted as a branching delta (Figure 1). The main branch, indicating 'energy availability', would split in two if a supply gap occurred, which Wack predicted around the time of a planned OPEC meeting in 1975.<sup>70</sup> This would lead to three possible outcomes: private enterprise would be left to address energy scarcity alone; a *dirigiste* solution would become necessary; or a third possibility was that the state *and* market would solve the long-threatened 'energy crisis'.

These three possibilities were published internally as 'Scenarios for the 1973 Planning Cycle', and were internally circulated in late 1972.<sup>71</sup> Wack's colleague, Napier Collyns, then oversaw a more extensive report based on this scenario titled *The Impact on the World Economy of Developments in the Market for Oil*, known informally as the 'Pink Book'.<sup>72</sup> This publication expanded upon the consumer-end of the energy crisis scenario. Again, the central problem was that global oil demand was predicted to double by 1985. Accordingly, the report described a 'steady shift in power' underway, favouring oil-producers. Shell feared this power-shift risked a situation in which both oil-consuming and producing nations would impose 'extreme policies' to protect their interests. However, the pink book set out means of 'containing the situation'. Shell could 'let it be seen not that consumers are completely dependent upon oil and will be prepared to fight with one another to pre-empt supplies, but rather

<sup>63</sup> Giuliano Garavini, *The Rise and Fall of OPEC in the Twentieth Century* (Oxford: Oxford University Press, 2019), 118–19; on preordained crises, see Graf, *Oil*, 55–6; Meg Jacobs, *Panic at the Pump: The Energy Crisis and the Transformation of American Politics in the 1970s* (New York: Hill and Wang, 2016), 46–7.

<sup>64</sup> Angela Wilkinson and Roland Kupers, 'Living in the Futures', *Harvard Business Review*, 91, 5 (2013), 19; Michael Jefferson, 'Shell Scenarios: What Really Happened in the 1970s and What May Be Learned for Current World Prospects', *Technological Forecasting and Social Change*, 79, 1 (2012), 187; see also Kleiner, *Age*, 146; Chermack, *Foundations*, 225–6.

<sup>65</sup> On prorationing see Thomas Turnbull, 'Towards Histories of Saving Energy: Erich Walter Zimmermann and the Struggle against "One-Sided Materialistic Determinism"', *Journal of Energy History/Revue d'histoire de l'énergie*, 1, 4 (2020), 1–23.

<sup>66</sup> Daghish, *Memoirs*, 54–5; Garavini, *Rise*, 5.

<sup>67</sup> Shell's rival Exxon had recently become a Hudson client. Fosbrook, 'How', 152.

<sup>68</sup> *Ibid.*, 196; Fosbrook, *Scenarios*, 195–6; more recently Leah Aronowsky, 'Gas Guzzling Gaia, or: A Prehistory of Climate Change Denialism', *Critical Inquiry*, 42, 2 (2021) 306–27; James Lovelock 'Some Thoughts on the Year 2000' [1966], reprinted in Gert Jan Kramer and Bram Vermeer, *The Colours of Energy: Essays on the Future of Energy in Society* (Unknown: Shell International, 2015), unpaginated.

<sup>69</sup> WACK, Head of Group Planning, Jim Davidson, Group Planning 1967–1976: Collyns, *Memoir*, 64–6.

<sup>70</sup> Chermack, *Foundations*, 67.

<sup>71</sup> WACK, Shell Group Planning (1974) Scenarios for the 1975 Planning Cycle: Restricted. Group Planning, Oct. 1974, 11–12.

<sup>72</sup> Chermack, *Foundations*, 69.

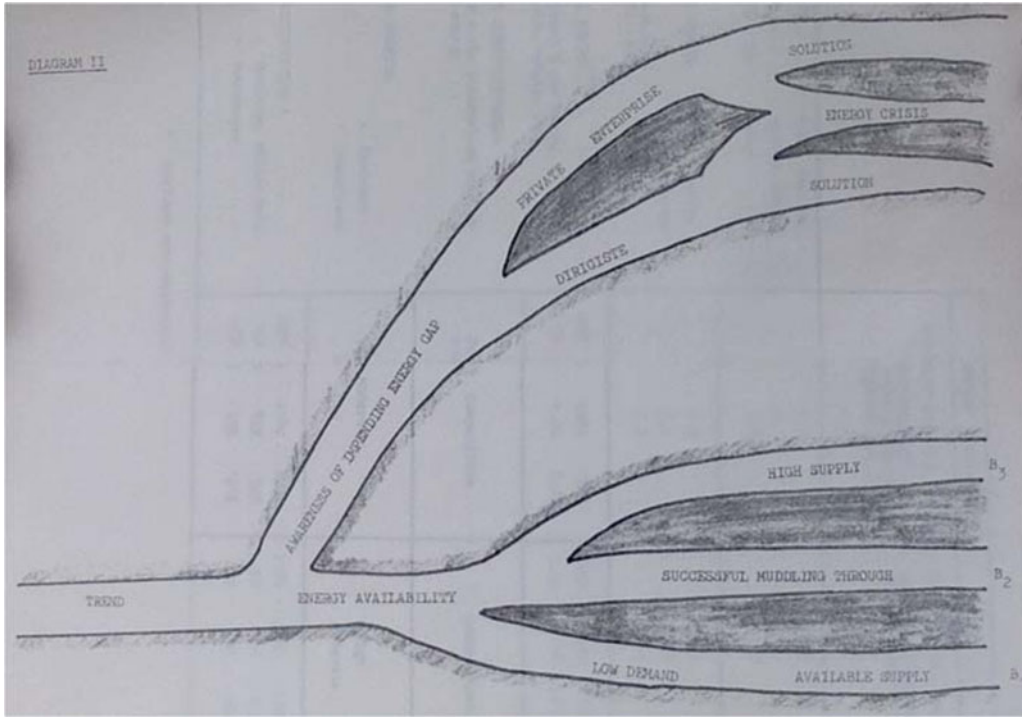


Figure 1. River Delta illustration of energy scenarios: WACK Shell Group Planning (1974) Scenarios for the 1975 Planning Cycle: Restricted. Group Planning, Oct. 1974.<sup>73</sup>

that they have a number of policy options which in the longer term will seriously influence the current competitive position of oil'.<sup>74</sup> Long-term diversification could show that the company would not be held to ransom.<sup>75</sup> In the short-term, it was argued the 'most significant contribution to saving oil imports could come [...] from policies to promote efficient processes and technologies and from measures to reduce the waste of energy'.<sup>76</sup> To weaken the threat of nationalisation, Shell wanted customers to buy less oil.

In October 1973, Wack and others from Group Planning sought allies to implement efficiency and waste reduction policies. They visited the governments of oil-consuming states to persuade them of the likelihood of the Pink Book 'crisis' scenario.<sup>77</sup> When the OPEC embargo began later that month, it seemed his prognostications had been correct (if two years early).<sup>78</sup> As Jenny Andersson argues, these scenarios now served to 'convince both managers and a wider set of trustees in Western governments and publics of the lasting role of the multinational oil corporation'.<sup>79</sup> Specifying this claim, in what follows, we will see how Shell's scenarios, and the solutions they proffered, influenced the British government's conception of the oil situation and delimited their possible responses.

<sup>73</sup> I couldn't find the 1972/3 planning cycle report at Egrove Park, but the 1974 report 'WACK, Scenarios for the 1975 Planning Cycle (Restricted) Shell Group Planning, Oct. 1974', Drawer A1, Oil Folder 5, summarises the earlier report. The delta diagram became part of the 'Rapids' scenario, Andersson, 'Ghost', 743; see also Chermack, *Foundations*, 70–1.

<sup>74</sup> WACK, Shell Group Planning (1973) *The Impact on the World Economy of Developments in the Market for Oil*. May 1973, A3 Oil Folder 20, 28.

<sup>75</sup> Chermack, *Foundations*, 70–1.

<sup>76</sup> *Ibid.*, 38. Newlands' study would encourage a long-term study, 'Year 2000', addressing 'life after oil' and developing strategies for diversification. Jonker et al., *Powering*, 02.96.

<sup>77</sup> Fosbrook, 'How', 72; Chermack, *Foundations*, 71.

<sup>78</sup> Even the once dismissive Shell Houston office now took Wack seriously, *ibid.*, 77.

<sup>79</sup> Andersson, 'Ghost', 4.



### Civil Service Seers

Historian Bretton Fosbrook has questioned if Wack's scenarios really affected Shell's operational strategy. He describes the method more as an artefact of business school education than actual business history.<sup>80</sup> Wack's heretical reputation was actively fashioned *ex post facto* through avaricious self-promotion and via the public relations acumen of Collyns and the business journalist Art Kleiner, both of whom later specialised in selling 'new age' business management books.<sup>81</sup> While applauding Fosbrook's deflationary account, Wack's papers reveal that his forecasts *did* in fact influence the company. Moreover, British government archives suggest the scenario method influenced Heath's political response to the energy crisis, though Wack's role was indirect. In this latter case, Shell's scenarios were influential partly because the government had adopted a similar futurological orientation.

In opposition in 1966, Heath's Conservative Party committed itself to eradicating public sector waste via 'new management techniques', and a 'Public Sector Research Unit' (PSRU) was set up to apply these techniques to nationalised industries.<sup>82</sup> There executives from Shell International and Marks and Spencer helped formulate ideas for public sector reform.<sup>83</sup> David Howell, a young PSRU researcher, drew on the work of Peter Drucker, a management theorist.<sup>84</sup> By 1969 Drucker proselytised 'reprivatisation' to reintroduce the disciplining forces of market competition.<sup>85</sup> Howell adopted the term to describe the Conservatives' 'new style of government' which, if elected, would involve 'transferring functions and activities' of state-owned industry 'back to the private sector or running them down altogether'.<sup>86</sup> Once the Conservatives were in power, Howell drafted a white paper, *The Reorganisation of Central Government*, which called for a 'central capability unit' to enact reprivatisation.<sup>87</sup>

Concerns about the civil service's lack of expertise predated the Conservative's victory. Labour's Fulton Committee, set in 1965, had investigated possible reforms, concluding that 'new modes of analysis' drawn from econometrics should be adopted.<sup>88</sup> Burke Trend, acting head of the civil service, was therefore sympathetic to the Conservatives' proposed Central Capability Unit.<sup>89</sup> Howell's proposed organisation, the now more moderately-named Central Policy Review Staff (CPRS), sought to relay methods borne in competitive contexts into the heart of the government.<sup>90</sup>

Once in power, the CPRS was staffed by a number of former and seconded Shell employees, foremost among them Victor Rothschild, Shell's recently retired research director. He had studied biophysics at Cambridge and been a member of the Royal Society.<sup>91</sup> He had undertaken bomb

<sup>80</sup> Fosbrook, 'How', 7–8.

<sup>81</sup> Shell's official history gives Wack short shrift, mentioning him just once. Jonker et al., *Powering*, 122. Fosbrook, 'How', explains how the Global Business Network (GBN), founded by Napier Collyns and others in 1987, produced a number of supposedly countercultural business books, 178–9.

<sup>82</sup> CPA, 'War on Waste' Statement by Rt. Hon. Edward Heath. Conservative Central Office News Service, 21 Mar. 1966 Ref 10131; CPA, CCO 20/26/7 CSRC.

<sup>83</sup> Hugh Hecló and Aaron Wildavsky, *The Private Government of Public Money: Community and Policy inside British Politics* (London: Macmillan, 1974), 271.

<sup>84</sup> Daniel Immerwahr, 'Polanyi in the United States: Peter Drucker, Karl Polanyi and the Midcentury Critique of Economic Society', *Journal of the History of Ideas*, 70, 3 (2009), 449.

<sup>85</sup> Jon Davis, *Prime Ministers and Whitehall, 1960–1974* (Hambledon: Continuum, 2007), 90–2; James Meek, 'How We Happened to Sell Off Our Electricity', *London Review of Books*, 34, 17 (2012), 4.

<sup>86</sup> David Howell, *A New Style of Government*. Conservative Political Centre. No. 463. Crawley, 1970.

<sup>87</sup> HMSO, *The Reorganisation of Central Government*. White Paper presented to parliament by the Prime Minister, 1970.

<sup>88</sup> HMSO, *The Civil Service, Vol. 1, Report of the Committee, 1966–1968*. Chairman: Lord Fulton. Her Majesty's Stationary Office, 1968.

<sup>89</sup> Peter Hennessy, *Routine Punctuated by Orgies: The Central Policy Review Staff, 1970–1983*. Strathclyde Papers on Government and Politics, 1985.

<sup>90</sup> Foucault argued neoliberalism was the 'unlimited generalisation of the form of the market'. Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège De France 1978–1979*, ed. Michel Senellart, trans. Graham Burchell (London: Palgrave Macmillan, 2008), 246.

<sup>91</sup> Jon Agar, *Science Policy Under Thatcher* (London: UCL Press, 2019), 21; Neil Calvert and Miles Parker, 'The Logic of Scientific Unity? Medawar, the Royal Society and the Rothschild Controversy 1971–72', *Royal Society Journal of the*

disposal for MI5 during the war, followed by a Labour peerage in 1945, and then chairmanship of the Agricultural Research Council. In 1959 he joined Shell UK as director of research, becoming research director of Shell International by 1965.<sup>92</sup> The Rothschilds were an oil family, having dominated Baku's kerosene market in the late nineteenth century. In 1901, then rival companies Royal Dutch and Shell had bought the family's Baku concern, and following their 1907 merger, a fiduciary relationship was established between the 'Royal Dutch Shell' company and the Rothschilds.<sup>93</sup> This was lucky timing. A decade later the Bolsheviks seized Western-owned oil concessions in the Caucasus.<sup>94</sup> No doubt his family legacy was useful, but Rothschild's successes at Shell seemed to centre on his aptitude for applied science rather than nepotism.<sup>95</sup> He hired leading researchers, including Lovelock, who wrote the aforementioned 1966 energy study.<sup>96</sup> He also oversaw numerous experiments, from inhibiting seaweed growth on oil tankers to converting water hyacinths into methane. He even used his biological training to advise the Shah regarding Iran's agricultural prospects.<sup>97</sup>

As head of the CPRS, Rothschild chose its twelve to twenty rolling staff. It included people like twenty-four-year-old William Waldegrave, Oxford classicist and fellow at All Souls College, Robin Butler, another Oxford classicist whose father-in-law had worked for Shell Research, and Tony Fish, a Shell chemist and strategist.<sup>98</sup> Other figures included Robert Wade-Gerry, another All Souls fellow, Peter Carey, undersecretary for the Minister of Technology, and former Treasury economist Dick Ross. Rothschild liked to joke that the last two were Heath's inside men.<sup>99</sup> A *Sunday Times Magazine* feature described the organisation as 'Heath's Brain' and accurately described its 'fairly narrow social base of Oxbridge, stars from the Civil Service, and Rothschild's own acquaintances'.<sup>100</sup> Later, two former CPRS staff recalled an almost 'continuous line of CPRS members from one or other of the major oil companies', whom, it was claimed, gave the group its 'enduring capability in energy matters' (Figure 2).<sup>101</sup> Such was this expertise that, akin to Wack, it was later claimed the CPRS had predicted the oil price rises which began in 1971.<sup>102</sup> Or so the story goes. Subsequent historians have pointed out that these price rises were more the result of negotiations between OPEC and major oil companies, a concession intended to dissuade producer states from taking further steps toward nationalisation.<sup>103</sup> Here, on the basis of a close reading of archival sources, it is argued that Shell's intimacy with government enabled the company to communicate its scenarios, specifically one encouraging political leaders to envision a coming 'energy crisis' and its resolution through a two-stage form of energy conservation.

Shell hoped to rouse the government on the basis of forecasted evidence. In 1970 David Barran, Shell's head of transport, requested a forecast of the oil industry's prospects up to 1985. Group Planning predicted that global oil demand would double by 1985, and that the company's 'dependence

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*History of Science*, 70, 1 (2016), 83–100; Tessa Blackstone and William Plowden, *Inside the Think Tank: Advising the Cabinet, 1971–1983* (London: Heinemann, 1988), 26.

<sup>92</sup> Jon Agar, 'Thatcher, Scientist', *Notes and Records of the Royal Society*, 65, 3 (2011), 215–32.

<sup>93</sup> Ferry de Goey, 'Henri Deterding, Royal Dutch/Shell and the Dutch Market for Petrol, 1902–46', *Business History*, 44, 4 (2002), 55–84.

<sup>94</sup> David Landes, *Dynasties: Fortunes and Misfortunes of the World's Great Family Businesses* (London: Penguin, 2008), 65.

<sup>95</sup> Rothschild's time at Shell encouraged his belief that government-funded science should be driven by contractor need. Calver and Parker, 'Logic', 88.

<sup>96</sup> Suzanne Reeve 'Nathaniel Mayer Victor Rothschild, 1910–1990', *Biographical Memoirs of Fellows of the Royal Society*, 39 (1994), 372; Kuiken, 'Caught', 280–1; Aronowsky, 'Gas', 310; Fosbrook, 'How', 195–6.

<sup>97</sup> Kenneth Rose, *Elusive Rothschild, The Life of Victor, Third Baron* (London: Weidenfeld and Nicolson, 2003), 164–72.

<sup>98</sup> Anon., 'Some distinguished old Chesterfeldians'. Available at: <http://www.oldcestrefeldians.org.uk/images/Captains.pdf>.

<sup>99</sup> Rose, *Elusive*, 178; Blackstone and Plowden, *Inside*, 26–7.

<sup>100</sup> John Fox, 'The brains behind the throne', *The Sunday Times Magazine*, 25 Mar. 1973, 46–56; on this article, see Blackstone and Plowden, *Inside*, 69–70.

<sup>101</sup> At least seven CPRS staff worked in the oil industry between 1971 and 1982. Blackstone and Plowden, *Inside*, 28; 235–9.

<sup>102</sup> Peter Hennessy, *Routine*.

<sup>103</sup> Garavini, *Rise*, 53–87; Kuiken, 'Caught', 3–4, *inter alia*.

on Middle East Supplies' would 'not diminish for some ten to fifteen years and there is a strong likelihood of a sellers' cartel for energy developing'.<sup>104</sup> A subsequent Group Planning report argued that if this happened, governments would 'regulate the operations of oil companies in the interests firstly of securing their oil supplies: secondly of limiting pollution and industrial congestion and thirdly of controlling the cost of energy'.<sup>105</sup> Here it is argued that Shell's fear of such state-led interventions led its executives to agree that oil-consuming governments should be warned of an impending crisis so they could take actions less detrimental to Shell's interests.<sup>106</sup> In September 1971, Barran met Heath to warn him.<sup>107</sup> Barran hoped to dissuade oil-consuming states from further nationalisation in response to the growing authority of OPEC. Instead, Shell's proposal was that the company should seek a middle way that avoided overwhelmingly *dirigiste* state intervention in oil markets, while also avoiding a totally liberalised market in which government did nothing to help them. The ideal scenario was one in which governments would support the continued expropriation of oil from the developing world and its unrestricted sale in the developed world).

Before Heath met Barran, Rothschild had written to Robert Carr, Heath's Secretary of State, to suggest his former employer had similarly predicted unsustainable increases in oil demand, the formation of a cartel, and a resultant energy crisis. Rothschild considered Shell's report 'dynamite' and wanted to forewarn Heath. The Treasury and Department of Trade and Industry (DTI), however, were under the impression that oil prices were likely to *decrease* as new sources of energy supply were found and existing reservoirs were extracted with increased efficiency.<sup>108</sup> So, while both Rothschild and Barran had met Heath on 5 October 1971 to warn him of 'a major world energy crisis between ten and twenty-five years from now',<sup>109</sup> and BP warned likewise, two important branches of British government saw a more optimistic future in which oil would flow and prices would fall.<sup>110</sup>

The oil industry's concerns were long-term. Since 1918, when Russia seized the Baku oil fields, Mexico, Iran, Iraq, Argentina and Peru had all dispossessed the major oil companies through nationalisation. Following OPEC's formation in 1960, eighteen more nations nationalised their oil reserves, which meant around 75 per cent of international oil production was now carried out by state firms.<sup>111</sup> Taking a similarly long-term perspective, the Hudson Institute's 1967 industry survey had argued 'present dirigiste tendencies in many industrial countries, as well as the major producing areas, cast some doubts as to the degree of profitability of the private international oil business in the longer term'.<sup>112</sup> That year, following the North Sea oil discovery, Labour proposed a National Hydrocarbons Corporation (NHC), revealing an intent to nationalise this oil as they had coal.<sup>113</sup> For good reasons, oil majors feared nationalisation abroad and at home.

<sup>104</sup> TNA, PREM 15/595, 'The Oil Demand and Supply Position'.

<sup>105</sup> WACK, Royal Dutch Shell Group Planning Review 1971, 'Scenarios', 10 May, Drawer B3, General Folder 33

<sup>106</sup> WACK, Stapled papers on the theory and history of scenario planning, Drawer B4, General Folder 83.

<sup>107</sup> TNA PREM, 15/595, Minutes from Barran Heath meeting, 5 Oct. 1971: see also Hughes, 'Governing', 173.

<sup>108</sup> TNA, PREM 15/595, Rothschild to Carr, 21 Sept. 1971; PREM 15/407, Cabinet, Government Strategy.

<sup>109</sup> TNA, PREM 15/595, Minutes from Barran Heath meeting, 5 Oct. 1971.

<sup>110</sup> In February, Erik Drake of BP warned Heath that oil was becoming 'a political problem for Governments, not a commercial problem for companies'. The treasury owned around 48 per cent of BP's shares. Jonathan Kuiken, 'Caught in Transition: Britain's Oil Policy in the Face of Impending Crisis, 1967–1973', *Historical Social Research*, 39, 4 (2014) 272–3; n.b., British shareholders held 39 per cent of Shell's shares, Stephen Galpern *Money, Oil, and Empire in the Middle East: Sterling and Post-war Imperialism, 1944–1971* (Cambridge: Cambridge University Press, 2013), 7. ft. 17.

<sup>111</sup> Stephen Kobrin, 'The Nationalisation of Oil Production, 1918–1980', in David Pearce, Horst Siebert and Ingo Walter, eds., *Risk and the Political Economy of Resource Development* (London: Macmillan, 1984), 137–64; Garavini, *Rise*, 196–7.

<sup>112</sup> WACK, Royal Dutch Shell Strictly Confidential: Post Objectives Period: Special Survey of energy in the World Political and Economic Environment for the years 1985–2000. Studies and Policy Division PL/2 Dec. 1967.

<sup>113</sup> Richard Toye, 'The New Commanding Height: Labour Party Policy on North Sea Oil and Gas, 1964–74', *Contemporary British History*, 16, 1 (2002) 89–118; Kuiken argues Labour's 1965 Finance Act marked a step toward nationalisation, see Jonathan Kuiken, 'Striking the Balance: Intervention versus Non-intervention in Britain's Oil Policy, 1957–1970', *Britain and the World*, 8, 1 (2015), 19.



Figure 2. Rothschild – left. J. Fox, 'The Brains behind the Throne', *Sunday Times Magazine*, 25 March 1973, pp. 46–56. Photographer: David Montgomery.

Close relations between Shell and the CPRS were not some kind of corporate conspiracy to hoodwink the British government, but an indication of how closely the interests of the oil industry were tied to the state.<sup>114</sup> For much of the twentieth century the British government allowed Shell and BP, who together met around half of the nation's oil demand, to operate with significant autonomy.<sup>115</sup> The mechanics of this relation were clearly demonstrated in a briefing Rothschild penned in November 1971, which contained an annotated version of the Pink Book's arguments. Rothschild's briefing noted each percentage increase in tax take negotiated by oil producers would dramatically affect the United Kingdom's balance of payments, the difference between the currency flowing in and out of a country, and a fixation of government at the time.<sup>116</sup> As Middle Eastern oil was categorised as 'sterling oil', which had to be purchased with pounds, each barrel sold helped sustain the currency's value.<sup>117</sup> If OPEC took a bigger cut, oil would need to be purchased with greater amounts of sterling, thereby undermining the value of the pound.<sup>118</sup> Rothschild estimated that a 0.5 per cent increase in oil producer 'take' would equate to a £600 million loss in sterling's exchange value. Furthermore, he

<sup>114</sup> The Rothschilds have been subject to numerous conspiracy theories, often antisemitic. This paper is not intended to contribute to such hateful delusions. Luc Boltanski, *Mysteries & Conspiracies: Detective Stories, Spy Novels and the Making of Modern Societies*, trans. Catherine Porter (London: Polity, 2014), 145.

<sup>115</sup> Kuiken, 'Striking', 5–26; Sampson, *Seven*, 14.

<sup>116</sup> On oil and payments balance, see Kuiken, 'Caught', 275.

<sup>117</sup> Galpern, *Money*, 7; Sampson, *Seven*, 137.

<sup>118</sup> The Shell Treasury agreement of 1946 committed the company to purchasing oil in sterling in return for access to the Treasury's exchange services. Jonathan Kuiken, 'Ignoring, Countering, and Undercutting OPEC: Britain, BP, Shell, and the Shifting Global Energy Order (1960–1986)', in Dag Harald Claes and Guiliano Garavini, eds., *Handbook of OPEC and the Global Energy Order: Past, Present, and Future Challenges* (London: Routledge, 2020), 171–83.



predicted that OPEC ‘can and probably will increase their take’ further. To limit the impacts of oil price rises, he advocated increasing coal production, speeding up North Sea oil exploitation, and ramping up nuclear power provision.<sup>119</sup> Heath responded by telling Rothschild that the DTI were producing an authoritative ‘Energy Policy’ study, which would inform policy. Given its pessimism, Heath was concerned that Rothschild’s briefing would confuse ministers, so it was shelved.<sup>120</sup> Yet in spring 1972, Heath agreed the CPRS should produce their own energy policy report.<sup>121</sup>

### Contested Conservation

Heath’s government now had three groups formulating energy policy: the DTI, the CPRS and another relatively new part of the government machine, the World Future Trends Committee (WFTC). A number of historians have recently drawn attention to the fact that the United Kingdom, contrary to aspersions, was a hub of futurological research in the late 1960s and 1970s.<sup>122</sup> Both major parties had established future studies units; Labour had a ‘Programmes Analysis Unit’ (PAU), and the Conservatives a ‘Conservative Systems Research Centre’ (CSRC) in which Heath’s team tested out policy proposals on a linear programming matrix, software run on a time-sharing ‘SIA 6600’ computer connected to the CSRC centre via the telephone network and whose outputs were displayed on a ‘Control Data 210 Video’ unit (Figure 3).<sup>123</sup> In government, Heath, an underappreciated moderniser, encouraged the formation of the WFTC. Amongst other things, he hoped it could create a British version of the controversial *Limits to Growth* World3 model.<sup>124</sup> At the first WFTC meeting in July 1972, Dennis ‘Joe’ Lyons, argued that *Limits* had failed to account for ‘strong stabilising forces’, specifically those potentiated by the market, such as price increases, which could reduce consumer demand or re-direct it toward less scarce resources.<sup>125</sup> In October the Committee proposed the addition of new ‘feedback loops’ representing ‘market forces acting to stimulate substitution’, for reasons we will go into.<sup>126</sup> However, beyond such simulacra, a wave of NUM pickets began in January, limiting coal supplies and leading to blackouts and candle shortages.<sup>127</sup>

What if, as Lyons argued, the market could reduce energy demand via price-driven acts of conservation and substitution? Such ideas were floating around in various forms. In February 1973, Rothschild had travelled to the United States. Immediately on his return he wrote to Heath and William Armstrong, then head of the Civil Service, suggesting the government look into energy-saving policies. He wrote of having been ‘stimulated to suggest this by some knowledge’ he had ‘acquired on holiday about what is going on in this field in the United States’, where he perceived ‘a far more co-ordinated attack on this aspect of the energy problem than there is in the United Kingdom’.<sup>128</sup> From whom had he acquired his idea? His letter didn’t specify, but Rothschild’s daughter Emma was living in New York at the time, having recently finished a master’s degree at Massachusetts Institute of Technology (MIT) with economist Robert Solow.<sup>129</sup> Presuming Rothschild visited his

<sup>119</sup> TNA, PREM 15/595, Rothschild, CPRS Memo: Oil Economics and Supplies, 10 Nov. 1971.

<sup>120</sup> TNA, PREM 15/595, Armstrong to Rothschild, 24 Nov. 1971.

<sup>121</sup> TNA, CAB 184/58, Rothschild to Heath, Memo circulated in Apr. 1972.

<sup>122</sup> Elke Seefried, ‘Towards the Limits to Growth? The Book and Its Reception in West Germany and Britain, 1972–73’, *German Historical Institute London Bulletin*, 33, 1 (2011), 3–37; Jon Agar, ‘“Future Forecast – Changeable and Probably Getting Worse”: The UK Government’s Early Response to Anthropogenic Climate Change’, *Twentieth Century British History*, 26, 4 (2015), 602–28; Jacob Ward, ‘Computer Models and Thatcherist Futures’, *Technology and Culture*, 61, 3 (2020) 843–70; Turnbull, ‘Simulating’, 292.

<sup>123</sup> Turnbull, ‘Simulating’, 273, 278; CPA, CCO 20/26/7 CSRC [undated].

<sup>124</sup> Agar, ‘Future’, 609.

<sup>125</sup> TNA, CAB 134/3584, Minutes WT, July 1972, first meeting.

<sup>126</sup> TNA, CAB 134/3584, Minutes WT, 18 Oct. 1972, fifth meeting.

<sup>127</sup> Dominic Sandbrook, *State of Emergency: The Way We Were, Britain 1970–1974* (London: Allen Lane, 2010), 670.

<sup>128</sup> TNA, CAB 184/113, Rothschild to Armstrong, 26 Feb. 1973.

<sup>129</sup> Emma Rothschild subsequently became a historian of economics and a proponent of energy history. See: <https://environment.harvard.edu/news/huce-headlines/profile-emma-rothschild>.





**Figure 3.** The Control Date 210 Video Display Unit at the Conservative Systems Research Centre. Photographer unknown. Source: CPA, CCO 20/26/7 CSRC.

daughter, he would have found her near the completion of a book documenting the decline of the US automotive industry titled *Paradise Lost* (1973). In it, she criticised the inefficiencies of individual mobility over mass transportation systems, and repeatedly cited a report from the US Office of Emergency Preparedness, *The Potential for Energy Conservation* (1972), that summarised a spate of recent US National Science Foundation (NSF) funded applied research initiatives that proposed ways to reduce the overall energy demand growth rate in the United States.<sup>130</sup> The report described technological ‘programs which could either improve on the efficiency with which energy is consumed or minimize the consumption of energy . . . while providing the same or similar services to the consumer’ – conservation could come at no cost to utility.<sup>131</sup>

Rothschild’s proposed investigation of US energy conservation research appealed to Heath, who circulated a memorandum stating that government ‘need to put more effort into ways and means of conserving energy’ in order to ‘reduce our present demands for the exhaustible fossil fuels’.<sup>132</sup>

<sup>130</sup> Emma Rothschild, *Paradise Lost: The Decline of the Auto-industrial Age* (New York: Random House, 1973), 212, 216, 249; on this period of NSF-funded research, see Thomas Turnbull, ‘From Paradox to Policy: The Problem of Saving Energy 1865–1981’, PhD Thesis, University of Oxford, 192–6.

<sup>131</sup> USGPO, *The Potential for Energy Conservation: A Staff Study*. Executive Office of the President, Office of Emergency Preparedness, 1972, 3.

<sup>132</sup> Heath’s examples included ‘improved vehicle efficiency, alternatives to the internal combustion engine, better public transport [...]; improved efficiency of heating and lighting’, *inter alia*, TNA, CAB 184/113 Heath to Rothschild, 28 Feb. 1973.

As of September 1972, the CPRS had begun to search for imaginative solutions to the coming oil crisis. One idea was the formation an international oil *importers'* cartel, 'OPIIC', to coordinate the policies of oil-dependent nations and avoid their becoming 'extensions of Saudi Arabia and Iran'.<sup>133</sup> In that vein, Ian Read, a seconded Shell employee at the CPRS, was selected to investigate energy-conservation policies.<sup>134</sup> A month later he circulated a memo, 'Why Conserve Energy?', which argued that policies existed which could 'lessen the risk that the growth of GNP will be constrained by the availability of energy', while also defusing the OPEC threat, and obtaining 'indirect' environmental benefits.<sup>135</sup> Given such promises, Read was asked to produce a more extensive report on energy conservation by September 1973, a month prior to the embargo.<sup>136</sup>

Here it is important to reaffirm the branches of the Heath government that were now working on energy policy. The DTI had published their work, the WFTC were working on a *Limits*-style model that represented the conservationist capacities of market forces, while the CPRS had two energy studies, their recently-completed rival to the DTI's energy policy study which Heath had sanctioned back in 1972 and Read's conservation study. The first of these reports, *An Energy Policy for Britain*, completed in May 1973, was clearly influenced by Shell's scenarios. Its prognosis remained dramatically different from that of the DTI, who still predicted falling oil prices.<sup>137</sup> By contrast, the CPRS's recommendations were grounded in three main scenarios of increasing severity. The 'EASY' scenario predicted prices might rise from \$2.20 to \$3.75 a barrel. A 'SCARCE' scenario meant \$6, and 'CRISIS' – a once unthinkable \$9.<sup>138</sup> These prices were similar to those Barran had warned of in October 1971, though they were now presented as internal civil service findings rather than those of Shell, and they warned of an imminent crisis rather than one in ten years. As the report circulated, Heath expressed concern about the difference between the CPRS's warnings versus the Panglossian DTI study.<sup>139</sup> The prime minister arranged a private briefing at Number 10 to discuss this divergence. At the meeting, with Wack-ian histrionics, Rothschild told the assembled ministers they must enter 'the world of futurology', a speculative place in which oil prices might quadruple.<sup>140</sup>

The CPRS report was also distinguished by its proposed responses to oil price rises, most of which deviated from the DTI's proposals. Rothschild's report suggested decommissioning of coal mines should halt, exploratory drilling for fossil fuels should be undertaken on land and sea, and power stations should become 'dual-fired' by oil or coal. Given that reinvigorating the coal industry would embolden the NUM, a supposed driver of inflation, it was no surprise Burke Trend marked this proposal with the words 'with all that this implies for economic and social policy'.<sup>141</sup> Another important distinction was that the CPRS report argued electricity prices should 'be increased to a level which reflects costs' as a means to encourage economic efficiency.<sup>142</sup> Since 1948, the CEBG had kept electricity below cost in an attempt to control inflation and increase productivity.<sup>143</sup> In calling for cost-based pricing, CPRS took a small step closer towards advocating market-based pricing.

Despite such differences, both the DTI and the CPRS called for increased investment in nuclear power. However, the CPRS suggested the heavily subsidised advanced gas-cooled reactors Britain

<sup>133</sup> Francesco Petrini, 'Oil: Too Important to be Left to the Oilmen? Britain and the First Oil Crisis, 1970–1973', in John Fisher, Effie Pedaliu and Richard Smith, eds., *The Foreign Office, Commerce and British Foreign Policy in the Twentieth Century* (London: Palgrave Macmillan, 2016) 453; Kuiken, 'Ignoring', 175.

<sup>134</sup> Blackstone and Plowden, *Inside*, 78.

<sup>135</sup> TNA, CAB 184/113, Why Conserve Energy? Undated.

<sup>136</sup> TNA, CAB 184/113, Heath to Rothschild, 28 Feb. 1973.

<sup>137</sup> Economist Michael Posner co-authored the DTI study. Wilson, 'History', 75–6.

<sup>138</sup> TNA, CAB 184/114, CPRS: An Energy Policy for Britain; TNA, POWE 63/1034, An Energy Policy for Britain.

<sup>139</sup> Blackstone and Plowden, *Inside*, 77.

<sup>140</sup> Rebecca Hughes, "'Governing in Hard Times", The Heath Government and Civil Emergencies – the 1972 and 1974 Miners' Strike', PhD Thesis, Queen Mary University, London, 2012, 160.

<sup>141</sup> TNA, PREM 15/1847, Trend Memo, 14 May 1973.

<sup>142</sup> TNA, CAB, 184/114, CPRS: An Energy Policy for Britain.

<sup>143</sup> William Shepherd, *Economic Performance under Public Ownership: British Fuel and Power* (New Haven: Yale University Press, 1965); Chick, *Electricity*, 18–19.

had invested in should be dropped in favour of ‘market-ready’ light water reactors.<sup>144</sup> When it came to North Sea petroleum, the DTI favoured further exploration and the designation of the resource as a nationally-owned commodity, whereas the CPRS wanted a rapidly-formed tax regime so private industry could begin immediate extraction. The CPRS also proposed studies on electric vehicles, tidal and wind power, waste avoidance, and an *ad valorem* petroleum tax. Overall, the CPRS proposals envisioned a greater role for private industry, as was the organisation’s intention.<sup>145</sup>

The CPRS’s proposed energy policies were also congruent with the aims of Shell who, lest we forget, had published an internal document outlining their aim to encourage oil-consuming states to develop an ‘effective long-term energy policy’ for diversification to show OPEC that oil-consuming nations were not ‘completely dependent on oil’ and that they in fact ‘have a number of policy options’ open to them.<sup>146</sup> Shell had begun diversifying in 1967, when Newland had first warned of a coming crisis. The company invested in nuclear reprocessing, gas centrifuges for uranium enrichment, a stake in Gulf Oil’s nuclear subsidiary General Atomic, fuel-cell research, South African coal mines, and the Billiton mining group. Perhaps most consequentially, investment in exploratory geophysics that diversification afforded helped Shell (in fact ‘Shell-Esso’) to discover the Brent oil field in 1971.<sup>147</sup>

Energy conservation is an often forgotten aspect of Shell’s diversification strategy.<sup>148</sup> That an oil company would want consumers to use less of its product may seem counter-intuitive, but as an internal document clearly stated some at Shell believed ‘the most significant contribution to saving oil imports could come from policies to promote efficient processes and technologies and from measures to reduce the waste of energy’.<sup>149</sup> By improving efficiency and avoiding waste, the hope was that oil-consuming nations could lessen OPEC’s power. The great thing about conservation, as Group Planning’s Pink Book later noted, was that its protocols could be both *dirigiste*, if interventions were deemed necessary, or *laissez-faire* if not. Regarding the latter, the report explained: ‘the legislator who consciously keeps the price [of energy] down for social reasons should be aware that he is discouraging both the development of new supplies and the improvement of energy efficiency’.<sup>150</sup> In the long-term, government interference would impede the price mechanism, which some considered the most effective means of encouraging resource exploration, substitution, and conservation.<sup>151</sup> Interventionist conservation was presented as a short-term expedient to reduce oil-producing nations’ hold over oil-consuming nations.

Not everyone was persuaded of the benefits of conservation. As Shell advocated its two-stage conservation policy, the CPRS’s investigation was stalling. Following an interdepartmental meeting, Read received a letter from Treasury economist George Corti arguing that market-driven conservation would interfere with the ‘test discount rate’, a simulated interest rate which the Exchequer used to

<sup>144</sup> On the UK nuclear see Duncan Burn, *Nuclear Power and the Energy Crisis: Politics and the Atomic Industry* (London: Trade Policy Research Centre, 1997).

<sup>145</sup> TNA, PREM 15/1847, ‘United Kingdom energy policy’ comparison of DTI and CPRS reports, 14 May 1973.

<sup>146</sup> WACK, Shell Group Planning (1973) *The Impact of the World Economy of Developments in the Market for Oil*. May 1973, 38.

<sup>147</sup> Susanna Schrafstetter and Stephen Twigge, ‘Spinning into Europe: Britain, West Germany, and the Netherlands: Uranium Enrichment and the Development of the Gas Centrifuge, 1964–1970’, *Contemporary European History*, 11, 2 (2002), 262; on South Africa see Stephen Howarth, *A Century in Oil: The Shell Transport and Trading Company, 1898–1997* (London: Weidenfeld and Nicolson), 327–31; Keetie Sluyterman, *A History of Royal Dutch Shell 3, Keeping Competitive in Turbulent Markets, Vol. 3 1973–2007* (Oxford: Oxford University Press, 2007), 2.98–2.120; and Charles More, *Black Gold: Britain and Oil in the Twentieth Century* (London: Continuum, 2009) – ‘Shell-Esso’ had operated as a risk-sharing partnership since 1959.

<sup>148</sup> On the semantics of conservation in the United States, Brian Black, ‘Energy Hinge? Oil Shock and Greening American Consumer Culture since the 1970s’, in Elisabetta Bini, Giuliano Garvini and Federico Romero, eds., *Oil Shock: The 1973 Crisis and its Economic Legacy* (London: IB Taurus, 2016), 208–9; on conservation semantics generally, Turnbull, ‘Towards’, 9.

<sup>149</sup> WACK, Shell Group Planning, *The Impact of the World Economy of Developments in the Market for Oil*. May 1973.

<sup>150</sup> WACK Shell planning (197[?]), ‘The need for energy conservation’, undated.

<sup>151</sup> On price-driven conservation see Walker, *More Heat*, 19, *inter alia*.

estimate the future cost of public spending. If electricity was suddenly priced at rather than below cost, as the CPRS suggested, inflation would rise, forcing the Treasury to revise its entire budget.<sup>152</sup> Corti's concerns went unanswered, leading him to express 'heretical thoughts' in a more pointed second letter. Allowing the cost of energy to rise as scarcity grew, Corti argued, could not assure future energy supply. Instead, it would limit the government's control over long-term investment in energy infrastructure.<sup>153</sup> Sensing a conflict, Rothschild intervened, assuring Corti that the CPRS's aim was *not* to move to market-based energy prices.<sup>154</sup>

Read's work became more urgent in October 1973, when a group of Arab OPEC members, the Organization of Arab Petroleum Exporting Countries (OAPEC), formed in 1968, agreed to cut their petroleum consumption by 25 per cent in response to UK and US support for Israel in the Yom Kippur war.<sup>155</sup> This restriction in supply occurred alongside OPEC's earlier price rise agreement with oil majors, and the resulting panic caused a four-fold increase in oil prices.<sup>156</sup>

A month after the OAPEC embargo, the accuracy of Shell's 'CRISIS' scenario seemed irrefutable. Rothschild invited Group Planning head, Jim Davidson, to Whitehall to present the company's suggested correctives.<sup>157</sup> On 6 December 1973, Davidson recounted the threat of a crisis, a scenario long touted by Wack and others, but by now a real oil crisis was in full swing, soon to be exacerbated by another NUM strike. Some civil servants were exhausted. Davidson recalled how Armstrong had slept through most of the talk. Only over lunch, Davidson recalled, had Shell's warning finally got through.<sup>158</sup>

However, as this two-fold energy crisis unfolded, the Treasury and DTI were still operating with an older notion of fuel efficiency, which saw the problem as one in the domain of engineers rather than economists.<sup>159</sup> When the CPRS consulted Imperial College thermodynamics professor Walter Murgatroyd he had recommended subsidies for the purchase of energy-efficient machinery as a means to increase the efficiency of British industry. Read, seemingly persuaded as to the benefits of the price-driven approach attributed to US researchers, angrily annotated Murgatroyd's report with the words 'No! The incentive should be part of [the] pricing policy of the nationalised energy industries.'<sup>160</sup>

Misunderstandings over the meaning of energy conservation and its causal mechanisms abounded.<sup>161</sup> Alan Silverleaf, of the recently formed Department of the Environment, complained that reducing speed limits from seventy to fifty miles per hour, as Read's report proposed, would save little petroleum. He believed significant savings were only possible at thirty-five miles per hour. Moreover, Silverleaf argued, orthodox economic theory suggested that any saved fuel would likely be consumed by others unless severe restrictions on mobility or rationing were put in place.<sup>162</sup> Alongside this, the DTI's investigation into energy policy had left them 'confused as to

<sup>152</sup> TNA, CAB 184/113, Corti to Read, 9 May 1973.

<sup>153</sup> TNA, CAB 184/113, Corti to Read, 23 July 1973.

<sup>154</sup> TNA, CAB 184/113, Rothschild memo, 25 July 1973.

<sup>155</sup> Syria and Egypt attacked Israel on 6 Oct. 1973 to regain the Golan Heights, Garavini, *Rise*, 219.

<sup>156</sup> Garavini, *Rise*, 217–20; OPEC's pre-agreed price rises showed a changing profit-making model, indicating oil majors' acceptance of price rises to ensure continued control. Venn, *Oil*, 38–9; on panic see Morris Adelman, 'The Real Oil Problem', *Regulation* (2004), 16–21.

<sup>157</sup> On Davidson, see Chermack, *Foundations*, 44.

<sup>158</sup> WACK Head of Group Planning, Jim Davidson, date unknown, Group Planning, 1967–76; The stress took a toll; Armstrong was later found naked in his office, chain smoking and talking about the end of the world. Kevin Theakston and Philip Connelly, *William Armstrong and British Policy Making* (London: Palgrave Macmillan, 2018), 239–40.

<sup>159</sup> Turnbull, *Paradox*, 108; Martin Chick, 'The Marginalist Approach and the Making of Fuel Policy in France and Britain, 1945–72', *Economic History Review*, LIX, 1 (2006), 154–5; on efficiency see David Edgerton, 'The "White Heat" Revisited: The British Government and Technology in the 1960s', *Twentieth Century British History*, 7, 1 (1996), 53–82, ft. 119, 81.

<sup>160</sup> TNA, CAB 184/115, Energy Conservation in Industrial Motive Power, 12 Sept. 1973.

<sup>161</sup> See footnote 156.

<sup>162</sup> TNA, CAB 184/115, Silverleaf, 13 Oct. 1973.

whether there was anything special in energy conservation which made it more desirable . . . than the conservation of, say, food, steel, or building materials'.<sup>163</sup> As oil prices continued to rise, Rothschild was told responses to the CPRS's conservation study had been 'of varying quality, but in many cases disappointing'.<sup>164</sup> As a result, Read's first draft concluded that energy conservation offered 'no solution to the immediate crisis' and that consequential savings were only possible with 'very severe restraints on the public's freedom of choice', a very un-CPRS-like proposal.<sup>165</sup>

### Market Forces

All was not lost for conservationists. Two weeks before the embargo, Read had been contacted by civil servant Peter Rogers, a fellow CPRS member who also sat on the WFTC.<sup>166</sup> Rogers wrote of having produced a 'first shot' at a paper on the economics of energy conservation, an exercise he hoped would 'throw some light on the underlying issue'. Noting the ambiguities involved, Rogers hypothesised that conservation implied excessive rates of consumption. As corrective, he argued 'models of general price equilibrium' could show how 'a properly functioning price mechanism would handle the needs of conservation', as unrestricted price rises would discourage or delay use, and/or encourage substitution. Better yet, the price mechanism could help consumer 'anticipation of high prices in the future'. If scarcity loomed, those supplying energy could alter their 'rate of time preference', opting not to burn fuel in expectation of greater future profit. Free-roaming energy prices would, it was claimed, act as a kind of forecasting technology, as 'expectations about the future' would be 'reflected in today's market prices'.<sup>167</sup> Unfortunately for Rogers, a week later, as miners demanded increased pay, Heath abandoned liberalisation, instituting 'Stage 3' of a public sector wage and price freeze. By November, with energy supplies constrained by both foreign and domestic powers, the Government declared a national emergency.<sup>168</sup>

As disruption raged, a 'Working Group on Market Forces, Resource Use and Technological Change' was convened to investigate Rogers' proposal, with support of the CPRS and the WFTC. Rogers' paper had emerged out of the WFTC's work on *Limits* and the conclusion that the study had not paid sufficient attention to the equilibrating role of market forces.<sup>169</sup> Amongst the investigators, David Owen from the Department of the Environment argued that resource prices should reflect 'the costs of replacing, in a future period, resources consumed today'.<sup>170</sup> He envisioned a sophisticated computational forecasting system based at the PAU in Harwell, the state-funded futurological laboratory, which would calculate a suitable discount rate for forgoing the opportunity cost of consuming a specific amount of a given resource, a value Owen termed 'replenishment cost'.<sup>171</sup> The deliberations of the Working Group soon put paid to this idea. Its chair, the physicist Donald Braben – who went on to promote 'blue skies research' at BP's Venture Research Unit<sup>172</sup> – argued Owen's system of state-calculated replenishment pricing was 'too inflexible', and the Market Forces group instead concluded that only 'a normally operating market would lead to efficient allocation of resources'.<sup>173</sup> Advocates for market-based conservation were growing in number.

<sup>163</sup> TNA, CAB 184/115, Davies, 7 Nov. 1973.

<sup>164</sup> TNA, CAB 184/115, Urwick to Rothschild, 8 Nov. 1973.

<sup>165</sup> TNA, CAB 184/115, CPRS draft, 8 Nov. 1973.

<sup>166</sup> Blackstone and Plowden, *Inside*, 238. Rogers was at the CPRS from July 1973 to Sept. 1974, and later finance director at the Independent Broadcasting Authority (IBA).

<sup>167</sup> CAB 185/115, 'Energy Conservation', Rogers to Read, 27 Sept. 1973

<sup>168</sup> Stuart Ball and Anthony Seldon, *The Heath Government, 1970–1974: A Reappraisal* (London: Routledge, 1996), 184; on energy flows see Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London, Verso, 2011); on 'carbon neoliberalism' see Christophers, *Rentier*, Chapter 2.

<sup>169</sup> Turnbull, 'Simulating', 290–1.

<sup>170</sup> CAB 134/3703, WFTC Meeting 5, 4 Sept. 1973.

<sup>171</sup> CAB 134/3704, WFTC Note 20, 23 July 1973.

<sup>172</sup> Donald Braben, *Pioneering Research: A Risk Worth Taking* (Hoboken, NJ: Wiley, 2004), Chapter 8.

<sup>173</sup> CAB 134/3703, WFTC Meeting 6, 4 Dec. 1973.



Rogers' claim that market-potentiated 'negative feedbacks' could conserve energy and resources seemed to encourage Braben and the Market Forces group make the case for this proto-neoliberal proposal. Where had Rogers got this idea from? One of the few papers cited in his proposal came from economist Harry Johnson of the London School of Economics (LSE). Rogers had written to Johnson's secretary requesting a paper he had heard of 'criticising excessive concern over the problem of conserving limited fuel supplies'.<sup>174</sup> Having moved far from its Fabian roots, LSE was a hub of neoliberal thought.<sup>175</sup> Johnson, a neoliberal of the Chicago School, had also advised London's Hayekian think tank *par excellence*, the IEA.<sup>176</sup> The paper Rogers requested from Johnson's secretary (confusingly also named Rogers), 'Man and His Environment', had been written on behalf of the British-North American Committee, a Canadian free trade organisation. In it Johnson argued that the price mechanism was conservative.<sup>177</sup> In a now familiar formulation he argued price rises would mean 'oil reserves will be held for future profit rather than exploited immediately'. He argued conservation was only possible in a free market and a futures market for resources would allow for the anticipation of scarcity. He berated those who believed in 'limits to growth' for having not appreciated that the 'factual information' upon which they based their forecasts was 'itself generated by the economic processes of competition and growth and hence represents no inevitability in the relationship between man and his environment'.<sup>178</sup>

The consideration given to Johnson's work, six years before Thatcher came to power, indicates that such ideas had attained footholds in the machinery of government long before 1979. Though 'proto', this belief in an indeterminant price-determined relationship between the economy and the environment would come to be seen as characteristically neoliberal.<sup>179</sup> Braben and colleagues had, in their words, proposed 'an exposition of the economy theory of optimal resource allocation in a competitive economy'.<sup>180</sup> This claim was a central tenet of neoliberal economics.<sup>181</sup> By contrast, Braben's group argued that government-led attempts to efficiently allocate energy and resources in space and time would face 'intractable problems of quantitative estimation'.<sup>182</sup> The state would always underperform compared to the market. Only competitive markets, neoliberals argued, could calculate a resource's true value, and only unimpeded consumers could assure optimal resource allocation on this basis.<sup>183</sup>

Braben's group affirmed that they did not advocate 'complete laissez-faire', and that government should be a 'watchdog' guarding against 'market failure'. An example of such a failure was the 'restraints on price competition imposed by government wage and price controls' of the kind impeding Heath's moves toward privatisation.<sup>184</sup> For such proto-neoliberals, Braben's proposal also came at a bad time. The Working Group published its recommendations in December 1973, a month before 'Stage 3' of Heath's emergency price freezes, a distinctly interventionist attempt to counter inflation.<sup>185</sup>

<sup>174</sup> CAB 184/115, letter from Rogers to Miss Rogers, LSE, 8 Aug. 1973.

<sup>175</sup> Keith Tribe, 'Liberalism and Neoliberalism in Britain, 1930–1980', in Mirowski and Plehwe, eds., *Road*, 68–97.

<sup>176</sup> Donald Moggridge, *Harry Johnson: A Life in Economics* (Cambridge: Cambridge University Press, 2008).

<sup>177</sup> Harry Johnson, *Man and His Environment* (BNAC, Canada, 1973) 22–3.

<sup>178</sup> Johnson, *Man*, 1973, 26; see also CAB 184/115, Miss Rogers to Rogers, LSE, [undated] 1973.

<sup>179</sup> Paul Sabin, *The Bet: Paul Ehrlich, Julian Simon, and Our Gamble over Earth's Future* (New Haven: Yale University Press, 2013); Walker, *More*, 78.

<sup>180</sup> TNA, CAB 134/3704 MFWC, 'A Critique of Market Forces and the Case for Intervention', 4 Dec. 1973. An ironic title considering the report strongly advocated free markets and discredited intervention.

<sup>181</sup> William Davies, *The Limits of Neoliberalism: Authority, Sovereignty, and the Logic of Competition* (London: Sage, 2014), 38.

<sup>182</sup> TNA, 'Critique', 4 Dec. 1973.

<sup>183</sup> Mirowski refers to Hayek's 1948 essay 'Use of Knowledge in Society', in Philip Mirowski, *Machine Dreams; Economics Becomes a Cyborg Science* (Cambridge: Cambridge University Press), 235–7.

<sup>184</sup> TNA, 'Critique', 4 Dec. 1973.

<sup>185</sup> Holmes, *Failure*, 113–16.

## Epilogue

In January 1974 a three-day week was instated to ensure essential services could operate throughout winter in the face of energy shortages.<sup>186</sup> Negotiations with the NUM failed and Heath was forced to call an election in February, which he lost.<sup>187</sup> The Conservatives' hope of unleashing the disciplining forces of the market had failed. The CPRS, however, remained part of Harold Wilson's incoming Labour government.<sup>188</sup> In April, the NUM-supporting Labour MP Eric Varley revealed insights from the CPRS's long-awaited energy conservation report at the launch of the government's new 'Department of Energy'.<sup>189</sup> The intra-government think-tank had forecast that a 10 per cent reduction in fuel-use could save Britain £600 million a year, without lowering living standards. On this basis, Varley announced his intention to move toward 'realistic energy pricing', which would mean households would undergo a 15 per cent rise in electricity prices and industry a rise of 5 per cent. The government would save £200 million in subsidies previously paid to the CEGB and others annually to ensure electricity was sold below market prices, a sum that would have been footed by the taxpayer.<sup>190</sup> However, as it was, Wilson's government retained price controls on energy out of fear of inflation, and even considered controlling the price of North Sea oil.<sup>191</sup> The long-term liberalisation of energy which Shell, members of Heath's government, and some civil servants had envisioned, was put on hold. Nonetheless, as an adjunct to carbon neoliberalism, the idea that the conservation of energy was best achieved via a freely operating price mechanism had taken root. Both sides of the political spectrum agreed that the efficient use of energy was something best achieved by the market.

The CPRS's energy conservation report seemed to have been influenced by the Market Forces Committee's proto-neoliberal arguments.<sup>192</sup> It opened with the statement that in 'theory the price mechanism should provide consumers with an adequate incentive to undertake all the appropriate cost-saving conservation measures without any need for Government action'.<sup>193</sup> However, the report admitted, such arrangements were not always possible, so government should introduce 'regulation, subsidies and taxes' to encourage conservation in situations of 'market failure'.<sup>194</sup> The study helped establish the notion of market failure in UK policy discourse, suggested market-led solutions, and enshrined the idea that the onus to conserve should fall on consumers.<sup>195</sup> The government would be a 'watchdog', guarding against market failures and encouraging 'information flow' in domestic and industrial sectors to ensure the market 'price[d] energy at true cost' (Figure 4).<sup>196</sup>

Elsewhere in the report there were concessions to old-style interventionism. Varley announced a programme of state-funded research on fuel efficiency, electric vehicles, and wave power, which would be carried out by an Energy Technology Support Unit (ETSU).<sup>197</sup> A state-funded publicity campaign with testimonies from television chef Delia Smith and rally driver Paddy Hopkirk, called 'Save it!', encouraged consumers to 'help themselves and the nation by using energy more carefully and efficiently'.<sup>198</sup> ETSU also developed a number of energy-saving 'public-private' district heating

<sup>186</sup> Rodney Morrison, 'The British Economy: On the Edge of the Precipice', *Current History*, 66, 391 (1974) 101–5, 104.

<sup>187</sup> Hughes, 'Governing', 189–90; Fiona Venn, *The Oil Crisis* (London: Longman, 2002), 121–2.

<sup>188</sup> Blackstone and Plowden, *Inside*, 78–80.

<sup>189</sup> Michael Kenward, 'Government of Energy' *New Scientist*, 62, 893, 11 Apr. 1974, 71.

<sup>190</sup> Michael Kenward, 'The Art of Conservation', *New Scientist*, 63, 904, 4 July 1974.

<sup>191</sup> Wilson, 'History', 186; Toye, 'New', 109.

<sup>192</sup> The CPRS ended in 1983. Blackstone and Plowden, *Inside*, 184.

<sup>193</sup> Central Policy Review Staff (1974) *Energy Conservation: A Study* (London: HMSO, 1974), 1–3.

<sup>194</sup> *Ibid.*

<sup>195</sup> On market failure see Alain Marciano and Steven Medema, 'Market Failure in Context: Introduction', *History of Political Economy*, 47 (2015) 1–22.

<sup>196</sup> It has been claimed the term 'market failure' was first used in 1989, in relation to energy efficiency – the CPRS report suggests earlier usage. John Rigby, 'Policy and Pragmatism: Implementing the UK's Energy Efficiency Best Practice Programme', *Policy & Politics*, 33, 2 (2005) 277–95; Blackstone and Plowden, *Inside*, 79–80;

<sup>197</sup> See Fig. 4 and Wilson, 'History', 174.

<sup>198</sup> N. Phillips and E. Nelson, 'Social Marketing: the 'Save It' Campaign', *Advertising Quarterly*, No. 51, Spring 1977; the Delia Smith advertisement is available at: [https://www.youtube.com/watch?v=qtF5x6QBAnQ&ab\\_channel=meganoikz](https://www.youtube.com/watch?v=qtF5x6QBAnQ&ab_channel=meganoikz).

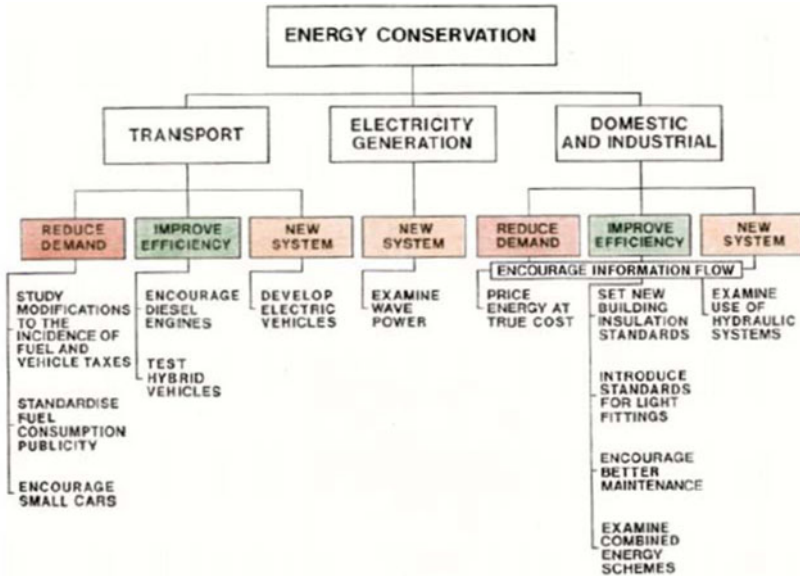


Figure 4. Insert from *Energy Conservation: A Study by the Central Policy Review Staff*.

initiatives, though the incoming Thatcher government abolished most of these schemes, led by her energy minister none other than reprivatisation-guru David Howell.<sup>199</sup> Thatcher advocated energy conservation, so long as it was undertaken by private industry.<sup>200</sup> In 1981, her second energy minister, the aforementioned Nigel Lawson, announced his intention to privatise energy. In doing so, as Dieter Helm has shown, he lent on Birmingham University economist Stephen Littlechild, who promoted the ‘denationalisation’ of public utilities at the time via the IEA.<sup>201</sup>

However, by looking at a Lawson speech from this time, we can see how central energy conservation was to his call for reprivatisation. In 1982 he told an audience of economists that the G7’s Venice Declaration two years prior had committed the UK to breaking the link between economic growth and oil consumption.<sup>202</sup> The best way to do this, he asserted, was unleashing of the ‘demand side of the equation . . . decisions by millions of individuals and corporate users’, rather than ‘central planning’.<sup>203</sup> Where free markets were not possible, policies should ensure ‘opportunities for competition’ are ‘not precluded by artificial restrictions’.<sup>204</sup> Recycling the CPRS conservation study, Lawson declared government would no longer provide energy so much as enforce ‘a framework which will ensure the market operates with a minimum of distortion and energy is produced and consumed efficiently’.<sup>205</sup>

<sup>199</sup> Meek, ‘How’, 4; S. Russell, ‘Writing Energy History: Explaining the Neglect of CHP/DH in Britain’, *British Journal for the History of Science*, 26, 1 (1993), 33–54.

<sup>200</sup> Gill Owen, *Public Purpose or Private Benefit?: The Politics of Energy Conservation* (Manchester: Manchester University Press, 1999), 96; on Thatcher’s conservationism see Jon Agar, *Science Policy Under Thatcher* (London: UCL Press, 2019), 146.

<sup>201</sup> Dieter Helm, *Energy, the State, and the Market: British Energy Policy Since 1979* (Oxford: Oxford University Press, 2003), 59; see also Meek, ‘How’, 4; Stephen Littlechild, ‘Ten Steps to Denationalisation’, *Journal of Economic Affairs*, 2, 1 (1981) 12.

<sup>202</sup> The G7 treaty was intended to ease the 1979 Iranian oil crisis. Garavini, *Rise*, 293–4.

<sup>203</sup> Nigel Lawson, ‘Energy Policy: Text of a Speech given in June 1982’, in Dieter Helm, John Kay and David Thompson, eds., *The Market for Energy* (Oxford: Clarendon, 1989), 23–30.

<sup>204</sup> *Ibid.*, 13.

<sup>205</sup> Excerpt presented in Peter Pearson and Jim Watson, *UK Energy Policy, 1980–2010: A history and lessons to be learnt*, Parliamentary Group for Energy Studies, 2010. Available at: <http://sro.sussex.ac.uk/id/eprint/38852/1/uk-energy-policy.pdf>.

The shift from the term conservation to efficiency was telling. If the state-centred nationalisation of energy infrastructure had once been considered a more efficient form of organisation than wasteful competition, a crisis-driven enthusiasm for denationalisation had led some to consider consumers and their information-relying electrical appliances the new paragons of energy efficiency.<sup>206</sup> Peter Walker, Heath's former Secretary of State for Energy, who had been reinstated in 1983, headed a rebranded 'Energy Efficiency Office' which, one civil servant noticed, dropped the perceived puritanism of the title 'Energy Conservation Division' in favour of a name that, as that same author put it, 'was so beautifully aligned with prevailing discourses of managerial and business efficiency'.<sup>207</sup> In a situation in which North Sea oil provided abundant energy, and before climate change became a widespread object of concern, the goal of reducing energy consumption now found little support.<sup>208</sup> By contrast, the term energy efficiency did not preclude growth in energy consumption.<sup>209</sup> Thus ended the mid-century consensus on the benefits of nationalised energy infrastructure, centrally-planned efficiency and welfare maximisation, in favour of the idea that market-disciplined consumers most efficiently used energy.<sup>210</sup> In 1988, these principles informed a White Paper outlining the benefits of privatising Britain's electrical infrastructure in the belief that competition would deliver promised efficiencies, though they are still not apparent today.<sup>211</sup>

What of Shell? Group Planning had originally conceived of conserved energy as a resource which could be realised in the long-term by allowing consumers to respond to price signals in the present.<sup>212</sup> As the energy crisis waned, they became less enthusiastic about short-term interventionist conservation, noting that 'government campaigns and even restrictions in the cause of savings seem to have achieved very little in the three years since the energy price discontinuity'.<sup>213</sup> A decade later, as 'sustainability' became the new mantra, the company instead advocated market-driven increases in energy efficiency, as they had first done in the 1970s. Efficiency increases would not only 'contain CO<sub>2</sub> emissions', they could also assure a 'large amount of energy could be saved'.<sup>214</sup> The Intergovernmental Panel on Climate Change (IPCC) has helped affirm that price-driven efficiencies and freely operating markets were the best means to conserve energy.<sup>215</sup> Such optimism was unsurprising, since the futures the IPCC promoted were directly informed by Shell's scenario method.<sup>216</sup> Two IPCC authors even worked at Group Planning.<sup>217</sup> Shell now proselytised TINA, the idea that 'there is no alternative' to

<sup>206</sup> See Philip Mirowski, 'Machine Dreams: Economic Agents as Cyborgs', *History of Political Economy*, 29, 1 (1997), 13–40, 32; on privatisation see Helm, *Energy*.

<sup>207</sup> Richard Levett, 'Rebound and Rational Public Policy-Making', in H. Herring and S. Sorrell, eds., *Energy Efficiency and Sustainable Consumption: The Rebound Effect* (London: Palgrave, 2006), 191.

<sup>208</sup> On North Sea oil as a means for liberalisation see Christophers, *Rentier*, Chapter 2; Giuliano Garavini, 'Thatcher's North Sea Oil: The Struggle Against OPEC and Labour Standards and the "Liberalization" of European Energy', *Contemporary European History*, forthcoming. However, as Agar points out, climate change was on the Thatcher government's radar as early as 1974, Agar, 'Future', 608.

<sup>209</sup> On the contrast between efficiency and conservation, Owen, *Public*, 8–9.

<sup>210</sup> Helm et al., *Market*, 12.

<sup>211</sup> *Ibid.*, 15; Meek, 'How'; Helm, 'Energy Policy', Mar. 2022. Available at: <http://www.dieterhelm.co.uk/assets/secure/documents/Energy-policy-30.03.2022.pdf>.

<sup>212</sup> Shell defined conservation as a forecast of a 'future year as compared to what would have used in that year if all energy using equipment were of the base year's quality', WACK Shell planning (197[?]), The need for energy conservation. Energy Conservation report. Drawer B4 – General Folder 66.

<sup>213</sup> *Ibid.*

<sup>214</sup> Keetie Sluyterman, 'Royal Dutch Shell: Company Strategies for Dealing with Environmental Issues', *Business History Review*, 84, 2 (2010), 203–26.

<sup>215</sup> Mike Davis, 'Who Will Build the Ark?', *New Left Review*, 61, Jan./Feb. 2010; Davis cites IPCC, *Climate Change 2007: Mitigation of Climate Change: Contribution of Working Group III to the Fourth Assessment Report* (Cambridge: Cambridge University Press, 2007), 172, 218–24.

<sup>216</sup> Mike Hulme, 'Forty ways to change a world climate: Book Review of: 'Emissions scenarios: Special Report of the IPCC', in M. Hulme, *Exploring Climate Change through Science and in Society* (London: Earthscan, 2001), 270.

<sup>217</sup> Gerald 'Ged' Davis, who had been with Shell since 1972, and Douglas McKay, who was in the Shell Scenario team from 1996–2002. See Nebojsa Nakicenovic and Rob Swart, *Emissions Scenarios: Special Report. Published for the*

‘globalisation, liberalisation, and technology’, and conservation was replaced by a belief in the ‘revolutionary force’ of efficiency.<sup>218</sup> What does the presence of such ideas at the heart of climate change policy indicate? Scenarios were forged amid an earlier crisis, to grant Shell safe passage between the Scylla of *dirigiste* state interference and the Charybdis of indifferent *laissez-faire*. In an age of climate change, then, the aim remains business as usual.

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*Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2000), 329. Available at: [https://www.ipcc.ch/site/assets/uploads/2018/03/emissions\\_scenarios-1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/03/emissions_scenarios-1.pdf).

<sup>218</sup> Shell Internal, *Global Scenarios, 1998–2020* (1998), 5–6. Available at: <https://www.climatefiles.com/shell/1998-shell-internal-tina-group-scenarios-1998-2020-report/>.