
Currents

In This Issue

More and more, the states are becoming policy innovators, challenging failed policies foisted on them by Washington. And now they are setting the terms of the debate on devolving power and returning responsibility to the states.

The next frontier in the revolt against Washington may be the wider regulatory regime. And as states loosen the federal bonds that bind them, they increasingly appreciate that their own regulatory regimes need serious revamping.

Among the governors commissioning reports and promising regulatory reform are George Allen of Virginia, Christine Todd Whitman of New Jersey, George Pataki of New York, and Pete Wilson of California (see my Current in this issue). But reports and promises simply indicate concerns and intentions. They do not guarantee results.

In this issue of *Regulation* we return to the debate on state regulations that was taken up in our issue "California: Autopsy on a Regulatory Suicide" (1994 No. 4). Articles include:

Edward L. Hudgins **"State Regulatory Measures"**

Little systematic work has been done comparing the regulatory regimes of the 50 states. Yet such information is crucial if policymakers are to discover which regulations should be targeted first for reform or repeal; if businesses are to find out which states are market-friendly; and if citizens are to understand why their states do or do not prosper.

In my article, I suggest various criteria by which state regulatory regimes can be evaluated. For the list of categories and policy areas by which states should be rated, I suggest: property rights and land use, tort law, insurance, workers' compensation, labor, occupational licensing, banking, telecommunications, trucking, electricity, and environment.

While it will take much effort to refine and operationalize such an index, it will be a valuable tool for determining the degree of economic freedom that the citizens of various states enjoy.

Lawrence W. Reed **"Time to End the Economic War between the States"**

An economic war has broken out between the states. So observes Lawrence Reed, the president of the Mackinac Center for Public Policy in Michigan. In this war, state governments use their powers as well as taxpayers' money to help favored enterprises with special tax exemptions, free support-services, or outright handouts. These policies create neither wealth nor jobs, but they do give politicians opportunity to take credit for helping business.

Some critics of state industrial policy have suggested a constitutional amendment prohibiting such policies. But Reed concludes that the best way for states to retain businesses and spur new ones is to maintain low taxes and reduce regulations.

Angela Antonelli **"Promises Unfulfilled"**

States correctly complain that unfunded federal mandates force them to waste money providing services that do not meet the needs of their citizens, or that could be provided in a far more efficient manner than by Washington-prescribed procedures. The first act of the new Republican Congress in 1993 was to pass the Unfunded Mandates Reform Act to ease this burden.

Yet Angela Antonelli points out that this act, at best, forces Congress to vote by a simple majority to exempt itself from paying for mandates over a certain dollar value as estimated by the Congressional Budget Office (CBO). So far, exposing the costs of some proposed legislation has led to cost-saving

changes. For example, the CBO found that a proposal to void all driver's licenses that do not contain the driver's social security number would have cost states \$200 million. So sponsors of the bill allowed a phase-in that would cost only \$20 million.

But as Antonelli notes, the act contains many loopholes. Only bills voted out of standing committees are subject to the CBO estimates. Bills voted out of conference committees or introduced on the floor of Congress are not. Further, the Clinton administration's Office of Management and Budget has failed to meet requirements of the act to provide timely estimates of the costs of proposed new rules. And current mandates are subject only to studies that, due to budget cuts, might never be made. Antonelli concludes that the Unfunded Mandates Reform Act affords states little protection, and that policymakers must revisit the issue if they want real regulatory relief.

Dana C. Joel
"Rhetoric vs. Reality: New Jersey"

New Jersey's Governor Christine Todd Whitman took office in 1994 promising tax cuts and regulatory relief. She fulfilled the first part of her promise. But as Dana Joel documents, Whitman has largely sat on the sidelines rather than tackle real regulatory reform in a state with some of the most destructive controls in the country.

The *Strategy To Advance Regulatory Reform (STARR) Report*, released by Whitman in 1995, identified major reforms necessary to create a business-friendly state. While some minor reforms have been made, businesses planted in the Garden State will still find the soil poisonous to prosperity.

Whitman has done little to remove economically damaging regulations, even though her own Republican Party controls the state legislature. For example, New Jersey's price-controlled, government-regulated auto insurance industry results in average rates of \$1,094 annually, the highest in the nation. Yet Whitman has kept away from attempts to make even minor reforms to this failed state system.

Joel's bottom line is that in New Jersey, reform rhetoric is still far from reform reality.

Susan Eckerly
"Virginia's Deregulatory Challenge"

Virginia's Republican Governor George Allen

entered office promising to create the best atmosphere possible to attract business. Several major studies suggested that regulatory reform was crucial to his goal. Susan Eckerly finds that he has used his powers as governor to follow through as much as he can on such reforms.

Allen has faced a legislature controlled by Democrats hostile to his changes. But he signed an executive order in June 1994 stipulating that agencies:

- Issue only those regulations clearly mandated by law;
- Opt for the least burdensome or intrusive alternative;
- Include a schedule to review the effectiveness of new rules no more than three years after they go into effect.

Allen and his appointees have used these principles to guide their use of executive branch discretion in revising regulation. And as Eckerly notes, Allen has attempted to go beyond his executive powers by seeking legislative changes in bad laws. He has managed to push through a requirement for private property takings assessments to be made when considering new regulations. But he was unable to get legislation passed that would have allowed state-level compensation for takings of private property.

George Liebmann
"Modernization of Zoning"

Zoning is a policy that was imported from Germany earlier this century. But as George Liebmann explains, the application of this policy has misallocated land and amplified many of the urban woes that cities face today. Placing limits or restrictions on duplexes and mixed residential and commercial uses helped drive people into the suburbs. After World War II, with the construction of interstate highways and the explosion in ownership of automobiles, the problems of zoning became apparent.

Liebmann offers a "Developers' Bill of Rights" that states and localities could adopt to ease some of the problems associated with zoning.

Edward L. Hudgins

Regulating by Numbers

Economists and scientists have long promoted

benefit/cost analysis and risk assessment as the primary instruments of regulatory review. As an economist, the editor of *Regulation*, a sometimes federal official, and a former coeditor of the *Benefit/Cost Annual*, I have also sung in that choir. Over time however, I have come to believe that the promise of regulating by numbers is akin to the promise of scientific socialism. Better data and analysis of major rules are probably worthwhile. More often than not however, the numbers are not available—good analyses are disregarded when they do not support the prevailing agenda, and sometimes, even good numbers are misleading.

My grumpy mood is a product of more than a long Washington winter and was triggered by three recent events. First, Robert Hahn of the American Enterprise Institute, one of the best analysts of the benefits and costs of regulation, released a new study in January. On the basis of studies by the regulatory agencies, Hahn estimates that federal health, safety, and environmental regulations from 1990 to date will generate net benefits with a present value of about \$280 billion! Moreover, eliminating the rules that do not pass a benefit/cost test would increase the total net benefit by more than \$115 billion.

This study represents considerable work by Hahn and his colleagues, but Hahn, to his credit, does not believe the quantitative results. The results, for example, are wholly inconsistent with the results of studies by Professor Dale Jorgenson and others on the effects of environmental regulation on the economy. Hahn's more important qualitative conclusions raise serious doubts about the potential for reviewing regulations based on data provided by the agencies: "The total level of net benefits is quite sensitive to the presumed value of benefits as well as to the discount rate," and, "We have strong theoretical and empirical reasons to believe that the government substantially overstates its estimates of net benefits. Moreover, it is plausible that the aggregate net benefits for the final regulations studied here are actually negative."

One wonders in this case whether regulatory review should be based primarily on benefit/cost analysis. The review offices are necessarily dependent on the regulatory agencies for the basic data, and they have been unwilling to provide clear guidance on the valuation of benefits and the discount rate (more on this issue later).

About the same time, John Graham, director of the Harvard Center for Risk Analysis and the author or supervisor of many of the best risk assessments, took me to task for being insufficiently enthusiastic about the Dole-Johnston regulatory reform bill. (See the Letters section in *Regulation*, 1996 No. 1 and my Current in *Regulation*, 1995 No. 3.) Graham would have Congress "provide administrative agencies with qualified powers to reduce risks under a uniform statute rooted in the principles of 'scientific peer review,' 'risk-based priorities,' and 'benefits justify costs.'" But these are the general principles by which regulation has been reviewed without conspicuous success for 15 years. Graham endorses regulation by those "trained in environmental science and welfare economics." Some of my best friends are scientists and economists, but our political system works better when such experts are on tap, not on top.

Moreover, the Office of Management and Budget released a document in January on how to conduct "Economic Analysis of Federal Regulations Under Executive Order No. 12866." This document is the product of a two-year effort by a subgroup of the Regulatory Working Group chaired by Joe Stiglitz, the chairman of the Council of Economic Advisers and a first-rate welfare economist.

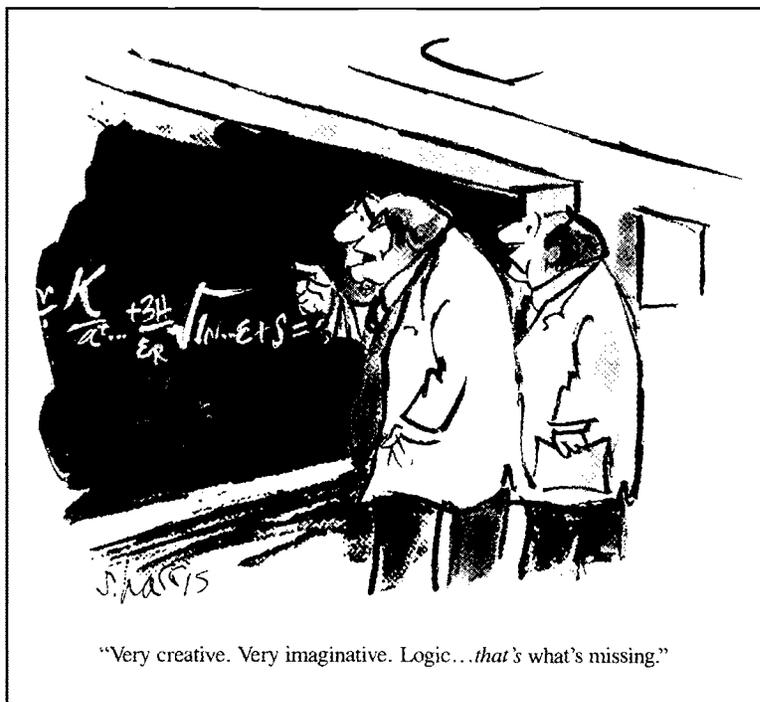
The document is an almost painstakingly conscientious summary of both the received wisdom and continued dispute about risk assessment and benefit/cost analysis. In some cases, the document clarifies issues on which the executive order was confusing: "Information on distributional impacts," for example, "should accompany the analysis of aggregate benefits and costs," where the executive order suggested that these impacts should somehow be incorporated in the estimates of benefits and costs. In too many cases however, the document fails to provide clear, consistent guidance.

- Instead of guidance not to multiply a string of probabilities from other than the means of each distribution, the document merely warns that "Such procedures may introduce levels of conservatism that accumulate across assumptions."
- The document endorses revealed behavior of "willingness to pay" as the preferred method for evaluating benefits but leaves an opening for contingent valuation estimates that require greater analytic care.

- A recommendation to use a common “value of statistical life” or “value of statistical life years extended” would provide a better basis for regulatory review than leaving these estimates to each agency and analysis.
- The recommendation to use lower values for the reduction of voluntary risk raises the question of whether the government should be regulating such risks at all.
- A recommendation to use a common discount rate based on OMB Circular A-94 would provide a better basis for regulatory review than leaving the choice of discount concepts and rates to each agency and regulation, even if based on prior consultation with OMB.
- The document recommends using “certainty equivalents” to reflect the uncertainty of future benefits and costs, without a hint about how to do this.
- Finally, the document sets a standard for data and analysis that cannot conceivably be met. Neither the regulatory agencies nor the review authorities have the information, time, or incentive to meet this standard.

What is the alternative to regulating by the numbers? The alternative is not to replace data and analysis but to focus such analysis on regulations that cannot be adequately reviewed by other criteria. *Some* official or government group should have the authority to dismiss proposed regulations without a quantitative analysis, based on answers to the following questions:

- What is the constitutional authority for the proposed regulation? A large part of federal regulation has no explicit basis in the Constitution and should be challenged on this ground.
- What is the statutory authority for the proposed regulation? Existing regulations on wetlands and the habitats of endangered species are based on the most tenuous statutory authority, as are the proposed FDA regulations on tobacco.
- Does the practice that would be subject to the proposed regulation have substantial external effects on people in other states? If not, the state governments have adequate incentive to resolve these issues. Many environmental issues, from second-



hand smoke to toxic dump sites, would be subject to this exception. Simple binary effects between neighboring states are not a sufficient basis for federal action: state governments usually sorted out these issues long before any federal action was taken.

- Does the practice that would be subject to the proposed regulation have substantial external effects on any third parties? If not, there is a questionable basis for regulation at any level. Many regulations of personal health and safety would be subject to this exception.

The demands for more “scientific” regulation have escalated largely because our political system pays too little attention to the above questions. But I do not want federal regulation of my eating, drinking, driving, and recreational activities to be based on a quantitative finding that it would be a more efficient way to reduce morbidity and mortality, than say, the regulation of pesticides. The best possible risk assessment and benefit/cost analysis is not sufficient or especially relevant to a decision about whether the federal government should regulate local environmental effects or voluntary risks borne largely by the acting party. In summary, as an economist, I am urging more careful legal and conceptual analyses of proposed regulations prior to and, in some cases, in place of more careful quantitative risk assessments and benefit/cost analyses. There will

continue to be a valuable role for careful, quantitative risk assessments and benefit/cost analyses. In many cases however, such analyses are not necessary to improve regulation, and in most cases, are not sufficient.

William A. Niskanen

Recovering Stranded Costs Benefits Consumers

There is legitimate reason for us to respond to Professor Michaels's attack (*Regulation*, 1996 No. 1) on our book, *Transmission Pricing and Stranded Costs in the Electric Power Industry* (AEI Press, 1995) in which we discuss recovery of the investment that is expected to become redundant as a result of the welcome advent of competition in electricity generation. The reason is not self-defense, nor even clarification of the portions of our position that he has evidently misunderstood. The issue is too important and too urgent for such self-indulgence. Rather, what is called for is a bit of clarification of the substantive issue.

Consumer Welfare and Diminished Investment

It is all too easy to be lured into a discussion of the virtues and vices of the electric utility firms and the goodness or sins of their past behaviors. However, no one is suggesting that investors in those enterprises should be given the opportunity to recover their past outlays as a reward for exemplary conduct. The issue rather, is whether recovery of those investments will in the long run serve the interests of electricity consumers and benefit the economy generally, or whether such recovery will damage the general welfare and/or the welfare of electricity users.

We argue that the opportunity to recover stranded investments *will* be beneficial to consumers and to the economy generally, because otherwise new investment will be discouraged, thus injuring consumer interests. The problem arises because of the historical regulatory arrangement that we call "the implicit regulatory compact"—or, equivalently and more simply, "the regulatory contract."

It is our contention that the regulatory regime that is about to pass into history has

imposed special profit constraints upon investors in the electricity industry, and that regulation has counterbalanced those constraints through, in effect, partial guarantees against loss of those investments. It is this arrangement that made the utility industries the traditional focus of investments by the oft-cited (if somewhat fanciful) "little old ladies in tennis shoes." For those conservative investors, low risk was a crucial consideration.

If the implicit guarantee that had led those investors to entrust their savings to the electric power industry were suddenly and arbitrarily withdrawn, then those investors would become reluctant to provide utilities with the funds they will need in the future. That is because the transmission of electricity, unlike electricity generation, is likely to remain a monopoly-run sector of the industry and will continue to be regulated. If regulators withdraw the opportunity to recover legitimate investments, then investors will surely suspect that what regulators have done once, they can do again. "Once bitten, twice shy," is the appropriate cliché. And if the result of diminished investment is deterioration of the facilities for transmission of electric power, then it will be the consumers who bear the burden. That, in sum, is the point that we have sought to make in defending the legitimacy of regulatory rules that do not preclude recovery of stranded costs.

Here it is pertinent to note the conclusions of President Clinton's Council of Economic Advisers—certainly not a group that can be plausibly accused of having been coopted by the electric utilities—as expressed in the January 1996 *Economic Report of the President*. The Council wrote: "There is an important difference between regulated and unregulated markets. Unregulated firms bear the risk of stranded costs but are entitled to high profits if things go unexpectedly well. In contrast, utilities have been limited to regulated rates, intended to yield no more than a fair return on their investments. If competition were unexpectedly allowed, utilities would be exposed to low returns without having had the chance to reap the full expected returns in good times, *thus denying them the return promised to induce the initial investment*. A strong case therefore can be made for allowing utilities to recover stranded costs where those costs arise from after-the-fact mistakes or changes in regulatory philosophy toward competition, as long as the investments were initially authorized by regulators." (Emphasis added.)

There can be no clearer statement of what we meant when we spoke of the regulatory compact.

The Regulatory Compact

Professor Michaels asserts that the regulatory compact is a recent fabrication. In 1995 for example, he wrote in *Public Utilities Fortnightly*: "The fictitious regulatory compact that justifies stranding compensation makes for poor history and misleading fable. Despite frequent claims that its roots go back to *Hope* and *Bluefield*, the compact is a recent intellectual invention. According to a LEXIS search, the first regulatory and court decisions to mention it only appear in 1983 and 1984. The legislative history of regulation is strikingly devoid of references to a compact, and no known regulation arose from a collaborative effort at which anything resembling a compact was on the agenda." Professor Michaels's claim is false. It does not comport with American legal and economic history. As Professor Daniel Spulber and one of the present authors show in a forthcoming *New York University Law Review* article "Deregulatory Takings and the Regulatory Contract," numerous Supreme Court decisions from the late 19th and early 20th centuries flatly contradict Professor Michaels's assertion that the regulatory contract is a recent concoction. So does the authoritative article by Professor George Priest of Yale Law School in the *Journal of Law & Economics* 1992 that documents the contractual origin of public utility regulation as follows: "Public utility companies voluntarily entered contracts subjecting themselves to regulation in order to gain authority to use public rights-of-way for laying gas and water pipes, stringing telephone and electric poles, burying electrical wires, and laying street railway tracks. Regulation of the utility's activities and terms of business resulted from a negotiation between the municipal government and the utility in a context that both parties recognized saved the utility the costs of negotiating with and securing rights from the individual property owners they intended to serve."

The legal reasoning underlying the regulatory contract was well established before the advent of electric utilities in the late 1800s. In 1865, defending an exclusive bridge franchise from impairment, Justice Davis delivered the Supreme Court's opinion in *Binghamton Bridge*, which characterized the relationship between govern-

ment (in this case, a state legislature) and private investors as follows: "The purposes to be attained are generally beyond the ability of individual enterprise, and can only be accomplished through the aid of associated wealth. This will not be risked unless privileges are given and securities furnished in an act of incorporation. The wants of the public are often so imperative that a duty is imposed on the Government to provide for them; and, as experience has proved that a State should not directly attempt to do this, it is necessary to confer on others the faculty of doing what the sovereign power is unwilling to undertake. The legislature, therefore, says to public-spirited citizens: 'If you will embark, with your time, money, and skill, in an enterprise which will accommodate the public necessities, we will grant to you, for a limited period, or in perpetuity, privileges that will justify the expenditure of your money, and the employment of your time and skill.' Such a grant is a contract, with mutual considerations, and justice and good policy alike require that the protection of the law should be assured to it."

In many subsequent decisions, the Supreme Court reiterated that government must behave credibly and not opportunistically, so that public utilities have the opportunity to recover the cost of the long-lived, specialized investments that those firms made pursuant to the obligations they assumed to serve the public. In 1902 for example, the Court in *Detroit v. Detroit Citizens' Street Railway Co.*, struck down a city ordinance attempting to reduce the rates of a street railway that had been fixed in the company's franchise, noting: "It would hardly be credible that capitalists about to invest money in what was then a somewhat uncertain venture, while procuring the consent of the city to lay its rails and operate its road through the streets in language which as to the rate of fare amounted to a contract, and gave the company a right to charge a rate then deemed essential for the financial success of the enterprise, would at the same time consent that such rate then agreed upon should be subject to change from time to time by the sole decision of the common council. It would rather seem that the language did not and was not intended to give the right to the common council to change at its pleasure from time to time those important and fundamental rights affecting the very

existence and financial success of the company in the operation of its road."

With such contract-based thinking deeply ingrained in American legal thought, it is not surprising that Joseph Joyce in his turn of the century treatise on municipal franchises observed: "Franchises are based in this country upon contracts between the sovereign power and a private citizen, made upon a valuable consideration for purposes of public benefit as well as for individual advantage; and it is said by Chancellor Kent that franchises contain an implied covenant on the part of the government not to invade the right vested, and on the part of the grantees to execute the conditions and duties prescribed in the grant. Some of these franchises are presumed to be founded on a valuable consideration, and to involve public duties, and to be made for public accommodation, and to be affected with *jus publicum*, and they are necessarily exclusive in their nature. The government cannot resume them at pleasure, or do any act to impair the grant, without a breach of contract." From this absolutist view of the municipal franchise as contract that the government could not unilaterally amend, let alone repudiate, the modern regulatory contract emerged.

When viewed in this historical light, the fact that Professor Michaels's LEXIS research did not produce more or earlier reported cases may reflect nothing more profound than his evident failure to recognize as Justice Story noted in *Green v. Biddle* (1823), "The terms compact and contract are synonymous." For Professor Michaels to prove that the phrase "regulatory compact" was recently coined to refer to the contractual relationship under discussion does not begin to rebut the evidence that municipalities and public utilities routinely entered into explicit contracts in the 19th and early 20th centuries, long before the advent of the state public utilities' omissions.

Deregulatory Takings

There is also a compelling constitutional argument for allowing electric utilities the opportunity to recover their stranded costs. It is easy to cheer the arrival of competition in industries where it previously has been forbidden by law. But the appeal that competition holds should not obscure the fact that the transition from

regulated monopoly to competition, like the transition from dirty air to clean air, is not free.

As federal and state officials permit competition to replace regulation in the electric power industry, they must do so in a manner consistent with the Takings Clause of the Fifth Amendment. Deregulation without the proper sharing of regulatory burdens by all market participants, and the appropriate setting of interconnection prices for mandatory wheeling, would result in asymmetric regulation that would transfer wealth from utility shareholders to customers and competitors. If regulators order mandatory wheeling without allowing recovery for stranded costs, they will confiscate shareholder wealth and effect what Professor Spulber and one of us have dubbed a "deregulatory taking" under any of three separate lines of Supreme Court precedent.

For example, according to the Court's reasoning in *Loretto v. Teleprompter Manhattan CATV Corp.* (1982), mandatory wheeling would constitute a government ordered, physical invasion of the incumbent utility's premises, rights of way, conduits, wires, and the like. Access to electrical networks inherently involves physical occupation of the incumbent's network by a competitor's electrons, just as mandated trackage rights in the railroad industry enabled railroad companies to send trains over tracks that the companies did not own. In both instances, a rival's use of the incumbent's network involves occupying the physical capacity of that infrastructure to deliver a service that competes with, and potentially displaces the incumbent's.

Regulators who mandate wheeling of competitively produced power can avoid an uncompensated taking by setting the price of network access according to the Efficient Component-Pricing Rule (ECPR). The ECPR specifies that the price of interconnection, or unbundled network access, must equal the incumbent's direct incremental costs plus all incremental opportunity costs incurred by the incumbent in providing the product.

In other words, the rival must pay the incumbent all potential earnings that the supplier firm forgoes, either by providing inputs of its own rather than purchasing them, or by offering services to competitors that force it to relinquish business to those rivals. The ECPR not only induces efficient entry, it also avoids the takings problem posed by mandatory wheeling.

Credible Government Commitments

The discussion of stranded costs in the *Economic Report of the President* does more than reiterate our argument for symmetric treatment of good and bad outcomes under the regulatory contract. It goes on to make the other key point contained in our book regarding credible commitments: "Recovery should be allowed for legitimate stranded costs. The equity reason for doing so is clear, but there is also a strong efficiency reason for honoring regulators' promises. Credible government is key to a successful market economy, because it is so important for encouraging long-term investments. Although policy reforms inevitably impose losses on some holders of existing assets, good policy tries to mitigate such losses for investments made based on earlier rules."

The public debate over stranded costs and the restructuring of the electric power industry is reminiscent of Justice Holmes's warning in *Pennsylvania Coal Co. v. Mahon* (1922): "We are in danger of forgetting that a strong public desire to improve the public condition is not enough to warrant achieving the desire by a shorter cut than the constitutional way of paying for the change." If the electric power industry ceases to exhibit conditions of natural monopoly, then no disagreement can remain on economic grounds that competition is superior to regulated monopoly. Only the proper means to achieve that end are in dispute. Just as Justice Holmes recognized, "The question at bottom is upon whom the loss of the changes should fall."

The answer that regulators, legislators, and the Supreme Court ultimately give to that question will affect more than perceptions of the fairness of past regulatory policies. That answer will also affect the economic efficiency of future regulatory policies, as well as perceptions of the trustworthiness of government when it makes future commitments to private parties. The proper treatment of stranded costs, in short, concerns the future as much as the past.

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Wasted Lights

The federal government wants you to use fluorescent lighting. Under the Green Lights program established in 1991, the Environmental Protection Agency (EPA) has been encouraging corporations and other participants to commit to installing fluorescents and other high efficiency lighting products whenever such investments are "profitable." According to the EPA, "If Green Lights were fully implemented in all facility space in the United States, it would save over 65 million kilowatts of electricity annually, reducing the national electric bill by \$16 billion per year." The greater use of energy efficient lighting would also reduce power plant emissions of sulfur dioxide, mercury, and other pollutants.

In the past five years, a few hundred companies have signed on to the program. The EPA provides a range of "participant support programs," including taxpayer-funded technical assistance and green publicity. The agency provides participants with "ready-to-use promotional materials" to celebrate the program and has promised to "aggressively publicize successful Green Lights corporations."

Despite the free goodies, Green Lights has not been without problems. For one, many companies have found that the rates of return on their investments have been lower than the 30 percent predicted by the EPA. More significantly, some companies are beginning to discover that participation in Green Lights can bring the unwanted award of subjection to federal hazardous-waste laws and potentially even Superfund liability. This has soured some on the program. As the Tennessee Valley Authority commented to the EPA, "Regulating lamps as hazardous-waste adds significantly to the cost of relamping, which increases the payback period and could delay or eliminate relamping at some facilities."

Of course, many may wonder what makes fluorescent lights hazardous. After all, it is not as if energy efficient lighting is placing homeowners at risk. Indeed, the average homeowner is not subject to federal hazardous-waste regulations. For most consumers, replacing light bulbs is not a big deal—when a bulb burns out, it gets replaced. Many large companies on the other hand, tend to replace many bulbs at a time. Some even replace bulbs in bulk at specified intervals (a process known as group relamping), particularly when conducting lighting upgrades.

Corporate facilities including factories, warehouses, and office buildings will generate hundreds, if not thousands of used bulbs over the course of a year. This is where the federal rules come in. Fluorescent lights contain small amounts of mercury—approximately 23 milligrams in the average four-foot tube, even fewer in newer models. It is this trace amount of mercury that causes fluorescents to meet the federal definition of hazardous waste set forth in the Resource Conservation and Recovery Act (RCRA). Under RCRA, generators of hazardous waste—in this case, companies disposing of enough light bulbs—must comply with a laundry list of regulations covering the accumulation, storage, transportation, and disposal of the bulbs, and the reporting thereof. Some small generators, those who produce only a little “hazardous waste,” are conditionally exempt.

RCRA rules impose tremendous costs on firms seeking to convert their lighting. Indiana University spent \$25,000 in one year disposing of fluorescent bulbs as hazardous waste. For one company, transportation and disposal costs for used bulbs increased more than fivefold due to the hazardous designation. Indeed, even the U.S. Postal Service, not known for its attentiveness to cost, has found the costs imposed by RCRA to be unwieldy. The Postal Service told the EPA, “The costs of hazardous waste disposal may make many relamping projects cost prohibitive.” In other words, RCRA may be Green Lights’ greatest enemy.

Despite all the cost, there seems to be little environmental benefit. In fact, RCRA rules may be doing more harm than good by increasing the net amount of mercury released into the environment. Coal-burning utilities are believed to be among the greatest anthropogenic sources of mercury emissions. Therefore, all other things being equal, reducing energy consumption would reduce mercury emissions. The EPA estimates that full implementation of Green Lights would reduce annual mercury emissions by approximately 10 tons. No more than four tons of airborne mercury emissions are released by improperly handled or discarded fluorescent



bulbs. If the EPA is concerned about mercury, reducing power plant emissions makes more sense than regulating fluorescent bulbs.

The EPA is well aware of the negative environmental impact of treating mercury-containing light bulbs as hazardous waste. For two years the agency acknowledged that the costs imposed by RCRA and the threat of Superfund liability for bulb disposal looming in the background, provided powerful incentive against further participation in the Green Lights program, yet the EPA did next to nothing about it. Then in July 1994, the EPA proposed two potential revisions to RCRA regulations to facilitate the use and disposal of fluorescents.

The first proposal would provide fluorescent bulbs with “conditional exemption” from the relevant RCRA rules. This would significantly reduce the regulatory burdens associated with fluorescent lamp disposal and reduce regulatory compliance costs by an estimated \$93 million. The second proposal would apply the EPA’s “universal waste rule” to fluorescent bulbs. This modest proposal would marginally streamline the applicable regulatory requirements without changing any of the underlying disposal and treatment requirements. The sav-

ings from this measure would be minimal, as would its effect on the demand for fluorescent lighting. Despite clear evidence that the regulation of lamp disposal was counterproductive, the EPA received comments against the conditional exclusion from environmental activists and some hazardous-waste treatment companies that see fluorescent lamp recycling as a potentially profitable business opportunity. Some even proposed that the EPA only loosen the rules if the lamps are destined for recycling facilities—presumably owned by companies opposing the proposed conditional exclusion. The Environmental Technology Council, a trade association of hazardous-waste treatment companies, even maintains that its members would suffer “economic and competitive harm” should the EPA modify the RCRA rules.

Interestingly enough, the EPA proposal to conditionally exclude fluorescents from hazardous-waste disposal rules is also opposed by agency officials in the Great Lakes region, where bioaccumulation of mercury in fish is a real concern. “It is our belief that any emissions of mercury are significant and should be addressed,” declared Region Five administrator Valdas Adamkus in a 1993 memorandum to the EPA’s office of solid waste. According to Adamkus, even though “the increase in energy efficiency of the ‘green’ lamps results in lower mercury emissions from coal-fired power plants. . . . Industries’ concerns about fluorescent lamp disposal being a barrier to participation in Green Lights should not be an impetus for our policy on fluorescent lamp management.”

Even if fluorescent bulbs were indiscriminately disposed of in unlined landfills, it is not clear that this would pose much of an environmental risk. To begin with, fluorescent lamps contribute less than 4 percent of the mercury present in municipal solid waste. In addition, the primary environmental concern regarding mercury has been that deposits from airborne emissions bioaccumulate in fish and subsequently pose a risk to human consumers. This is why even industry representatives oppose incineration of mercury-containing lamps. There is no basis for attributing mercury contamination in the environment to land disposal of fluorescent bulbs.

For the past 50 years, the Eastman Kodak Company has maintained a landfill at its Kodak Park facility in Rochester, New York. Until 1991

fluorescent lamps were routinely disposed of in the landfill. In that single year, Kodak estimates that 124,000 four-foot lamps were disposed of at the site. Since that time, Kodak has engaged in extensive groundwater monitoring of the site but has not detected any mercury contamination from the landfill. Kodak reported to the EPA, “Despite the known presence of a large number of mercury-containing lamps in the landfill, none of the mercury determinations in this extensive data set exceed the New York state groundwater standards or the federal maximum contaminant level (MCL) for mercury in drinking water (0.002 mg/l).” Where mercury was found at all, it was found at background levels. This supports the conclusion of an earlier EPA study: the presence of fluorescent bulbs in municipal solid waste is unlikely to result in mercury contamination of groundwater, particularly since modern landfills have multiple linings that further reduce the likelihood of groundwater contamination. Not only do the current regulations increase airborne emissions of mercury, they do little, if anything, to reduce the contamination of groundwater.

Despite the level of interest in the EPA’s proposal, no subsequent action has been taken, nor is one expected anytime soon. Some states have sought to loosen the disposal requirements for fluorescents on their own, but absent some action by the EPA, these modifications are probably illegal. Indeed, the conditional exclusion itself might go beyond the EPA’s authority under RCRA, which is just one more reason why the law should be changed.

It is farcical that rules promulgated in the name of environmental protection actually stand in the way of environmental improvement. Yet that is what RCRA’s regulation of fluorescent lamps does. RCRA, like most federal environmental statutes, embodies a drift-net approach to environmental protection. It is based on the underlying assumption that only a broad, all-encompassing federal regulatory structure is capable of ensuring the proper level of environmental protection. There is little consideration of the myriad unintended consequences of the regulatory net that has snared industrial users of fluorescent bulbs. Excluding fluorescent bulbs from RCRA’s hazardous-waste regulations would produce modest environmental gains by removing a regulatory barrier to the adoption of energy efficient lighting. More importantly,

it would signify that regulators in Washington, D.C. recognize that their rules can do more harm than good.

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The Environmental Cancer Epidemic That Never Was

Waves of concern about a "cancer epidemic" and statements that the "environment" caused 70, 80, or 90 percent of cancer cases flattened obstacles to the creation of the Environmental Protection Agency in 1970. Six years later the EPA published its first set of "cancer guidelines," that explained how the EPA would interpret results from epidemiologic studies and laboratory tests to determine whether a certain chemical presents a cancer risk and to estimate the magnitude of the risk if there is one. The risk assessments would underpin EPA regulations designed to reduce the toll of environmental cancer.

That toll plunged dramatically in 1981, but not because of the EPA. Instead, Sir Richard Doll and Richard Peto in a monumental paper in the *Journal of the National Cancer Institute* showed that environmental chemicals caused no more than 2 to 3 percent of all cancer cases, tossing aside the wildly exaggerated claims about environmental causes of cancer.

In 1987 EPA scientific and technical managers estimated the number of environmental cancers associated with chemical exposures in the environment, and the total amounted to 1 to 3 percent of all cancers. Assuming EPA's risk estimates are correct and that the EPA could impose regulations to eliminate all of its estimated risks, Michael Gough in a 1990 *Risk Analysis* paper calculated that at best, the EPA could reduce cancer rates by about 1 percent. Any actual reduction would be smaller because EPA methods generate high risk estimates.

The EPA issued revised cancer guidelines in 1986. Many scientists criticized the guidelines for accepting suspect data in support of carcinogenic risks and for using methods that inflated risks. In April, the EPA drafted new

cancer risk guidelines that were published in the *Federal Register* (61 *FR* 17960-18011). According to EPA officials, the new guidelines are less prescriptive and encourage flexibility in analyzing scientific results and estimating risks. That sounds good, but we think the draft guidelines are retrograde.

Although the potential benefits associated with controlling exposure to environmental carcinogens have shrunk dramatically, the EPA believes its guidelines will protect public health. In the face of principles of good science, the draft guidelines throw away the requirement that epidemiologic studies be statistically significant before they are considered valid. This provision if it stands, would allow the EPA to consider any association between human exposure to a substance and cancer as convincing evidence of carcinogenicity.

Proposed changes in the interpretation of animal results appear to run in the opposite direction, offering hope that the EPA will seriously consider all available biological information before employing its usual assumptions that exaggerate cancer risks. However, the changes will make little difference because the EPA reserves the authority to interpret animal results, making reliance upon the usual assumptions likely. Moreover, the EPA seems willing to consider poorly defined, poorly discussed, and largely unvalidated tests as sources of information about cancer risk.

If the guidelines are adopted, we can expect that the EPA will classify many more chemicals as "human carcinogens" and that the criteria used to evaluate animal tests will remain as they have been since 1986. To ward off those results, we propose some specific changes in the guidelines. In particular, we argue that assumptions in the guidelines and every cancer risk assessment made under the guidelines should be rigorously reviewed by independent scientists.

Epidemiology

The EPA rightfully acknowledges that epidemiology, the study of distributions and causes of disease in human populations, is potentially the most valuable tool in risk assessment. But the guidelines strip away the fundamental tool for distinguishing between convincing and unconvincing epidemiologic information.

Statistical Significance

In 1991, the National Research Council (NRC) stated that sorting out valid from invalid epidemiology begins with the determination of statistical significance: "Historically, *discussions on causality have proceeded once a statistically significant relationship between a potential casual factor and a disease has been found*, as is discussed below. . . . The requirement that a finding be statistically significant has been a convention of epidemiologic research." (Emphasis added.)

Statistical significance, the traditional and standard tool to rule out luck or chance as the causes of observed results, has long been the Achilles heel of epidemiologists and risk assessors intent on "finding something" and, as described in Steven Milloy's *Science Without Sense*, those interested in reaping research funding rewards, and justifying and extending the reach of their particular agencies.

The EPA learned its lesson about statistical significance when it assessed cancer risks from electromagnetic fields (EMF) and environmental tobacco smoke (ETS) in the early 1990s. Statistical significance was such a barrier to associating EMF with cancer that the EPA's attempt to justify an EMF regulatory program imploded. Learning from this experience, the EPA altered its test for statistical significance in its ETS risk assessment. While this deviation was widely criticized, it allowed the EPA to claim "statistical significance" and conclude that ETS was associated with increased lung cancer risk.

The EPA's new attitude appears to be: "Why deal with criticism when you can just change the rules?" Answering the prayers of many epidemiologists and risk assessors, the proposed cancer risk assessment guidelines would deliver epidemiology from the plague of statistical significance.

Statistical Significance in the Guidelines

The 1986 cancer risk assessment guidelines required that three criteria be met before a causal association could be inferred between exposure and cancer in humans. The third one, "The association is unlikely to be due to chance," required a demonstration of statistical significance.

In contrast, the 1996 guidelines propose seven criteria for causality "modeled after those developed by Bradford Hill." They do not include statistical significance. The omission represents a

jaundiced reading of Bradford Hill's criteria published in 1965, which state that statistical significance is a threshold requirement to be met before proceeding to further evaluation. Hill begins, "an association between two variables, perfectly clear-cut and *beyond what we would care to attribute to chance*. What aspects of that association should we especially consider before deciding that the most likely interpretation of it is causation?" (Emphasis added.)

Is the omission of statistical significance a simple oversight? Not likely. In fact, the proposed guidelines contain language in several places that gives a misleading impression of the importance attached to statistical significance. Nevertheless, statistical analysis is not required for concluding that a causal relationship exists—it is mentioned only as a factor for increasing confidence in a conclusion of causality, not as a basic requirement for determining causality.

Figure 2-1, from the draft guidelines, places statistical significance at the bottom of the criteria, a position different from its threshold prominence from the National Resource Council and Bradford Hill. The figure misleads: listing "High statistical significance" under the heading "Most causal criteria satisfied," can give the impression that statistical significance is required for causality. In fact, the table is consistent with the text that says "high statistical significance" increases confidence in a conclusion of causality—it is not required. The entry, "Few causal criteria satisfied" under the column "Decrease Weight" further indicates that statistical significance is not required for a conclusion of causality; the absence of statistical significance per se does not foreclose such a conclusion.

Effects of Removing Statistical Significance

With statistical significance out of the way, the EPA's latitude in using epidemiologic studies to associate various substances and conditions with cancer has been infinitely increased. The EPA's decision also sets a precedent for some epidemiologists and risk assessors. It is a junk scientist's dream come true.

Animal Tests

It is a tenet of toxicology, and a reasonable one, that animal responses to chemical exposures are

Figure 2-1 Factors for Weighing Human Evidence

| <u>Increase Weight</u> | <u>Decrease Weight</u> |
|---|--|
| Number of independent studies with consistent results | Few studies Equally well designed and conducted studies with null results |
| Most causal criteria satisfied: | |
| Temporal relationship | |
| Strong association | |
| Reliable exposure data | |
| Dose response relationship | Few causal criteria satisfied |
| Freedom from bias and confounding factors | |
| Biological plausibility | |
| High statistical significance | |

predictive of human responses: that tenet is the basis of the EPA's assumption that a substance which causes cancer in test animals will cause cancer in humans. Nevertheless, many scientists object to the EPA's use of very high doses in animal tests and its adherence to a risk assessment model that is inappropriate for many carcinogens. The EPA's draft guidelines respond to these criticisms, but there is little indication that the guidelines will alter its behavior.

The MTD

By popular convention, the high dose in animal tests is called the "maximum tolerated dose" or MTD. It is not well defined. The draft guidelines waltz around what it means: "a dose that produces some toxic effects without either unduly affecting mortality from effects other than cancer or producing significant adverse effects on the nutrition and health of the test animals. . . ." In most cases, MTD-exposed animals are a little bit "sick" from exposure to the test chemical, and "unduly" and "significant adverse" are not defined. Animal tests also have a "low dose." This is a terrible obfuscation. It may be "low" in that it does not cause frank toxicity, but it is generally no less than one half or one quarter of the toxic MTD. MTDs and low doses are 100 to 1,000 times higher than human environmental doses.

High Doses and Cancer Risks

Bruce Ames, Lois Gold, and their colleagues in a number of papers in *Science*, *Proceedings of the*

National Academy of Sciences, and elsewhere, raise general and fundamental objections to the EPA assumption that animal tumors predict human cancers. They argue that high doses cause cell killing that indirectly leads to cancer. High dose tests are therefore useless as predictors of events at lower doses that do not kill cells.

It is likely that humans exposed to the MTD would respond much as animals do. They would probably become at least a little bit ill, their appetites would be affected, their biochemical balances would be upset. It is even likely that humans exposed to the MTD would develop excess cancers. But humans are not exposed to such doses.

Risk Estimation Models

Opposing camps have battled over questions related to extrapolating from the high dose tests to expected risks at lower environmental exposure levels. Ames and his colleagues would not even attempt the extrapolation because of the very different doses.

For years, the EPA has advocated and succeeded in implementing some form of "linear, no-threshold" model to estimate risks. Such models are derived from knowledge that a single molecule of a mutagen can alter DNA in a cell, and that the altered DNA can be passed onto every progeny of that cell. Those events can produce a clone of altered cells that result in a cancer. Some carcinogens are mutagens, and the EPA has adopted the assumption that such models predict risks for all carcinogens.

The draft guidelines reflect a weakening in the EPA's adherence to the linear, no-threshold model, and they suggest that the EPA might use another method to estimate risks under some conditions. Many European countries have that flexibility now—using the linear model when a carcinogen is mutagenic and a model that predicts lower risks for non-mutagenic carcinogens.

In the EPA's nonlinear model, the lowest calculated dose of the chemical that is expected to increase the cancer rate by 10 percent is divided by human exposures to the substance to calculate a "margin of exposure" (MOE).

Risk managers and others can then determine if the MOE is sufficiently large or whether some reductions in exposure are warranted.

An MOE of 100, which might be chosen as okay, will generally result in acceptable exposures 100 to 1,000 times higher than an acceptable exposure estimated by the linear method. That difference is important. The linear model might require additional exposure controls; the MOE probably would not.

The EPA stacks the deck in favor of the linear model. It will be used "when the mode of action information is supportive of linearity or, alternatively, is insufficient to support a nonlinear mode of action."

Does the flexibility to choose a nonlinear model mean a major change in the EPA's approach to carcinogen risk assessment? That is unclear, but based on the EPA's "dioxin reassessment," now undergoing revision, it does not seem likely.

No scientific evidence supports a linear relationship between dioxin exposure and cancer risk, and the EPA's Science Advisory Board which reviewed the reassessment dismissed the EPA's cancer risk estimate as "weakened by its reliance on the standard EPA default assumption of a linear non-threshold model for carcinogenic risk." The EPA's clinging to the linear model undercuts the flexibility goal stated in the draft guidelines.

New Tests

The guidelines indicate that animal tests that show biological changes short of actual cancers may be used in the estimation of cancer risks. Whatever the promise of these tests, they introduce a whole new world of extrapolation problems. Extrapolation from animal tumors to human risk requires two extrapolation steps—from animals to humans and from high doses to low exposures. Extrapolation from the noncancer effects to human risk will involve another step. The new tests will probably be factors of contention for a long time before they are useful in risk assessment.

Implications

The proposed changes in the interpretation of animal tests will have little effect in other areas of risk assessment because the idea of linear

relationships between dose and effect is largely limited to cancer. The ramifications of the EPA's "statistical significance-ectomy" range far wider. The EPA could apply it to every risk assessment for any health effect, vastly expanding the number of chemicals "known" to cause human health effects.

Recommendations

We make three specific recommendations for revising the guidelines:

- Restore statistical significance as the threshold criterion for determining whether epidemiologic evidence is considered convincing.
- Replace the vague references to "mode of action" as the determinate of whether to use a linear or MOE risk estimation procedure with a statement that risks for mutagenic carcinogens will be estimated with a linear model and risks for all other carcinogens will be estimated with an MOE procedure. This will bring U.S. practice in line with that of most European countries.
- Explicitly state how the EPA will decide upon acceptable MOE levels. This is more of a policy than a technical decision, but it needs public airing.

Decisions about whether epidemiologic data prove that a chemical is a human carcinogen and about whether to use a linear or MOE risk estimation procedure are the critical ones in most risk assessments. Both of those decisions should be made reviewable by the SAB upon request from any interested party. While the initial results of this review would retard the making of decisions, several rounds of review should produce more understandable, predictable, and timely decisions.

More fundamentally, questions must be asked about any federal activities directed against environmental carcinogens when there is little reason to expect them to make a difference in public health.

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California Dreaming?

Regulation magazine's third issue in 1994 focused on "California: Autopsy on a Regulatory Suicide." At that time the Golden State was to regulations what New York was to taxes: a national example of what not to do.

In April 1996, the state's Republican Governor Pete Wilson released a report entitled *Competitive Government: A Plan for Less Bureaucracy, More Results*. The report opens appropriately by recalling that after the January 1994 earthquake in southern California, the world's busiest freeway was rebuilt in 66 days because the state waived most of its onerous regulations. Normally such a project would take years. Wilson's report states, "It shouldn't take an earthquake to shake up state government."

The report also encouragingly asserts that over the next three years the state's goal is "not simply to make government more efficient at what it does. It is to ask the fundamental question: What should government do?" This task is far easier said than done. Do the contents of Wilson's report indicate that his administration's efforts will be serious? They do in part.

Wilson's report specifies four objectives, each accompanied by initial steps and directions for long-term change. They are as follows:

1. Rightsizing Government.

This is the most crucial and difficult reform. The report notes: "California had 72 state agencies, departments and offices in 1960. Today, there are 321. California's General Fund expenditures have increased more than twentyfold—outpacing inflation by fourfold and state population growth tenfold."

The report's suggested method of dealing with bloated government is expressed in the politically trendy, Clintonesque word "rightsizing," which unfortunately focuses more on what government should do rather than what government should not do. The real problem, of course, is that government does far too much, and downsizing is the real task faced by reformers. Wilson's report suggests that state government should focus on its core functions, which include protecting public safety, educating children, caring for those who cannot care for themselves, and preserving and enhancing infrastructure and environment. The first is indeed a core

function; the second is a traditional state function, but one that should be private; and the third and fourth tasks are problematic at best. The report does not discuss these tasks but moves on to more specific considerations.

To the end of downsizing, Wilson's report proposes to abolish many of the state's 1,000 boards and commissions, and to sell surplus state assets. One potentially significant reform proposed is privatization of the State Compensation Insurance Fund. The fund is California's largest workers' compensation insurance carrier; it covers over one half of the state's workers, holds \$7.3 billion in assets, and employs 5,000 workers. It will be most important to watch the kinds of reforms made to workers' compensation regulations, which are among the nation's costliest in terms of business and employment.

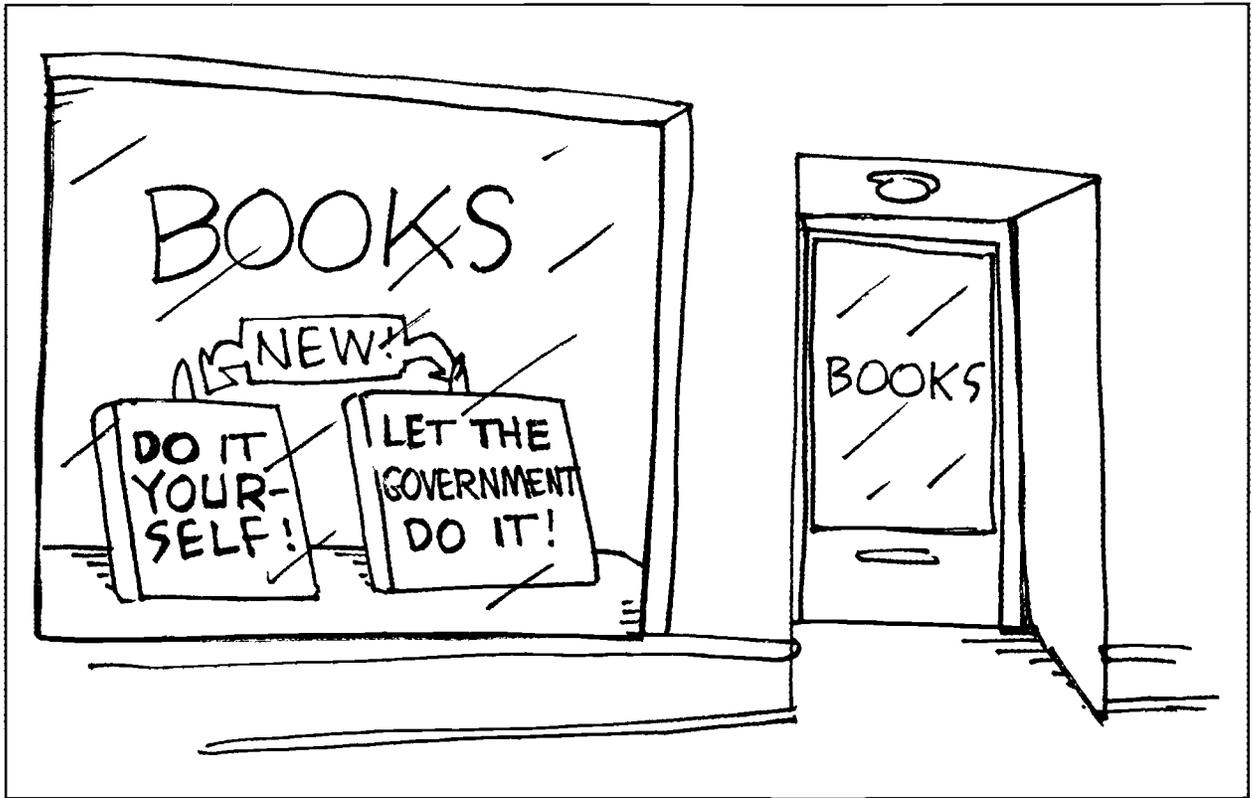
The Wilson report recommends returning some state powers and responsibilities to the localities. The report gives a few specific recommendations, but more thought is needed on this reform. Not only has the federal government usurped many functions that are best performed by states, but state governments have usurped functions best performed by cities and counties.

The downsizing task will be the most important to watch in order to judge how well Wilson's reforms are going. It is also the task that will set the stage for the next round of change.

2. Choosing Value for Taxpayers.

The report recommends removing procedural and other legal barriers to contracting out government services. It also proposes opening administrative functions such as payroll and data entry to contracting. Estimates show that \$3.7 million could be saved over five years by contracting out debt collection; and the California Department of Motor Vehicles could save \$5.7 million during that period by contracting out data processing. The report suggests that whenever possible, state repair, warehousing, and maintenance functions should be contracted out.

These reforms should have occurred years ago. It will be important to observe which tasks become classified as legitimate state functions, albeit functions that should be performed in a less costly manner, and which tasks become targets of the downsizing goal. A constant danger will be that government functions which should be eliminated will be retained by the state in the name of efficiency.



3. Cutting Red Tape.

This is the classic task of making government operate more efficiently. Cutting the number of permits required by government for businesses and cutting the length of time needed to obtain permits are forms of red tape targeted by the report.

One recommendation for cutting red tape is the classic “one-stop-shopping” approach to permits. The report singles out permits issued by California’s Environmental Protection Agency for such a reform. Another change would be to repeal 4,000 useless regulations and significantly modify 1,700 others.

Another action item, holding “red tape” public hearings, cannot only solicit input from citizens and enterprises adversely affected by regulations but can also serve an important public-education function. Road-show congressional hearings on regulations conducted by Rep. David McIntosh (R-Ind.) have proven useful at the federal level. Another recommendation, sunset reviews for all regulations, is well intended; but, the effectiveness of the limited use of this approach at the federal level has been disappointing. Wilson will have

to think carefully about how to make this reform effective.

Setting an overall cap on the cost of regulations is another good idea that could be problematic to operationalize.

4. Rewarding Merit.

It is not surprising that bureaucratic reform is on the list of Wilson’s goals. What will be a real surprise is if the reforms have much effect on the state’s regulatory regime. Specific recommendations include introducing merit pay, streamlining disciplinary processes, removing barriers to attracting the best employees, and expanding flexibility to improve job satisfaction.

Wilson faces 276,000 state workers and recognizes that their opposition to rightsizing, contracting out, and cutting red tape could make adoption of these reforms difficult. This fourth reform clearly is meant to reduce their opposition.

Future Challenges

Wilson will face a number of challenges as he attempts to implement his reforms. First, he still faces the same political pressures that caused

California's problems initially. The legislature, just barely in Republican hands, is still dominated by trial lawyers and others who have a strong stake in preserving the current system. And interest groups that favor heavy-handed regulations, including environmental groups, ideological leftists, labor leaders, and especially public-sector workers, will not sit by quietly as their power is returned to the people.

A second step to downsizing government effectively will be to substantially reduce the number of state employees, currently at 276,000. The problem with any government is not simply that its employees are given tasks that are better suited to the private sector. It is that entrepreneurial bureaucrats holding power in their hands will find some way to use it, always at the expense of citizens' freedom and prosperity. If only bureaucrats were as idle as they are sometimes portrayed!

A third challenge Wilson faces is how to change the entire command-and-control regulatory system when the institutions needed to perform the legitimate functions of protecting health, safety, and property have been so weakened by the current regime. For example, good

property-rights law can help protect the environment. Common-law tort concepts such as "reckless endangerment" and "negligence" can protect worker safety. Freedom for insurance companies to allow management of risks and help set responsible safety standards for businesses can do the same. But in California, these institutions are in terrible shape. And the governor's desire to change the system will not replace bad judges, bad legal precedent, or bad law.

A final challenge is for Wilson himself, as well as many of his supporters. He has never had a clear vision of how society may operate by limited government, rule of law, and free markets. His current regulatory reform enterprise is promising and commendable. If implemented, his reforms will help reverse decades of economically and socially destructive policies. But Wilson will meet many unexpected challenges that will require creative solutions that tend to flow from a deep understanding and appreciation of free institutions. Wilson would do well to delve more deeply into the basic functions of government that he raises in the first pages of his report.

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