



NATIONAL
COMMISSION
ON ENERGY
POLICY

REVIVING THE ELECTRICITY SECTOR
Findings of the National Commission on Energy Policy

August 2003

National Commission on Energy Policy
1616 H Street, NW
6th Floor
Washington, D.C. 20006
202-637-0400
www.energycommission.org



REVIVING THE ELECTRICITY SECTOR

Key Findings of the National Commission on Energy Policy

The National Commission on Energy Policy was founded in 2002 by the William and Flora Hewlett Foundation, and its partners—the Pew Charitable Trusts, the John D. and Catherine T. MacArthur Foundation, the David and Lucile Packard Foundation and the Energy Foundation. It is currently developing comprehensive recommendations for long-term national energy policy to be released in December 2004.

Commissioners

John P. Holdren

Co-Chair

Teresa and John Heinz Professor of Environmental Policy,
Harvard University

William K. Reilly

Co-Chair

President and CEO, Aqua International Partners; former
Administrator of the Environmental Protection Agency

John W. Rowe

Co-Chair

Chairman and CEO, Exelon Corporation

Philip R. Sharp

Congressional Chair

Senior Advisor, Lexecon, Inc.; Senior Policy Advisor, Van Ness
Feldman; Former U.S. Representative, IN

Marilyn Brown

Director, Energy Efficiency and Renewable Energy Program, Oak
Ridge National Labs

Ralph Cavanagh

Senior Attorney & Co-Director, Energy Program, Natural
Resources Defense Council

Archie W. Dunham

Chairman, ConocoPhillips

Rodney Ellis

State Senator, Texas

Leo Gerard

International President, United Steelworkers of America

F. Henry Habicht

CEO, Global Environment and Technology Foundation

Paul L. Joskow

Professor of Economics and Director of MIT Center for Energy
and Environmental Policy Research, Massachusetts Institute of
Technology

Andrew Lundquist

President, The Lundquist Group

Mario J. Molina

Institute Professor, Massachusetts Institute of Technology

Sharon L. Nelson

Chief, Consumer Protection Division, Washington Attorney
General's Office; Chair, Board of Directors, Consumers Union

Linda Stuntz

Stuntz, Davis & Staffier

Susan Tierney

Managing Principal, The Analysis Group

R. James Woolsey

Vice President, Booz Allen Hamilton; former Director of Central
Intelligence

Martin B. Zimmerman

Group Vice President, Corporate Affairs, Ford Motor Company

Jason Grumet
Executive Director

Electric-industry restructuring has derailed. The massive blackout of August 14, 2003 certainly was not needed to underscore the point, but it adds urgency to the effort to find solutions. Wholesale markets continue to evolve slowly and erratically but are impeded by state-federal conflict, regulatory and legislative uncertainty, malfeasance, poor credit and outright collapses, of which Enron is only the most notorious. FERC's efforts to promote more efficient markets through regional transmission organizations and a wholesale market platform offer promise, but have generated confusion and opposition. In the last five years, increased generation competition has elicited more than 100,000 megawatts of gas-fired peaking and baseload capacity, which has contributed both to a period of relatively low wholesale prices in many regions and increased exposure to gas price volatility across the system. But competitors' losses have created substantial uncertainty about how quickly and on what terms capital markets will support additional investment throughout this sector. Indeed, investment in all categories of electricity infrastructure is down significantly, in part because of surplus capacity conditions in certain regions, but also because of uncertainty concerning which entities have the responsibility for identifying and making investments in the transmission and distribution networks, and uncertainties about how the associated costs will be recovered. A challenge in reviving these capital flows is to clarify prospects for cost recovery and reward: for example, when and on what terms will distribution utilities have the ability to enter into long-term contracts with generation service providers; how will distribution utility responsibilities interact with the opportunities created for competitive retail suppliers in states with retail competition; who has the responsibility for identifying needed enhancements to the transmission network; how will they be paid for securing them; and who will pay? The August 2003 blackout is a reminder of how much hinges on finding practical answers promptly.

Individual states have varied greatly in their willingness to introduce retail electricity competition, and their enthusiasm for federal policies designed to promote wholesale competition. Even in states that have opted for retail competition, efforts to expand it have generally halted in the wake of the Enron collapse and the California disaster. Large industrial customers often have benefited from retail competition, effectively exercising their ability to "buy wholesale" whenever prices are lower than the "safety net" of regulated rates that such states typically provide. These customers seldom seek "value-added" electricity service; rather, they seek the cheapest commodity prices and the shortest contractual commitments. Large customers contend that their continued exposure to some utility charges impedes the further development of these markets. Utilities contend that continued safety nets for the industrials have the same effect.

Small customers sometimes have benefited from rate guarantees in restructuring legislation, but they have received little direct benefit from retail competition itself. Because the pocketbook advantages have been insubstantial, many consumers find the choices associated with retail competition to be more of an annoyance than an advancement over past service offerings. Retail marketers have lost some billions in capital without developing a profitable, sustainable and distinct value-added product, although a few pioneers have made intriguing efforts to market products based on environmentally preferred generation sources.

At the same time, it is often unclear who is responsible for assembling a diversified mix of short- and long-term resource commitments and other risk management tools, in order to sustain the economical and reliable electricity services that a healthy economy requires. Competitive models assume that decisions by market participants will replace resource planning by utilities or regulators. In practice, however, competitive models have retained -- whether in utilities, in regional transmission organizations or in the states themselves -- some residual responsibility for ensuring that electricity supplies remain adequate. In some restructuring models, customers unwilling or unable to choose a supplier have been provided with default options that influence the evolution of the market. These “carrier of last resort” options also fail to address either the real relationships between wholesale and retail markets or the complex issues involved in resource planning. Indeed, in California, events evolved such that from 1998-2001 utilities were required to supply power to retail consumers at frozen rates after losing the ability to enter into forward contracts for the power that they were obligated to deliver..

In states with traditional regulatory regimes, the regulated utilities that provide most resource procurement and management services generally do so based on longstanding cost recovery principles, with abundant downside risk and little or no prospect of gain regardless of the quality of their performance. In states with retail competition, the retail suppliers view long-term procurement by distribution companies as unfair competition, and the distribution companies face potential stranded cost problems or prudence reviews from regulators if they do make resource commitments. Yet failures to make such commitments may force expensive purchases in volatile short-term markets, which may result in adverse treatment by regulators.

Even in states that do not have retail competition programs, the threat of their introduction and stranded costs deters long-term commitments by investor owned utilities, even as risks of regulatory review make the alternative of short-term purchases look dangerous for utility shareholders. Utilities, regulators and wholesale suppliers alike are struggling with how states can regulate retail electric service provided by companies that operate in wholesale power markets that cross state lines. All parties are stuck between uncertain regulatory regimes, with no assurance about the rules that will determine commercial survival and success.

Finally, the electric industry’s environmental footprint is significant, and a wide range of technologies and technology vintages means widely varying emissions and other impacts from the competitors for generation and grid investments. While there have been important reductions in some power generation pollutants, the sector’s greenhouse gas emissions have been increasing more rapidly than those of the rest of the economy. National policy on greenhouse gases and other key pollutants remains uncertain, and states are beginning to act on their own initiative to reduce these emissions. This continuing policy struggle and growing jurisdictional tension creates an additional source of uncertainty for the industry, with serious implications for different technology options, electricity service costs, and environmental consequences of electricity production and transmission.

Overcoming these formidable challenges requires a balancing of the extent to which electricity is a commodity and a public service. Also needed are an evaluation of the benefits of

competition and other mechanisms for achieving public utility goals, and an integration of the flexibility of spot markets with the increased certainty of planning. To complicate matters further, key decision-makers at different levels of government are at odds over who should make these decisions and how.

The Commission sees an urgent need to address and help resolve these issues. Both state and federal regulators have vital and complementary roles to play in providing consumers with the benefits of properly structured electricity markets. Within the context of pending regulatory and legislative proposals at both federal and state levels, we aim to help define those roles and to offer a vision for revitalizing both wholesale electricity markets and broader electricity-resource procurement and management responsibilities. In the process, we will explore the most promising ways to encourage appropriate electricity-resource and grid investments.

Absent the prospect of retail competition, of course, this would be an easier problem to solve.¹ Under regulatory oversight, distribution companies could have relatively well defined retail supply obligations, met through some combination of wholesale contracts, demand-side investments and ownership of generation assets. A crucial issue, then, is how to think about retail competition: if we are going to have it, how can we make it work and speed the transition? If instead we prefer to reject retail competition, how do we make that decision credible enough for distribution companies and others to take it to the bank? If different states and regions choose different models, how will those variations intersect with national policies that favor more standardization for wholesale power markets and the role of transmission systems (and regional transmission organizations) in enabling them?

Finally, no assessment of our electricity challenges would be complete without careful attention to the system's vulnerability to terrorist attack. Much of the electricity infrastructure is in private hands, so protecting that infrastructure will require a strong government-private sector partnership. Although the grid is more resilient than many may appreciate, some equipment has long replacement lead-times and constant vigilance is essential to guard against potential disruption of the grid control systems. Attacks could be either cyber-based or physical, or some combination of the two. These issues deserve, and are getting sustained attention from, institutions like the Department of Homeland Security, the Department of Energy, the Federal Energy Regulatory Commission, the National Academies, numerous state agencies, and the North American Electric Reliability Council. The Commission's recommendations below reflect and reinforce their vital work. At the same time, although it has not been linked to sabotage, the August 2003 blackout is a reminder that reliability concerns demand strong enforcement of mandatory reliability standards as a replacement for today's overburdened voluntary system; the Commission adds its voice to those who have been urging Congress to take specific action here.

¹ Other important questions include whether load serving entities should be generation owners or not, and whether distribution companies will retain ownership of transmission. A central and still unresolved issue is whether wholesale competition can flourish (or flourish enough) in a world that includes vertically integrated utilities (*i.e.*, utilities that own generation, transmission and distribution assets).

THE COMMISSION'S INITIAL RECOMMENDATIONS

The Commission supports an energy policy that recognizes both the quarter-century march toward increased competition in electric generation and wholesale markets and the value of traditional modes of regulatory authority. A fundamental assumption is that the wholesale electricity business is largely a competitive commodity business. So too is the retail supply of electricity to very large customers, including industrial customers and some national chains. However, the retail supply of electricity to other customers is, for the foreseeable future, likely to remain a service-oriented business with major public policy implications. In this context, electric distribution and transmission companies have both special opportunities and special obligations. As the federal government and the states attempt to resolve the tensions inherent in promoting competition and customer choice, multiple paths may be found to widely shared equity, environmental and economic objectives.

These recommendations constitute a framework that the Commission presents as a prototype for progress in accommodating diverse needs and goals:

FOR STATE REGULATORS AND BOARDS OF CONSUMER-OWNED UTILITIES:

1. Retail distribution should remain a responsibility of utilities under state and local regulation, along with electric energy resource portfolio management for residential and small business customers (and any larger customers who choose regulated portfolio services).² If customers, especially large users of electricity, are permitted to opt out of regulated portfolio service and to make their own choices in retail electric markets, they should be allowed to return to regulated service only on terms that hold harmless other customers and the regulated portfolio manager. For small customers in states that opt for retail electricity competition, schedules should be established to allow for orderly provision of retail choice opportunities in phases across service territories, with all small customers having opportunities to choose alternative portfolio managers no less than every five years.
2. Large customers who choose regulated portfolio service should be required to execute long-term contracts with the utility portfolio manager. Large customers who do not opt for regulated portfolio services should make their own way in the competitive retail markets.
3. State regulators and boards of consumer-owned utilities need to focus more on incentives for good portfolio management service. Options include systems of performance-based regulation for regulated portfolio management (and other) services provided by retail distribution companies, based on objective benchmarks, and incentives for managers and

² As indicated in the introductory section, by “electric resource portfolio management” the Commission means “assembling a diversified mix of short- and long-term resource commitments and other risk management tools, in order to sustain the economical and reliable electricity services that a healthy economy requires.”

(where applicable) shareholders reflecting reasonable measures of net benefits delivered to customers. Regulated distribution companies can be compensated independently of increased electricity sales (for example, utilities' fixed-cost recovery can be made independent of retail electricity use, through the mechanism of small periodic upward or downward adjustments in distribution rates). For purposes of meeting portfolio management responsibilities, reliable load reductions and reliable generation, including small-scale "distributed" generation at or near load centers, should all be investment candidates. The goal should be to hold regulated portfolio managers accountable but also to avoid complex regulatory review processes.

FOR THE FEDERAL ENERGY REGULATORY COMMISSION:

4. The Commission supports FERC's efforts to ensure nondiscriminatory transmission operations and nondiscriminatory access to grids and wholesale markets, with appropriate deference to the needs of states that have not adopted retail competition and states' crucial role in ensuring resource adequacy. Congress should authorize the extension of those requirements to all transmission regardless of who owns it. The Commission believes that these policies are needed to revitalize competitive wholesale electricity markets. Wholesale market participants should win or lose based on their ability to maximize operating efficiencies under a deregulated price regime untainted by exercises of market power
5. To improve system security and reliability, the national electricity system needs to maintain dispersed and well guarded stockpiles of critical equipment with long replacement lead-times, and to standardize such equipment wherever feasible. Prompt attention should also be given to ensuring the security of Supervisory Control and Data Acquisition (SCADA) systems. Also important are joint government-private sector efforts to complete the studies necessary to mitigate the effects of and accelerate recovery from terrorist attacks. The costs of these efforts, and other costs involved in improving grid security, should be shared system-wide on a competitively neutral basis, through uniform charges on transmission use administered by the FERC. In view of the national importance of this objective and its relatively modest cost when spread across the nation's electrical grid, Congress should provide for the collection of these charges notwithstanding state-mandated retail rate freezes.

FOR CONGRESS:

6. Both societal and generation-sector interests would benefit substantially from more coordination and greater certainty regarding targets and timetables for achieving long-term environmental objectives. Accordingly, for all categories of power plant emissions that it considers appropriate subjects of regulation, Congress should establish an integrated regulatory structure that (1) establishes a firm multi-year schedule of phased emission reductions that accommodates both environmental and system reliability needs;

and (2) uses market-based mechanisms to the maximum extent feasible to minimize compliance costs and encourage innovation.

7. Congress also should tighten energy efficiency standards wherever practicable and cost-effective, in view of the substantial environmental and economic costs associated with unnecessary use of energy.
8. The August 2003 blackout was a terrible reminder that the system of voluntary compliance with non-binding reliability rules for electricity grids is breaking down across North America. Congress should approve widely supported proposals to make such reliability rules mandatory and enforceable, when promulgated by a FERC-approved North American electric reliability organization working with regional bodies accountable to all owners, operators and users of bulk power systems, and with ultimate oversight responsibility vested in the Federal Energy Regulatory Commission. See also item 5 above.

FOR ALL DECISION-MAKERS:

9. Wholesale electric markets work best when they are liquid and transparent, for real time, day ahead and long-term products. The Commission supports FERC's proposals for real-time and day-ahead wholesale markets, along with state-level policies designed to ensure that such price signals are much more effectively communicated to large customers or aggregators at the retail level. More transparency for spot market prices and volumes of electricity trading, with reporting as close as possible to real time, are urgent priorities.
10. While the Commission is encouraged by the emergence of innovative technological solutions to transmission reliability and congestion problems, we agree that inadequate investment in transmission infrastructure is a significant and growing national problem. Transmission owners should be challenged to identify and consider all potentially cost-effective solutions to congestion and reliability problems, including targeted demand reductions, replacements of existing facilities with better equipment and new technology, and new facilities. No single solution will suffice; we need a portfolio that includes using new technology as well as constructing new transmission lines. FERC should also clarify which entities are responsible for identifying and making transmission investments, how they will be paid, and who will pay the associated costs. Options for encouraging cost-effective investment include higher rates of return for approved measures, increased certainty of recovery, and performance-based rewards that share system savings between shareholders and users. In addition, confusion and controversies created by FERC's interest in merchant transmission investment, and ambiguities about the practical meaning and application of the "participant funding" concept, are discouraging investment and must be clarified and resolved.
11. Congress, FERC and state regulators should encourage interconnected electricity systems to undertake more regional resource and grid enhancement planning.

12. Urgent action is needed to revive the electricity sector's research and development investments, always low by any reasonable standard and down by more than three-fourths in real terms over the past two decades. The Commission favors supplementing the federal budgetary contribution with a combination of federal tax incentives and state-approved utility investments, recovered as small charges on electric distribution, such as those that created the Electric Power Research Institute.

The following Commissioners join in support of the recommendations stated herein:

Dr. Marilyn Brown

Director, Energy Efficiency and Renewable Energy Program, Oak Ridge National Laboratory

Ralph Cavanagh

Senior Attorney & Co-Director, Energy Program, Natural Resources Defense Council

Archie W. Dunham

Chairman, ConocoPhillips

Rodney Ellis

State Senator, Texas

F. Henry Habicht

CEO, Global Environment & Technology Foundation

Dr. John P. Holdren

Teresa and John Heinz Professor of Environmental Policy, Harvard University

Dr. Paul L. Joskow

Professor of Economics and Director of MIT Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology

Andrew Lundquist

President, The Lundquist Group

Dr. Mario J. Molina

Institute Professor, Massachusetts Institute of Technology

Sharon Nelson*

Chief, Consumer Protection Division, Washington Attorney General's Office; Chair, Board of Directors, Consumers Union

William K. Reilly

President and CEO, Aqua International Partners; Former Administrator of the Environmental Protection Agency

John W. Rowe

Chairman and CEO, Exelon Corporation

Phillip R. Sharp

Senior Advisor, Lexecon, Inc.; Senior Policy Advisor, Van Ness Feldman; Former U.S. Representative, IN

Linda Stuntz

Stuntz, Davis & Staffier

Susan Tierney

Managing Principal, The Analysis Group

R. James Woolsey

Vice President, Booz, Allen, Hamilton; former Director of the Central Intelligence Agency

Dr. Martin B. Zimmerman

Group Vice President, Corporate Affairs, Ford Motor Company

*** *Special Concurrence from Commissioner Sharon Nelson***

Senior Assistant Attorney General; Chief, Consumer Protection Division, Washington Attorney General's Office

I respectfully concur. The commission's statement is a committee work product on a complex subject. Like all such collegial efforts, the paper suffers from compromises and code words. I worry that some of the less obvious compromises will be used in Congressional and other policy debates for purposes not intended by any commissioner. However, the report contains many meaningful recommendations which advance the policy debate currently underway in the nation's capital and in other policy venues.

The electricity sector provides an essential infrastructure for assuring the public safety, health and welfare. This report recognizes this practical reality and the significant need to re-establish some semblance of predictability for the electricity sector. It also encourages important efforts to address national security concerns, promotes coordinated regulation of all power plant emissions, encourages greater emphasis on energy efficiency and supports much needed technology R & D. The report also recognizes that other values besides market values still vitally affect the electricity industry and are affected by it. For these reasons, I support the report, despite the concerns described below.

I reside in a region of the country which has suffered from "market designs" we sought to avoid. In my view, markets are not designed. They may evolve, they may be influenced by public policy but they are not the product of legislative or regulatory mandates. This report should be understood as merely early input on a still fitfully evolving "competition" policy in electricity.

The report refers to the nation's quarter century trend toward competition in markets formerly viewed as de jure or de facto monopolies and implies that this forward march should not be interrupted by "inappropriate" state retail competition policies. In my opinion, there were good reasons for the electricity industry to be the last of the network industries to experience "restructuring." As opposed to the transportation, banking, or telecommunications industries, the preconditions which characterized the other sectors' reformations (such as ease of access to capital markets, freedom of entry, well understood rules about interconnection) did not exist in the vertically integrated electricity industry. Indeed, one major difference here is the ownership structure of the industry. As opposed to the natural gas industry or wireline telecom industry, the electricity industry is characterized by suppliers which are not investor owned. For example, in Washington State, two thirds of retail electricity sales are provided by customer or municipally owned providers. Traditional institutional oversight for this complex industry is not the same as the parallel natural gas or telecom markets "enjoyed," making legislative and regulatory initiatives even more complicated. The phrase "ensuring a level playing field" is a hackneyed one, but this common sense goal is practically not achievable for the entire electricity industry in the nation's current electoral-political environment. In my view, in 2003, the nation needs a far more thoughtful analysis of why the experiments in Pennsylvania, California, the United Kingdom and Texas are succeeding or failing. Once we draw some lessons from empirical studies, then maybe some more far reaching and sensible policy reforms would flow.

I have specific concerns with recommendations 9 and 10. I am concerned that they provide too much deference to the Federal Energy Regulatory Commission which at this point does not manifest the institutional competence to warrant such trust, do not recognize regional differences or operational differences between thermal and hydro-electric systems, and are at once vague and overly prescriptive.

Despite these concerns, I support a significant majority of the paper's recommendations. The debate over the future direction of our nation's electricity system is fundamentally stymied. The hard work and significant agreements reached by our expert and diverse Commission causes me to conclude that the overall report advances the national policy debate. For this reason I concur.

SPECIAL NOTICE – Leo Gerard, President of the United Steelworkers of America (USWA)

Leo Gerard joined the National Commission on Energy Policy after the bulk of work on this paper was completed. As a result, Mr. Gerard takes no position on the paper's content or recommendations. The issues raised in this paper are of significant interest to Mr. Gerard and to the USWA. Mr. Gerard will work actively in the coming months to ensure that the NCEP enjoys the benefit of the labor perspective when crafting its final recommendations.