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It feels like we’ve been here before.

2005. 2009. 1998. 1979.

This topic was selected not to spur innovation, but as a comforting exercise in repetition. Policy debate returns to the same clichéd set of technocratic arguments about energy. Arguments recycle with only minor changes and no impact on policymakers.

It’s probably time to step back and look not for neurotic repetition, but a DIAGNOSIS of larger patterns in the energy resolution’s eternal return. We want to initiate a debate ABOUT the energy debate. Let’s start in 79, the first energy resolution. Instead of just being echoes, let’s actually run it back.

The federal government incentivized a transition to solar under Carter. There were solar panels on the roof of the White House and federal incentives ready to go. Upon his election, Reagan RUDELY tore OFF the panels and tore UP the incentives

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Powering the Dream

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THE LONE ENVIRONMENTALIST Hayes was a remarkable and incredibly unusual choice. At thirty-five, he was the youngest director of a federal laboratory ever. He did not hold an advanced degree, though he eventually completed a |D at Stanford. More intriguingly, he was an activist, not an engineer, scientist, or bureaucrat. Hayes helped found Earth Day in 1970 and became an influential and committed advocate for solar power, representing a key link between the environmental movement and alternative energy.w (jus Speth, chairman of the Council on Environmental Quality, said he "couldn't think of a better person." Henry Kelly of the Congressional Office of Technology Assessment, called him "an interesting gamble."20 Although his selection was unusual for solar energy, there was a long line of advocate-managers at the Atomic Energy Commissions national laboratories as well as in fossil-fuel regulatory bodies.21 Hayes, therefore, gave solar someone who could match the persuasiveness of the leaders of the fossil fuel and nuclear camps. For years solar researchers had languished at tiny outposts on the edge of science. Their programs were barely funded, and their ideas were downplayed or outright mocked. Though some critics have argued that there was a "government takeover" of solar energy, the truth was that without government support, solar energy was unlikely to make its way into American lives.22 Hayes's selection gave solar advocates one of their own arguing for their positions in the highest realm of government. After all, he had been a selection of lames Schlesinger, the first secretary of energy, himself. Schlesinger was not a radical man. A Republican with a pipesmoking clubbincss about him, he had headed the Central Intelligence Agency before moving into energy. Thus, the appointment of Hayes seems downright mystifying. Hayes explained it like this:" Shortly after being appointed by Jimmy Carter, Schlesinger paid a trip to the oilproducing nations of the Middle East. The 1970s were a tense time for U.S.-Middlc Eastern relations. Jn the wake of the Yom Kippur War between Israel and its Arab neighbors, the Organization of Petroleum Exporting Countries exercised their economic might, led by Saudi Arabia's oil minister, Ahmed Zaki Yamani. The OPEC actions dramatically raised the price of oil for Americans and touched off the energy crisis of the 1970s. As Schlesinger awaited an audience with Yamani. he was seated in a rather dull room with few magazines or newspapers. A key exception, though, was a paperbook book with a sun on the cover. It was Rays of Hope: The Transition to a Post-Petroleum World, a book on renewable energy that Hayes had authored that year. As it just so happened, Hayes had interviewed Yamani and. to thank him, had sent a copy of the work with a rather florid inscription (something that began like, "To my dear friend Ahmed," as Hayes recalled recently). Picking up the book and reading this chummy note to the Arab power player, Schlesinger turned to his friend lames Bishop and wondered aloud, "Who the fuck is Denis Hayes?"24 Bishop, who had been Newsweek's DC bureau chief, happened to know and like Hayes, so good things ensued. Still. Schlesinger asked a good question. Hayes is an unusual environmentalist. Though he loved blue jeans and sitting cross-legged as much as the next guy. he was not a trust fund vagabond or an urbanite who was ignorant of the chunks of the country covered with industrial infrastructure. He grew up in Camas. Washington, a working-class town in the southwest corner of the state along the banks of the Columbia River. His family never lived more than twelve blocks from the paper mill that dominated the small town. Their home wasn't extravagant, just solid brick and comfortable, with three bedrooms and a squat detached garage." Portland, Oregon's free spirit might have been forty minutes to the southwest, but Camas was a mill town, not a suburb. The local high school mascot was the Papermaker, and 75 percent of the city's tax receipts in the 1960s came from Crown Zcllcrbach's towering mill. Until the mid-60s, the mill's management and workers worked without too much discord. The local union was strong and run by a surprising mix of old southern Europeans, Greeks mostly, who'd been strikebreakers in the early twentieth century.2\* The town had a complex relationship with the mill. It was one of the first mills that used the chemical intensive "Kraft" process in the Northwest. The paper got whiter, but the odor got much worse. Sulfur that was cooked out of the trees and added to the slurry during the papermaking process produced a sickly sweet smell that permeated the entire region. Some local residents were furious at the changes to the new process. A local hotelier even won a lawsuit in the early 1930s for damages he sustained as a result of the Kraft process.2" But the towns relationship to the mill was more complex than it might have seemed. One newcomer who moved to the town during Hayes's high school years summed up what many seemed to feel: "The attitude was, 'Well, that's the smell of money.' Because, as long as the mill was working and paying salaries and taxes, it is a good thing for Camas. There would have been no town without the mill."2\* Camas was practically defined by its smell. At the local county fair, the town had a little booth to answer questions about the awful odor and try to downplay concerns about it. But people believed their noses. The smell from the mill could be overwhelming even miles away if it caught an unlucky wind. In town everyone was used to it, but the smell clung to their hair and clothes. If a couple went to a bar in Portland and pulled out a wallet or opened a purse to pay for a drink, the smell came stalking into the room.29 The environmental damage that the mill did was real and noticeable, Hayes recalled, but so were the economic imperatives that drove it. Hayes related. Growing up, this simply seemed to be fate. Paper mills produced acidic fumes. That was a natural part of the industrial process to free up the cellulose from the lignin in the wood so that tile fibers could be made into paper. All paper mills stank. Society needed paper; Camas needed jobs. The smell was "the smell of prosperity." As I grew older and learned a little bit about science and economics, I understood that "fate" is rnerelv the sum of a large number of decisions made by people in authority who were trying to minimize their costs and maximize their profits.\*0 He went on to explain that he learned that if environmentalists wanted to clcan up that one mill, "we would have to clean up the whole industry."M It was a lesson that would stick with him: Something as specific as the distinctive aroma of his hometown actually had national causes and implications. After graduating from Camas High, he got an associates degree at the local junior college. Clark College. He is by far the most highprofile alumnus the school has ever produced. Then he took the unlikely step of gaining admission to Stanford, where he became a powerful political leader, winning the student body presidency in that tumultuous year, 1968. Two years later Senator Gaylord Nelson appointed Hayes one of the organizers of Earth Day and, quite suddenly, he became one of the more well-known environmental leaders in the country.32 He had gained the national platform that he believed was necessary to effect real change. For the next eight years he wrote extensively, worked for environmental organizations, and founded the Solar Lobby in Washington, DC. Then, after Schlesinger returned from the Middle East, he asked Bishop to arrange a lunch between Hayes and himself. "To our mutual astonishment, we quite liked each other," Hayes remembered. Rappaport continued to struggle at SERI, as solar energy gained increasing prominence. Eventually. Schlesinger picked Hayes to lead the Institute. No other director of SERI or the National Renewable Energy Lab has ever come close to matching Hayes's record as an impassioned advocate for solar energy as both an idea and a set of technologies. With a new leader at the helm and the 1979 energy shock pushing energy back up the political agenda. SERI morale began to return. In the fiscal year 1980 they had $131 million and a plan to spend it: They were going to systematically drive down the cost of the major renewable energy technologies. By making solar power cheaper, they would transform the relationship between society and its energy sources. Hayes recollected. In 1980, if you looked at what was going on with solar energy and what was going on with computers, you could be pretty confident that America was facing a revolution but it wasn't a computer revolution. There was no Microsoft. There was nothing. Desktop computers could be used for advanced typewriting, some accounting and playing games, whereas on the other hand, on the energy field, we had a huge national enterprise with this research going on in multiple laboratories." The organization's institutional plan from fiscal year 1981 looked five years ahead and reflects Hayes's hopes and priorities. Photovoltaics got $38 million, more than twice as much money as any other technology, and its budget was predicted to keep growing. Solar thermal power research also received more than $10 million. Wind and biomass, though they received substantial sums, were not projected to get much more money. The big bet was on photovoltalcs (PV), particularly what is known as "thin-film" technology, which uses less and cheaper material than traditional silicon cells.34 "We had put in place a program to drive down the cost in a calm methodical fashion year and year after year not dissimilar to the one used in computer chips," Hayes said.35 In just the four years between 1975 and 1979, the cost of photovoltaic modules had dropped by a factor of three as money poured into the field and production increased."1 The government guaranteed that they would purchase photovoltaic modules, which provided an indirect incentive for private companies to scale up and drive down the unit cost of PV.r Like so many technologies before them, photovoltaics appeared poised to ride a learning curve to mass adoption "I was really convinced that we could do this thing. That we would drive these things down learning curvcs and get efficiencies of scale," Hayes said. "We were really going to foment something."M They had another ambitious plan in the works, too. Congressman Richard Ottinger, who might be the most stalwart champion of green tech ever to pass through the legislative branch, asked the Deputy Secretary of Energy, John Sawhill, to create an "in-depth solar/conservation study." Drawing on the work of Lawrence Berkeley National Laboratory's Art Roscnfeld, Princeton's Robert Williams, the University of Michigan's Marc Ross, and SERI's Henry Kelly, the report sketched out an alternative vision tor the American energy system that its authors felt would be cheaper and less environmentally destructive. In fact, the takeaway message for utilities from the report was, in Rosenfeld's estimation, "Be wary before you invest prematurely in 50 GW of new plants (at SI—$2 billion each), the need for which is many years off."w The report was a direct challenge to the future that the energy industry said was inevitably on its way. The report said America could substantially cut its fuel usage while still maintaining economic growth by increasing energy efficiency and the use of solar energy.40 THE REAGANITES ARE COMING! Politics, however, would intervene before Hayes's team had a chance to test their optimism. Jimmy Carter was crushed in the November election by former General Electric spokesman. Ronald Reagan. Before the election. Hayes had been buoyed by a series of radio addresses that Reagan gave in which he promoted decentralized energy sources. It made sense to Hayes, too. Going off the grid is a radically conservative position in some ways, smelling as it does of self-reliance and Jeffersonian republicanism. But Hayes and SERI were in for a nasty reality check. As it turned out, the speeches had been written by a farright Libertarian, John McClaughry, who envisioned a small-scale, rural democracy growing up in New England. He echoed many of those thoughts in the 1990 libertarian tract he coauthored. The Vermont Papers: Recreating Democracy on a Human Scale. The Los Angeles Times called the book "The Small is Beautiful of politics."41 McClaughry wrote. "We do not feel Vermont will be able to work toward the strong network of small-scalc local energy sources it needs until the political control over energy is decentralized."42 Reagan's politics were not McClaughry's, however. His transition team not only immediately went after SERI. but they also suggested closing the entire Department of Energy while maintaining nuclear research support structures in its place.43 When that plan floundered under Congressional attacks, Reagan appointed former dentist and unabashed nuclear proponent. Allan Edwards, to head the Department of Energy. Edwards made it clear that "a vote for President Reagan was a vote for a nuclear future." He quickly proposed halving the SERI budget and cutting overall solar spending by 60 percent. In particular, those technologies closest to commercialization were the ones that would receive the least support.44 Programs that had just begun, like durability testing for solar collector materials and better standards for solar water heaters, were eliminated. By all accounts, the Reagan administrations attitude toward solar energy R&D had a "profound and mostly negative" impact on solar energy programs in the United States.4\* Unlike nuclear power, which had survived several administrations with much of its funding largely intact, solar energy was not able to withstand the political change that blew in with Reagan. His administration began a large-scale rollback of Carter's solar initiatives, choosing to starve them of funds even if they didn't outright reject them. The Solar Energy Research Institute lost half its cash. Equally important, it was clear that solar energy was no longer what economic historian Steve Cohn calls an "official technology" anointed by government as worth pursuing. Investors and entrepreneurs realized that it might be time to get out of the solar game. SERI researchers were devastated. In the early months of 1981, shortly after Reagan took office, Hayes arrived early at DOE headquarters for a meeting with the acting assistant secretary for conservation and renewable energy, Frank DeGeorge. As he walked the halls, checking in with friends and trying to gauge the sentiment of the staff under the new administration, a buddy ran up to him and asked, "Has Frank lowered the boom on you yet?"46 The boom, as it turned out, was that DcGeorge was going to suppress the publication of a million-dollar solar conservation report that Ottiilger had requested. So Hayes did the logical thing and ran out of the building. He called his secretary and told her to tell DeGeorge that he'd come down with the stomach flu and wouldn't be able to have the meeting. Then he called his lieutenant Henry Kelly and "told him that we needed to spend the next twelve hours Xeroxing everything that he had and mailing it out to a whole bunch of distinguished reviewers," Hayes said. "He and Carl Gawell [another author] stayed up all night copying and getting the reports in the mail." The next day, when Hayes got the call from DeGeorge, he feigned surprise: "Oh mv god!' I said. We've mailed it out to fifty reviewers."\*7 The Reagan administration was not pleased. "His transition team was horrified by our draft report" Rosenfeld recalled.44 SERI was allotted no funds to publish the report. Ottinger held hearings on the suppressed report and entered it into the Congressional Record.4- By that point, however, Hayes knew that the clock was ticking on his tenure in Golden. On June 23, the summer solstice of 1981, he was asked for his resignation. He composed ail angry editorial to the New York Times imploring prosolar Americans to insist that solar energy "not be discriminated against." Congress restored some of the DOEs solar budget, but, as Hayes predicted, Reagan's ascendancy saw "the Federal solar program quietly eclipsed."50 The brief but grand solar experiment of the 1970s was over, and more than twenty-five years would pass before renewable energy funding would rcach the levels it had enjoyed before. Solar electricity got cheaper in the intervening years, but the idea that the nations energy system would get a total overhaul ebbed away. Solar still contributes miniscule amounts of electricity to the nations grid, though the solar heat that warms every home to a greater or lesser degree goes uncounted in the official statistics.

Reagan obliterated the debate and implementation of solar energy in America by slashing government support

Graetz 2011

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Overall, the sharp rise in the prices of oil and natural gas in the 1970s brought renewable energy sources, such as solar, wind, and biofuels, along with energy conservation, to the forefront of the nation ’ s public-policy agenda. Renewable fuels became potentially viable, both technologically and economically, for the fi rst time, but when oil and gas prices dropped precipitously in the 1980s, the country returned to its old habits. Energy usage picked up again. Along the way, overly optimistic predictions for alternative energy production actually hurt its cause, making the only incremental upticks disappointing and frustrating to its advocates. The 1970s alternative technologies movement ’ s vision of personal energy independence — with solar panels on every rooftop, windmills in every backyard — remained in an unresolved confl ict with the need for massive subsidies and mandates from federal and state governments and for the cooperation of large businesses — especially electric utilities — to make such energy sources viable. The government came through with large increases in R & D dollars and a wide variety of subsidies, especially tax incentives, but — with the dramatic and unfortunate exception of ethanol production — these incentives were often misdirected and inadequate to the task, and they offered only off-and-on support. The 1970s movement toward renewable energy sources and conservation ultimately required higher prices for traditional fuels, especially oil and natural gas, along with a committed effort by a government willing to incentivize and in some instances to mandate both conservation and the use of alternative fuels. Ronald Reagan was willing to oblige by decontrolling oil and natural-gas prices, but the market would soon thereafter produce a collapse in the costs of those very same commodities. And Reagan had no interest in mandating either alternative energy use or conservation. As a result, during the 1980s neither of these essential conditions could be counted on. Movement toward substantially increased reliance on solar and wind power then became largely moribund until a worldwide movement to limit greenhouse gas emissions gathered force, and oil prices once again spiked during the first decade of the new millennium.

We thus advocate the following counterfactual plan:

#### The United States federal government should increase its financial incentives for decentralized solar power in the United States.

Reagan’s rollback caused public DISENGAGEMENT from the politics of energy. The political was ceded to business interests and a neutral technocratic elite

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Rejecting renewables: The socio-technical impediments to renewable electricity in the United States Benjamin K. SovacoolCorresponding author contact information, E-mail the corresponding author Energy Governance Program, Centre on Asia and Globalisation, Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore Energy Policy Volume 37, Issue 11, November 2009, Pages 4500–4513

Intermittent political support for renewable energy systems did more than just hurt government programs. When the American renewable market collapsed, it soured the country's intellectual consciousness against alternative energy systems. The country's physical landscape was littered with images of broken down wind and solar farms, and its business landscape was haunted by memories of bankrupt American renewable energy manufacturers. James Gallagher (personal interview with author) from the New York State Department of Public Service commented that “the early failures or hurdles with renewables turned people off from the technologies … people developed a bad taste in their mouth.” Thus, renewables were paradoxically a victim of their own success: public favor quickly turned to either apathy or resistance once the high expectations for renewable energy failed to materialize. Moreover, public disinterestedness and contempt for renewable power systems enabled utilities and interest groups to further fight against their adoption. The most obvious element of this antipathy concerns the inconsistent political support for renewable energy systems. Unlike subsidies and incentives for conventional generators, policies aimed at encouraging renewable power technologies have changed frequently, in turn discouraging widespread adoption of the technologies. For instance, the transition from the Carter Administration to the Reagan Administration did more than financially endanger government R&D for distributed and renewable energy resources: it drove some people out of the renewable and small-scale energy industry altogether. Sam Fleming (personal interview with author) from Nexant Incorporated stated it this way: Many people in government had high expectations for renewables, including things that went to Congress for demonstration and commercialization programs, concentrated solarenergy projects in the Mojave Desert, various kinds of incentives, power purchase agreements, and tax credits under PURPA which translated into a flurry of activity for renewables. However, in the early 1980s the government quickly removed key incentives, including accelerated depreciation, and several renewable energy projects had to be abandoned mid-way through construction and companies went bankrupt. The political environment in the 1980s, in other words, made it difficult for companies wishing to build and operate renewable power plants.

Reagan didn’t just shut down tech – he shut down DEBATE. Revisiting this rupture is best way to revitalize energy debate as a choice instead of top down technocratic dictates

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She has been a Professor of Anthropology at the University of California, Berkeley since 1960.[1] (She was the first woman to receive a tenure-track position in the department.) She received a BA in Latin American Studies from Wells College in Aurora, NY in 1952. She received her Ph.D. in Anthropology from Radcliffe College (the women’s counterpart which joined Harvard in 1999) in 1961 under the mentorship of Clyde Kluckhohn.[1] Her education included fieldwork in a Zapotec village in Oaxaca, Mexico, which nurtured her interest in law as it exists in various societies. This interest that began with her family, which stressed the importance of law and justice.

<http://books.google.com/books?hl=en&lr=&id=_5LlYBjZ7gwC&oi=fnd&pg=PA12&dq=carter+reagan+solar+panels+energy+path+point&ots=VOsXRki4rr&sig=ErnN3DlyzhZ1dBtkCQXPOW_WHyI#v=onepage&q=dismantled&f=false>

The end result was a report titled Energy Choices in Dewuvnirie Society, dedicated to future generations - may they have the choice. The title was meant to indicate that energy policies appropriate to democracies and authoritarian regimes would he different, and that energy policies chosen now should not lock in future generations who might wish to move in different directions. The report was published in 1980, although not without controversy. The total CONAES report was over a foot high, and while for many it was a crash course in available knowledge about energy alternatives and their probable impacts, it did not result in a full-blown energy policy for the United States, nor were the reports used as transparent educational materials for the general public. In 1980. Ronald Reagan was elected President. Reagan had President Carter's solar panels taken oft the White House roof, and had the model cars (commissioned in the late 1960s and produced in the 1970s as crash-worthy cars that ran 35 miles on the gallon) with one exception physically destroyed. In addition, the Solar Research Institute in Golden, Colorado, was dismantled. Reagan was no friend of renewables. But there were spin-ofls from our work. The US Deparunent of Energy had already commissioned a project on California Energy- Policies, Interim Reports published in 1978 included one that I wrote with two anthropologists and a physicist, titled "'Belief, Behavior, and Technologies as Driving Forces in Transitional States - 'The People Problem in Dispersed Energy Futures." We wrote, ""the phenomenon of strangers in the same land is in no area better exemplified than in than in the various dialects used by different professional expert groups in the United States. Explosions become 'energetic disassemblies': in the process the explosions themselves become a part of some abstract reality for the expert. Public planning cannot operate successfully without some understanding of the conscqucnces of the above mentioned variables." Transitions can be painful, even when thought about in advance, but the need for just plain people to understand where their world and that of their children and grandchildren was heading was for us a critical matter. In California, planning in both public and private spheres (both individual and corporate) has accomplished a great deal since the late 1970s. Our report dealt with an initiative by a California state agency in conjunction with private companies and utilities. This joint endeavor is one that had precedent in California, and involved the integration of dispersed electric generators onto the electric grid. There seemed to be some progress at least in the direction of efficiencies, though the Three Mile Island accident may have hastened the need for rethinking. Nuclear reactors were put on the back burner - no new nuclear plants have been built in the United Stales since the 1970s. Perhaps influenced by the earlier CONAES Report, the National Academy initiated yet another study in the 1980s when it formed the Committee on Behavioral and Social Aspects of Energy Consumption and Production. The Committee on which I served was headed by a social psychologist. Our report was published in 1984 as Energy Use - '/lie Human Dimension. The chaige was to understand energy consumption and production in the United States from a noneconomic point of view: "Violence had broken out among motorists at gasoline stations during the 1973 petroleum short fall. Such behavior was not anticipated. Thus what other behaviors might not be anticipated." Once again we channeled our understanding toward "the people problem." We addressed three characteristics in the context of control: diversity, uncertainty, and mistrust. The surprise for some was the endemic nature of mistrust. We found energy users generally skeptical of information offered to them both by government and private sources. Credibility was critical for the accuracy of the information presented to be accepted. For me this translated into the need for broad-gauged education. In 1979 and 1980. 1 taught both a graduate course and an undergraduate course on Ethnography of Energy Policy, and gave public lectures on the topic. All the while I was puzzled at the slow speed of change offered the public, long accustomed to the control of public expectations. Why weren't things moving? In 1998 I gave the 6th annual lecture on Energy and Environment at the UC Berkeley Energy and Resources Program. My lecture "Shifting Gears - the Harder Path" was published in 2004 in Antliropole>gu.-<il Quarterly, not exactly accessible to a wider audience. "Shifting Gears" dwelt more than before on the manner in which expertise can have a double edge. On the one hand we need expert knowledge; on the other there is the problem of protecting one's turf. A nuclear physicist is unlikely to push for wind power, nor is it likely that a wind expert would push for nuclear. If energy decisions are too important to be left to specialists, the only generalist or non expert left is the citizen - the person on the receiving end of expertise, or the individual businessman whose turf'is less encumbered by adhesion to rigid technical preferences. Few knew how to characterize a generalist citizcn better than li. B. White (1977:76 -77). Writing about nuclear energy he notes: The Central Maine Power Company feels very good about nuclear generating plants, is not worried about radiation or accidents '... | A group calling itself Sate Power for Maine takes the opposite position and Ls disturbed that nuclear plants should he built while scientists are still in disagreement and before anyone has found a way to dispose of the nuclear waste safely. A Brookside nun who keeps goats got up in a meeting and asked why, if nuclear plants were so safe f... 1 the power company (was) inquiring as to the whereabouts of his goats (... ] the C M.P. man replied [...] "We must know where the goats are [...] so corrective measures could be taken if something went wrong." Iodine can contaminate tnilk f... 1 But he was cheerful [...' You would simply put the animals on a controlled diet I... J and after about forty days the radioactivity would be gone. White's comments on the oil men are equally telling in connection with Passamaquoddy Bay which has a deep water harbor - the "greatest natural-power potential of any town in Maine." The Bay was disturbing to the Pittston oil company intending to open an oil refinery there: "To an oilman Passamaquoddy is not just an Indian word, it is a dirty word: It suggests unlimited power chat will go on I... ] as long as the tides come surging in and go boiling out." When White speaks about the energy crisis, he includes the people who are used to the endless use of power - people who do not readily change habits ingrained over the past 1<>0 years, while also calling attention to dissenting voices, the need for criticism to be informed. For him the generalist citizen must be an individualist ready to speak the mind in a forthright manner no matter how much of a nuisance that might cause. This brings us to the importance of decoupling the belief in progress and the idea of more technology. Notions of progress were invented. They can be reinvented. After all. 'I\*homas JefTerson's idea of progress was more linked to social progress than technological progress, though he was personally no technological slouch. The people who were supporting the nuclear project in the 1970s - the US Government, the scientists, technologists and, of course, the nuclear industry were, according to John Gofman. oblivious to the new dimension of radiationinduced cancer - the lengthy latency period which had been "fiercely resisted in many quarters, even ridiculed, in the face of a mountain of evidence that the time period between insult and disease can be measured in decades, not days, weeks, or months" (Gofman 1981:107). Stuart Udall was more critical in concluding "the US government's atomic weapons industry knowingly and recklessly exposed millions of people to dangerous levels of radiation" (D'Antonio 1993). Together with Hugh Gusterson, we wrote "Nuclear Legacies - Arrogance. Secrecy, Ignorance, Lies. Silence, Suffering Action," published in Half-Lives and Half-Truths - Confronting the Rattioartive Legacies of the Cold War (Johnston 2007). a work exploring the risks intrinsic to atomic en erg)- research and the radioactive legacies in the United States and Soviet Union. Hardly stories of social progress After the 2008 controversy over British Petroleum's "gift" of US$500 million to the University of California at Berkeley for research in biofuels (see Patzek. this volume), we more than ever needed general education about energy that invoked a long time perspective, examined consequences, and evoked critical thinking about the way we want to live. Once again I offered a course on Energy. Culture, and Society. Over 250 students showed up. and along with two teaching assistants. Lcticia Cesarino and Chris 1 lebdon. we had an exhilarating semester enriched by a wide range of visiting lecturers - an ecologist. a physicist, an economist, an archaeologist, and a primatologist. In the excitement of the moment the three of us decided to rework my 2008 course reader for publication in hopes of encouraging a more generalist approach in dealing with "the energy problem" of industrialized societies. Now in 2009 we are in the midst of an economic downturn of dramatic proportions. There is talk about rebuilding infrastructure, about jobs that will help rebuild America, about waste and over-consumption, about a return to basics. What an opportunity to take time to think or rethink about our place on this planet and how to use the bountiful resources that we have inherited, and above all to understand that energy policy is more than a technological problem.

Analysis of the Reagan-based collapse key to expose energy technology as CONTINGENT set of CHOICES, instead of an inevitable PROGRESSION

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Rejecting renewables: The socio-technical impediments to renewable electricity in the United States Benjamin K. SovacoolCorresponding author contact information, E-mail the corresponding author Energy Governance Program, Centre on Asia and Globalisation, Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore Energy Policy Volume 37, Issue 11, November 2009, Pages 4500–4513

The Reagan Administration's reduction of federal subsidies for renewable power in the 1980s caused a large number of firms to go bankrupt, creating a social stigma against renewable technologies such as wind and solar. Is this obstacle behavioral, economic, or political? Dividing the “social” from the “technical,” or even the “economic” from the “political” is counterproductive, since it misses the point that such impediments exist in an integrated nexus, and it is done here only to make such obstacles easier to identify. In viewing the electric utility system in this manner – as a set of social, cultural, economic, and political interests fused together with technology, rather than a “black box” of generators – this article differs from most scholarship on electricity and energy in four crucial ways. First, viewing renewable energy generators as part of a socio-technical system rejects the distinction between the technical and the social. Technologists and policymakers have often attempted to describe technological development by sharply demarcating “technical” concerns from “social” ones. Yet sociologist Latour (1986, p. 22) suggests that “technology and society are two artifacts created by the analyst's duplicity.” Sociologist Law (1992, p. 38) concurs, and argues that such descriptions frequently supplement technical discussions with a list of the “social” factors that influenced development, as if “one is presented with a balance sheet with society (or the economy, or science, or politics) on the one hand and technology on the other. Analysis becomes the study of transfers between columns.” Energy reports from the US Energy Information Administration (EIA) and International Energy Agency (IEA), however, tend to sharply demarcate “technical” and “social” factors in their analysis. Their reports, for instance, focus primarily on estimating generation capacities, projecting fuel costs, and predicting the environmental impacts of particular energy technologies, but rarely include social-scientific approaches and remain wedded to narrow disciplinary boundaries. The exemplar among these types of reports for the United States, the EIA's Annual Energy Outlook, projects current trends of energy consumption to provide perspective about future incomes and prices, but it does not anticipate future policy changes, discuss consumer attitudes and values, or provide policy recommendations. The report assumes the existing configuration of the industry, and thus restricts consideration to a very limited range of alternatives. Second, revealing the socio-technical impediments to renewable power makes visible patterns of electricity production and use, patterns that have become all but invisible to American consumers in the past century. Historian and philosopher Edwards (2003) has remarked that one of the most salient characteristics of modern industrial systems such as telephones and power networks is the degree to which they are not salient for most people, most of the time. These systems reside in a naturalized background, as ordinary to most of us as “trees, daylight, and dirt.” Historian Williams (2001) argues that once some technological landscapes are in place, people fold them so completely into their psyches that those very landscapes become removed from consciousness. Americans are therefore generally unaware about electricity, with the Department of Energy (DOE) reporting that only about 12 percent of people can pass a “basic” electricity-literacy test (US Department of Energy, 2008, p. 8). Most people have become so enfolded into the vast technological network of the electric utility system that they do not even realize such a system exists. Identifying the socio-technical barriers to renewable energy is a way to make the system visible again, an instrumental exercise if more sustainable forms of electricity supply are to be understood and implemented. Admittedly, this article is not the first to emphasize the socio-technical dimensions of electricity. Yet those studies that do attempt to provide a rich, contextualized approach tracing social, historical, and institutional factors in the acceptance of energy technologies have not tended to focus on renewable power technologies in the United States. Hughes (1983) and Nye (1990) limit their analysis from the 1880s to the 1940s. Nye's (1999) other influential book dedicates only a chapter to electricity and only a few paragraphs to renewable energy generators. The work of [Hirsh, 1989] and [Hirsh, 1999] on the managerial practices and technological choices facing the American electric utility industry provides excellent insight into how large scale and centralized fossil fuel generators lost both technical and social momentum throughout from the 1960s to the 1980s, but does not emphasize the importance of social factors and their relationship to the electricity industry much after that period. Melosi (1985) and Smil (1994) provide well written and thorough cultural histories of energy systems in the US and the world, but conclude their investigation with the oil crises of the 1970s. In other words, none of these excellent works focus on changes affecting renewables in the electric utility sector in the past 10 to 20 years. Third, exploring the underlying socio-technical dimensions of electricity technologies recognizes the contingency of technological development. Socio-technical systems are constructed out of chaos, conflict, diversity, and negotiation. System builders, it follows, must overcome a complex milieu of socio-technical obstacles. As sociologist MacKenzie (1987, p. 197) put it, “systems or networks should not be taken simply as given, as unproblematic features of the world; nor should the use of the term ‘system’ be taken to imply stability or lack of conflict. Systems are constructs and hold together only so long as the correct conditions prevail.” Emphasizing the contingency of technical development reminds us that the current electric utility system, with its 17,000 conventional generators, 250,000 miles of high voltage transmission lines, thousands of substations, expansive natural gas pipelines, hundreds of coal mines, and dozens of spent nuclear fuel storage facilities—was and is by no means inevitable. Instead, each system component was the product of social negotiation and compromise. Since the current system was chosen and elaborated upon by actors, it can also be changed by human participants as well. Making apparent the contingency of the electric power grid allows us to study and analyze the factors that make current technologies socially acceptable. In other words, it helps show us what social conditions are necessary for a given technology (or set of technologies) to succeed, at the same time such conditions may make other technologies unacceptable. Fourth and finally, this article challenges notions of technological failure and failed technology. Many assessments of technology continue to understand technological failure as a purely technical phenomenon. The work of Perrow (1984) provides excellent case studies into how the “interactive complexity” and “tight coupling” of socio-technical systems like those used at chemical plants, nuclear weapons laboratories, and air traffic control, will inevitably produce accidents. Woodhouse (1990) comments that since technological endeavors are incredibly complex, new technology can be expected to respond to their environment in unforeseeable ways, a problem further compounded by significant lag time between the introduction of new technologies and discovering their inherent risks. Lipartito (2003) notes that technical explanations of failure are often deployed to clarify the non-acceptance of the electric vehicle, the Beta videotape system, and early metal airplanes. The case of renewable energy technologies, in contrast, highlights how any such notion of “technological failure” must include both the technical and social dimensions of a given technology. The question of whether a technology works – whether it remains “lost” and “marginalized” – cannot be answered prior to its adoption.

Blind deference to the paradigm of technological determinism leads to extinction and nihilism

Schmidt and Marratto 8 (The End of Ethics in a Technological Society Lawrence E. Schmidt Professor of Philosophy Director of Hendrix Journeys Program, Scott Marratto Assistant Professor of Philosophy at Michigan Tech Pg. 171-173)

The deeper ethical problem is, however, that the risk society makes the globe the laboratory for its technological experiments and the object of the experimentation. The crisis that emerged when Oppenheimer's team decided to go ahead with the splitting of the atom in the Now Mexico desert (when some said there were three chances in a million that it would give rise to a runaway explosion in the atmosphere) has now become paradigmatic. In a wide range of experimentation, wc still lack an understanding of the criteria by which to judge whether to proceed. We have incredibly sophisticated computer programs that enable us to model the changes introduced by new techniques to the environment, to human society, or to the human body. We have to decide which techniques wc will apply to deal with the effects of techniques already implemented, but the question of limit has still not surfaced. And models are only models. The real experiment, as Ulrich Beck explains, takes place in (and with) the real world. Theories of nuclear reactor safety are testable only after they are built, not beforehand. The expedient of testing partial systems [what, in our discussion of nuclear energy, we have called risk or fault-tree analysis] amplifies the contingencies of their interaction, and thus contains tin-sources of error which cannot themselves be controlled experimentally. If one compares this with the logic of research that was originally agreed upon, this amounts to its sheer reversal. We no longer find the progression, first laboratory, then application. Instead, testing conies after application and production precedes research. The dilemma into which the mega-hazards have plunged scientific logic applies across the board; that is for nuclear, chemical and genetic experiments science hovers blindlv above the boundary of threats. Test-tube babies must first be produced, genetically engineered artificial creatures released and reactors built, in order that their properties and safety can be studied.23 Hans Jonas has attempted to respond to the emergence of the risk society, the transformation of ethics, and the failure of both classical political theory and modern liberalism to deal with what is happening as technology provides us with unprecedented powers to (collectively) transform nature and human nature. Our ability to "act into nature" with serious consequences for those who live at great spatial distance from us on the planet now and great temporal distance from us in the future has changed the very nature of human action and the reality of ethics.\*\* Paradoxically, the quest for Utopia inherent in what we have called technological progressivism has introduced the real possibility of extinction or oblivion. It has brought us, as we have argued, closer and closer to the edge of the abyss along which we are forced to tread. "Now we shiver in the nakedness of a nihilism in which near-omnipotence is paired with near-emptiness, greatest capacity with knowing least for what ends to use it."2-r> What is required, Jonas argues, is an ethics of futurity that acknowledges the uncertainty of our scientific projects and their apocalyptic potential. Practically speaking, this means that "the prophecy of doom is to be given greater heed than the prophecy of bliss."86

**Status quo energy policies are grounded in SIMULATED ENERGY SCENARIO PLANNING. This mode of forecasting expresses POLITICS not SCIENCE – it expresses a set of HISTORICALLY CONTINGENT social CHOICES, NOT accurate models**

Labban 12

Preempting Possibility: Critical Assessment of the IEA's World Energy Outlook 2010

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THINKING THE (NOT) UNTHINKABLE: FORECASTING AS DESIRING

Growing uncertainty about energy markets following the crises of the 1970s boosted long-term energy forecasting as a planning device to prepare for an increasingly unpredictable future, on one hand, and as a techno-scientific (read: politically neutral and respectable) support for public policies ostensibly aimed at increasing energy security and environmental protection, on the other. Long-range forecasts, however, have invariably failed to produce accurate predictions about all aspects of energy markets: primary energy supplies, energy substitutions, the relative shares of different fuels in the energy mix, aggregate and sectoral energy demand, as well as carbon emissions.6 Because they rely on trend projections, forecasts also rely on an assumption that the future is a smooth, gradual extension of the present at a constant rate with no structural changes or major interruptions or aberrations. They also rely on empirical correlation rather than causality and cannot therefore explain underlying forces that drive demand, price, etc. Thus forecasts cannot predict a future that looks very different from the present, let alone explain how possible futures might unfold, which makes them useful only in short-term, business-as-usual projections. Because of such inherent limitations, which prevent forecasts from accurately predicting long-term technical developments, capital markets and investment climates, let alone even more unpredictable processes such as government policies and geopolitical conflict, energy analysts, including the economists at the IEA, have shifted from long-range predictive forecasts towards more normative scenario building in the analysis of long-range energy-related developments. This technical move has a political dimension that is worth pondering in order to shed critical light on the significance of the WEO 2010 scenarios. Scenario analysis has its origins in corporate and military strategic planning.7 It was developed by Herman Kahn at the RAND corporation in the 1950s — to help the US Air Force think about ‘the unthinkable’— and pioneered by Shell in the early 1960s, initially as an internal communications vehicle, to help the company respond more readily to unexpected developments in energy markets that might affect the price of oil. Whereas forecasts predict what is most likely to happen in the future given current trends and projections, scenarios contemplate what is possible if certain choices are made from within a hypothetical range of possibilities which typically includes a reference case describing what would happen if no action is taken to alter the existing state of affairs in any fundamental manner. For this reason, scenarios not only describe hypothetical futures but must also prescribe pathways and roadmaps, policies and actions, and identify ways and means to arrive at a desirable future and avoid undesirable fate. Unlike forecasts, in which the future is determined by projections of current trends, scenarios assume a less deterministic development that allows subjects to make choices and whose agency, not the correlation of empirical facts, determines possible futures. Scenarios are ‘desiring machines', to borrow a term from Deleuze and Guattari (1983): at the same time that they produce the desired future, they also produce the subject and mechanism by which to actualize it. This occasionally operates in the form of blackmail: coercing action in the present by showing the dire consequences of not acting. Despite obvious differences and assertions to the contrary, energy scenarios are one type of predictive forecast which, however, does not treat current circumstances and trends as immutable, therefore allowing itself flexibility in projecting into the future (and an about-face if the future turns out differently) in order to effect change in the present. For one, energy scenarios rely on forecasts about economic growth, population growth, energy demand, production and generation capacities, prices and costs, etc., hence the possibilities they construct are based on a set of predictions. Also, forecasting is often negatively implicit in scenario analysis. The authors of WEO 2010, as of other Outlooks, are adamant that their scenarios are not forecasts. Yet, all three WEO 2010 scenarios are forecasts about the state of the global economy in that they assume continued economic growth. They also assert that no matter what it will look like, the future is certainly not going to look like the present because WEO 2010 predicts that governments will act on their policy promises, no matter how weakly, and in predictable manner: ‘it is certain that energy and climate policies in many — if not most — countries will change, possibly in the way we assume in the New Policies Scenario’ (p. 62). Thus, eliminating the abominable which is also impossible, WEO 2010 scenarios lay out two alternative futures that differ only quantitatively — one desirable, the other ‘realistic’, or likely. The possible becomes what ensues from action according to the scenario's prescriptions or from absolute lack of action and this is effected by actualizing future events and processes that may or may not occur, depending on what course of action governments take or fail to take in the present. Scenarios limit what is possible to what is desirable for their authors, or to its exact opposite, and exclude possibilities that do not fall within this range. At the moment that scenarios produce possibilities they negate the very notion of possibility.

Reviving the 70s is key to REPOLITICIZE energy – in a shift away from technological determinism. POLITICIZATION must be analytically DISTINGUISHED from technical engineering of micro policy adjustments

Laird 3

Constructing the Future: Advocating Energy Technologies in the Cold War

Author(s): Frank N. LairdReviewed work(s):Source: Technology and Culture, Vol. 44, No. 1 (Jan., 2003), pp. 27-49Published by: The Johns Hopkins University Press on behalf of the Society for the History of TechnologyStable URL: <http://www.jstor.org/stable/25148053> Frank Laird Associate Professor and Director, MA in International Studies Education PhD, Massachusetts Institute of Technology BA, Middlebury College Profile Associate Professor of Technology and Public Policy and Director, MA Degree in International Studies, Josef Korbel School of International Studies, University of Denver; Interdisciplinary Programs in Health, Harvard School of Public Health (1985-1987); National Science Foundation research grants (1991-1992, 1998-2000, 2006-2008); Consultant, Center for Nanotechnology and Society, Arizona State University (2005-2008); Public Policy Committee, American Solar Energy Society (1999-2008), chair of committee (2002-2004); Board of Directors, American Solar Energy Society (2002-2004); Review Panel, Ethics and Values in Science Program, National Science Foundation (1993-1996); Contributing Editor, "Science, Technology & Human Values" (1993-1996); Faculty Affiliate, Center for Science and Technology Policy Research, University of Colorado (2001-present); Academic Advisory Board and Senior Faculty Associate, Center for Science, Policy and Outcomes, Arizona State University (1998-2003); American Association for the Advancement of Science, American Political Science Association, American Solar Energy Society, Association for Public Policy Analysis and Management. Research and Expertise Energy policy, especially with respect to renewable energy; environmental policy, especially with respect to climate change; science and technology policy; democracy and science policy. Programs, Centers and Institutes Center for Sustainable Development and International Peace

Technology advocates often link their technologies of choice to political and social aspirations for the future. In the case of renewable energy? meaning primarily solar power and wind power, though the term also en compasses such other energy sources as biomass fuels and hydropower? advocacy discourse reveals such linkages in strikingly explicit language. In the United States, especially during the middle decades of the cold war era, energy technology policy served as an arena for political conflict about the future of the body politic. Debate about technology became debate about the future. As Joseph Corn and others point out, technology advocates almost invariably envision the future as a paradise brought about either by major innovations in existing technologies, such as the "home of tomorrow," or by new breakthroughs, such as nuclear power.1 But the case of renewable energy diverges from that model on two counts. First, Corn argues that technological futurism tends to "blunt politics," that because technological futurists believe coming technologies will solve social problems they there fore place less emphasis on political action. Just the opposite occurs, however, when governmental funding and policy play a large role in technological development. Renewable-energy advocates sought (and still seek) favorable government policies to help develop the technologies they desired. A subset of those advocates, motivated by strong ecological concerns, challenged the political status quo itself. Second, this subset, whom I will call ecological renewable-energy advocates, contested the conventional notion of progress, which had evolved, in the United States at least, from the Enlightenment ideal of social and human improvement to an ideal of technological improvement in which technologies ceased to be mere instruments of progress and became the very nature of progress itself.2 This new conception of progress also entailed growing human passivity in the social and political dimensions of life.3 Ecological renewable-energy advocates questioned the belief that every new technology was inherently pro gressive. Their challenge to mainstream notions of progress resulted in a set of political alignments that stacked the deck heavily against them, despite their considerable organizational and public support. Historians increasingly recognize that government policies affect tech nological development. Creating new technological systems requires resources, and many such systems exist because of the massive application of public resources.4 Governments influence energy technologies through, among other things, a vast array of subsidies and regulations.5 Not surprisingly, advocates of particular energy technologies have often tried to further their goals by promoting supportive government policies. However, while policies influence the evolution of new technologies, they do not determine, except in rare cases, the exact designs and configurations of the technological systems that emerge.6 Indeed, policy may even misfire entirely. Matthias Heymann makes a persuasive case that government support of wind tur bine technology in the United States actually had the unintended result of seriously setting back the development of that industry there.7 Nonetheless, one cannot ignore the relationship between technology and government policies that put into place both powerful opportunities and significant constraints. Normative values enter these debates over technologies and policies. John Staudenmaier has argued that technologies embody values that con stitute a technology's "style."8 These embodied values, he asserts, can come from those who design and, if they are broadly successful, maintain tech nologies. Successful technologies, because they lead to a certain amount of social adaptation, tend to reinforce those values in the broader society, sug gesting a reciprocal relationship between the technology and its social con text, with each influencing the values of the other.9 Eric Schatzberg has taken a different approach, arguing that advocates of a particular technol ogy promote it by associating it with broadly popular values, such as progress. They do not design progress into their preferred technology, but try to project progress onto it as a way of gaining the upper hand in tech nological controversies.10 Renewable-energy advocates of all stripes took a path between the approaches outlined by Staudenmaier and Schatzberg. They projected pop ular values such as environmental protection onto renewable-energy tech nologies, fully believing that those technologies embodied those values. In addition, convinced that the technologies that made up the energy system would powerfully influence society and politics, they believed?much like nuclear advocates?that creating new technological systems would eventu ally bring about the society they wanted.11 While values enter all technological debates, they especially do so in debates over policies intended to create a new technological system, be it an interstate highway network or a ballistic missile defense. No one can predict confidently the detailed contours of the future world, which makes it diffi cult for people to assess what their interests will be, much less what actions will further them. In the face of such uncertainty, people's values power fully influence what they advocate. To understand the values that advocates associated with renewable-energy technologies, I use an interpretive frame work based on Langdon Winner's concept of technology as legislation, the idea that technological systems can impose incentives and constraints on social and political choices.12 Ecological renewable-energy advocates believed that realizing their social and political goals required a congenial technological system. Mistaken or not, their beliefs gave meaning to their actions and discourses.

The quest for specialized knowledge in ENERGY has already CEDED the political to technocratic logic. Only the intellectual position of an INTERDISCIPLINARY BRICOLEUR can escape this STATIC SCIENTISM.

Counterfactual analysis of energy path choices exposes contingency and overcomes passivity that leads to *EXTINCTION*. LIMITS and DISCIPLINARY SPECIALIZATION are poison to the participatory realization of contingency

Nader 4

The Harder Path--Shifting Gears Laura. Nader From: Anthropological Quarterly Volume 77, Number 4, Fall 2004 pp. 771-791 | 10.1353/anq.2004.0060

She has been a Professor of Anthropology at the University of California, Berkeley since 1960.[1] (She was the first woman to receive a tenure-track position in the department.) She received a BA in Latin American Studies from Wells College in Aurora, NY in 1952. She received her Ph.D. in Anthropology from Radcliffe College (the women’s counterpart which joined Harvard in 1999) in 1961 under the mentorship of Clyde Kluckhohn.[1] Her education included fieldwork in a Zapotec village in Oaxaca, Mexico, which nurtured her interest in law as it exists in various societies. This interest that began with her family, which stressed the importance of law and justice.

Introduction

This essay deals with old science practices and the development of innovative practices that are a mixture of theory, research, and practicality. Americans have an extraordinary record in starting up projects, but they have trouble shifting gears. Some say we have created a world where everything changes, but nothing moves. Professional mind-sets, crises, incremental change, and leapfrogging are part of the story. So too is culture—science culture, political culture and the production of knowledge. In a book about the biological constraints on the human spirit, anthropologist Mel Konner (1982: xii) opened with the following observation: "The problem is not that we know more about less and less. The problem is that we know more and more about more and more, and although we will never know everything about everything the time will come when we know so much about so many things that no one person can hope to grasp all the essential facts.. .needed to make a single wise decision. Knowledge becomes collective in the weakest sense and science becomes like men and women looking for one another, each holding a single piece of a very expensive radio." A. L. Kroeber said much the same about just plain people in 1948 (p. 291): "As the total culture is thereby varied and enriched, it also becomes more difficult for each member of the society really to participate in most of its activities. He begins to be an onlooker at most of it, then a by-stander, and may end up with indifference to the welfare of his society and the values of his culture. He falls back upon the immediate problems of his livelihood and the narrowing range of enjoyments still open to him, because he senses that his society and his culture have become indifferent to him.\* Such Kroeberian observations stem from an anthropological frame of reference that reaches deep into the human past in order to comprehend the moment in which we live. A long time perspective includes recognition of cumulative knowledge, knowledges gathered in real life conditions (Nader 1996). As others have noted, the inventors of myth also invented fire, and the means of keeping it. They domesticated animals, bred new types of plants, kept varieties separate to an extent that exceeds what is possible in today's scientific agriculture. They invented rotation of fields and developed an art now sought after on the western market. They crossed oceans in vessels more seaworthy than modern vessels of comparable size, and demonstrated a sophisticated knowledge of navigation. Native Americans maintained a continuity of occupation in California and Nevada for over 8000 years, and as my colleague Robert Heizer reminded me, no complex civilization can make such a boast, not yet anyways. Anthropologists have learned that civilizations are fragile. We have achieved an individual life expectancy, but social life expectancy—that is a more elusive accomplishment. Anthropologists understand that civilizations rise and collapse which indicates of course that sciences too wax and wane. The evolutionists know that in the history of human existence we are but a tiny speck in time. However, we also live in an era in which the technological capacity to obliterate the whole chain of human evolution by catastrophe or by cumulative action is a possibility. Yet, if we look around us. there seems to be little urgency, When a long time perspective is absent, humility is often in short supply. The capacity of the human species to change the entire globe in irreversible ways was limited until recently, and decisions impacting on group survival must have been shared for most of our existence. We evolved and survived as hunters and gatherers for some 1.5 million years; there's not much hierarchy among hunters and gatherers. Those who think about this long past wonder, will civilizational society be able to survive for 1.5 million years? Throughout most of human existence when people made disastrous environmental decisions the scale of destruction was relatively small, even if at times overwhelming for individual groups. The future will not be an extrapolation of the past because there has been a qualitative transformation of the human world. Human technology has moved at breakneck speed, and in modern cultures people do not have the necessary cultural knowledge to routinely participate in choosing technologies though they may want to. II follows that as a species we are unprepared to deal with events unrelated to first-hand cxpenencc. Instead we depend on experts. The cultural dimension in the field of anthropology complements recognition of the global, the unrestricted time perspective and moves us to examine unexamined assumptions of the modern period. Along with other critical thinkers, we subject to inquiry the dominant thinking—that large scale system-centered complex technologies are more likely to spread the good life than small scale man-centered simpler technologies. Rooted in ihe belief that more is always better lies a system, an ideology, an expertise, a hubris, perhaps, that needs to be subjected to critical analysis, one that needs to be recognized as a controlling process that normalizes such beliefs, leading us to accept them as natural. This paper reflects on old concerns about dilemmas inherent in expert knowledge and compartmentalization—dilemmas that are in the case of energy associated with stagnation in high places, unscientific altitudes in scientific places, insecurities thai produce new and powerful Luddites who stick to old technologies for fear of displacement, with the production of indifference in scientific laboratories, and towards work on new technologies (Braun 1995) My research deals with old science practice and the development of new practices which in the energy field is a mix of theory, research, and practicality. what French anthropologist Claude tevi-Strauss in another context describes as "bricolage." enlightened tinkering done by people who can see with different eyes and utilize what exists. I first began to work on energy in the mid-1970s as part of the National Academy of Sciences CONAES Project (Nader 1980). I found a strange field, one characterized by innocence and ignorance, by idealists and impresarios, by pessimists and optimists, by secrecy and wild predictions, by an ethic of waste and recklessness, and across the board by a truncated time perspective. The strangeness was undoubtedly exacerbated by my being the only anthropologist of the J00 or so participants, as well as the only woman. Alio in the mid-1970s someone sent me a prepublication copy ol Amory Lovins's famous potboiler "The Path Not Taken" that later appeared in Foreign Affairs (1976). lovins contrasted soft paths and hard paths in energy policy. For Lovins the soft energy path was one full of alternative possibilities and central among them were renewable energy sources. The soft path would make use of the potential in various solar technologies; small is beautiful in the soft path. The hard path would be a continuation or elaboration of technologies such as nuclear, which would be centralized, authoritarian, controlling and not friendly to the democratic process—such distinctions being versions of Lewis Mumford's (1970) earlier dichotomy between man-centered and system-centered technologies. Lovins was seen as an ecofreak, an idealist. a tree hugger, or an impractical dreamer fast on the calculator. In a word. "The Path Not Taken" was heresy. At the time l did not understand why his work caused controversy. For an anthropologist it was obvious there were different possibilities. It was equally obvious that all energy choices would be linked with if not determinative of other socio-political choices; lifestyles was a favored word. I learned later that Margaret Mead had cautioned young Amory never to use the word "soft" if you're trying to persuade Americans to take seriously a different path, because soft has feminine connotations while hard is masculine and indicative of powerful possibilities: soft paths...well, "caves and candles." In the 1970s every new alternative idea was dubbed "caves and candles." meaning that it was backwards thinking Experience was to prove Margaret Mead correct. Soft energy paths were considered feminine and weak by leading energy experts, while hard energy paths with their accompanying high risk possibilities were perceived as intellectually challenging, a test of the mettle of scientific man. On hindsight, my advice to Amory Lovins would have been of a different sort than Mead's, although it would not haw changed the substance of his argument. The harder path is the soft path, because it is the path that changes the status quo. II requires new institutions, new technologies, science statesmen rather than technician scientists, and engineers who remember the first principle of engineering—keep it simple. Creativity, dnve, and a dramatic realignment and disaggregation of scientists and their publics are also necessary ingredients for Lovins' harder or more difficult path. The harder path is what I wish to call attention to in what follows. I chose this focus because over the years I notice serious students anxiously trying to understand how to change what does not change I also call attention to the harder path because it appears that while Americans have a clear and extraordinary record in starting large-scale projects—witness the Manhattan Project—once we have started up we have trouble shifting gears. We have created, as David Noble {1977 xvii) puts it, \*a world where everything changes, yet nothing moves" There arc also interesting and opposing theories of change that need to be addressed. There arc those who argue that change in American culture only accompanies crises—like war or depression, the Arab oil embargo or some sort of catastrophe like the Greenhouse effect—while others document the incremental processes of change that transformed American society from an agricultural to an industrialized society (Noble 1977). Other models of change may also need to be examined—the leapfrog approach (a term l believe first coined by Brazilian physicist lose Goldemburg) whereby third world countries jump the first world into new technology rather than following a linear evolutionary path of wood, coal oil, nuclear to the new technologies, or the absence of leapfrogging And of course, chaos theory has generated still other models. More about models later. First Contact—Discovering Science Practice As I mentioned at the outset, in the mid-1970s interdisciplinary research on energy was often charactenzed by ignorance and innocence. I myself was both innocent and ignorant, innocent of how so-called hard science works in practice, and ignorant of the relevant workings of energy technologies, their economic justifications, and above all how an anthropologist might contribute to "solving the energy problem." Permit me a brief review of my socialization into the culture of energy experts. When anthropologists are in strange lands and amongst people whose cultures they do not yet understand they oflen make mistakes, by which I mean they violate cultural rules. Part of our methodology requires that we review such mistakes as a way to begin to profile the culture under study. While doing the energy work I recorded in my notebook instances of such rule violation, and my responses. Words that frequently appeared in my journal were bizarre, out of touch, impervious to evidence, unscientific, trapped. It was culture shock. I came to realize that energy discourses were often one of "no option." The ineviiablity syndrome I called it. Whatever path was being proposed was a "have to path." For example, "we have to push nuclear because there are no alternatives." Such a coercive frame was limiting to say the least, especially since other options were what was being examined. Method was also part of the problem. For example, growth models—that took for granted increasing per capita energy consumption—were disabling when economists (even Nobel economists) were examining less is more options Also striking was the omnipresent model of unilinear development (a concept that anthropologists had left in the dust decades earlier), with little general understanding of macro-processes. For example, the recognition that civilizations arise but that they also collapse was missing from the thinking about the present. Prevalent was the nineteenth century belief that technological progress was equivalent to social progress. In such a progressivist evolutionary frame science too could only rise and not fall or wane. Furthermore, the possibility that experts might be part of the problem was novel to the expert who thought that he stood outside of the problem. The idea that the energy problem had human dimensions. that it was a human problem, slowly began to sink in. although such realization was rarely attributed to social science sources. Many of my commentaries were adamantly opposed in those years, to put it mildly. Colleagues rejected the idea that the science bureaucracies had a limiting effect on definitions and solutions, and also a framing effect on cultural outlook. This view was adamantly opposed by directors at Lawrence Livermore Laboratory, and by those who believe that science is autonomous and culture free. In his thoughtful book on the Social Production of Indifference Michael Herzfeld (1992) explores the symbolic roots of Western bureaucracy. Herzfeld cautions us not to dismiss bureaucracy simply, as inhumane or inefficient, as did Weber and Marx. Lumping all bureaucracies together means accepting a kind of determinism. He calls for more Utopian consideration—critical considerations, what he called a "productive discomfort to the certainties of bureaucratic classification." Herzfeld understands only too well that, "the real danger of indifference is not that it grows out of the barrel of a gun, but that it too easily becomes habitual, (ibid: 184)." It was that habituation among energy scientists that pushed me even further to suggest that American scientists were not as free as they thought. It followed that standardization and conformity were incompatible with the possibility for excellent ideas in science to flourish. The most shocking realization was that the most conformist of these energy experts exhibited profiles of reckless experimentation. Distanced as thev were from the social fabric, thev could easily speak of mass deaths in percentages. Their utterances of disdain, totally unselfconscious utterances, were indicators of the prevalence of group think, and a deep disregard for human life. To my surprise, after the publication in Physics Todoy of my essay "Barriers to Thinking New About Energy" (Nader 1981). an avalanche of responses from scientists and engineers working on energy questions agreed with many of my critical observations and even expanded on them. They commented on censorship, the predominance of group think, the educational process in science that docs little to enhance original thought and a great deal to stop it. the irrationality among energy specialists. They too noted positions that were value laden, macho, unimaginative, self-serving, and unscientific. Such reflections from some of the leaders in the science and engineering fields argued for hope and for disaggregation. Not all scientists and engineers were alike. There were varieties of them. Let me list a few: the scientist who has retained a capacity for critical thinking, the technician scientist who does what he is told without thinking, the impresario, the lobbyist, the propagandist, the conformist, the creative problem-solver. The standard scientific textbook does not describe varieties. On the contrary—the ideal science performer is idealized, essentialized. Of course, there is a function, to making differences between scientists disappear. It serves to contrast scientists with non-scientists. The light and the dark of such contrast are profiled regularfy in the pages of Science magazine, thereby ignoring serious differences of opinion among scientists, differences which may be as great or greater than that between the scientist and the layperson. Chemists and physicists have different profiles, as scientists; and each of them from the biologists, the evolutionary scientists, etc. The idea that there is a standard way of thinking scientifically has been questioned by scientists themselves. One need only read Richard Fcvnman. for instance. Yet a recent Science essay (Augustine, 1998) continues the unenlightened tradition of essentializing science to expose the problems scientists have in dealing with "ignorant" lay people. On the other hand, such formulation suggests that scientists arc not that different from anybody else in that they observe, make decisions, and ask questions on the basis of cherished values. Although l had not started out to look at science practice, that was what I was doing. The more I looked at science practice the more it became clear that different actors were caught in different nets. First, the workplace of scientists—the institutions and bureaucracies that hire scientists and organize science work—seemed to expect creativity but to require conformity, standardized thinking and compartmentalized expertise, all within a well defined level of permissible dissent. Behavior is selected for. learned, structurally and culturally transmitted. Beyond the workplace there are the technological imperatives that drive the actors, imperatives that are enmeshed in particular technologies. A physics colleague recently referred to los Alamos scientists as "high price, high tech. not good at practical things—shiny and high tech" he repeated. To understand what anthropologists could contribute to the energy debates l had to understand science practice. This work has since taken anthropologists like Sharon Traweek (1987) and Hugh Gusterson (19%) and others into U.S. national laboratories to study the science culture that C.P. Snow (1964) had written about earlier in his Two Cultures book. Such work also involves knowledge of science networking outside of laboratories with industry and government agencies (as in Schwartz in Nader 1996); it examines the symbolic importance of science exhibits denied or modified at the Smithsonian (Vackimes 1996). and includes interviewing interested parties, e.g. about radioactive waste on Native American reservations (Ou 1996). In all this work there seems to be a disparity between the ideal scientific method and its use in ordinary life, between the scientific spirit of free inquiry and censorship. The ideal scientific enterprise shows less than perfect congruence with actual practice because of so many intervening variables like funding and bureaucracies in both civilian and military contexts, or the needs of private industry. How else can we explain the diffusion of civilian nuclear energy before energy experts had written even one article or report on decommissioning a nuclear plant, and before they knew what they were going to do with nuclear wastes? We had to know all of this if we were to understand why so many energy scientists were unable to shift gears, to even imagine new technologies other than the same old ones they were elaborating and calling "new." Was it their workplace, was it the laboratory science culture, was it bureaucratic indifference. was it lack of imagination or creativity, was it censorship, was it the governments welfare program for science, or all of these things? The Energy Decade—What Happened? The 1970s was the energy decade. Since then and even with the end of the (old War the issue is once again nuclear weapons as indicated by the yearly billion dollar budgets targeted for Livermore and Los Alamos for "new\* weapons. In the Reagan. Bush, and Clinton years the focus has not been on nuclear energy but on nuclear weapons Under Clinton/Gore there was not one major talk about civilian energy policies. After the dissolution of the Soviet Union there was a possibility that pcaictime conversion might alter the direction of the national laboratories. There was at least talk that national laboratories might move ahead on new energy research such as solar, hydrogen, or photovoltaic Alas, the laboratory leadership could not shift gears, and although there were some innovators valiantly working for conversion inside the national labs, peacetime conversion failed, and we were back to business as usual. Philosopher of science Paul Feyerabend, himself trained in physics, published an irreverent book in 1978 in which he asked "What's so great about science?" He asked this question to point out that today science stands unopposed, and for Feyerabend that is one of the problems. In the 19th century there were fierce debates about the worth of science between proponents of religion and proponents of science, but in the 20th century, particularly in the latter part of the century, to criticize scientific practice exposes one to Gross and Levitt (1990) type silencing accusations. There is a difference between antiscience positions and anti-bad science and technology critiques. Public opinion on science as if people mattered, or an interest in how science is practiced is necessary for the nounshment of an unopposed science. Physicians, like John Gofman who is also a physicist, have spoken out against the "expose the people first, learn the effects later" syndrome. Gofman was thought to be an extremist by some, while public utterances like Sigvard Eklund who was general director of the International Atomic Energy Agency, were apparently not extremist. As noted in Brown and Brutoco (1997:25). Eklund says that "the problem of the nuclear power industry is that we have had too few accidents... It's expensive, but that's how you gain experience.\* When statements like that pass for "normal\* it makes one think that Feyerabend is on the right track—science is being treated like the religious phenomena it fought a century earlier, impervious to doubt, and reckless as well.

Some Recent History After the Cold War. justification for nuclear research was replaced by new justification—the rogue states of Iraq. North Korea. Libya, etc. Business as usual continues. Since the 1990s, in the United States nuclear power is being revived and described as a new generation of safe, clean plants, and we still do not know much about decomissioning or what to do with nuclear waste. Bureaucratic intermingling of civilian energy needs and national sccunty needs at the DOE weakens possibility for conversions at the labs. As David Noble says "everything changes and nothing moves." seemingly at. least. After dropping the atomic bombs on Hiroshima and Nagasaki in 1945. the public debate was about nuclear military power. Later Sen. McCarthy branded scientific dissidents on the subject guilty of treason. In 1962 Linus Pauling won the Nobel Peace Prize for his work to stop the atmospheric testing of nuclear weapons. Scientific dissent about the health, safety and environmental impact of nuclear energy surfaced in the late 1960s with the research of Gofman, and Tamplin, and Sternglass In 1971, nuclear engineers and physicists of the Union of Concerned Scientists questioned the safety of nuclear power claiming arrogance, expert elitism, and stacked AEC proceedings. There was a national movement against nuclear. At the same time, however. President Nixon expanded support for nuclear energy, which was in some small measure reversed by President Carter. For some Carter had authority; he was after all a nuclear engineer. In the Carter years there was an expansion of coal, synthetic fuels, alternative energy and conservation, in the same period, anti-nuclear activist Karen Silkwood was killed in a car accident leaving people wondering about stakeholders. There was the 1975 fire at the Browns Ferry nuclear plant. Four reactor engineers defected from the industry to speak out. 1977 brought antinuclear protests at the Seabrook and Diablo Canyon plants. In 1979 the accident at 3 Mile Island happened and in 1986, Chernobyl. But it was the Reagan revolution that decisively ended the energy decade and shifted the discourse once again from nuclear power to nuclear war and weapons. President Reagan branded anti-nuclear activists as modern-day Luddites. With Presidents Reagan and Bush, down went credits for renewables, down went the Solar Energy Research Institute (SERI) and solar energy subsidies, down went government research and development and on energy options. President Reagan took President Carters symbolic solar panels off the white House, discontinued solar energy tax credits, and had the safe efficiency car model that had been developed by a father and son team in Santa Barbara with tax dollars and which ran over 55 miles on the gallon physically destroyed, thereby adumbrating the real Luddites.

The technocratic energy consensus created by Reagan disavowed the antagonism necessary for politics – this ensures dissent is met with uncontrolled violence and error replication

Erik **Swyngedouw**, Geography, School of Environment and Development, University of Manchester, 20**11** Political Geography 30, 370-380 "Interrogating post-democratization: Reclaiming egalitarian political spaces"

Post-democracy as consensus politics, however, inaugurates neither the disappearance of serial exclusion, radical socio-political conflict, antagonism and occasionally violent encounter, nor greater political inclusion. For example, the deterritorialization and de-nationalisation of bio-political relations, primarily as the result of growing diasporic nomadism and the explosion of multi-place networked identities, has given rise to truncated political rights, whereby some people are more equal than others in the exercise of political rights or commanding institutional powers that are still primarily territorial (Swyngedouw and Swyngedouw, 2009). Differential and unequal social and political citizenship rights, for example, are inscribed in or assigned to bodies depending on places of origin, destination and patterns of mobility (Isin, 2000). The geographically unequal and spatially fragmented political rights different individuals enjoy in different political-geographical settings e like the right to vote e are a case in point. Related to this, as Bob Jessop noted, “the scope of consensus politics is expanded to the whole of humanity but the presumed identity of the bare individual as pars totalis and a universal global humanity has been disturbed by a fundamentalism of identities that erupts onto the world stage” (Jessop, 2005, p. 186). In other words, the universalizing procedures of consensus politics is cut through by all manner of fragmenting forces that often revolve around the resurgence of the ‘ethnic’ evil, i.e. identity politics as the cause that disrupts the consensually established order. While identitarian politics is loudly acclaimed, xenophobic or nationalist movements arise, whereby ‘incorrect’ outsiders are violently excluded often through erecting all manner of new material, legal or other geographical barriers, walls, and camps (De Cauter, 2004; Diken, 2004; Minca, 2005). In other words, post-democratic consensual procedures are cut through by all manner of often disavowed antagonisms and recurrent violent outbreaks of the kind exempli- fied in the introduction.

While a consensual view refuses “to legitimize the centrality of antagonism in democratic politics, the post-democratic Zeitgeist forces the expression of this dissent through channels bound to fuel a spiral of increasingly uncontrolled violence [and]. to violent expressions of hatred which upon entering the de-politicized public sphere, can only be identified and opposed in moral or cultural (or eventually military) terms” (Stavrakakis, 2006, pp. 264e265). The rise of racism, violent urban eruptions, ethnic or religious rivalries, etc. become key arenas of social conflict (Zizek, 2008a). In the absence of agonistic politicization of these antagonisms, they become expressed in outbursts of violence or, from a liberal cosmopolitan perspective, in the affective powers of cultural or ethical outrage. Zizek summarizes this emergent configuration under the banner of post-politics. Post-politics is thus about the administration (policing) of social, economic or other issues, and they remain of course fully within the realm of the possible, of existing social relations: “The ultimate sign of post- politics in all Western countries”, Zizek (2002a, p. 303) maintains, “is the growth of a managerial approach to government: govern- ment is re-conceived as a managerial function, deprived of its proper political dimension”. Politics becomes something one can do without making decisions that divide and separate (Thomson, 2003). In the absence of a proper politicization of demands that are banned from the consensual order and that are not permitted to enter the public sphere of agonistic disagreement, violent encounter remains one of the few courses open for the affective staging of active discontent. Of course, such manifestation of disagreement and dissent signal the possibility for a return, a re- treating, of ‘the political’. The post-democratic consensus and processes of de-politicization do not efface the political fully. De-politicization is always incomplete, leaves a trace and hence, the promise of a return of the political, a return, in Zizek’s words, of the repressed. And it is this that we shall turn to next.

We have to CHANGE THE FRAME to create a democratic DEBATE on solar policy. The Reagan rollback demonstrates that policy manipulation that doesn’t contest the frame fails. These artificial constraints strip debate of its educational potential – removing those limits allows a debate that’s both balanced and democratic. We must START the counterfactual debate EVEN IF the plan is a bad idea

Laird 1

Solar Energy, technology policy and institutional values

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I During much of its history, energy policy has been highly exclusionary,. comprising systems characterized by very limited participation, as one would cxpcct in a stable policy subsystem.1" The history of solar energy policy, and attempts to influence the government to take solar seriously, also exhibit this lack of participation. IJnril the 1970s, the only way thar solar advocates could be heard in any part of government was through informal and contingent channels. When Palmer Putnam wrote his solar chapter for Truman's President's Materials Policy Commission, he consulted with as many solar experts as time and funds allowed. In the Eisenhower, Kennedy, and Johnson years solar advocates tried ro interesr government officials through confercnccs, speeches, and other forms of publicity about solar, and wc have seen how they would sometimes succeed in getting the attention of someone, though never rhe top officials. In the Nixon and Ford administrations we saw solar advocates slowly gaining greater access to a wider range of government officials, often first through congressional committees and later through agencies like the CEQ and the Energy Research and Development Administration. These contacts reached higher levels and bccame more formalized in the Carter years, when major solar advocates were able to schedule meetings with the president himself and his top aides, and when some of these advocates became administration officials. Also in the Carter administration, the solar Domestic Policy Review developed a program for extensive public participation, both formal and informal, that reached out broadly to the general public and reached deeply for repeated contacts with key individuals in the solar movement. However, as 1 discussed earlier, the public participation program even in the Carter administration was flawed. It did provide a way for solar advocates to apply pressure on the administration, and to get something m return, but the durability of the official energy problem frame made the advocates' job very difficult and prevented their making a lasting change in policy. By allowing new groups into the policy process, the Carter administration did open up parts of the government to new ideas and ways of thinking about energy and changed the dynamics of policy making. And the new programs that the president put in place moved ahead even without his strong support in the last year of his administration. But the)- were unable to survive the active hostility of the Reagan years. Public participation did not lead to the institutionalization of new ideas relevant to energy policy in key policy-making parts of the government, but rather, activists saw those values ignored or relegated to institutions jhat. were not crucial to high-level policy, such as the CEQ. As I have argued elsewhere, a participation program that is truly democratic must include the ability to debate and influence the definition of the problem. Absent such influences, the participation programs achieved only a modest part of their potential and failed to create as democratic a process as they might have." Another difficulty resulting from the lack of participation, which was historically the case in solar energy, is that it impedes low-cost learning. Woodhouse has argued that the inevitable uncertainties in developing any new technology, or even in controlling an old one, make desirable that the policy process have learning built in, preferably at a low cost. Some types of participation can serve at least part of this policy learning function. Participation can potentially deliver a wealth of both good and bad news about new policies and technologies to citizens and policymakers, if the proccss is set up to receive and use it. Such participation needs to be fairly profound, including allowing arguments that jn entire problem frame is misconceived and needs changng - one of the requirements of democratic theory as well.1\* While participation increased in the Carter years, and some of it did provide some important feedback to policy makers, the nature of that feedback and the ability to interpret and incorporate it into policy decisions was clearly very-limited. Winner's notion of technological citizenship comprises first and foremost political and institutional spaces in which citizens can debate and discuss future technological developments in a broad sense, including thr normative goals that they seek to attain by changing and adaptihgfthe technological systems around them. Absent such a "moral community^ that can make, or at least influence, policy, people arc deprived of technological citizenship, even if they have some succcss as interest groups.\*' Ecological solar advocates at least began rhe debates appropriate to'technological citizenship. They argued intensely over the most desirable forms of society and the relationship of their technological choices to rhem. Amidst ralk of BTUs and thermal efficiencies also arose discussions of .ecological stewardship, social equity, decentralization of power, and alienation. Winner's concept of Technology as legislation enables "us to interpret the linkage of technological choices to social and political structures; solar advocates saw their preferred technologies leading to their preferred social arrangements, which explains why and how they argued for solar energy. That linkage formed the. core .of their energy problem and its solution. Solar advocates published their debates as widely as they could, with the issues bursting onto a wider stage with the congressional hearings held on Amory lx>vins's work. As those hearings demonstrated, solar advocates' opponents also joined in that wider debate, disputing their social claims as well as their technical ones. Both sides argued as if they saw technology as legislation and were trying to play the role of technological citizen to influence new technological systems and to defend their preferred form of society. My argument makes no claim about whether the various, sides inthis debate were correct in their views, or even if their arguments were thought our well. Some of those arguments have since been persuasively critiqued, sometimes by analysts sympathetic to the ecological solar advocates.-1 The key point is that they at least formed the linkages and began the discussion. Despite these efforts, solar advocates never achieved technological citizenship. A sufficiently, open, influential, and authoritative forum eluded rhem, or perhaps they did not have enough time in the arenas that were available to them. Eirher way, the values dominant in energy policy remained consistent from the Truman to the Carter administrations, and there was never adequate political space in which alternative visions of society and polity could be articulated and associated with the choiccs of energy technologies. Solar, when ir was discussed at the highest policy levels, was interpreted through those traditional values, and such a problem definition made the cask of solar advocates quite difficult. Existing institutions responsible for energy policy showed no interest in changing the policy problem frame or the values associated with it, and new institutions, such as the Department of Kncrgy, also failed to provide a place for such normative debates. Brief appearances at agency or congressional hearings did not enable advocates to change problem frames "rjiojicy narratives. Neither did occasional meetings with White House staff or even a sympathetic president. Changing problem frames means gerting a new policy narrative accepted at many levels of society and is a long-rerm project. A democracy should develop the institutions thar provide opportunities for discussing problem frames. Those discussions might well challenge the normative and empirical ideas thar shape policy problem frames, for energy issues as for any other. Advocates of different technological systems will need to argue their case at the grassroots as well as the White House levels, and to do so consistently for years, to have their normative and empirical ideas thoroughly considered. While no crises currently confront energy policy, governments srill need to create policies for the future. New technological systems emerging in the coming decades will engender as profound changes in society as such systems have had in rhc past rwo cenruries. All too often those changes have been wrenching, and all too often they have left us with deep social, political, and environmental problems. The history of solar energy policy shows us thar doing better requires a critical examination of all parts ol a policy problem, including deeply cntrcnchcd institutional];^ ideas Forms of low-cost learning and technological citizcnship may be as important to such an enterprise as the technical expertise that wc also require. We have only glimpsed the means for accomplishing such lofty goals, but thar is no excuse for neglecting them. Our growing-technological power requires increasingly democratic and intelligent policies for rhc future. /

A counterfactual history disrupts progressivism and averts EXTINCTION – precisely because it is impossible

Jones 9/7/9

<http://magicalnihilism.com/2009/09/07/the-positive-energy-of-counterfactuals-a-rejected-essay-for-howies/>

Up until 2007 I worked for Nokia Design, looking after the user-experience for Nokia Nseries, based out of the UK. The potential of mobile and ubiquitous technology is still a huge fascination for me. Through teaching and competition/theory work, I am exploring how digital design is permeating and affecting the environment. I was one of the co-founders and lead designer of Dopplr.com, a service for intelligent travel, and now I’m one of the principals at BERG, a design and invention company.

I was asked to write something for Howies‘ Autumn catalogue on the theme of “Positive Energy”. I was in a particularly punchy mood as I wrote I think, and the backdrop of a summer thunderstorm tipped me in a direction that… Well, let’s just say I wasn’t exactly surprised when it wasn’t printed – it’s not quite ‘on-brand” for them – but it’ll fit in just fine round here. So – remembering that although I’ve added some links, it’s written for print, not the web – here’s what I turned in: Positive Energy / for Howies / Matt Jones / 871 words. 7.7.09 As I write this there’s a thunderstorm over my head. It’s a cracking one too, literally. The thunderclaps are ear-splitting and it’s blowing the rubbish around on the dilapidated flat roof our studio windows over look. The energy released by an average thunderstorm, according to wikipedia amounts to about the equivalent of a 20-kiloton nuclear warhead going off. A large, severe thunderstorm might be 10 to 100 times more energetic. In a digital window in front of me, I’m reading the twitter posts of a friend (Gavin Starks, @agentgav, founder of carbon calculator http://www.amee.cc) who’s attending the “World Forum on Enterprise and the Environment” with luminaries such as Lord Brown, former head of BP, Sir David King, the government’s former chief scientist and Mr Inconvenient Truth himself, former vice-president Al Gore. It’s an impressive line-up to be sure. But some of the most impressive things he’s recounting are coming from a delegation from China. For instance, this from Dr Christine Loh (1), of Civic Exchange, China: “China believe they’ve cracked thin-film solar for domestic use” To explain it very simplistically: thin-film solar technology brings the price of renewable energy of the sun into the same ball-park as non-renewable sources such as oil and coal. That China, the factory of the world, is going to start cranking this stuff out could be game-changing, and biosphere-saving. That China could become the world’s number one economic superpower has been received wisdom for a while now. What’s new is the suspicion they might be able to turn around their rapid ascent to claiming the top polluter crown from the USA. In fact, they might take the lead in clean, green technology from the West. Gavin also reported this factoid from Al Gore: “China now plants twice the number of trees than the rest of the world put together. Every citizen must plant three” Not should, not encouraged – MUST. And of course that’s part of the inconvenient truth about China – that their political system and attitudes to individual freedom are very different to those we hold dear in ‘The West’. But – what if that’s what it takes to survive? Al Gore again: “We must connect the soil to the energy to the built environment, to our population and to our politics”. We’re in a highly individualistic democratic society. Do we have something positive and captivating enough as a vision to get us there? We’ve done it before. Over the last month I’ve been watching the commemorative programmes on the telly marking the 40th anniversary of the manned landings on the moon. Not only were they the product of the NASA Apollo space programme – more broadly speaking, they were the product of an ideological battle between the USA and USSR in the cold war. And it got me thinking strange thoughts: would it have been better for the long term future if McCain and Palin had got in? If America were seized by a new ideological battle – frustrated and bruised from a prolonged, controversial war on an abstract noun, nationalist fervour was directed into a technological crusade to make sure China doesn’t reign supreme in green. Instead of a space race, an earth race… Technology isn’t the answer to everything – but hair-shirt green thinking isn’t either. Back-to-the-land doesn’t scale when there’s going to be 10 billion of us on it, and that’s even without the now-almost-inevitable changes in the climate. It’s certainly not the route China’s going to take. Now, wondering whether GM food or nuclear power might have to gain widespread acceptance, or whether freedom is compatible with survival, or that Obama’s not going to push the US and the West far enough away from legacy thinking is pretty challenging to my personal politics. But, thinking through these kind of ‘counter-factual’ scenarios can throw up interesting possibilities. When we’re ready to think about throwing away the things that we hold most precious, we can see new ways to hold on to them. Another friend, Sascha Pohflepp, just graduated from the Royal College of Art with a fascinating project illustrating a counter-factual history where Jimmy Carter won against Ronald Reagan, and gave us a 1980s where the arms race was transmuted into an energy race; where a fictional government agency – “The Golden Institute” (2), turns Nevada into a weather lab and Vegas into an array of gaudy lightning catchers that supply the USA with power; where the kiloton energies of thunderstorms are engineered with silver-iodide balloons, and giant gyroscopes near the North Pole harness the world’s rotation to keep the lights on in the West, while slowing down the Earth just enough to make the days longer in the USA than Russia… Fantastic, crazy, impossible stuff – imagined with the scale and scope and audacity and sacrifice and ruthlessness that got us to the moon. That showed us the Earth. That might keep us here. That China might be ready for. Where’s our vision of a bright green future? There’s the thunder again.

# \*\*\*\*2AC\*\*\*\*

## really long 2ac

 CLAIMS ABOUT “SHOULD” ARE OVERDETERMINED. IT INDICATES A NEED FOR POLICY ACTION IN PROPOSITION. WE MEET THAT.

**Trapp & Hanson ‘5** Robert Trapp is a Professor of Rhetoric at Willamette University in Salem, Oregon, U.S.A. Christine Hanson is the Press Assistant for United States Senator Bill Nelson (Democrat of Florida) and is a lecturer at George Washington University, “Debating Comparative Propositions of Policy,” Volume 5, Issue 4 June 2005 - IDEA: International Debate Education ... http://www.idebate.org/magazine/files/Magazine436a366e4843f.pdf

Merely by convention, some teachers and writers have insisted that the word “should” is a necessary and a suﬃcient indicator of a policy proposition. This convention, however, is arbitrary and does not mirror ordinary language usage. The term “should” is one of many terms that can signal a logical requirement for a plan of action.

 Resolved’s irrelevant – only after the colon matters

Webster’s Guide to Grammar and Writing 2k

Use of a colon before a list or an explanation that is preceded by a clause that can stand by itself. Think of the colon as a gate, inviting one to go one…If the introductory phrase preceding the colon is very brief and the clause following the colon represents the real business of the sentence, beginning the clause after the colon with a capital letter.

 ERROR REPLICATION – dividing past counterfactual from the present crushes decisionmaking

**Johnson & Sherman ‘90** Marcia K. Johnson is a Sterling Professor of Psychology at Yale University. Steven J. Sherman is Chancellor's Professor of Psychological and Brain Sciences at Indiana University, Bloomington. “Constructing and Reconstructing the Past and the Future in the Present,” in E.T. Higgins & R.M. Sorrentino (Eds) HANDBOOK OF MOTIVATION AND COGNITATION, p. 510

Counterfactuals are thus important in determining affective reactions to actual events and to judgments of responsibility and causality. (Perhaps one reason why we are more angered by betrayals by people we trust than by people we do not trust is that we can so easily imagine trusted people as behaving otherwise.) More than this, counter factual generation is important because it affects the ways in which we think about the past and about the future. Without considering alternatives to reality, we must accept the past as having been inevitable and must believe that the future will be no different from the past. The generation of counterfactuals gives us flexibility in thinking about possible futures and prepares us better for those futures. Along these lines, Taylor and Schneider (1989) have proposed a theory of coping that focuses on the mental simulation of past, future, and hypothetical events. Such event simulation serves problem-solving and emotion-regulating functions for stressors by increasing the perceived validity of the imagined experiences, providing a framework for organizing experience, and providing a mechanism for mustering helpful emotions. In this way, counterfactual generation and the mental simulation of events can help in coping with ongoing, anticipated, or past stressful events. It is thus clear that after-the-fact counterfactual reasoning affects feelings and judgments about the past, the present, and the future. Before-the-fact reasoning, in the form of expectancies, hopes, and wishes, likewise affects these feelings and judgments, as we have seen.

Limits cause lock-in – Historical analysis of solar energy policy must be able to CHALLENGE existing frameworks of policy formation and their presentist orientation – only direct contestation of existing frames avoids depoliticization

Laird 1

Solar Energy, technology policy and institutional values

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IMPORTANCE OF THE CASE The broad importance of energy to all aspects of life in industrial societies needs little discussion. Energy is part of every major technological activity, from agriculture and manufacturing to transportation and telecommunications. The roots of energy policy stem from the U.S. government's deep involvements in energy technologies, resources, and markets, an involvement that goes back over a century and shows no indication of disappearing.30 The government has been and continues to be involved in the research and planning for future energy resources. The Cold War powerfully influenced federal government R8cD priorities, and energy, especially nuclear energy, technologies figured prominently in those programs.31 The Cold War influence went beyond picking R&C.D priorities. As Stuart W. Leslie has argued, the military security orientation of such programs led technology and science policy in particular directions, emphasizing state-ofthe-art high performance often at the expense of technologies that could have important applications in the civilian economy.32 Such planning for the future seemed an immediate and pressing matter during most of the 1970s. It seems less so today, although there is no reason that it should. Planning for the future should not wait until a crisis strikes. Recent price increases remind us that the current low prices and ample supply of oil will not last indefinitely. A recent survey of studies of recoverable crude oil argues that world oil production is likely to peak somewhere between the years 2007 and 2014, and this conclusion does not assume any political events that will interrupt production.33 Energy could be a front-page issue again before long. Solar energy - or renewable energy, as such sources are usually called now - has the potential to be a major part of the world's energy sources as fossil fuels decline in production. As we will see, advocates have long depicted renewables as the resource that will enable the continuation of industrial civilization after the era of fossil fuels, and a recent spate of books and studies have updated and promoted that conclusion. Private analysts, solar and environmental advocates, government agencies such as the fomier Congressional Office of Technology Assessment, and some industry groups argue vigorously that renewable energy will be the cornerstone of future energy systems.34 Thus, understanding the history and dynamics of solar energy policy is important for understanding the possible changes in a technological system of great importance, now and in the future. Energy policy mostly focuses on existing sources of energy, their accompanying technological ensembles, and the conflicts of their associated regional economic and political interests. For example, the coal industry for years opposed increasing the quotas of imported residual fuel oil, typically used for home heating, into the United States, fearing that such imports would cut into their market share.35 In this type of conflict, well-established economic interests argue over policies that would affect their shares of wealth and income. The technologies and market structures involved are mature, the various interests have close, long-term relations to government agencies, and everyone acts as if they have a clear idea of which policies will advance their economic interests and which ones will not. In contrast, policy debates over solar energy are arguments over the shape of a large future technological system. Such policies necessarily confront immense uncertainties about interests and outcomes. This class of policies affects, in addition to energy, many of the most consequential technological systems of our time, including environmentally clean manufacturing, rapid changes in agriculture wrought by advances in biotechnology, and the linkages and developments in telecommunications and information technologies. Policies that governments adopt now will influence billions of dollars of investment in complex technological systems that will become constitutive parts of our society for years to come. The approach I take to this case thereby provides insights for analyzing some of these other issues. CRITIQUE OF THE POLICY-MAKING PROCESS Those who wish to challenge prevailing public policy must be able to challenge the sets of ideas that underlie the status quo. A democratic technology policy cannot content itself with giving citizens a set of cookie-cutter choices but must instead empower them to contest the underlying judgements and ideas that constitute those choices.36 Woodhouse and Collingridge stress that intelligent democratic processes must take into account the views of diverse partisans, lest unwise policies go unchallenged. Clearly, partisans who cannot challenge institutionalized ideas have very little scope for challenging policies in general. Hajer argues persuasively that substantial changes in policy require the dominance of new discourse coalitions, which entails institutionalizing new ideas.37 Langdon Winner addresses the problem that philosophical and other theoretical analyses seem to have little effect on the technologies that our societies produce, even when some actors in the system recognize that ethical and other normative issues will be greatly affected by the new technologies. Winner concludes that "the trouble is not that we lack good arguments and theories, but rather that modern politics simply does not provide appropriate roles and institutions in which the goal of defining the common good in technology policy is a legitimate project."38 This study takes Winner's critique seriously and asks why various technology policy processes, including those that provide channels through which advocates can participate, do not provide the deliberative institutions and roles that Winner calls for. In constructing technologies we do construct our future, and so our policies for the future, if they are to be democratic, require that citizens be able to challenge the institutionalized ideas that underlie the status quo.

Counterfactual history turns limits – the point is overcoming disciplinary boundaries

Fuller 10

<http://scholar.googleusercontent.com/scholar?q=cache:UK_fr4Z6bTsJ:scholar.google.com/+counterfactual+fuller+science+energy&hl=en&as_sdt=0,9>

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<http://csid.unt.edu/files/HOI%20Chapters/Chapter_4_HOI.doc>.

The Slovenian philosopher and cultural critic Slavoj Žižek (2006) recently published a book entitled The Parallax View, a reference to the 1974 Alan J. Pakula film that opens with the assassination of a US presidential candidate, apparently by one gunman, yet a second gunman flees the crime scene unnoticed. The film then follows a reporter’s attempt to resolve the situation, by analogy with how our minds reconcile the somewhat different sensory inputs registered by our two eyes, aka the parallax view. Deviant interdisciplinarity presupposes a ‘parallax view’ of intellectual history, whereby the normal account by which disciplines develop and give rise to interdisciplinary inquiry is taken to be only part of the whole story. There is at least one other side, which reflects a different sense of how things came to be as they are and how they might turn out to be in the future. A subgenre of science fiction, ‘alternate history,’ is dedicated to this prospect, though in the form of ‘counterfactual history’ it has become a mainstay of economic and military history and, increasingly, history of science (Hellekson 2001, Fuller 2008b). But how do ‘normal’ and ‘deviant’ accounts of events differ – that is, accounts that respectively ignore and recognize the presence of parallax? There is precedent for this question in historiography more generally. Herbert Butterfield (1965) famously used the word ‘Whig’ to describe ‘normal’ accounts of history. The Whigs were the eighteenth century English political party that successfully championed the cause of Parliament over the King and recounted its victory as the latest phase in the long slow progress of liberty over tyranny in the governance of human affairs. ‘Whig histories’ are thus told from the standpoint of history’s winners. They reveal the good reasons why things have happened the way they have, in the order they did, to reach the ends they have. Whatever does not fit into this narrative structure is either ignored or treated as error of an epistemic and/or a moral kind that in the long term is ultimately put right. However, in the midst of Whig historiography’s polite silences and expressions of righteous indignation vis-à-vis the alleged enemies of progress, one can glimpse alternative historical narratives. In these, what the Whig finds incidental becomes central and what would otherwise seem bad and the wrong now appear better and smarter, perhaps even culminating in history’s winners and losers reversing their fates. These counterfactual scenarios are the stuff of ‘Tory’ historiography, named for the King’s defenders, who lost the struggle with the Whigs but maintain that their defeat was by no means inevitable and that in the future their party may be reinstated (Fuller 2003: ch. 9). Behind every form of deviant interdisciplinarity is a version of Tory historiography. But how exactly does this contrast in attitudes to history bear on how ‘normals’ and ‘deviants’ conceptualize interdisciplinarity? I shall consider each in turn. A convenient example of the normal view to interdisciplinarity is provided by the distinction between ‘mode 1’ and ‘mode 2’ knowledge production that has become canonical in European science policy circles, courtesy of Gibbons et al. (1994). This distinction presupposes a model of intellectual history whereby increasingly specialized disciplines are seen as the natural outgrowth of the knowledge production process, which is envisaged as a kind of organism that develops functionally differentiated parts (aka disciplines and sub-disciplines) over time as its investigations become more deeply embedded in their fields of inquiry. Kuhn (1970) has been the most influential theorist of this ‘mode 1’ side of the process. It is an internally directed – ‘supply-driven’, if you will – account of knowledge production. Interdisciplinarity enters as ‘mode 2,’ a complementary ‘demand-driven’ process. It attempts to bridge the epistemic gaps that have emerged between the disciplines as a result of their increasing specialization. These gaps are collective blindspots, by-products of an otherwise well-ordered mode 1 process. They emerge because disciplinary practitioners pursue the implications of what Kuhn called their ‘paradigm’ for a given field of inquiry until it creates more problems than it solves. Such an intense focus, perhaps inherent in the very idea of discipline, can easily leave neglected issues that cut across disciplinary boundaries; hence, the kind of interdisciplinarity associated with mode 2 knowledge production is often called ‘transdisciplinary’ and include topics that are at least initially defined in categories of broader social relevance than normally found in academia. Nevertheless, presumed in this narrative is that the complementarity between disciplinary depth and interdisciplinary breadth is appropriate and even to be expected, since interdisciplinary matters are best addressed by those who can mobilize a range of high developed expertises. In that context, the only controversial feature of Gibbons et al. (1994) is its suggestion that the balance of science policy resources should now be shifted from mode 1 to mode 2 knowledge production. The historical narratives associated with deviant disciplinarity and interdisciplinarity differ radically from their normal counterparts. What the normal disciplinarian sees as progress in the technical mastery of an originally unruly domain of knowledge, the deviant regards as an increasingly unreflective adherence to one from among several different paths of inquiry that could have been taken – and perhaps may be taken again in the future. From the deviant’s standpoint, it is not merely that the normal disciplinarian knows more and more about less and less but that her very narrowness of vision distorts what she purports to see. It follows that the deviant tends to treat the very presence of different disciplines as prima facie pathological, rather like neuroses, which Freud treated as mere coping mechanisms for a reality we cannot fully manage in its entirety. The deviant, for whom reality is ‘always already’ interdisciplinary, is a bit more optimistic than Freud. But how does one write history that way? One exemplar, now neglected but highly regarded in the first quarter of the twentieth century, is Merz (1965), who gives a comprehensive intellectual history of Europe based on the idea that in the nineteenth century a cluster of competing and overlapping metaphysical world-pictures coalesced – in different ways, places and times – into the disciplinary cartography that by the First World War had come to define the structure of the modern university. Merz listed the relevant world-pictures as: the astronomical, the atomic, the statistical, the mechanical, the physical, the morphological, the genetic, the vitalistic, and the psychophysical. He seemed to think that a version of the nebular hypothesis for the universe’s origin governed intellectual history, whereby initially molten states of ideation – i.e. the metaphysical world-pictures – disperse and cool down into solid disciplines that follow predictable trajectories. What disciplines gain in stability of intellectual focus is lost in sheer energy in terms of the overall project of making sense of reality, typically because the ‘molten’ political and religious features of the original world-pictures are removed or sublimated in the transition from metaphysics to ‘science’. Here it is worth noting that Merz, a German engineer living in England, conceived of ‘science’ as Wissenschaft, which is now best understood as any field of study that is constituted as a systematic mode of inquiry, but originally it referred to the autonomy of critical-historical theology from pastoral theology in the modern German university system. In effect, academic theologians were only accountable to their fellow researchers for the findings, however much they might challenge the intuitions of the faith community. Divested of that need to regularly and directly engage with the ordinary believers, theologians became increasingly liberal, and even secular, as they acquired the mindsets of academic neighbors in history, philosophy and sociology (Collins 1998: ch. 12).

Counterfactuals are the necessary COMPLEMENT to scenario prediction – only doing BOTH enables flexibility over lock-in and mimesis

Booth et al 9

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In this paper we have argued that counterfactuals and scenarios can be seen as modal narratives; that is, narratives which concern themselves with issues of necessity, possibility, contingency and impossibility. We have intimated that counterfactuals have betrayed a greater consciousness of and reflection on their modal status; partly because the scenario literature necessarily also encompasses policy and strategic process and implementation issues to a much larger extent than do counterfactuals. Nevertheless, we argued that awareness of modality was an essential aspect of scenario-building on organizational and policy foresight. In our discussions of modal narratives, particularly of counterfactuals and alternate histories, we have argued that we see the doxastic-axiological aspect of modality as fundamental. In our discussion of how modal narratives work, we chose to work exclusively with a conceptual framework which emphasised this aspect, possibly to the neglect of other, less normatively focussed, outcomes. In a universe in which it remains beyond the scope of foresight to predict the future, or of history, counterfactual or otherwise, to capture the definitive truth about the past, it behoves us not to strive towards these inaccessible mimetic goals but instead to encourage reflexive and self-critical approaches to values and beliefs which might elicit positive and prevent inappropriate organizational or policy actions: “In the end, [modal narratives] remind us that we all change the world” [62, p. 218]. In the light of this belief, it seems clear that a greater reliance on underpinning modal narratives with a possible-worlds framework presents attractive potential. If we are right in emphasising the importance of doxastic-axiological modality, possible-worlds approaches – whether realist, actualist, or anti-realist – place less emphasis on the fallacy of mimesis, and do not exclusively require plausible-world modality at the cost of sacrificing the benefits of the miracle-world. Aside from the intellectual vibrancy of this multi-disciplinary project, we consider that it gives more scope in working with both cognition, as we have to work harder to comprehend some unfamiliar concepts, approaches and processes, and estrangement – as it requires us [26] and [27] to lose our ontological innocence, once and for all.

Rigged debates – The framework constraints of 70s energy policy disguised the normative commitments of path choices. The artificial FRAMEWORK constraints empirically worked to RIG DEBATES

Laird 1

Solar Energy, technology policy and institutional values

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J U.S. energy policy makers held remarkably consistent normative and technical ideas (sometimes called values and beliefs) about energy technologies lor over three decades. Both types of ideas shaped the problem frame that officials used in thinking about energy policy. Policy elites ^who thought about the future and about new energy sources conceptualized their problems in terms of economic benefits and national secu' rity. Notions of economic benefits changed over time, from the idea that energy should be chcap to promote maximum economic growth to more refined notions that energy markets ought to be efficient to get optimal economic performance. Nonetheless, both notions point to getting energy at the lowest possible price. Discussions of national security emphasized importing oil from sources that would not be interrupted by political acts. Precisely how policy makers expressed their values and beliefs depended on the contingent circumstances iu which they found themselves, but both sets of dominant ideas made for a problem definition that greatly disadvantaged solar advocates. Because of its high market prices, solar was hardpressed to compete with fossil fuels, and because of its diffuse nature, it did not fit into the existing energy production system the way nuclear power promised to do. Although policy makers began to include an assortment of environmental protection values into their frames, that did little to alter the situation^ ' In addition, normative and technical ideas interacted in complex ways, and the boundary between them was ambiguous and contested.1 For example, consider the apparently empirical notion held by a White House aide about the infeasibility of solar energy as a major energy " source. As cited in the previous chapter, this aide took from a discussion k. with Congressman Mike McCormack what the aide called a "Solar fact" , that getting one percent of rhe country's total energy from solar would require converting ten percent of all houses to solar, and would cost S70-105 billion.2 The aide called this a "fact," the most solidly empirical of appellations. And yet. contained within this alleged fact were a number of normative and questionable empirical assumptions. It assumed empirically that the price of solar systems would not go down much. It also assumed normatively that the United States should remain a very high-consumption society, which in itself contains assumptions about the technological possibilities for energy efficiency and rhe normative desirability of ever-increasing material consumption. Changes m any of these underlying ideas would change rhis apparently simple "fact." At a more aggregate level of policy discussions, the normative and empirical ideas became just as enmeshed. As I showed in Chapter 5, Nixon administration officials regarded high levels of energy consumption as normatively desirable, as indicators of a good and progressive society.' The empirical fact of high energy consumption became a normative standard. Thus the official energy policy frame made sustaining and enlarging that consumption more than just preserving the empirical status quo; growing energy consumption was a valued social goal, nor just an empirical fact. This problem frame stacked the odds against solar energy in normative as well as empirical terms. By this normative standard. the sorts of technological changes rhar would most cnhance solar energy's prospects, particularly large improvements in energy efficiency, look normatively undesirable, whatever their technical feasibility. Conventional energy policy analysts held these intertwined empirical and normative goals deeply, as shown by their bitter attacks on Amory Lovins when he challenged that problem frame, as detailed in Chapter J l or thirty-five years solar advocates presented their technologies that used a variety of renewable energy sources as a way to exploit a vast, inexhaustible, but diffuse, resource. Most of them for most of the period did not think that creating a solar society entailed significant social or political change. Hoyt Hottel, Maria Telkes, Farrington Daniels, and rhc other early solar pioneers of the 1940s and 1950s all soughr to make solar affordable, largely with the assumption rhat it would plug into the existing energy systems, replacing fossil fuels, and enabling socicty and polity to continue functioning as before, with greater security and, perhaps, less pollution. Most of them saw no contradiction in promoting research and development in both solar and nuclcar power, or solar and synthetic fuels, and their only complaint was that nuclcar got an unfairly large portion of federal subsidies. A few of them, such as Daniels and Eugene Ayers, sometimes hinted that a substantial changc in such a major technological system would affect more than how one heated a room or lit a lamp. Bur for most of these advocates, solar energy technology offered just another way of securing tlie status quo against the end of fossil fuels. They sought a new technological system to prevent the social changes that would accompany scarcity. By the 1970s a new type of solar advocate emerged. These activists came to the technology from a part of the environmental movement that believed that the fundamental structures of society and politics - those concerned with industrial and agricultural production, housing, settlemenr patterns, and transportation - were, in some deep sense, flawed.4 These ecological advocates did not simply want any and all solar technologies. They sought technologies that would reinforce and be more compatible with a qualitatively different society and politics, one in which ecological sustainability and local community self-reliance would displace increasing ecological damage, bureaucratic centralization, and anomic. For them, making a drastic change in the energy technology system would l>c akin to making a legislative change for all of society.5 Whether the technologies they sought would have given them the society that they desired is not the point here. Rather, the point is that their social goals and ideas about technology as a social force led them to a very different framing of the energy problem and solar's role in it. Within their problem frame, solar was not only a feasible solution to the energy problem, it was the only desirable solution, rhe only energy technology ensemble that would encourage and strengthen the sorr of society thar they desired. In their frame, issues such as high initial costs and an immature industry were problems to be solved, not barriers to policy. This shared meaning of solar energy technologies bound together ecological advocates as a social group and drove their choices, leading them to champion smaller, more decentralized solar technologies and to reject schemes like the solar-powered satellites." The problem frame that came out of this meaning led them to regard problems like costs as secondary considerations, just the opposite of conventional frames. Top-level policy makers never shared thar framing of the problem or the normative values that went with it. Their public pronouncements and written internal debates show no hint that they ever even considered rhis alternative problem frame and set of values. The presidents and their top aides - in every administration - talked about energy almost exclusively in economic and national security terms, with occasional references to narrowly construed environmental values. Even in rhc Carter administration, no oiK' outside of the Council on Environmental Quality (CEQ) gave any sign that they even thought about some of the more radical alternatives, and they never committed them to paper, suggesting thar such ideas were nor welcome in policy deliberations. These facts suggest a new inrcrprctarion of solar energy policy, particularly its rapid rise and fall in the 1970s. The conventional explanations for energy policy and solar's failure to establish itself within ir do not explain all of the events recounted here. It was not enough that solar was expensive and its future costs were uncertain. That could bosaid of all future energy technologies, including nuclcar energy. And it f. was not enough that the Reagan administration was ideologically hostile to solar energy. Solar advocates began losing their battles for support while President Carter was still 111 officc, and the ideological explanation „ begs the question of why Reagan and his people evinced such hostility to solar energy. The association of solar energy with the ecological wing of the solar movement was a phenomenon of the 1970s, not what one mighr have predicted in the 1950s or 1960s. Perhaps most importantly, the events analyzed here require us to reexamine the pluralist account of solar energy policy. Pluralism must, to explain events adequately, incorporate the importance of ideas, normative and empirical, being institutionalized into official problem framesy SOLAR ADVOCATES' LIMITED INFLUENCE ON POLICY ("Standard notions of American pluralism claim that any organized interest group can influence public policy by mobilizing rhe appropriate polit- / ical resources, such as votes, money, public opinion, and the like. From ^ this perspective one can evaluate a group's influence or effectiveness by ^ the extent to which it gets those policy outcomes that it desires. By thar measure, rhe solar movement, particularly the ecological wing of it, ^ appeared very powerful and effective for a brief period in the late 1970s. '' The question is why it both rose and then fell with such speed. The advocates pushing solar energy did not suddenly lose public support or their ability to argue their case.\* Instead, the values that ecological advocates / asstxiatcd with solar energy and the solar movement were in stark contrast to the conceptualization of the energy policy problem by top-level , decision makers. The official problem frame, and the values thar drove it, did not change, despite the considerable efforts of the solar movement to argue for an alternative. Thus the history of solar energy policy presents anomalies to pluralism. Prior to rhc energy crisis, prominent scientists, engineers, and businessmen advocated for solar energy, beginning after World War II and continuing for over twenty years. Wcll-placcd wirhin the rcchnical, government, and business community, these advocates should have been influential among important policy analysts and makers. On numerous occasions they were able to make their case to legislative and executivebranch officials, including some cabinet secretaries, members of the House and Senate, and, in a few instances, ro the president via his top aides. Many of the advocates spoke with the authority of impeccable technical credentials, exemplified by Farrington Daniels, a veteran of the Manhattan Project, member of the National Academy of Sciences, and president of the American Chemical Society. By the middle 1950s such advocacy became formalized with the creation of the Association for Applied Solar Energy (later becoming the International Solar Energy Society and the American Solar Energy Society), broadening solar's constituency to include business people, bankers, and so on. So why were these groups not more successful? Part of the explanation certainly lies in unfortunate contingent circumstances, such as President Truman's firing Interior Secretary Julius Krug only weeks after Krug had decided to launch a very large solar energy research program. Part of the explanation lies in unpropitious structural circumstances, such as the steady drclinc in energy prices in rhe 1950s and 1960s. And parr of the explanation lies in traditional interest group analysis. Solar energy did not have the same level of business, scientific, military, or congressional support that nuclear power enjoyed. But these factors do not constitute an adequate explanation. To develop a better one 1 have focused on recent policy literature that argues for the importance of ideas, both empirical and normative, in shaping and changing public policy. The case study itself - the history of solar energy policy - demonstrates the importance of ideas, particularly the importance of institutionalizing new problem frames and rhc technical and normative ideas that go with them. Absent institutionalizing new ideas, substantial, sustained changes in policy remain unlikely. Prior to the energy crisis, most energy policy concerned disputes between diffcrcnr fuels and rhc different regions of rhc country thar produced and consumed them. With policy makers accepting a problem frame based in such disputes, solar energy had little to offer cxccpr as a possible alternative in the distant future. However, since analysts and policy makers expected future energy demand to be immense, it seemed that future alternatives needed to produce large quantities of bulk energy, a task for which most people considered nuclear power to be better equipped. Policy advisors did frequently note that the governmenr underfunded solar R&D, especially compared to nuclear power, bur, absent a pressing crisis, nuclear s better fir wirh existing problem frames, along with its greater political resources, kept the subsidies flowing, while solar only got research targeted to auxiliary goals, such as NASA's funding for the development of photovoltaics for use on its satellites. The beginnings of the energy crisis in 1970-1971 coincided with the rise of institutionalized environmental protection values in the form of new legislation and the Environmental Protection Agency to implement that legislation. Those ideas had some effect on energy policy, but not enough to put solar energy at ccntcr stage. Nonetheless, Presidents Nixon and l ord began pouring money into all alternative forms of energy. including solar, quickly increasing solar R&I) budgets, sometimes as a response to Congressional initiatives. That said, the definition of the energy problem, the way it was framed, as discussed at length in earlier chapters, changed little, merely acquiring a sense of urgency from the energy crisis. Solar energy policy in the Carter administration shows the difference between successfully pressuring for a policy and successfully institutionalizing a new set of beliefs and values associated with some technology. Those years marked the time when the solar movement was the closest it ever came to being a mainstream movement, claiming to provide a feasible solution to an urgent problem. At rhc very time that solar technologies were commanding increasing resources, the ecological wing ol the solar movement became increasingly influential in policy circles. The Solar Lobby and related groups began to form a very effective pressure group for solar energy, and they clearly got most of what rhev wanted out of Carter's solar Domestic Policy Review process. But ir is equally clear that high-level policy makers never took the advocates' values or framing of the problem seriously. The advocates' political and social issues were never part of official discourse or debate. Even advocates' particular conceptions of environmental concerns never penetrated discussions in the White House. Policy makers simply never accepted, at least not in writing or in policy, the notion that the environmental problems related to energy suggested a deeper critique of existing energy, social, and political systems.

And, it’s more representative of the education we would use when engaging institutions

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Based on the temporal frame of these hypothetical resolutions, affirmative and negatives burdens change. For the Vietnam resolution, the affirmative would be bounded by the historical policies followed by the Kennedy, Johnson, and Nixon administrations. Claims could be empirical or probabilistic. Empirical claims would be verifiable in terms of historical data. Probabilistic claims would be speculative in nature. Negative claims could point to "actual" disadvantages stemming from the affirmative policy. Additional negative claims could speculate on policy alternatives. For example, the affirmative could argue the "domino theory" that all countries in southeast Asia would have fallen to the communists if not for US intervention. This claim is an example of a counterfactual conditional. This proposition takes the generic form "If it had been the case that C (or not C), it would have been the case that E (or not E)" (Fearon, 1991, p. 169). Debating historical propositions would entail extensive use of counterfactual logic. Historical analysis inherently involves a level of counterfactual reasoning. Murphy (1969) argues that "counterfactuals were an essential method of historians; these were by their nature (are) unverifiable propositions" (p. 15). The fact that they are unverifiable has led to criticism of counterfactuals as a form of logic. Thus, standards need to be applied in the assessment of counterfactual scenarios. Standards for Debating Historical Propositions? It should be noted that counterfactuals are a common model of logic. Their use transcends both specialized and general argumentative fields. Counterfactuals are commonly used in a variety of scholarly disciplines. Fearon (1991) states that "scholars in comparative politics and international relations routinely evaluate causal hypotheses by discussing or simply referring to counterfactual cases in which a hypothesized causal factor is supposed to have been absent" (p. 169). Conterfactual reasoning is common in legal argumentation. Counterfactual thinking is related to plaintiff compensation. In this context, "jurors are presented alternative event scenarios by the opposing parties" (Bothwell & Duhon, 1994, p. 705). Research indicates that there was a significant relationship between counterfactual thinking and plaintiff compensation (Miller & McFarland, 1986; Bothwell & Duhon, 1994). Counterfactuals are common to the study of economics. Murphy (1969) argues: that we cannot judge any economic policy without counterfactuals, we cannot estimate consumer surplus, we cannot calculate the effects of a tax or a subsidy, the removal of international trade barriers, indeed we cannot judge any recommendation to change the status-quo unless we consider the alternative state of affairs. (p. 18) Counterfactuals are also common in generalized fields of argumentation. Landman and Manis (1992) found "that personally relevant counterfactual thought is commonly engaged in by people outside the laboratory" (p. 476). Roese (1994) argues that "the ability to imagine alternative, or counterfactual, versions of actual events appears to be a pervasive, perhaps even essential, feature of human consciousness" (p. 805). Given the widespread use of counterfactuals, evaluation of counterfactuals can be extrapolated from existing standards. Meyer and Conrad (1957) argue that even though "counterfactuals cannot be directly tested, it is possible to consider the statement within a valid deductive system, independently of the acknowledged falsity of the conditional clause" (p. 540). Such a derivation is clearly an intuitive one and is not a matter of formal logic (Murphy, 1969).

## incentives-spec

####  Increase means to make greater

Reinhardt, 05 – U.S. Judge for the UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT (Stephen, JASON RAY REYNOLDS; MATTHEW RAUSCH, Plaintiffs-Appellants, v. HARTFORD FINANCIAL SERVICES GROUP, INC.; HARTFORD FIRE INSURANCE COMPANY, Defendants-Appellees., lexis)

 “Increase" means to make something greater. See, e.g., OXFORD ENGLISH DICTIONARY (2d ed. 1989) ("The action, process, or fact of becoming or making greater; augmentation, growth, enlargement, extension."); WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH (3d college ed. 1988) (defining "increase" as "growth, enlargement, etc[.]"). "Charge" means the price demanded for goods or services. See, e.g., OXFORD ENGLISH DICTIONARY (2d ed. 1989) ("The price required or demanded for service rendered, or (less usually) for goods supplied."); WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH (3d college ed. 1988) ("The cost or price of an article, service, etc."). Nothing in the definition of these words implies that the term "increase in any charge for" should be limited to cases in which a company raises the rate that an individual has previously been charged.

####  Substantially means between some and all

Becker 85

Steven R. Becker, District Court Judge, 2/18/84, Kansas V. Rose, P. Westlaw

As these cases illustrate, [HN6] the qualifying term "substantially," as used in K.S.A. 8-1749a, has a well-recognized and understood meaning. It is defined in Black's Law Dictionary 1281 (5th ed. 1979), as"[e]ssentially; without material qualification; in the main; in substance; materially; in a substantial manner. About, actually, competently, and essentially." "Substantial" is defined in the same dictionary at 1280 as "actually existing; real; not seeming or imaginary; not illusive; solid; true; veritable . . . . Synonymous with material." Webster's New Collegiate Dictionary 1153 (1981) defines "substantial" in part as "being largely but not [\*\*\*14]wholly that which is specified." By definition the term is relative and must be considered within the context of the particular fact situation; in essence it means less than totally or the whole, but more than imaginary**.** As such, the standard proscribed by the use of "substantially" in 8-1749a establishes with reasonable certainty what conduct is violative of the statute and subject to punishment. The use of "substantially" in 8-1749a is similar to the use of "material deviation" in K.S.A. 21-3405, which we held in State v. Randol was not unconstitutionally vague and indefinite when the standard proscribed therein is measured against the parameters of ordinary negligence on the one hand and gross and wanton negligence on the other. 226 Kan. at 355. "Substantially" is a word of general usage, commonly known and understood by the public, which provides a reasonably definite objective standard by which one reading the statute can understand and contemplate what conduct it is that the act proscribes. The statute prohibits motor vehicles from being equipped with one-way glass or other substances applied to the windows forward of or adjacent to the driver's seat, which prohibits [\*\*\*15] or substantially impairs the ability to see into the motor vehicle from the outside. The gravamen of the offense is clearly the impairment of visibility into the motor vehicle from the outside. Operators and [\*1050] owners of vehicles are clearly and sufficiently warned they cannot install one-way glass or apply other substances to the windshield and side windows of a car or other vehicle which prevents or impairs the ability to view the inside of the vehicle from the outside. The trial court relied upon State v. Lackey, 232 Kan. 478, wherein the word "appreciable," as used in a statute regulating the disposal of salt water produced in conjunction with the drilling of oil or gas, was recognized by the court as [\*\*1017] having been defined in various ways. It was capable of meaning either considerable or slight, which are adjectives of opposite meanings, and by its very nature was vague, and therefore unconstitutional. Such is not true with the term "substantially" as used in K.S.A. 8-1749a. It defines a standard between the extremes of total and completeimpairmentand slightimpairment,similar to the use of the phrase "material deviation" discussed in[\*\*\*16] State v. Randol, which was held not to be unconstitutionally vague

## at: CF bad

Counterfactuals serve as a DIAGNOSTIC of contingency – predictions of different events miss the point entirely

Mokyr 1

http://faculty.wcas.northwestern.edu/~jmokyr/Tetlock3.PDF King Kong and Cold Fusion: Counterfactual analysis and the History of Technology Joel Mokyr Departments of Economics and History Northwestern University Revised Jan. 2001 This is a draft. Not to be cited. Comments welcome. This paper is part of my forthcoming Neither Chance nor Necessity: Evolutionary Models and Economic History (Princeton University Press, 200?), presented at the Conference on Counterfactual History, Columbus Ohio, Feb. 4-6, 2000 devoted to the Unmaking of the West.

To fully comprehend the ex ante indeterminacy of technological history we need to face three separate sources of contingency. First, how inevitable is it that useful knowledge itself emerges? Second, how inevitable is it that such knowledge, once it exists, will be mapped into techniques? Third, given the existence of a menu of techniques, how likely is it for a given technique to be selected? To come to grips with that triplet of questions we need to formulate, however superficially, some theoretical framework that allows us to understand how useful knowledge evolves over time. As I have indicated elsewhere (Mokyr, 1998), an evolutionary framework of some kind, which is by construction non-determinist and selectionist, seems appropriate to a historical understanding of technological knowledge. Is the indeterminacy of technological history damaging to counterfactual analysis? Cowan and Foray correctly point out that precisely because evolutionary theory is rich enough to realize that history can produce a lot of different outcomes, its predictions are not very tight and counterfactual analysis runs the risk of not being very compelling. Insofar that we are trying to explain a minor technological feature this is perhaps true. But in the larger picture, evolutionary counterfactuals seem to make sense even in a highly indeterminate world, provided we are not too specific. For instance, Stephen Jay Gould famously asked if we rewound and replayed life’s tape, whether the history of life would look the same, and answered in a resounding negative.17 Others have not been so sure, but the phrasing of the question clearly suggests the obvious attractive rhetoric of the counterfactual in evolutionary tales. In Cowan and Foray’s terminology, what Gould is suggesting is a “weak” counterfactual, one that identifies important events that foreclosed certain options. If History is a branching process, consisting of a huge number of bifurcations, the present has been produced by an endless set of decisions on paths not taken. By identifying the branching points, as they note (p. 16), we can show “why the economy followed the route it did.” In the final analysis the counterfactual tale serves not as a means of prediction or a normative assessment of where we are relative to where we could have been, but as a pedagogical tool to understand why the world is as it is. Its weaknesses are that I cannot be very specific about the alternative paths that would have been taken. All I can assert is that the actual world was not the only possible one, and speculate about the point in History where other branches would have clearly led to a very different outcome. In the final analysis counterfactual analysis serves not as a means of prediction or a normative assessment of where we are relative to where we could have been, but as a pedagogical tool to understand the world as it is.

## at: REM shortage DA

#### Solar doesn’t require rare earth

e360 12 (Yale Environment 360 is a publication of the Yale School of Forestry & Environmental Studies., 8/22/2012, "SOLAR SHINGLES MADE FROM COMMON METALS OFFER CHEAPER ENERGY OPTION", e360.yale.edu/digest/solar\_shingles\_made\_from\_\_common\_metals\_offer\_cheaper\_energy\_option/3600/)

U.S. scientists say that emerging photovoltaic technologies will enable the production of solar shingles made from abundantly available elements rather than rare-earth metals, an innovation that would make solar energy cheaper and more sustainable. Speaking at the annual meeting of the American Chemical Society, a team of researchers described advances in solar cells made with abundant metals, such as copper and zinc. While the market already offers solar shingles that convert the sun’s energy into electricity, producers typically must use elements that are scarce and expensive, such as indium and gallium. According to Harry A. Atwater, a physicist at the California Institute of Technology, recent tests suggest that materials like zinc phosphide and copper oxide could be capable of producing electricity at prices competitive with coal-fired power plants within two decades. With China accounting for more than 90 percent of the world’s rare-earth supplies — and prices rising sharply — companies and nations are racing to find new sources of rare earth minerals, which are used in everything from solar panels to smart phones.

 Skye 2010

“Solar Power Unearths Surprising E-waste Enigma,” http://earth911.com/news/2010/08/18/solar-power-unearths-surprising-e-waste-enigma/

Since solar technology is a recent development, and because the panels have a lifespan of 25-plus years, there’s no cause for panic, yet. But as Treehugger reports, “the potential for hazardous e-waste is huge.”

The great news? Solar panels can be recycled. The downside? It isn’t widely available yet. This creates a call to action for solar technology consumers to press for producer foresight and responsibility. Tempe, Ariz.-based First Solar, the world’s largest PV-cell manufacturer, is responding to this call. As it strives to create sustainable energy solutions, its recycling program helps to prevent a waste management challenge for future generations. “First Solar embraces the concepts of extended producer responsibility and product life cycle management,” says company spokesperson Melanie Friedman. “End-of-life module collection and recycling is an integral part of First Solar's commitment to both of these environmental principles.” The company offers a comprehensive solar module collection and recycling program to any First Solar module-owner, who can request it anytime at no additional cost. At the time of module sale, funds are set aside to cover the anticipated end-of-life processing, which are held and managed by a third-party trust that ensures they’ll be available when needed regardless of First Solar’s financial status. However, the company doesn’t expect large volumes of modules to be returned for another 10 to 15 years. First Solar’s recycling facilities, located at each of its global manufacturing facilities, are “currently operating on manufacturing scrap, warranty returns, and any accidental breakages.” Even so, there’s more that can be done to make the option available in coming years. A stitch in time saves nine, after all: if solar companies enact the necessary design changes to their modules now to make them easily recyclable, they will avoid high costs in the future, once the panels’ expiration dates loom closer. If you need any more convincing, local recycling plants can also help create jobs and reduce solar module footprint, increasing their eco-sustainability cred. But there may be one more problem. Solar panel manufacture involves the usage of potentially toxic materials including cadmium, selenium, silicon tetrachloride and powerful GHG sulfur hexafluoride. This only highlights the necessity of recycling programs, as some believe solar panels might be hazardous waste when shredded or disposed of in a landfill. An operative recycling process would enable the recovery of these valuable materials.

## at: states cp (0:45)

President key for problem framing

Laird 1

Solar Energy, technology policy and institutional values

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INSTITUTIONS AND PROBLEM FRAMES Problem frames, and the ideas that constitute them, operate within institutions. As Schon and Rein put it, "Frames are not free-floating but are grounded in the institutions that sponsor them."21 Other scholars agree. Judith Goldstein and Robert O. Keohane argue that ideas become powerful when they become institutionalized, and that such deeply embedded ideas can explain the phenomenon of policy inertia, of institutions sticking to a policy long after one might have expected it to change.22 To understand the ways that ideas, problems, frames, and so on influence public policy, we must investigate the ways in which ideas get institutionalized. Particular ideas come to dominate the official definition of a problem and the conceptualization of its possible solutions. These ideas also shape the institution's rules, organizational norms, and operating procedures. Substantial, enduring changes in policy require changes in the institutionalized ideas that influence policy, which can mean either changing ideas within an institution or changing which institution controls some policy. Frank Baumgartner and Bryan D. Jones emphasize the latter to change institutionalized ideas and policies: This [policy] process is the interaction of beliefs and values concerning a particular policy, which we term the policy image, with the existing set of political institutions - the venues of policy action. In a pluralist political system, subsystems can be created that are highly favorable to a given industry. But at the same time, there remain other institutional venues that can serve as avenues for appeal for the disaffected.13 In short, if some policy advocates consistently fail to get the policy they want from some government institution, they can try taking their arguments to a different institution, perhaps a different congressional committee or executive branch agency. Jurisdiction over policy areas sometimes changes, and if that new institution becomes dominant, then the policy can change rapidly. The difficulty with this solution is that the new institution may not end up having decisive influence over the policy of concern, which in fact is what happened in the case of solar energy policy. Alternatively, advocates can stick with the dominant institution and try to change the ideas that guide it. New ideas can change the meaning or understanding associated with some policy solution, in this case a technology, so that it looks like a more plausible solution to an old problem. Similarly, changes in ideas can change the way the problem is framed, so that the relevant government officials consider as a plausible solution technologies that they previously rejected or did not even take seriously. Maarten Hajer's work on discourse coalitions alerts us to an important pitfall in the analysis of institutionalized ideas used to explain policy change, or the lack of it. He describes discourses as "an ensemble of ideas, concepts, and categories through which meaning is given to phenomena. Discourses frame certain problems, that is to say, they distinguish some aspects of a situation rather than others." The relationship of Hajer's discourses to the ideas and frames discussed above is obvious. He reminds us that we cannot conclude that ideas are influencing policy just because some institution has started using a particular discourse in its statements, but that we must look at the institution's practices and decisions before we conclude that the par-ticular discourse has become institutionalized and dominant in some part of policy making. Important actors may start speaking the stories of a new discourse, what he calls discourse structuration, but we must also analyze what the institutions do to see which discourses are in fact institutionalized."4 For the case of solar energy, and other future-oriented energy policies, we need to analyze which government officials were in a position to influence this kind of change and the institutional structures in which they operated, including the means by which nongovernmental actors had access to them. We will also need to analyze the ways that institutionalized ideas shaped the official definitions of problems and how some actors tried to change those definitions. The ideas held at the top levels of policy making, especially in the executive branch, are more important than are usually given credit in the policy literature. In the solar case, what appeared to be a substantial and enduring change during the 1970s, particularly at the agency level, was in fact ephemeral because, in part, of the stability of the way the issue was defined at the presidential level, despite vigorous efforts to change that definition. Making a large change in this type of institutionalized problem frame entails dramatic changes in a massive part of the nation's technological infrastructure, with all the accompanying political, economic, and social changes. Such policy changes must have high-level support, s|nce they will conflict with many other ideas, goals, and interests held by previously persuasive stakeholders and hence encounter stiff resistance from those who prize the status quo.25 Thus the key for this study will be how new values were, or were not, institutionalized in the Executive Office of the President (EOP). I will also analyze congressional actions to some extent, but on solar energy policy these were mostly reactive to executive branch actions, even in the late 1970s. The EOP was the key barrier to substantial energy policy change. I do not mean by these comments to dismiss Congress as an important influence on policy. Assorted energy advocates used congressional committees very successfully as a means of promoting their technologies and keeping pressure on the executive branch. This pressure was felt most intensely in the appropriations process. My analysis will carefully depict the interaction of the Congress with energy advocates and the executive branch. That said, this analysis still focuses primarily on the executive branch because it retained the ability to set the dominant frame for the issue. Throughout the history of energy policy, the president and his advisors remained the crucial actors for undertaking new policy initiatives linked to new ideas about policy.

Federal government key to energy policy formation – framing in these terms crucial to an insightful counterfactual

Laird 1

Solar Energy, technology policy and institutional values

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I During the period that I examine here, solar energy advocates, both prominent individuals and organized groups, tried to influence energy policy. Solar energy was then an umbrella term, often referring to what we now call renewable sources of energy, including such things as wind and biomass. Solar advocates enjoyed only modest success. Solar energy failed to become a strong option for meeting U.S. energy needs during this period, nor for simple reasons of untested technology or economic cost, but for complex reasons that include a failure to institutionalize new ideas about the energy problem at the top executive levels of government. To support this position, I take a longer historical view of solar energy policy than is typical to analyze the special dynamics of creating public policy around emerging technologies, j The introduction lays our the terms and theoretical frameworks that help us to distinguish the strands of complex ideas that shape national energy policy. It provides the tools for analyzing the ways in which particular ideas come to dominate the official definition of a problem; the conceptualization of its possible solutions; and the rules, norms, and operating procedures of particular institutions. Part 1 concentr\*re on U.S. energy policy between World War II and the 1970s' energy crisis. They examine the wavs that the federal government and private groups sought to develop solar energy and how various interested parties framed its potential. Part II applies the same interpretive tools to the energy crisis and its aftermath. The crisis gave energy policy much greater saliency, raising its profile among the public and policy makers alike. The crisis caused many people to express doubts about both American international hegemony and, coming along with the rise of the environmental movement, the viability of the modern industrial way of life. People involved in energy policy increasingly perceived that energy technology choices entailed political and social consequences of the first order, and that perception engendered extensive and bitter conflict. Examining the interactions of ideas, interests, and institutions surrounding solar energy policy from the postwar to the postembargo penod can help us to discover why we have the overall energy policies that we do. It also helps us to understand why changing such deeply embedded policies as those about energy is so difficult. Ultimately a better understanding of this interaction may help to show how policy can be made better, especially when policy makers are confronted with difficult long-term emergent technological issues.

##  reagan politics da

#### There was a ton of other alt energy, efficiency funding attached to the original Solar Bank creation – overwhelms the plan but doesn’t solve symbolism

Ferrey ‘81

Steven, B.A., Pomona College, 1972; J.D., Boalt Hall, 1975; M.A., University of California, Berkeley, 1976. Member, Conservation Advisory Board of the Solar Energy and Energy Conservation Bank., SOLAR BANKING: CONSTRUCTING NEW SOLUTIONS TO THE URBAN ENERGY CRISIS,18 Harv. J. on Legis. 483 1981, AM

IV. The Solar Energy and Energy Conservation Bank On June 30, 1980, former President Carter signed into law the Energy Security Act of 1980.l66The former President stated, "Its scope, in fact, is so great that it will dwarf the combined efforts expended to put Americans on the Moon and to build the entire Interstate Highway System of our country."167 The Act authorizes a mixed bag of incentives including: (1) $88 billion in government financial guarantees for synthetic fuels development in the form of loan guarantees, price supports, loans, purchase committments, and joint-venture capital; (2) S1.4 billion for biomass and alcohol fuel production loans, loan guarantees, and purchase agreements; (3) $250 million in financial guarantees to cover 80 percent of the construction costs of municipal waste to energy conversion facilities; (4) $20 million for up to 10 rural or agricultural biomass energy demonstration projects; (5) $85 million in loan authority to develop geothermal energy sources; (6) $3 billion to create a Solar Energy and Energy Conservation Bank to provide incentives for greater energy efficiency in the building sector; and (7) various provisions to train energy auditors, facilitate the entry of utilities in the financing of residential energy conservation, augment the low-income weatherization program, promote industrial conservation, and establish four prototype residential conservation programs.168 For many of those who struggled for two years for its enactment, the Solar Energy and Energy Conservation Bank embodied in Title V was the cornerstone of a balanced energy program. As Senator Edward M. Kennedy stated, "The Solar and Conservation Bank is the most important symbol of this country's commitment to a balanced energy program and a challenge to the next Administration to implement aggressively this nonregulatory, noninflationary incentive program.\*"69

####  Reagan’s Teflon – Took lots of action

David J. Lanoue, Assistant Professor of Political Science at Illinois State, 89 [“The "Teflon Factor": Ronald Reagan & Comparative Presidential Popularity,” Polity, Vol. 21, No. 3 (Spring, 1989), pp. 481-501, JSTOR]

This explanation clearly does not hold for Ronald Reagan, who was ¶ anything but a do-nothing President. In his first six years in office, he ¶ slashed taxes, cut human service spending, conducted a major military ¶ buildup, underwrote a guerilla war in Central America, invaded one country, and bombed another. If action itself and especially controver- ¶ sial action leads inevitably to public disenchantment, Reagan should be ¶ among the least popular Presidents of our time. Moreover, there is ¶ nothing in Reagan's record before becoming President, like that of war ¶ hero Eisenhower, which explains his popularity. Indeed, Reagan's first ¶ quarter Gallup Poll approval rating as President was only 55 percent, an ¶ exceptionally low reading, and it was not until the March, 1981, ¶ assassination attempt that his approval rating rose above 60 percent.3 To ¶ understand the popularity of Reagan, we must investigate some of the ¶ major issues affecting presidential popularity since the end of World ¶ War II.4

#### Thump – Reagan inflation targets disprove the internal

Renka, Professor of Political Science at Southeast Missouri State University, 10 [“President Reagan” April 13, <http://cstl-cla.semo.edu/renka/ui320-75/presidents/reagan/reagan.asp>]

In fall 1981 a major national recession began and ran throughout 1982. This was a clear consequence of applying stringent anti-inflation money supply measures directed by the largely independent Federal Reserve Board Chairman Paul Volcker, whom Carter appointed in 1979 and Reagan strongly supported because of his intense anti-inflation viewpoint (Weatherford and McDonnell 1990; Sawhill and Stone 1984; Hibbs 1987, 287-288; Cannon 1991, 267-74). Volcker-led 'Fed' policy cut the real dollar (postinflation) M-1B money supply by 6.5 percent in 1980, helping ensure Carter's dismal electoral fate (Hibbs 1987, 75, 191-195).[1] In pre-inflation terms, money supply then grew by only 7.1 percent in 1981 and 6.5 percent in 1982, again quite restrictive compared to slow GNP growth and still-high price inflation (Hibbs 1987, 287). Unemployment in 1982 reached postwar record levels, averaging 9.7% in 1982 and 9.6% in 1983 with a quarterly peak of 10.7% in fall 1982. Yearly inflation rose at 9.2% in 1981, then dropped to 5.8% in 1982, and skidded to 3.8% in 1983 (Hibbs 1987, 290-291).[2] So the anti-inflation monetary policy of the Fed worked to Reagan's satisfaction--but at a major political price.¶ Reagan paid that price in approval ratings. He dipped by December 1981 to 49 percent approval and 41 percent disapproval. In both 1982 and 1983 he averaged only 44 percent approval to 46 percent disapproval (Presidential Job Performance - Reagan; Edwards with Gallup 1990, 176). The lowest point came at the end of January 1983 with 35 percent approval (56 percent disapproval) just as the dismaying last quarter 1982 economic reports made the airwaves. Consumer confidence in the economy followed the trend, reaching lower than any postwar points except the height of the two oil-related price shocks of 1974 and 1979-80 (Stanley and Niemi 1992, Fig. 13-3, 428).¶ Reagan's party also paid the price with a net loss of 26 House seat in November 1982, nearly equal to the 33 they gained in the 1980 election sweep. This came despite huge optimism in 1981 that they would win a majority for the first time since 1953, that their party finances exceeded the Democrats by 7 or 8 to 1, and that they had recruited an excellent crop of experienced office holders to run against surviving incumbent Democrats. It all went seemingly for naught. In fact, the White House led an effective collective party economic policy campaign labeled 'Stay the Course' (Jacobson 1985); and this contributed to holding GOP losses to 26 seats in a year where economic conditions were so dismal that standard election forecasting called for a 58-seat loss (Jacobson 1987, 165)! Nonetheless the 1982 loss produced a White House panic. In post-election November 1982 they begged the Federal Reserve for a faster monetary growth rate in 1983. The Fed readily obliged, producing a near-record real M-1B monetary growth in 1983 of more than 7 percent in a climate where the annual inflation rate dipped below 5 percent for the first time since 1972 (Hibbs 1987, 274, 287).

Other environmental support thumps – EPA

Grist 04 [“A look back at Reagan’s environmental record,” June 11, http://grist.org/article/griscom-reagan/]

Republicans for Environmental Protection, an organization that has been a staunch critic of Bush’s environmental record, posted a glowing In Memoriam to Reagan on their website Monday: “REP America joins every citizen in bidding a sad farewell to President Ronald Reagan. His wilderness protection achievements are an enduring legacy for the American people. President Reagan signed into law 38 bills that added more than 10.6 million acres of spectacular forests, mountains, deserts, and wetlands to the National Wilderness Preservation System.”

#### Reject Reagan nostalgia – the disad’s historical orientation masks depoliticization and racism

Parry 9

http://consortiumnews.com/2012/02/20/ronald-reagan-worst-president-ever/

Robert Parry broke many of the Iran-Contra stories in the 1980s for the Associated Press and Newsweek. His latest book, Neck Deep: The Disastrous Presidency of George W. Bush, was written with two of his sons, Sam and Nat, and can be ordered at neckdeepbook.com. His two previous books, Secrecy & Privilege: The Rise of the Bush Dynasty from Watergate to Iraq and Lost History: Contras, Cocaine, the Press & ‘Project Truth’ are also available there.

n Presidents’ Day, opinion polls rate the greatest U.S. presidents, with Ronald Reagan now typically scoring at or near the top — and George W. Bush at or near the bottom. Though the Bush rating is hard to dispute, Robert Parry argued in 2009 that Reagan deserved a similar placement. By Robert Parry (Originally published June 3, 2009) There’s been talk that George W. Bush was so inept that he should trademark the phrase “Worst President Ever,” though some historians would bestow that title on pre-Civil War President James Buchanan. Still, a case could be made for putting Ronald Reagan in the competition. Granted, the very idea of rating Reagan as one of the worst presidents ever will infuriate his many right-wing acolytes and offend Washington insiders who have made a cottage industry out of buying some protection from Republicans by lauding the 40th President. But there’s a growing realization that the starting point for many of the catastrophes confronting the United States today can be traced to Reagan’s presidency. There’s also a grudging reassessment that the “failed” presidents of the 1970s – Richard Nixon, Gerald Ford and Jimmy Carter – may deserve more credit for trying to grapple with the problems that now beset the country. Nixon, Ford and Carter won scant praise for addressing the systemic challenges of America’s oil dependence, environmental degradation, the arms race, and nuclear proliferation – all issues that Reagan essentially ignored and that now threaten America’s future. Nixon helped create the Environmental Protection Agency; he imposed energy-conservation measures; he opened the diplomatic door to communist China. Nixon’s administration also detected the growing weakness in the Soviet Union and advocated a policy of détente (a plan for bringing the Cold War to an end or at least curbing its most dangerous excesses). After Nixon’s resignation in the Watergate scandal, Ford continued many of Nixon’s policies, particularly trying to wind down the Cold War with Moscow. However, confronting a rebellion from Reagan’s Republican Right in 1976, Ford abandoned “détente.” Ford also let hard-line Cold Warriors (and a first wave of young intellectuals who became known as neoconservatives) pressure the CIA’s analytical division, and he brought in a new generation of hard-liners, including Dick Cheney and Donald Rumsfeld. After defeating Ford in 1976, Carter injected more respect for human rights into U.S. foreign policy, a move some scholars believe put an important nail in the coffin of the Soviet Union, leaving it hard-pressed to justify the repressive internal practices of the East Bloc. Carter also emphasized the need to contain the spread of nuclear weapons, especially in unstable countries like Pakistan. Domestically, Carter pushed a comprehensive energy policy and warned Americans that their growing dependence on foreign oil represented a national security threat, what he famously called “the moral equivalent of war.” However, powerful vested interests – both domestic and foreign – managed to exploit the shortcomings of these three presidents to sabotage any sustained progress. By 1980, Reagan had become a pied piper luring the American people away from the tough choices that Nixon, Ford and Carter had defined. Cruelty with a Smile With his superficially sunny disposition – and a ruthless political strategy of exploiting white-male resentments – Reagan convinced millions of Americans that the threats they faced were: African-American welfare queens, Central American leftists, a rapidly expanding Evil Empire based in Moscow, and the do-good federal government.

#### The K trumps the disad - Reagan intentionally destroyed reasoned historical debate

Parry 9

http://consortiumnews.com/2012/02/20/ronald-reagan-worst-president-ever/

Robert Parry broke many of the Iran-Contra stories in the 1980s for the Associated Press and Newsweek. His latest book, Neck Deep: The Disastrous Presidency of George W. Bush, was written with two of his sons, Sam and Nat, and can be ordered at neckdeepbook.com. His two previous books, Secrecy & Privilege: The Rise of the Bush Dynasty from Watergate to Iraq and Lost History: Contras, Cocaine, the Press & ‘Project Truth’ are also available there.

In the early 1980s, Reagan also credentialed a young generation of neocon intellectuals, who pioneered a concept called “perception management,” the shaping of how Americans saw, understood and were frightened by threats from abroad. Many honest reporters saw their careers damaged when they resisted the lies and distortions of the Reagan administration. Likewise, U.S. intelligence analysts were purged when they refused to bend to the propaganda demands from above. To marginalize dissent, Reagan and his subordinates stoked anger toward anyone who challenged the era’s feel-good optimism. Skeptics were not just honorable critics, they were un-American defeatists or – in Jeane Kirkpatrick’s memorable attack line – they would “blame America first.” Under Reagan, a right-wing infrastructure also took shape, linking media outlets (magazines, newspapers, books, etc.) with well-financed think tanks that churned out endless op-eds and research papers. Plus, there were attack groups that went after mainstream journalists who dared disclose information that poked holes in Reagan’s propaganda themes. In effect, Reagan’s team created a faux reality for the American public. Civil wars in Central America between impoverished peasants and wealthy oligarchs became East-West showdowns. U.S.-backed insurgents in Nicaragua, Angola and Afghanistan were transformed from corrupt, brutal (often drug-tainted) thugs into noble “freedom-fighters.” With the Iran-Contra scandal, Reagan also revived Richard Nixon’s theory of an imperial presidency that could ignore the nation’s laws and evade accountability through criminal cover-ups. That behavior also would rear its head again in the war crimes of George W. Bush.

Reagan’s abandonment spurred Middle East wars

Scheer 12

Energy Autonomy

Hermann Scheer (April 29, 1944 – October 14, 2010) was a Social Democrat member of the German Bundestag (Parliament), President of Eurosolar (The European Association for Renewable Energy) and General Chairman of the World Council for Renewable Energy.[1] In 1999, Scheer was awarded the Right Livelihood Award for his "indefatigable work for the promotion of solar energy worldwide".[2] Scheer believed that the continuation of current patterns of energy supply and use will be environmentally damaging, with renewable energy being the only realistic alternative. Scheer had concluded that it is technically and environmentally feasible to harness enough solar radiation to achieve a total replacement of the foclear (fossil/nuclear) energy system by a global renewable energy economy. The main obstacle to such a change is seen to be political, not technical or economic.[2] In 1999 he was one of the initiators of the German feed-in tariffs that were the major source of the rise of renewable energies in Germany during the following years.

Governments already have more work to do coping with the consequences of energy-determined crises — whether it is environmental impacts or economic and political collateral damage'. Just paying for the direct costs of energy crisis management eats up more funds than the effort to get at the roots of these crises. With each passing day, crisis management as a substitute tor rooting out crises is getting more difficult and more expensive. In order to dodge all the conflicts and he spared the pains of a system change, political and economic actors let themselves in for intolerable risks and even greater pains. The most short-sighted and in every respect) most costly type of crisis management is the effort to secure access to depleting petroleum resources by military means. This kind ol political power play is a faster route into the very debacle it is intended to avoid. Since the beginning of the 1990s, all US governments have devoted the greatest practical attention to militarizing the way they secure energy, and they have attempted to draw others into this risky strategy. It is something that has been discussed since ihe outbreak ol the global oil crisis in 1973, which (especially in the US) led to a veritable oil paranoia. But at that time the emphasis was still on mobilizing the US's own energy sources. In presenting his energy independence project in 1973, President Nixon invoked the spirit of the Manhattan Project and the space programme, an enterprise he wanted to revive. In 1979, in addition to his initiatives lor an energy conservation and solar programme. President Carter presented a plan for mass production of synthetic fuels from gasified and liquefied coal, for which he sought US$88 billion from Congress- The plan was never implemented, rather like the ill-fated 'coal refining programme' of Germany's Chancellor Helmut Schmidt at the beginning ol the 1980s, which pursued the same end. The strategic shift towards securing energy by military means took place in 1981, when Carter was succeeded by Reagan. What was decisive was not only Reagan's credentials as an oil industry man, but also the fall of the Shah in Iran in 1979 and the shift to a fundamentalist Islamic regime under Ayatollah Khomeini. From now on the problem was not just distant oil sources, but (over and above this) enemy oil'. Initially, the new strategy was tried using the method of the proxy war. Iraqi dictator Saddam Hussein received massive support in his war against Iran. Everyone knew he was a rogue', but he was our rogue'. A million people fell victim to this first great oil war. Then it was discovered that Saddam Hussein was not only an anti-Iranian bulwark, but that his occupation of Kuwait also revealed him to be striving for the role of a global oil power. Now the US intervened militarily on its own (without proxy); the Gulf War of 1991 became the second great oil war.

## historical materialism

 Energy paths can’t be explained by pure economics

Laird 1

Solar Energy, technology policy and institutional values

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In light of the conferences, technical and popular publications, the creation of new institutions outside of government, and the intermittent /4 / interest of senior government officials, why was there so little official action on solar energy before the 1970s? The customary explanations of if »M 0,; Hf' short­term policies or markets do not hold up to closer scrutiny. Clearly, I due to the relatively high cost of solar energy from the 1940s through the 1960s and the declining prices of fossil fuels during the same period, the research, development, and diffusion of solar technologies would have required the support of some institution Willing and able to take a very View of the future needs for energy resources. While one often hears the glib complaint that governments never take long­term perspectives on policy issues, in fact such institutions and leadership were very much in existence in the decades after World War II. These long» term investments showed up in Republican and Democratic administra tions alike, such as Eisenhower’s initiative on the Interstate Highway System, Kennedy’s support of a greatly expanded space program, and ]ohns0n’s Great Society programs.1 Although always constrained by budgets, all of these administrations invested in future-oriented projects, ones that required a certain amount of vision and commitment to the nation’s development. Solar technologies could have been, but were not, included among them.

Another standard reason given to explain the failure of solar energy to develop in these years focuses on the lack of any pressing short-term need for it. Although conditions Changed at the end of the johnson administration, abundance and decreasing prices in most parts of the energy market characterized the postwar period to 1968. This situation, framed by conventional thinking of the day, left solar without a problem to solve and made solar technologies too expensive in comparison to conventional technologies. The economics of solar Certainly made it very difñcult to develop a consumer market composed mainly of individuals putting solar devices on their homes, or of industrial markets in transportation or manufacturing.2

But this explanation fails to account for two historical realities. First, at least since the 1880s, U.S. energy markets have been in part political markets. Besides the traditional set of atomized small buyers and sellers Who constitute the microeconomists’ conception of a market, the production and supply systems that deliver energy to consumers have included governments at the national and state levels, large utility monopolies, large supply companies, and a variety of financial institutions. All of these institutions and their interests influence the prices that consumers see and the energy choices from which they may pick. Second, and perhaps more importantly, energy technologies could also be developed quite independent of consumer demand. Public policy makers in fact made immense investments in energy technologies in the United States and elsewhere and developed them extensively, all Without any real short-term economic incentives. In the most striking case, nuclear technology’s advocates succeeded in politically constructing it as the technology of the future.3

As discussed in Chapter 1, in the 1940s energy specialists had generally equated nuclear and solar energy as long-terrn alternatives to fossil fuels, regarding each as expensive but promising future energy technologies and calling for research and development in them. It Was in the Eisenhower administration that nuclear energy jumped into the foreground of energy policy, leaving solar behind. Advocates of nuclear energy managed to lay claim to the proximate future and billions of R&D dollars, While policy makers continued to relegate solar energy to the distant future, if they considered it at all. The rise of nuclear power is a complex story that involves scientists in and out of government promoting it, along with a special congressional committee, some officials of the fledgling Atomic Energy Commission (AEC), and a host of popular Writers.4 Even though some top officials remained skeptical of the need for a large government nuclear energy program, it continued growing in size. The “Atoms for Peace” speech did not turn around nuclear policy in one stroke, hut it did articulate publicly a policy frame in which nuclear power could play a significant role. In this speech civilian nuclear power became not merely the positive side to a troubling technology but rather part of an international process of spreading prosperity in a Way that would lessen the chances of another World War.5 EisenhoWer’s speech gave the idea of civilian uses of nuclear energy an enormous boost, and coverage of peaceful nuclear technology expanded into the popular media dramatically with almost entirely positive assessments.6

The rapid development and expansion of policies for nuclear technology, with its many technical and economic uncertainties, had nothing to do with solving short-term problems of energy supply. Indeed, solar energy had the support of some of the same people who supported nuclear energy development. For instance, Representative Craig Hosmer (R-California), who had introduced the earliest bills to support solar developments in the 1957~196O period, strongly supported Project Plowshare in the 1960s, a proposal to use nuclear explosives to dig canals, harbors, and the like.7 Yet solar research never received anything approaching the resources given to nuclear. Why Was nuclear so Successful and solar not? The failure of solar energy to attract more substantial policy support must lie beyond any scientific or objective assessment of its potential. Instead, the contrasting histories of nuclear and solar energy in the 1950s and 1960s demonstrate the symbolic and valuative components of policy making, as well as their interaction With public and private institutions that led in the nuclear case to massive investment in a technology. Despite a small constituency, interested bureaucrats, and a few sympathetic representatives and senators, the advocates of solar energy never made the pluralist penetration of policy making. As the Truman through the Johnson administrations tried to solve energy problems, three particular features of the energy problem definition contributed to the inability of solar advocates to make much headway in getting government support for solar energy. These were the emphasis on economic growth and free-market mechanisms, energy’s low priority for high-level policy makers, and the belief in the need for exponentially increasing supplies of bulk energy. In addition, solar energy suffered from the fragmentation of energy policy, which, coupled with the reigning problem definition, made it difficult for solar energy advocates to find an institutional champion Within government

**Energy scenario planning assimilates resistance to dominant neoliberal models**

Zalik 10

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In an early portion of my research on oil industry funded aid interventions in Nigeria, a Shell staff member down-played the significance of futures projections for determining its public affairs policy. When I sought, but was unable to obtain, access to the company’s London archives I was told: ‘We are future oriented’. Expressed in the existence of Shell’s Scenarios division, future modeling is highly salient to the company’s strategy. The approach was influenced by the work of the Manhattan Project in the 1940s. Here Herman Kahn, later known for his work in military modeling with the Rand Corporation (Nikiforuk, 2008), was an important figure. The Club of Rome’s use of scenario planning in The Limits to Growth (1972), an influential document in the debates on environmental security and violence (Xiang and Clark, 2003) indicated the interconnection between scenario modeling and (a Malthusian-inflected) environmental determinism. Shell developed its first global scenarios in 1972 as well (Shell International, 2008b, p. 87) and was largely the ‘inventor’ of scenario planning in the business world. Today scenario-modelling is used widely in business and policy processes, and is influential in both international development practice and sustainability planning ( [deGrassi, 2007], [Ghanadan and Koomey, 2005] and [Xiang and Clark, 2003]). In the ExplorersGuide Shell provides the following partial list of audiences for their scenarios, exemplifying their high level reach: “External directors ... of an international institution in Washington DC. Representatives from NGOs, businesses and governments during Scenario Day of the World Summit on Sustainable Development in Johannesburg. Trustees and top management team of an international NGO. Local managers ... of a major Northern European national bank; the ministry of defence of a South-East Asian country. Energy industry leaders and senior politicians at an industry annual executive conference” (Shell International, 2008b, p. 83). The early underpinnings of Shell’s scenario work are documented in two 1985 articles in the Harvard Business Review. There Pierre Wack of Shell’s Planning division describes how the company’s initial scenarios predicted the oil shocks following the creation of OPEC. Through Shell’s Scenarios division and former staff in business consultancy, Shell promoted the diffusion of the scenario-planning methodology which sees ‘uncertainty as key to producing profit in a turbulent environment’.8 The process imagines a series of possible outcomes for which industrial management must be prepared ( [Wack, 1985a] and [Wack, 1985b]). As suggested by their prediction of OPEC’s emergence, in retrospect some of Shell’s work has appeared prophetic. According to the guidelines used by the Scenario-makers, accuracy is a central criteria for evaluation of their worth. As Wack explains, a set of scenarios can be evaluated on two measures: (1) what did they leave out? (i.e. did they accurately predict possible future outcomes) and (2) did they lead to action?. If the scenarios only suggested ‘responses that past experience would indicate’, then scenario modeling would be no more than ‘interesting speculation’ and thus no great advance on conventional planning strategy” ( [Wack, 1985a] and [Wack, 1985b]).9 “An English professor, who was co-author of a mid-1990s Shell scenario publication, describes how the scenario process teaches Shell managers to think mythologically and causally, to see every major local or world event as potentially located in a story, and to make on-the-spot business and policy decisions based on what they know about where that story would lead if allowed to play itself out. Thus these scenarios play an integral role in Shell’s futures planning (Davis-Floyd, 1998). As suggested by a range of literature on trans-national elites, scenario planning shapes possible economic outcomes by delineating a set of ‘mythical’ futures while foreclosing others ( [Sklair, 2001], [Van der Pijl, 2004] and [Van der Pijl, 1998]). The relations created among those who participate in scenario planning are also influential. As argued by Bond with reference to scenario-modeling around South Africa’s post-apartheid social contract, the scenario planning process among business and social leaders was equally important as its published outcome: Through scenario making and its discursive projections, potentially resistant social actors are incorporated into the construction of corporate mythology (Bond, 2000). Since the early 1990s (1992, 1995, 1998), Shell’s scenarios group has been imagining neo-liberal outcomes. At the beginning of that decade Shell’s publications explored two competing world scenarios – one ‘market-centric’, the other ‘alternative’ giving more room to social and community aspirations. Thus, the 1990s Scenarios employed the TINA concept – Margaret Thatcher’s ThereisNoAlternative (TINA) – to describe “increasing globalisation, the onrush of new technology and market scenarios” (Shell, 2004). Their 2001 Scenarios provided two options “Business Class” and “Prism” and explored the question “How will people and societies shape liberalisation, globalisation and technology in a more connected world?” (9) and continued to endorse ‘TINA.’ To be sure, in the face of growing international critique of neo-liberalism, the slogan ‘There is No Alternative’ emblazoned the cover of Shell’s pamphlet for the World Conference on Sustainable Development in 2002.

**Arbitrarily assigning degrees of radicalism to different political acts causes a revolution imposed by force – result is fascism and endless violence**

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(Matthew and Geoff, Žižek and Politics: An Introduction, p. 192 – 193)

Žižek is not a right- wing authoritarian. But it is not suffi ciently clear that his revolutionary vanguardist stance avoids left- wing authoritarianism, on the lines of Stalin or Mao. The uneasiness that Žižek’s new positions generate spring from his examples, coupled with the political logic of total revolution on an arbitrary basis, and linked to his frank observation that the ‘parts of no part’ he looks to to prop up his Revolution lack any form of organisation of their own. We wonder, then, whether the Leader could express the political will of the revolutionary vanguard in any other way than by messianically imposing it upon the *lumpenproletariat*, who would in turn impose it on society. The provocative rhetoric of ‘reactivated’ informers, the voluntaristic willingness to exercise ‘brutal terror’ in ‘asserting the inhuman’ supposedly inauthentically covered over by postmodern liberalism, and so forth, do not exactly set these concerns to rest. Žižek concludes *In Defence of Lost Causes* by openly advocating that we completely ditch liberal democracy. It turns out that we should embrace the term ‘dictatorship’ – of course, a dictatorship of the proletariat, which would no doubt be claimed as a ‘participatory democracy’ even more democratic than the ‘dictatorship of the bourgeoisie’ that is representative government. But, when all this is combined with the apparent contradiction that Žižek fi rst refuses the inclusive term ‘the people’ for the divisive term ‘the proletariat’, but ends up advocating ‘trust in the people’, we might well wonder how carefully thought out all this really is (*IDLC* 162, 414–15). Žižek’s analysis of contemporary ‘post- politics’ is acute and his criticisms of radical academia’s alternatives are incisive. But Žižek himself sometimes seems uncertain as to what the alternative actually is. The logic of the position he has been developing since his turn to the Romantic philosophy of Schelling in the late 1990s, however, increasingly drives Žižek in the direction of a revolutionary vanguardism that smacks of left- wing authoritarianism. Although it is often diffi cult to disentangle the provocations from the positions, it seems that Žižek’s frustration with the lack of political resistance to contemporary capitalism is leading him to adopt extreme positions that can easily (as they did with Sorel) prepare a political jump from Left to Right, across the bridge made by reactive hostility to liberal parliamentarianism and representative democracy.

**Permutations solves best – must include a reconfiguring of our understanding of technological progression checks**

Benjamin 1940

Walter, “Theses on the Philosophy of History”, http://www.sfu.ca/~andrewf/CONCEPT2.html

A Klee painting named ‘Angelus Novus’ shows an angel looking as though he is about to move away from something he is fixedly contemplating. His eyes are staring, his mouth is open, his wings are spread. This is how one pictures the angel of history. His face is turned toward the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing in from Paradise; it has got caught in his wings with such a violence that the angel can no longer close them. The storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress.

X The themes which monastic discipline assigned to friars for meditation were designed to turn them away from the world and its affairs. The thoughts which we are developing here originate from similar considerations. At a moment when the politicians in whom the opponents of Fascism had placed their hopes are prostrate and confirm their defeat by betraying their own cause, these observations are intended to disintangle the political worldlings from the snares in which the traitors have entrapped them. Our consideration proceeds from the insight that the politicians’ stubborn faith in progress, their confidence in their ‘mass basis’, and, finally, their servile integration in an uncontrollable apparatus have been three aspects of the same thing. It seeks to convey an idea of the high price our accustomed thinking will have to pay for a conception of history that avoids any complicity with the thinking to which these politicians continue to adhere.

 XI The conformism which has been part and parcel of Social Democracy from the beginning attaches not only to its political tactics but to its economic views as well. It is one reason for its later breakdown. Nothing has corrupted the German working, class so much as the notion that it was moving, with the current. It regarded technological developments as the fall of the stream with which it thought it was moving. From there it was but a step to the illusion that the factory work which was supposed to tend toward technological progress constituted a political achievement. The old Protestant ethics of work was resurrected among German workers in secularized form. The Gotha Program \* already bears traces of this confusion, defining labor as ‘the source of all wealth and all culture.’ Smelling a rat, Marx countered that ‘…the man who possesses no other property than his labor power’ must of necessity become ‘the slave of other men who have made themselves the owners…’ However, the confusion spread, and soon thereafter Josef Dietzgen proclaimed: ‘The savior of modern times is called work. The …improvement… of labor constitutes the wealth which is now able to accomplish what no redeemer has ever been able to do.’ This vulgar-Marxist conception of the nature of labor bypasses the question of how its products might benefit the workers while still not being at, their disposal. It recognizes only the progress in the mastery of nature, not the retrogression of society; it already displays the technocratic features later encountered in Fascism. Among these is a conception of nature which differs ominously from the one in the Socialist utopias before the 1848 revolution. The new conception of labor amounts to the exploitation of nature, which with naive complacency is contrasted with the exploitation of the proletariat. Compared with this positivistic conception, Fourier's fantasies, which have so often been ridiculed, prove to be surprisingly sound. According to Fourier, as a result of efficient cooperative labor, four moons would illuminate the earthly night, the ice would recede from the poles, sea water would no longer taste salty, and beasts of prey would do man's bidding. All this illustrates a kind of labor which, far from exploiting nature, is capable of delivering her of the creations which lie dormant in her womb as potentials. Nature, which, as Dietzgen puts it, ‘exists gratis,’ is a complement to the corrupted conception of labor.

XII

We need history, but not the way a spoiled

loafer in the garden of knowledge needs it.

Nietzsche, Of the Use and Abuse of History

Not man or men but the struggling, oppressed class itself is the depository of historical knowledge. In Marx it appears as the last enslaved class, as the avenger that completes the task of liberation in the name of generations of the downtrodden. This conviction, which had a brief resurgence in the Spartacist group,\* has always been objectionable to Social Democrats. Within three decades they managed virtually to erase the name of Blanqui, though it had been the rallying sound that had reverberated through the preceding century. Social Democracy thought fit to assign to the working class the role of the redeemer of future generations, in this way cutting the sinews of its greatest strength. This training made the working class forget both its hatred and its spirit of sacrifice, for both are nourished by the image of enslaved ancestors rather than that of liberated grandchildren.

XIII

Every day our cause becomes clearer

and people get smarter.

Wilhelm Dietzgen, Die Religion der Sozialdemokratie

Social Democratic theory, and even more its practice, have been formed by a conception of progress which did not adhere to reality but made dogmatic claims. Progress as pictured in the minds of Social Democrats was, first of all, the progress of mankind itself (and not just advances in men’s ability and knowledge). Secondly, it was something boundless, in keeping with the infinite perfectibility of mankind. Thirdly, progress was regarded as irresistible, something that automatically pursued a straight or spiral course. Each of these predicates is controversial and open to criticism. However, when the chips are down, criticism must penetrate beyond these predicates and focus on something that they have in common. The concept of the historical progress of mankind cannot be sundered from the concept of its progression through a homogenous, empty time. A critique of the concept of such a progression must be the basis of any criticism of the concept of progress itself.

Double turn – the link and impact are based on the work of Slavok Zizek, a psychoanalytic pseudo-marxist based on extrapolating psychic claims – their Lukacs evidence describes hard core historical materialism – means either the alternative can’t solve the link and impact OR it links to itself – we get new 1AR answers when they make it coherent

# \*\*\*\*1AR\*\*\*\*

#### Decentralized solar power checks monopolization

Scheer 2K2

(Hermann, Fmr. Asst. Prof. of Economics @ Technical Univ. of Stuttgart, Member of German Parliament, General Chairman of the World Council for Renewable Energy, President of EUROSOLAR, The Solar Economy: Renewable Energy for a Sustainable Global Future, Pg. 87-89)

The representatives of the fossil energy industry have been written out of the script for the renewable energy story, or allotted at most a secondary role; the market for renewable energy will no longer have a niche for conventional sources at least, not with turnover at high as it is at present. Conventional energy companies are bound to old fossil fuel structures by the sheer scale of their investments; their business models, based on large-scale industrial plant, will prove their own undoing in the transition to renewable energy. A solar resource base makes it impossible to retain or ever re-create the power structure that has hitherto prevailed in the energy sector. The extent to which industrial concentration and monopolization is inevitable with fossil fuels and avoidable or impossible with solar energy is compared in Table 2.2 The short supply chains for renewable energy sources will end the pressure to globaliz

 that comes from the fossil resource base. The dense interconnections between individual energy companies and between energy companies and other industries that result from fossil fuel supply chains will no longer be necessary. Shorter renewable energy supply chains also make it impossible to dominate entire economies. Renewable energy will liberate society from fossil fuel dependency and from the webs spun by the spiders of the fossil economy.