### 2NC—Conditionality Good

Conditionality is good—

1. **Neg Flex**—multiple worlds are crucial to test the aff from every angle—it prevents us from being locked in to a strategy
2. **Innovation**—conditionality incentivizes risk taking—vital internal to argument research—prevents stale and repetitive debates
3. **Mixedscanning**—Argument introduction determines what warrants in-depth review—best middle ground between breadth and depth—key to priority-setting and high-pressure decision-making.
4. **Info processing**—more arguments teach students to process information—most portable skill

Now defense—

No skew—condo leads to more critical thinking—without it, being aff would be too easy

2NR means we have a stable advocacy

Err neg—the aff speaks first and last and infinite prep—voting on theory leads to substance crowd-out—if we don’t make debate impossible don’t vote us down

### Solar

#### Cap and trade solves the case better---forces energy producers to internalize their externalities which drives innovation into new types of tech without picking winners---ensures the most cost effective way to implement energy innovations---that’s Morris

#### Decades of support proves winner picking incentives for solar are impotent

Lieberman & Loris 8 Ben Lieberman, \*Senior Policy Analyst in Energy and the Environment AND Nicolas D. Loris is a \*\*Research Assistant in the Thomas A. Roe Institute for Economic Policy Studies at The Heritage Foundation, “Energy Policy: Let's Not Repeat the Mistakes of the '70s,” July 28, http://www.heritage.org/Research/EnergyandEnvironment/wm2004.cfm

During the 1970s and early 1980s there were many attempts by the federal government to pick winners and losers among emerging energy alternatives—synthetic fuels, solar, ethanol and others—and tilt the playing field in their favor. Virtually all turned out to be big disappointments.

Several recent bills would either subsidize or mandate alternative fuels and/or vehicles. However, the 30-plus-year history of federal attempts to encourage such alternatives includes numerous failures and few, if any, successes.

Indeed, many of the recipients of tax breaks and incentives in the bill have been subsidized for decades—ethanol since 1978, for example—originally with the promise that they would become viable within a few years and then go off the dole and compete in the marketplace. But this has never happened. Instead, Congress just passed a huge expansion of the ethanol mandate, essentially forcing Americans to use more of it even as it continues to be heavily subsidized. Wind and solar are doing no better competing without government help.

Even after decades of special tax breaks, alternative energy still provides only a small fraction of America's energy needs. For example, wind and solar energy account for less than 3 percent of America's electricity because of their high costs and unreliability.[[3]](http://www.heritage.org/Research/EnergyandEnvironment/wm2004.cfm#_ftn3) Further, the overall percentage of electricity attributable to renewable sources is not expected to increase by 2030, according to the Energy Information Administration.[[4]](http://www.heritage.org/Research/EnergyandEnvironment/wm2004.cfm#_ftn4)

After all these years, Washington has failed to grasp the serious economic and technological shortcomings of these energy alternatives, which is why they needed special treatment in the first place. Federal efforts to pick winners and losers among energy sources—and to lavish mandates and subsidies on the perceived winners—have a dismal track record relative to allowing market forces to decide the direction of energy innovation.

What Government Should Do

Those who don't know energy policy history are condemned to repeat it. There are many energy bills currently pending before Congress, and they fall into two general categories: (1) those that seek to increase domestic energy supplies, and (2) those that seek scapegoats and diversions instead. Policymakers should recognize the failures of past energy policies that led to some of the most dismal and frustrating years for American consumers and instead focus on ways to increase the supply of energy domestically.

#### Solar link

Ginn 11 Vance Ginn earned a BBA in Economics and Accounting at Texas Tech University. Currently, he is working on his doctorate in Economics and teaches Intermediate Macroeconomics at Texas Tech. “Federal ‘Clean Energy’ Loan Guarantees: Crazy Dollars for Bubble Jobs” July 28 www.masterresource.org/2011/07/federally-guaranteed-loans-for-clean-energy-projects-are-nonsense/

At a time when the federal government is debating whether to raise the debt ceiling, the U.S. Department of Energy’s Loan Programs Office (LPO) is offering guaranteed financing to First Solar Inc. for three solar panel projects in California for $4.5 billion. Not million but billion.

Carefully analyzed, these projects do little to fund efficient energy production or create permanent jobs. Such largesse is one of many rich targets for immediate deficit reduction in any budget deal.

LPO specifically targets projects that promote clean energy and includes “job creation; reducing dependency on foreign oil; improving our environmental legacy; and enhancing American competitiveness in the global economy of the 21st century.”

Specifically, these loan guarantees promote projects that include biomass, hydrogen, wind and hydropower, advanced fossil energy coal, carbon sequestration practices and technologies, electricity delivery and energy reliability, alternative fuel vehicles, industry energy efficiency projects, pollution control equipment, nuclear, and solar power.

Moreover, support by the LPO is for borrowers in case they default on their financial obligations while the project is constructed. Clearly, this is all about government picking energy winners at the expense of market preferences and forces.

The U.S. Energy Information Administration (EIA) notes that in 2010 only 1% of energy consumption was from solar power. Yet 15 out of the 23 generation LPO projects have been for solar power plants. The cost of these 15 projects has been $16 billion–40 percent of the total cost of all guaranteed projects.

In contast, nuclear power makes up 9 percent of all U.S. energy consumption has received $10.33 billion of support. And it is the one mass carbon-free electrical generation source outside of hydropower.

The benefits of these guarantees are exaggerated. Job creation from these three solar panel projects is estimated to be 1,400 new jobs, which is $3.2 million per job! And many of these jobs are temporary.

A previous $1.6 billion guarantee for a solar panel project, Bright Source Energy, produced 1,000 temporary construction jobs and 86 permanent jobs. That’s $18.6 million per permanent job!

This is a huge taxpayer commitment for an energy source that is already subsidized and supported heavily by the federal government, where the average amount provided by the federal government per kilowatt hour (kWh) in 2007 was $0.24 for solar. In contrast, nuclear was only supported by $0.16 per kWh. Estimated total levelized costs of new generating technologies to produce electricity in 2016 is estimated by EIA to be $0.21 per kWh for solar versus $0.11 for nuclear.

The high cost could be understood if the output of solar powered plants was high, but this is clearly not the case. For example, EIA data indicates that a solar plant’s capacity factor is expected to be 400 percent lower than a nuclear plant.

The lack of benefits and the substantial costs of these solar panel projects not only distort the energy market, but are a waste of tax dollars. The sources of energy we consume most (i.e. petroleum, natural gas, coal, and nuclear) are not on the government’s to-do-list, but they are on the list to phase out and create a less efficient economy in the process. When it comes to increasing energy efficiency and creating jobs, these LPO guaranteed loans are not the answer.

### AT: Perm---2NC

#### Obviously links to all of our offense---the gov needs to set targets without picking winners---specific incentives undermine the purpose of a tech-neutral regime---the CP alone causes effici

Epstein 8 Max, “In Defense of Carbon Pricing: Why Clean RD&D Isn't Enough,” 7/21, http://www.thebreakthrough.org/blog/2008/07/guest\_post\_in\_defense\_of\_carbo.shtml

I once heard more money changes hands on global capital markets in a day than all the world's governments spend in a year. This illustrates, if not the inherent futility, at least the foolishness of trying to take on such a major and multifaceted investment exclusively with public sector financing. While public funds for deployment may spur private capital to some extent, it wouldn't do so nearly as much as further investments in research or infrastructure. Furthermore, the most effective way to motivate private capital to invest in both clean R&D and deployment is to set a price on carbon. A price on carbon literally makes pollution abatement a marketable asset. The 1990 SO2 Cap & Trade regime provides a valuable empirical example on the power of capitalist innovation in achieving emissions reduction goals. Ultimately, it shows that in achieving emissions reductions, government should set the target, but allow the market to find the means of getting there. The 1990 Acid Rain program achieved reductions in sulfur dioxide at far lower cost than even optimistic predictions. How? In large part due to two factors. First, before the program coal was classified as 'high sulfur' or 'low sulfur;' afterwards the sulfur content was rated with much more detail, as it got factored into the price of the coal itself (inverse relationship: low sulfur became more valuable). This allowed plenty of firms to make simple, relatively inexpensive reductions just by switching to a lower sulfur coal, and only to the extent that they needed (or extra if they felt they could profit by saving allowances and selling them). Flue gas scrubbers, the traditional means of sulfur dioxide mitigation, saw significant efficiency gains as well. First, increased competition drove down prices because they now had to compete with other emissions reductions methods, like low-sulfur coal, to stay in business. Second, scrubbers were able to be manufactured to remove fewer emissions, but at far lower cost. This led to more efficiency in reductions per dollar spent. Such a change developed specifically because every marginal reduction had a monetary value, i.e. because there was a price on pollution. The SO2 program holds real lessons for designing a carbon reduction policy. The solutions of tomorrow will not be simple linear improvements on the technologies of today. No one predicted that the acid rain problem would be solved by a new classification system for coal, and scrubbers that actually did less scrubbing. Then as now, we had proven emissions reductions technology available that the government could have mandated or deployed. Luckily, a market based solution was chosen instead. Picking winners, whether it's Renewable Portfolio Standards (RPS), or targeted tax credits by technology, is a bad idea. It seems now like "investing in tomorrow's solutions," but it’s just as likely to actually bias the market against taking tomorrow's best solutions, which we likely haven't thought of yet. The competition point from scrubbers is especially relevant. RPS standards insulate listed renewable technologies from competition with cogeneration/CHP, Demand-Side Management (DSM), and again, the things we haven't thought of yet. Shellenberger and Nordhaus write in their criticism of Cap & Trade that we didn't get the PC revolution by regulating away typewriters. Aside from the obvious distinction that typewriters did not pose serious externalities to society, its important to note that we didn't achieve the PC revolution by subsidizing mass deployment of the IBM 5150 PC either. To bring the point closer to home, you don't get a breakthrough like Concentrated Solar Power (CSP) by mass deployment of more PV panels. The government should stick to targets and let the market figure out how to achieve them. Government action should be targeted to address specific market failures. Carbon pricing is the obvious and necessary first step due to its externality cost for society. Research and development is another role for government based on a similar dynamic - since research inevitably yields benefits that accrue to other firms beyond what the researcher can capture for profit, it provides an externality benefit for society. Thus, research would be undersupplied if left to individual profit-seeking firms. Ditto for large scale demonstration projects, which feel out technical, regulatory and supply stream issues, the resolutions of which benefit all firms that come afterwards.

### Link---2NC

#### Incentive policies are fundamentally anti-market---our Robinson evidence makes 2 key arguments

#### Energy subsidies aren’t bound by market logic---governments are beholden to special interests and have no profit motive---the only reason the SQ doesn’t solve the aff is BECAUSE THE MARKET HAS REJECTED IT---if it were a profitable type of energy investors would already be on board

#### Synoptic delusion---government incentives can’t effectively aggregate information of millions of actors---means that glaring information holes and predictive failure ensure serial policy failure that wrecks the energy industry---that’s our disad

#### This ensures error replication and market failure

Taylor 8 Jerry, CATO, Powering the Future, 8/22, <http://www.cato.org/pub_display.php?pub_id=9609>

Before you confidently hold forth about the future of energy markets, you really ought to pick up a copy of Vaclav Smil's 2005 book, "Energy at the Crossroads," and direct your attention to Chapter 4. There you will find a thorough review of the most prominent energy forecasts that have been offered over the last several decades by various blue-ribbon commissions, government forecasting agencies, top-flight academics, energy trade associations, think tanks, policy advocates and energy corporations. **One can't help but conclude that drunk monkeys would be just as reliable** as "the best and the brightest" when it comes to soothsaying about the future of technology, market share or price. The point here is that we don't know what the energy future may hold and we should accordingly treat the periodic energy crazes that sweep the political landscape more skeptically than we have in the past. Markets will provide the lowest-cost energy possible because energy producers compete mightily with one another for profit. If you need any proof that unleashing government to plan our energy future is like giving car keys to drunken teenagers (to paraphrase P.J. O'Rourke), you need look no further than President Bush's 2002 "Freedom CAR" initiative. First, it was charged with delivering us into the hydrogen age. But then the president discovered switch grass; fuel cells were henceforth "out" and cellulosic ethanol was "in." Now it turns out that 200-proof grain alcohol is not the fuel of the future; electricity delivered via plug-in electric-gasoline hybrids is. And Freedom CAR is but one example of many that one could marshal; whole books have been written about the myriad economic disasters and quiet taxpayer waste associated with our ongoing practice of energy planning in post-World War II America. The problem isn't that ignorant or venal people are charged with making our collective energy decisions. The problem is that we can no more sensibly plan the energy economy than we can centrally plan any other sector of the economy, particularly given the fact that political decisions are inevitably made primarily on their political merits, not on their economic or environmental merits. Markets will provide the lowest-cost energy possible because energy producers compete mightily with one another for profit. The argument we frequently hear that "we need every source of energy in the future to meet our staggering energy needs" is ridiculous. Some energy — such as nuclear fusion and grid-connected solar energy — is simply too expensive to produce now, which is to say, it costs more to generate than it is worth. Subsidies and mandates to get "every energy source to market" simply force us to generate and consume energy that costs more than it is worth. In an ideal world, we would strip the energy market of all subsidies; liberate the energy industry to exploit resources on federal lands; leave prices alone so that they deliver accurate information to investors about wealth-creating opportunities and to consumers about relative scarcity; allow energy companies to structure themselves in any manner they like; and fully embrace free trade in energy markets, which keeps prices down. I don't disagree that we have a responsibility to police the public environmental commons. But the best way to do that is to set emission rules or regulations that apply fairly to all emitters in all sectors of the economy and that have some relationship to the harms being addressed. Once that's done, market actors will order their affairs efficiently to produce the lowest-cost energy possible and do a better job picking "winners" than would-be central planners.

#### If we disprove the principles behind their affirmative then it has ZERO predictive ability. Their specific warrants are irrelevant if their starting point is flawed

Steele 92 David author and founder of the Libertarian Alliance From Marx to Mises, p 374-5

Does this lead us to embrace the extremely anti-Misesian contention that 'the realism of the assumptions doesn't matter'? 'Unrealistic assumptions' is a euphemism for false assumptions. If 'the assumptions' are part of the theory, then false assumptions mean that the theory is false. The claim, then, is that it doesn't matter whether the theory is false. The claim is usually followed up with the assertion that 'what really matters is whether the theory predicts well'. But if the assumptions are part of the theory, then the theory predicts its own assumptions, and is immediately refuted if one of its assumptions is shown to be false. There can be no worse predictive performance for any theory than for it to be found to require a false assumption: the theory is immediately a failure, as far as prediction goes. We can instead say that 'the assumptions' are not part of the theory, but then it is not clear that the theory needs the 'assumptions'. If the assumptions are expository mnemonics not implied by the theory, or metaphysical views that people who hold the theory find congenial, then there is no reason why they need to be true.

#### Picking winners causes corruption, economic contraction, false information, and political despotism—turns all the reasons why opening up debate space in the abstract is good

Hoexter 8 Michael, Leadership in Energy and Environmental Design Accredited Professional, “Picking Winners”: Policy Blunder or Necessity?” 12/12http://terraverde.wordpress.com/2008/12/12/pickingwinners/

1) Corruption - Picking winners if done non-transparently and without full attention to democratic principles can lead to and/or be the product of **corruption**. Picking winners involves collaboration between government and industries or professions that can shade into collusion if not pursued in a deliberate fashion with full public justification. Bribes in various direct and indirect forms can influence the selection process. 2) “False” Winners - Picking winners can lead to a self-justifying selection of a technology or system that ends up being of lower quality and service than another option. Corn ethanol, with only hope and little scientific justification, became a false winner.

3) Economic Inefficiency - As per “2”, the government or other authority that is vested with the power to pick the winner could pick a technology or system without regard for the ultimate costs of implementing that technology. Government officials may have no mechanisms that hold them responsible for cost overruns or other inefficiencies. The potential for inefficiency may need to be balanced against the desirability of the goal.

4) Lack of Accountability – related to “1” and “3”, the selection of winners may occur in ways in which those who make the decisions do not experience the effects of those decisions. Government officials, representing the people of the US, may not be able to be held individually responsible in some circumstances.

5) Foreclosure of future technological developments – **picking a winner can narrow the market opening** or close it entirely for an emerging or future technology that may turn out to be superior. Monopolistic or oligopolistic control of markets can have the same effect.

6) Decision-making without scientific backing – A winning technology or system may be selected without access to or utilization of the best scientific knowledge available; as we shall see below the success of “picking winners” is heavily dependent on high quality science.

7) Decision-making without Socratic wisdom – Decision makers may feel empowered without knowing what they don’t know. Without knowing where and to what degree they are ignorant allows decisions to be made that may ultimately be short-sighted.

8) Arrogant self-justification – in a further development of “7” decision makers may attribute to themselves the cloak of infallibility or may downgrade the wisdom and perspective of those who are outside their coterie. These attitudes may spring from the privilege of being able to make crucial decisions in combination with a wealth of information and resources at their disposal.

9) Economic and Political Despotism - the worst case scenario upon which much criticism of state-led policies are based, is that “picking winners” is the leading edge of authoritarianism. Despite the tendency recently in our politics to dwell on this worst outcome, government initiative in the economy does not NECESSARILY lead to despotism as we have seen with the New Deal, WWII mobilization, the Marshall Plan, the Interstate Highway System, etc.

#### Look---They cannot say that endorsing the plan is a good idea because it leads to other goods ideas but no link out of any indicts of the methodology by which the solution originally came about—means any intellectual endorsement of the plan must also evaluate every intellectual consequence of it as well

### Impact Calc---2NC

#### The central question in this debate is economic epistemology---if we win that they have used unsound economic logic they should lose automatically---2 reasons

#### Role of the ballot---you’re an educator, not a policy-maker---you don’t have the ability to put the plan into effect but you can grade their knowledge production---they have functionally handed in an F paper because of their ignorance of the empirics of industrial policy---that’s Anderson

#### Biggest impact---all public policy decisions are fundamentally economic ones---healthcare, military strategy, energy policy, welfare, consumer safety regulations, patent law, trade policy and basically every important legal issue requires sound economic logic---economic incompetence results in public policies like the smoot Hawley that collapsed the global economy and triggered world-war II---that’s Reisman

#### Economic valuation of the environment is good---key to policy effectiveness

Economist 5 (The Economist, April 21, “Rescuing environmentalism”, http://www.economist.com/node/3888006)

“THE environmental movement's foundational concepts, its method for framing legislative proposals, and its very institutions are outmoded. Today environmentalism is just another special interest.” Those damning words come not from any industry lobby or right-wing think-tank. They are drawn from “The Death of Environmentalism”, an influential essay published recently by two greens with impeccable credentials. They claim that **environmental groups are politically adrift and dreadfully out of touch.**

**They are right**. In America, greens have suffered a string of defeats on high-profile issues. They are losing the battle to prevent oil drilling in Alaska's wild lands, and have failed to spark the public's imagination over global warming. Even the stridently ungreen George Bush has failed to galvanise the environmental movement. The solution, argue many elders of the sect, is to step back from day-to-day politics and policies and “energise” ordinary punters with talk of global-warming calamities and a radical “vision of the future commensurate with the magnitude of the crisis”.

Europe's green groups, while politically stronger, are also starting to lose their way intellectually. Consider, for example, their invocation of the woolly “precautionary principle” to demonise any complex technology (next-generation nuclear plants, say, or genetically modified crops) that they do not like the look of. **A more sensible green analysis of** nuclear power **would weigh its** (very high) economic **costs and** (fairly **low) safety risks against the important benefit of generating electricity with no greenhouse-gas emissions.**

Small victories and bigger defeats

The coming into force of the UN's Kyoto protocol on climate change might seem a victory for Europe's greens, but it actually masks a larger failure. The most promising aspect of the treaty—its innovative use of market-based instruments such as carbon-emissions trading—was resisted tooth and nail by Europe's greens. With courageous exceptions, American green groups also remain deeply suspicious of market forces.

**If environmental groups continue to reject pragmatic solutions and instead drift toward Utopian** (or dystopian) **visions of the future,** they will lose **the battle of ideas**. And that would be a pity, for the world would benefit from having a thoughtful green movement. It would also be ironic, because far-reaching advances are already under way in the management of the world's natural resources—changes that add up to a different kind of green revolution. This could yet save the greens (as well as doing the planet a world of good).

“Mandate, regulate, litigate.” That has been the green mantra. And it explains the world's top-down, command-and-control approach to environmental policymaking. Slowly, this is changing. Yesterday's failed hopes, today's heavy costs and tomorrow's demanding ambitions have been driving public policy quietly towards market-based approaches. One example lies in the assignment of property rights over “commons”, such as fisheries, that are abused because they belong at once to everyone and no one. Where tradable fishing quotas have been issued, the result has been a drop in over-fishing. Emissions trading is also taking off. America led the way with its sulphur-dioxide trading scheme, and today the EU is pioneering carbon-dioxide trading with the (albeit still controversial) goal of slowing down climate change.

These, however, are obvious targets. What is really intriguing are efforts to value previously ignored “ecological services”, both basic ones such as water filtration and flood prevention, and luxuries such as preserving wildlife. At the same time, advances in environmental science are making those valuation studies more accurate. Market mechanisms can then be employed to achieve these goals at the lowest cost. Today, countries from Panama to Papua New Guinea are investigating ways to price nature in this way (see article).

Rachel Carson meets Adam Smith

If this new green revolution is to succeed, however, three things must happen. The most important is that prices must be set correctly. The best way to do this is through liquid markets, as in the case of emissions trading. Here, politics merely sets the goal. How that goal is achieved is up to the traders.

A proper price, however, requires proper information. So the second goal must be to provide it. The tendency to regard the environment as a “free good” must be tempered with an understanding of what it does for humanity and how. Thanks to the recent Millennium Ecosystem Assessment and the World Bank's annual “Little Green Data Book” (released this week), that is happening. More work is needed, but thanks to technologies such as satellite observation, computing and the internet, green accounting is getting cheaper and easier.

Which leads naturally to **the third goal, the embrace of cost-benefit analysis**. At this, greens roll their eyes, complaining that it reduces nature to dollars and cents. In one sense, they are right. Some things in nature are irreplaceable—literally priceless**. Even so, it is essential to consider trade-offs when analysing almost all green problems**. The marginal cost of removing the last 5% of a given pollutant is often far higher than removing the first 5% or even 50%: **for public policy to ignore such facts would be inexcusable.**

If governments invest seriously in green data acquisition and co-ordination, they will no longer be flying blind. And **by advocating data-based, analytically rigorous policies rather than pious appeals to “save the planet”, the green movement could overcome** the **scepticism** of the ordinary voter. It might even move from the fringes of politics to the middle ground where most voters reside.

Whether the big environmental groups join or not, the next green revolution is already under way. Rachel Carson, the crusading journalist who inspired greens in the 1950s and 60s, is joining hands with Adam Smith, the hero of free-marketeers. The world may yet leapfrog from the dark ages of clumsy, costly, command-and-control regulations to an enlightened age of **informed, innovative, incentive-based greenery**.

#### Cede the political DA---Economics is the only way to get key decision-makers on board for the alt---it doesn't require compromising ethics

Thompson 3 -- Professor of Natural Resources Law, Stanford Law School; Senior Scholar, Center for Environmental Science and Policy, Stanford Institute for International Studies (Barton, What Good Is Economics?, 37 U.C. Davis L. Rev. 175)

Even environmental moralists who reject any economic tempering of ethical obligations may find normative economic arguments useful for **supplementing** their **ethical entreaties**. Although environmental moralists might believe that non-economic criteria should be used in judging the merits of environmental goals, many politicians, voters, bureaucrats, and courts are far more attuned to wealth-maximization arguments. Indeed, Professor Christopher Stone's contribution to this symposium suggests that arguments based on non-economic precepts of environmental ethics have played only **a marginal role** in legislative debates and judicial decisions **over the past several decades**. n9 If this is correct, environmentalists have a strong strategic reason to look for arguments that **resonate** more **robustly with** key decisionmakers. Even if environmental ethics currently play a stronger role than Stone suggests, environmentalists might wish to broaden their base of support by [\*181] making economic arguments in favor of their goals.

#### Plan’s galvanizing of government fails Government can’t predict or plan technology implementation effectively

Morris et al 12 Adele C. Morris, Fellow and Deputy Director of the. Climate and Energy Economics project at Brookings, Pietro S. Nivola, Charles Schultze, Brookings Scholars, "CLEAN ENERGY:REVISITING THE CHALLENGES OF INDUSTRIAL POLICY" June 4 www.brookings.edu/~/media/research/files/papers/2012/6/04%20clean%20energy%20morris%20nivola%20schultze/04\_clean\_energy\_morris\_nivola\_schultze.pdf

All of which leads us to examine a little more fully the practical difficulties facing policymakers in the real world of American government as they struggle to choose and sustain the right enterprises.

Identifying plausible candidates might be a more dependable process if the commercial prospects of emerging technologies could be accurately predicted. Too often, however, the predictions have foundered. Decades ago the government launched robust programs to develop nuclear breeder reactors and to facilitate synthetic fuels.

These did not appear to be fanciful schemes in the contexts of their times. But they proved to be premised on unreliable forecasts. In the first instance, experts were anticipating continued explosive growth of domestic demand for electricity. (Instead, demand, especially for baseload capacity, settled onto a much slower trajectory.) In the second, the forecasters assumed that the price of petroleum would not plunge far below $40 a barrel, over $ 100 a barrel in today's money. (Instead, it collapsed by the mid-1980s.) Similar unexpected twists have bedeviled attempts to foretell the potential market for various forms of cleaner energy. When prices tumble, as they do periodically, the government's best-laid plans get stranded.