

Founded in 1973, the Consumer Energy Council of America (CECA) is the nation's senior public interest organization focusing on the energy, telecommunications, and other network industries providing essential services to consumers. CECA is a leading national resource of information, analysis and technical expertise on the social and economic impacts of energy and telecommunications policies. CECA has a primary commitment to ensuring reliable and affordable essential services for all sectors of our nation, with special regard for residential and small business consumers. CECA provides a forum for consensus-building among public and private sector organizations, Federal and State regulators, industry leaders, consumer advocates, environmentalists, academics, and others in furtherance of public policy objectives.

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Positioning the Consumer for the Future:

A Roadmap to an Optimal Electric Power System



A report of

The Consumer Energy Council of America
Electric Industry Restructuring Forum

April 2003

CONSUMER ENERGY COUNCIL OF AMERICA
Electric Industry Restructuring Forum

ACKNOWLEDGEMENTS

April 2003

In January 2002, CECA convened the year-long Electric Industry Restructuring Forum to address the experiences to date of electric industry restructuring efforts at both the state and federal levels. In so doing, it was the goal of the CECA Forum to develop recommendations for policies to ensure consumer benefits in an optimal electric power system of the future.

As the nation's senior public policy organization focusing on energy issues from the perspective of consumers, particularly residential and small business consumers, CECA addressed the issues surrounding electric industry restructuring with a set of guiding principles that are integral to assuring consumer benefits. The CECA Forum then analyzed issues using those principles as a basis upon which to make recommendations.

As a result of using these consumer oriented core principles, the CECA Forum's efforts have culminated in a report that provides invaluable tools for policymakers to consider when addressing the complex issues on how to develop an optimal electric power system for the future. This report conveys the hard work by many electric power thought leaders over a year-long period for the purpose of providing public policy recommendations that will serve as the basis of sound programs and policies. We believe that policymakers will benefit from the recommendations put forward and we look forward to articulating the many specific suggestions made in this report on behalf of consumers.

We are profoundly grateful to the Forum's Chair, the Honorable Robert W. Fri, former Director of the Smithsonian Institution's National Museum of Natural History and former President and current Visiting Scholar of Resources for the Future. It is because of Mr. Fri's effective leadership that the Forum was able to reach consensus on so many issues and develop this landmark report. We are also most appreciative to the Vice Chairs for their sound advice through the year and we thank the Honorable Vicky A. Bailey, DOE Assistant Secretary for Policy and International Affairs; the Honorable Skila Harris, Director of the Tennessee Valley Authority; the Honorable Elizabeth A. Moler, Executive Vice President, Government & Environmental Affairs and Public Policy of the Exelon Corporation; and the Honorable Marsha H. Smith, Commissioner of the Idaho Public Utilities Commission and Chair of the NARUC Electricity Committee.

Additionally, we are most indebted to the leadership of the Working Group Co-Chairs who led participants through intense debates, drafted and reviewed working papers, and conducted regular conference calls. The Markets and Regulatory Design Working Group was ably led by the Honorable Edward Garvey, Deputy Commissioner of the Minnesota Department of Commerce and former Commissioner of the Minnesota Public Utilities Commission, and Dr. Steinar Dale, who was Manager of Strategic Technologies, ABB Inc. during the Forum. Dr. Dale is now Director, Center for Advanced Power Systems, Florida State University. Both Dr. Dale and Commissioner Garvey skillfully led the discussions and the development of recommendations on the mechanisms needed to

achieve an optimal electric power system. The Technology Working Group benefited from the leadership of Mr. John Howe, Vice President of American Superconductor, and Dr. Ernest Moniz, Professor of Physics at MIT and former Under Secretary of the U. S. Department of Energy. Both Mr. Howe and Dr. Moniz focused the group's efforts on technologies that can enable a robust electric power system for the future.

We want to acknowledge Mr. Howe for preparing the paper, "Technological Characteristics of Transmission: A Primer." We also want to thank Messrs. Howe, Don Von Dollen of the Electric Power Research Institute, Dr. Dale, and Dr. Alex Farrell, formerly Executive Director for the Electricity Industry Center, Carnegie Mellon University, and currently Assistant Professor, Energy Resources Group, University of California for their efforts in preparing the paper entitled "Profiles of Technologies to Enhance the Electric Power System." Finally, we want to thank Mr. Clark Gellings of the Electric Power Research Institute for his paper, "Key Components of a Self-Healing Grid of the Future."

Many other participants shared their knowledge and experience by preparing a variety of work products that served as the basis of the CECA Forum's deliberations. The CECA Forum's success in developing public policy recommendations that policymakers can rely upon when making future decisions is due to the dedication of all who participated.

We want to sincerely thank Ms. Barbara R. Alexander, a consumer affairs consultant, whose ability to take a series of disparate issues and weave them into an educational and sophisticated report that provides guidance to policymakers was immensely valuable. We also want to pay special thanks to Mr. Davis Bookhart, CECA's Senior Project Director, for his incisive development of issues and his excellent editorial skills and to Ms. Kim Kowalski, CECA's Office Manager, for assisting in the production of the final report.



Ellen Berman
President



Margaret A. Welsh
Senior Vice President

CONSUMER ENERGY COUNCIL OF AMERICA
Electric Industry Restructuring Forum

LETTER FROM THE CHAIRS

April 2003

As the Chair and Vice Chairs of the CECA Electric Industry Restructuring Forum, we are proud to provide this landmark report to policymakers, electric industry leaders and consumers. This report takes a critical look at the issues surrounding electric industry restructuring and sets a strategy for policymakers to consider in developing an electric power system that meets the nation's future needs.

As the electric power industry evolves, there will continue to be many challenges and barriers that policymakers must confront. As states and the federal government consider the proper structure of electric power markets, historic consumer protections must be maintained and strengthened. Electricity is an integral component of our economy and the electric power infrastructure must meet the increasingly demanding needs of the digital society in the 21st Century while incorporating these important consumer protections.

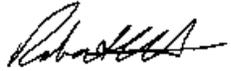
The consumer-based principles embedded in this report— “first do no harm,” choices for customers, and innovation— are values that we, as experts in the field, believe should be important components of electricity policy. These principles make sense regardless of whether the electric power market is regulated or competitive. The CECA principles should be utilized as the basis for all policy decisions going forward. The electric power system will be more responsive to consumers and provide better service as a result.

Many states have determined that adopting competitive approaches for retail electric service within their states will bring benefits to consumers while others have concluded that traditional cost of service regulation remains the most beneficial regulatory structure for their state. We believe the CECA report is unique in providing recommendations for policymakers to assure benefits to consumers in both regulated and competitive states.

We urge you to read this report. You will likely agree with some parts of the report and disagree with others. The participants of the CECA Forum also had disparate views. The discourse that took place enabled greater knowledge and understanding of the issues.

This report is the outcome of these deliberations. It provides you with both the principles and the mechanisms for designing an optimal electric power system. We encourage you as policymakers and electric industry leaders to use the principles embedded throughout this report as a benchmark for developing future policy so that consumers will benefit from your actions.

Sincerely,



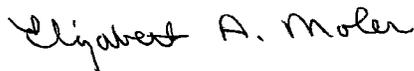
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Visiting Scholar
Resources for the Future
Washington, DC



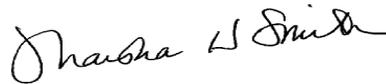
Hon. Vicky A. Bailey, Vice Chair
Assistant Secretary for Policy and
International Affairs
U.S. Department of Energy
Washington, DC



Hon. Skila Harris, Vice Chair
Director
Tennessee Valley Authority
Knoxville, Tennessee



Hon. Elizabeth A. Moler, Vice Chair
Executive Vice President, Government
& Environmental Affairs and
Public Policy
Exelon Corporation
Washington, DC



Hon. Marsha H. Smith, Vice Chair
Commissioner
Idaho Public Utilities Commission and
Chair, NARUC Electricity Committee
Boise, Idaho

CECA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by Members of the Electric Industry Restructuring Forum. An attempt was made to reach consensus on as many issues as possible in this report. Nevertheless, the Members of the Forum do not necessarily approve, disapprove, or endorse the report. CECA assumes full responsibility for the report and its contents.

CONSUMER ENERGY COUNCIL OF AMERICA
Electric Industry Restructuring Forum

PARTICIPANTS LIST

Chair

The Honorable Robert W. Fri
Visiting Scholar
Resources for the Future
Washington, DC

Vice Chair

The Honorable Vicky A. Bailey
Assistant Secretary for Policy and
International Affairs
U.S. Department of Energy
Washington, DC

Vice Chair

The Honorable Skila Harris
Director
Tennessee Valley Authority
Knoxville, TN

Vice Chair

The Honorable Elizabeth A.
Moler
Executive Vice President,
Government & Environmental
Affairs and Public Policy
Exelon Corporation
Washington, DC

Vice Chair

The Honorable Marsha H.
Smith
Commissioner and Chair,
NARUC Electricity Committee
Idaho Public Utilities

Commission

Boise, ID

Ms. Barbara Alexander

Consumer Affairs Consultant
Winthrop, ME

ABB Inc.

Mr. David J. Slump
Group Senior Vice President,
Auto Technologies Division
Head of Marketing
and Business Strategy
Raleigh, NC

ABB Inc.

Dr. Steinar Dale*
Manager, Strategic Technologies
Raleigh, NC
*From February 2003,
Director, Center for Advance
Power Systems
Florida State University
Tallahassee, FL

American Electric Power

Ms. Susan Tomasky
Executive V.P. & General
Counsel
Columbus, Ohio

American Electric Power

Mr. Stuart Solomon
Vice President, Public Policy
Columbus, OH

American Superconductor

Mr. John Howe
Vice President,
Electric Industry Affairs
Westborough, MA

Carnegie Mellon University

Dr. Lester Lave
Higgins Professor of Economics
Pittsburgh, PA

Carnegie Mellon University

Dr. Alex Farrell*
Executive Director
Electricity Industry Center
Pittsburgh, PA
*From February 2003,
Assistant Professor
Energy and Resources Group
University of California
Berkeley, CA

Dynegy, Inc.

Mr. Steven Huntoon*
Vice President
Washington, DC
*Until February, 2003

Edison Electric Institute

Mr. David Owens
Executive Vice President
Washington, DC

Edison Electric Institute

Mr. Michael Oldak
Senior Director,
State Competitive
and Regulatory Policies
Washington, DC

Electric Power Research Institute

Mr. Kurt Yeager
President & Chief Executive
Officer
Palo Alto, CA

Electric Power Research Institute

Mr. Don Von Dollen
Integration Manager
Washington, DC

Electric Power Research Institute

Ms. Barbara Bauman Tyran
Director, Washington Relations
Washington, DC

**Electric Power Supply
Association**

Ms. Lynne E. Church
President
Washington, DC

**Electric Power Supply
Association**

Ms. Samantha M. Slater
Manager of State & Regional
Affairs
Washington, DC

Electricity Innovation Institute

Mr. T.J. Glauthier
President & Chief Executive
Officer
Palo Alto, CA

Environmental Defense

Mr. Mark MacLeod
Director of Special Projects
Austin, TX

Federal Energy Regulatory Commission

The Honorable Linda Key
Breathitt*
Commissioner
Washington, DC
*Until June, 2002

Federal Energy Regulatory Commission

The Honorable Nora Mead
Brownell
Commissioner
Washington, DC

Federal Energy Regulatory Commission

The Honorable Bill Massey
Commissioner
Washington, DC

Federal Trade Commission

Mr. Michael Wroblewski
Assistant General Counsel
for Policy Studies
Washington, DC

Gas Technology Institute

Ms. Melanie Kenderdine
Vice President
Washington Operations
Washington, DC

**Johns Hopkins University
School of Advanced
International Studies**

Dr. Wilfrid L. Kohl
Director, International Energy
and Environment Program
Washington, DC

Joint Institute for Energy and Environment

Dr. William Fulkerson
Senior Fellow
Lenoir City, TN

Lawrence Livermore National Laboratory

Mr. Robert Schock
Senior Fellow
Center for Global Security
Research
Livermore, CA

Massachusetts Institute of Technology

Dr. Ernest J. Moniz
Professor of Physics
Cambridge, MA
(Former Undersecretary of
Energy)

Minnesota Department of Commerce

The Honorable Edward Garvey
Deputy Commissioner for
Energy and Telecommunications
St. Paul, MN
(Former MN PUC Commissioner
and Vice Chair NARUC Energy
Resources and the Environment
Committee)

Mirant California, LLC

Ms. Anne Cleary
President
Walnut Creek, CA

Mirant Corporation

Ms. Susann Felton
Vice President, External
Affairs, East
Atlanta, GA

**National Association of
Regulatory Utility
Commissioners**

Mr. Charles D. Gray
Executive Director
Washington, DC

**National Association of State
Utility Consumer Advocates**

Mr. Charles Acquard
Executive Director
Silver Spring, MD

National Center for Appropriate Technology

Mr. Anthony Maggione
Board Member
Professor, University of
Wisconsin-Milwaukee
Glendale, WI

National Rural Electric Cooperative Association

Mr. David Mohre
Executive Director of Energy and
Environment
Arlington, VA

National Rural Electric Cooperative Association

Ms. Pam Silberstein
Senior Regulatory Counsel
Arlington, VA

Northeast-Midwest Institute

Ms. Suzanne Watson
Senior Policy Analyst
Washington, DC

Oak Ridge National Laboratory

Mr. Joel F. Eisenberg
Sr Analyst for Public Policy
Washington, DC

Potomac Electric Power Company

Mr. William T. Torgerson
Executive Vice President
External Affairs & General
Counsel
Washington, DC

Potomac Electric Power Company

Mr. Alan Barringer
Associate General Counsel
Washington, DC

Ms. Blossom A. Peretz

Newark, NJ
(Former Ratepayer Advocate of
New Jersey)

Public Utility Law Project

Mr. Gerald Norlander
Executive Director
Albany, NY

Radin & Associates

Mr. Alex Radin
President
Washington, DC

Resource Strategies

Dr. John H. Gibbons
President
The Plains, VA
(former Science & Technology
Advisor to the President)

Southern Company

Mr. Dwight Evans
Vice President of External
Affairs
Atlanta, GA

State of California

Public Utilities Commission

The Honorable Loretta M.
Lynch
Commissioner
San Francisco, CA

State of Indiana

**Office of Utility Consumer
Counselor**

Ms. Anne E. Becker
Utility Consumer Counselor
Indianapolis, IN

State of Nevada

Office of Attorney General

Mr. Timothy Hay
State of Nevada Consumer
Advocate
Office of Consumer Advocate
Bureau of Consumer Protection
Carson City, NV

State of Ohio

Office of Consumers' Counsel

Mr. Robert S. Tongren
Ohio Consumers' Counsel
Columbus, OH

State of Pennsylvania

Office of Consumer Advocate

Mr. Sonny Popowsky
Consumer Advocate of
Pennsylvania
Harrisburg, PA

State of Texas

Public Utility Commission

The Honorable Brett A. Perlman
Commissioner
Austin, TX

State of Washington

**Utilities and Transportation
Commission**

The Honorable Richard
Hemstad
Commissioner and Member,
NARUC Board of Directors
Olympia, WA

U.S. Department of Energy

Office of the Secretary

Mr. Jimmy Glotfelty
Senior Policy Advisor
Washington, DC

U.S. Department of Energy

**Office of Policy and
International Affairs**

Mr. Paul Carrier
Director, Office of Energy
Emergencies
Washington, DC

U.S. Department of Energy

**Office of Nuclear Energy,
Science and Technology**

Mr. John Stamos
Special Assistant for Nuclear
Power Economic Analysis
Washington, DC

U.S. Department of Energy

**Office of Energy Efficiency and
Renewable Energy**

Mr. Larry Mansueti
Director, Electric Restructuring
Activity
U.S. Department of Energy
Washington, DC

**U.S. Environmental Protection
Agency**

Office of Atmospheric Programs

Mr. Sam Napolitano
Acting Director for Clean Air
Markets Division
Washington, DC

U.S. House of Representatives

The Honorable Joe Barton (R-
TX)

Chair, Energy & Air Quality
Subcommittee

Energy and Commerce
Committee

Washington, DC

U.S. House of Representatives

The Honorable Tom Sawyer (D-
OH)*

Member, Energy & Air Quality
Subcommittee

Energy and Commerce
Committee

Washington, DC

*Until January 2003

U.S. House of Representatives

Mr. Charles E. Cooke
Professional Staff Member

Science Committee

Washington, DC

U.S. Senate

Mr. Leon Lowery

Professional Staff Member

Energy and Natural Resources
Committee

Washington, DC

U.S. Senate

Mr. Chris Miller

Professional Staff Member

Environment and Public Works
Committee

Washington, DC

USEC

Mr. Michael T. Woo

Vice President

Strategic Development
Bethesda, MD

Van Ness Feldman, P.C.
The Honorable Phillip R. Sharp
Senior Energy Advisor
Washington, DC
(former Chair, House Energy &
Power Subcommittee)

Xcel Energy
Mr. David Sparby
Vice President of Government and
Regulatory Affairs
Minneapolis, MN

**CECA Electric Industry
Restructuring Forum Project
Staff:**

Ellen Berman
President

Peggy Welsh
Senior Vice President

Davis Bookhart
Senior Project Director

Kim Kowalski
Office Manager

*With deep gratitude we thank
Barbara Alexander for her
creative vision in serving as
primary drafter of this report.*

POSITIONING THE CONSUMER FOR THE FUTURE: A ROADMAP TO AN OPTIMAL ELECTRIC POWER SYSTEM

EXECUTIVE SUMMARY

In the 1990s, state and federal policymakers set in motion a host of profound changes in the electric power industry. These changes were intended to transform what had historically been a regulated monopoly industry into a competitive industry, modeled on the restructuring of the long distance telephone, trucking, airline, and natural gas industries. By the end of the decade, initiatives were underway in federal and state regulatory agencies to move from a highly regulated electric system into a competitive retail and wholesale market. By 2000, 24 states and the District of Columbia had adopted retail electric competition, and Congress appeared poised to adopt a national electricity policy that reflected the move to competition.

However, price spikes, rolling blackouts in California, corporate scandals, criminal investigations, and bankruptcies have stalled progress and have caused virtually all market participants to take a critical look at electric industry restructuring. Because of the uncertainties resulting from these events, no state has adopted new electric industry restructuring legislation since 2000. Several states that adopted electric industry restructuring legislation have repealed or substantially delayed activities to implement competition. Although many large commercial and industrial customers have been able to shop for better deals for their electric power service, the number of residential customers shopping for electricity is extremely low.

While 24 states have enacted legislation for retail electric industry competition, others appear to be firmly committed to traditional cost of service regulation at least for the foreseeable future. This dual regulatory structure at the state level is complicated even further by the intertwined nature of state and federal jurisdiction over the electric power system. While states have historically regulated most of the costs reflected in consumers' electric bills (retail transactions), the federal government regulates certain bulk power or wholesale transactions (utility to utility transactions and sales from generators to utilities or end users). Recent federal regulatory initiatives by the Federal Energy Regulatory Commission propose expansion of the federal role, leaving the boundaries between state and federal jurisdiction unclear. These complexities, based on the dual schemes at the state level (regulated and restructured) and the complexity of state-federal jurisdiction over electricity services, have created an environment fraught with uncertainty and confusion for consumers. A resolution to the tension among states and between the states and the federal government is unlikely to be achieved in the near term. While many still strongly advocate the potential benefits that can accrue from retail electric industry restructuring, it is clear that realizing those benefits will entail a rethinking of the "rules of the road."

Goals of the CECA Forum

In order to ensure that the electric power system evolves in a way that benefits consumers and meets the needs of users, the Consumer Energy Council of America (CECA), as the nation's senior public interest energy policy organization, responded to requests by government officials and other energy leaders to launch a public policy forum, the CECA Electric Industry Restructuring Forum (CECA Forum), to assess electric industry restructuring efforts to date in the context of the complex and often conflicting regulatory structures and to make recommendations for future electricity policy. CECA launched the CECA Electric Industry Restructuring Forum in order to develop solutions to the highly contentious issues that affect consumers. CECA invited the nation's preeminent experts, representing a diverse cross-section of key stakeholders, to serve on the CECA Forum. This report results directly from the expert analysis and input supplied by those participants and provides policymakers with important tools for making policy decisions.

During its deliberations, the CECA Forum did not attempt to decide whether electric industry restructuring was the "right" approach or whether federal law and policy should trump the states' role in retail transactions. Rather, the CECA Forum attempted to address key issues and recommend solutions that should be adopted regardless of whether a state has restructured and regardless of whether Congress has adopted electric industry restructuring legislation. Most importantly, the CECA Forum was unique in embracing a fundamental assumption:

The fact that some states have chosen to open their markets to competition while other states have chosen to remain regulated does not preclude the development of policies to benefit consumers in either system. In fact, it is imperative that such policies be developed regardless of market structure.

It is CECA's view that the current duality between restructured and traditionally regulated states and between the state and federal roles is a fact that must be taken into account and assumed to continue for the near future. What remains constant, however, is the need for policymakers to measure policies and programs from the perspective of consumer benefits. Therefore, key attributes of an optimal electric power system must be used as the basis of public policy decisions. This report outlines the key attributes of an optimal electric power system.

Principles Embedded in this Report

This report establishes guiding principles that CECA believes are necessary to ensure consumer benefits in an effective electric power system of the future. The principles which follow have been used to filter the recommendations contained in this report:

First Do No Harm

First and foremost, changes in either retail or wholesale electric power service programs should be required to demonstrate affirmatively that they will not cause consumers to be worse off than they were before the changes took place. This is known as the "first do no harm" principle. While there may be potential benefits for consumers through electric industry restructuring, consumers should not be the subject of legislation or regulations that will do harm. This report pays

particular attention to policies that should be adopted by state and federal policymakers in both regulated and competitive markets to bring positive benefits to consumers and to prevent unacceptable risks. As a result, CECA's report addresses the need for stable, equitable electricity rates, particularly for residential and small commercial customers, and programs and policies that assure that vulnerable and low-income consumers can maintain essential electricity service. In addition to retail or state policies that prevent harm to consumers, CECA's recommendations address the enforcement tools that should be in place at the federal level to assure consumer protection.

Choices for Consumers

While retail competitive electric marketplaces are seen as a vehicle for introducing consumer choice, CECA believes that all customers, whether in restructured or traditionally regulated states, should be offered choices in electric power service. It is CECA's view that both regulatory models can provide benefits to consumers in the form of customer choice. In the 21st Century, consumer choice can create a more vibrant electric power system, utilizing demand response mechanisms, green power choices, and innovative pricing packages. This report addresses consumer choice as a tool to bring innovation in the form of advanced metering and pricing methodologies and empowering consumers to make environmentally sound choices about their use of electricity and methods of generating electricity. Finally, the report also addresses the need for consumer participation in policy proceedings and education about these choices.

Innovation

CECA believes that the intertwined system of federal and state regulation must focus on policies and programs that will spur innovation and technological advances in the manner of generating, transmitting, and delivering electricity to consumers. Innovation can lead to new and improved energy consuming products. Research and development programs and investment in innovation are essential to improve the nation's generation and long distance transmission systems. Innovation can also stimulate demand and efficiency programs. This report examines how innovation can be woven into policies at both the state and federal level so that consumers benefit with a more reliable and efficient power system.

Key Attributes

CECA has identified the key attributes of an effective electric power system of the future that will provide consumer benefits. It is CECA's view that policymakers must be guided by key attributes of an optimal electric power system that meets consumer needs. Such attributes reflect important public policy goals and objectives that must be considered in all state and federal electric power service decisions in both competitive and fully regulated markets. These key attributes will serve as a roadmap to guide policymakers in the face of uncertainty about the proper regulatory paradigm that should be adopted at both state and federal levels.

Responsiveness to Consumer Needs

It is CECA's view that creation of a retail competitive market is not the only means by which consumers can be offered choices about their electric service. Choice of various programs and services can be offered to consumers regardless of retail market structure. Therefore, choice should be an option available to consumers in any state whether regulated or open to competitive markets. Customer choice offers options for both the electric power industry and for consumers, though choice may differ among various customer classes.

Recognition of Differences in System Structure

CECA recognizes that for the foreseeable future the electric power system will be made up of both regulated and competitive markets. Even in states that have moved toward competition and deregulated electricity prices, certain aspects of the system, such as the distribution or transmission wires, are likely to continue to be subject to rate regulation. To achieve an optimal consumer-driven electric power system, policymakers must recognize these different market structures and strive to promote consumer benefits regardless of whether electric power markets have been formally restructured. The results to date of retail electric industry restructuring have been inconclusive, and it may simply be too early to make fundamental policy decisions based on those results. However, it is important for policymakers to recognize the unique attributes of the electric power system within each region and to promulgate policies that take advantage of all strengths, regardless of market structure.

Provision of Electric Service While Meeting Societal Goals

Given the essential nature of electric power service, economic benefits must be balanced with broader societal objectives. The system, therefore, must find the balance between providing a level playing field for competitive and regulated market participants and ensuring larger societal objectives. These societal objectives include:

- Sufficient and efficient capacity and a diverse fuel mix;
- A robust, reliable transmission system;
- Prices that are widely viewed as equitable for all customer classes;
- Policies that balance the nation's need for affordable power with the need for a clean environment;
- Regulatory oversight in both competitive and regulated markets so that market abuse is prohibited, promptly detected, and punished;
- Market rules for both competitive and regulated markets that offer consumers choices (i.e., the option of "green" power can be offered to customers regardless of system structure) and new products and services that customers want; and

- Deployment of technologies that will lower costs for all customers and provide greater system security, resilience, reliability, and power quality.

Provision of Reliability and Security of the System

Reliability is a key attribute of an optimal electric power system. As used in this report, reliability refers to the traditional idea that the system should be designed, built, and operated to maintain safe and adequate service for all consumers in the face of changing demand, expected equipment failure, accidents, and bad weather. It is important to recognize that reliability is not an “either/or” choice. Rather, the issue is *how reliable* a system should be, trading off costs and other attributes. Traditionally, all customers received the same level of service and if additional reliability was required, the customer could install backup generation. Today, advanced technologies can enable different customers to receive different levels of reliability in cost efficient ways.

As used in the context of this report, the term security refers to the ability to detect, resist, and recover from malicious attack. The policy goal of security is to maintain service to all customers during such attacks to the greatest extent possible. To accomplish this goal, consumers must be assured that the system will attempt to provide the best possible service when under such duress.

Assurance of Environmental Quality

The electric power system has significant impacts on environmental quality. While all types of electricity generation have adverse impacts on our air, water, or communities, some have much greater impacts than others. Experience in retail markets shows that many consumers are willing to pay a premium for “green power,” and an optimal power system should provide environmentally beneficial choices. Consumers expect the electric power industry to provide an acceptable degree of environmental protection and would like to be able to choose among environmentally sound options. An optimal electric system should be flexible enough to allow consumers to express their preferences for environmental performance and to provide options for cleaner power. These options should provide appropriate pricing for those options, regardless of whether a market is open to competition.

Actions must be taken now to assure that these key attributes are achieved and, where already achieved, are not threatened by regulatory changes. Guided by our core principles of first do not harm, choice for customers, and fostering innovation, CECA’s public policy recommendations presented in this report are designed to achieve these key attributes in both the retail and wholesale electricity markets.

Providing Electric Service At Equitable Prices

It is evident that most residential and small commercial customers have not left the incumbent or “default” electric service provider in those states that have restructured their retail electric market. Furthermore, though the competitive wholesale market has in some instances resulted in lower costs at the wholesale level, several regions have experienced a significant level of volatility and unpredictable wholesale prices. In addition, large numbers of commercial and industrial customers have returned to incumbent or default electric service providers when competitive offers dried up or became unacceptable by exposing the customer to volatile prices.

One of the underlying attributes of an optimal electric power system is the provision of stable and predictable prices for electric service. Residential and small business consumers who have historically been provided electric service at stable rates should not have to suffer price volatility and extreme increases in monthly electric bills as the “price” of adopting a competitive market. Such a result would be particularly harmful to residential and small commercial customers, especially since they generally have no way to respond to or protect themselves against such price volatility. Such a result would be even more harmful if the retail competitive market had not yet developed sufficiently to demonstrate its ability to offer stable and predictable prices to such customers. This report focuses on the regulatory mechanisms necessary to assure stable and predictable electric prices for consumers in states with competitive retail electric markets. The need for explicit policies in this regard is most evident and essential if restructured markets are to “do no harm.”

CECA Findings

CECA’s findings with regard to providing electric service at equitable prices reflect the strong trend among the states that have restructured to adopt a service (known as a default service provider) that will serve customers who do not choose, or whose competitive supplier has terminated service to the customer for any reason, or where a choice of competitive supplier does not exist. In addition, the coming end of the “transition” period in most restructured states will require affirmative decisions by state policymakers about the nature, pricing, and availability of this service in the near future. At the same time, there is growing interest in offering choice to consumers by regulators in states that have retained the traditional cost of service model, focusing on the incumbent utility as the means to deliver these regulated service options. As a result, there is a need for both price stability and service options for consumers in all states, regardless of whether the state has restructured.

- When states adopt electric industry restructuring and retail electric competition, a default service provider or providers with the obligation and capacity to serve residential and small commercial customers at reasonable rates is necessary, particularly when the competitive market does not develop to serve all customers equally.
- States restructured their electric power industry on the premise that competition would reduce resource costs more effectively than regulation and would result in lower prices for consumers.

To date, the competitive market for residential and small commercial customers has not materialized as anticipated.

- There has not been major migration of residential customers to alternative providers. Today the bulk of residential consumers in the states that have restructured to allow multiple providers of retail electric service still receive default service, and are likely to do so in the foreseeable future.
- Consumers in most restructured states have not seen significant changes in price or quality of service since the implementation of competition as a result of price caps and rate freezes.
- Before rate caps or price freezes expire, states will need to adopt policies for pricing default service going forward. In the long run, default service must reflect the risk-adjusted market costs and risks to provide this service.
- Designing default service rates to be volatile or reflect short-term wholesale market conditions in order to spur customers to migrate to alternative providers creates the potential for hardship for customers who do not enter the competitive market or whose marketer fails to provide them with service.
- There are risks associated with large numbers of customers or a large customer load (even if the customer load is by a few customers) jumping in and out of default service. If costs are incurred by the default supplier, they eventually will be recovered from consumers. These risks, and who should bear them, must be considered when developing the price and the rules for default service.
- Large commercial and industrial customers do not require the same degree of protection as residential and small business customers.
- There is a growing trend to offer choices to residential and small commercial customers by the default provider or the incumbent utility in traditional cost of service states.

CECA Recommendations

CECA's recommendations with regard to providing electric service at equitable prices flow from the need to prevent harm to consumers as a result of changes in the method of regulating or pricing electric service. Most consumers, particularly residential and small commercial customers, would prefer stable, predictable and equitable prices for electric service. Electric industry restructuring should not expose residential and small business consumers to volatile prices.

However, CECA supports state experimentation with models that provide stable and predictable prices for essential services that can bring customers choices so that consumers can take advantage of alternative pricing methods or alternative sources of energy.

- CECA recommends that in states that have restructured their electric market, default service should be designed to assure stable, predictable, and equitable prices for customers who do not shop, who are unable to obtain reasonably priced service from alternative providers, or who are

not the subject of offers by mass market retail providers. The default service price should be the “benchmark” against which competitive offerings can be compared and should be a safety net in case the competitive retail market does not develop in a timely way.

- CECA recommends that the terms and conditions for default service reflect an analysis of the likelihood of significant movement in or out of default service by residential customers in light of the prices charged for default service, the frequency of price changes, and the shopping rules of the jurisdiction. If it is considered likely that large numbers of residential customers will move in and out of default service, shopping windows or a minimum term of service should be considered to spread the costs and risks of providing default service equitably. However, risks and costs associated with large movements of commercial and industrial customer load should be allocated to those customers so that residential and small commercial customers are not harmed in their default service prices and terms and conditions.
- CECA recommends that default service for residential and small commercial customers should be priced by the state regulators (in both restructured states and in those states with traditional regulation) to reflect equitable prices based on balanced and diversified portfolios of both short-term and long-term power supply contracts and products (either generated by the utility or purchased from alternative suppliers) and electricity-related demand-reduction products. This service should not reflect short-term movements in the wholesale market.
- CECA recommends that states explore the option of prohibiting larger commercial and industrial customers from frequent migration into and out of regulated default service and require such customers to obtain their generation supply from the competitive market only. CECA recommends that when a large commercial and industrial customer chooses to opt back into a default service program, a commitment by the customer to that program should be for a specified period of time at specific rates so that system load management and planning can be properly undertaken and uncompensated costs are not incurred by the provider or other customers.
- CECA recommends that state regulators evaluate the degree of risk borne by the default supplier due to the rapid or unpredicted movements of large numbers of customers, particularly larger commercial and industrial customers, into and out of default service. Where the risk is identified as potentially significant, specific policies should be adopted to ameliorate the risk borne by the default service provider or otherwise provide compensation for the additional costs.
- CECA recommends that the competitive market should seek to win customers by offering either a service or product not otherwise available (“green” energy; time-of-use pricing; bundled products) or a more efficiently provided basic service that is in fact priced lower than the price for a basic or “vanilla” electric service. Such service should reflect quality of service standards.
- CECA recommends that low-income or credit-challenged customers should not be segregated in a default service that is designed to reflect short-term price signals or higher costs associated with providing service to such customers. Rather, low-income or credit-challenged residential customers should be grouped with all other residential customers (as is the case under traditional rate regulation) and provided with default service that reflects average customer class costs.

- CECA recommends that in the absence of significant demand side and green power options in the retail market, states consider creating green power, time-of-use, and other choices for default service customers as options to the more traditional electric service rate design.

Allowing Consumers To Make Electricity Usage Decisions

One goal of a rigorous competitive marketplace is to provide consumers with the ability to be more proactive in their electricity decisions. This can be achieved with options that allow greater flexibility and control over electricity usage. However, many opportunities for consumers can arise in both traditionally regulated states as well as states with competitive retail marketplaces.

Demand response is one mechanism that is often cited as a positive consumer option. Demand response is defined as changes in electricity usage behavior by the consumer in response to changes in prices, in order to reduce the consumer's and supplier's overall costs. This report examines what kinds of options are available for consumers to gain better control over their usage—with an emphasis on demand response options—and explores how policymakers can exploit these opportunities in both regulated and restructured marketplaces so that consumers can receive maximum benefits. This report will also examine the linkages between consumer choice and innovation, looking at how consumer-focused demand programs can drive a market for creative new services and equipment.

CECA Findings

CECA's findings with regard to allowing consumers to make decisions about their electric power usage reflect key attributes of an optimal electric power system as defined by CECA. Consumers can ultimately save money by making decisions about their electric power usage patterns, known as demand response. It is not the intent of this report to design demand response programs, but to explore the potential of demand response programs for fostering technological innovation, customer choice, environmental benefits from the use of electricity, and long-term cost efficiency in the generation and use of electricity.

- Demand response programs that are properly designed can help provide a significant benefit by giving some customers the opportunity to respond to high prices during peak usage periods, and which may help limit market power in those specific cases where those prices are caused by the exercise of market power.
- In cases where a demand response program is designed to be controlled by an entity other than the consumer, e.g., the utility, the degree to which the consumer feels no difference in service, should reflect that which the consumer agreed to under the program, and is appropriately compensated for by the entity. In this system, the utility reduces consumer load during specific periods of the day, particularly during peak periods, which reduces overall generation requirements allowing resources to be used elsewhere. This approach appears to be most successful for residential customers when targeted to air conditioning usage or hot water heaters.
- If the consumer controls demand individually, demand response will come through price signals. These price signals can be “real-time” (whatever the cost of the electricity at that time of day) or

time-of-day (predetermined rates that correspond with the time of day). The majority of residential and small business consumers do not have and cannot cost-effectively be provided the ability to track and react to real-time prices. In the aggregate, many residential consumers do not have the ability to make meaningful shifts in their use of electricity with currently available technologies. The real savings on demand to the system comes from large commercial and industrial consumers who have the ability to shift their load requirements.

- All customer classes should benefit from cost-effective demand response programs because the net result in load management will assure lower costs of operation, and less need for new peak load construction, thus holding down costs needed to operate and maintain the system, but individual customers may experience higher costs in the short-term if they are required to invest in advanced meters.
- To attain the true benefits of cost-effective demand response programs, consumers must be educated on the options that are available so that they understand each option's requirement to change behavior to positively affect their overall usage and attain reduction in their bills.

CECA Recommendations

Demand response programs, properly designed and implemented, have the potential for significant consumer benefits and contribute to an efficient and reliable electric power system. However, CECA also recognizes that demand response programs that seek to impose expensive advanced meters and exposure to "real-time" prices for many low use customers such as residential customers, may be expensive. As a result, CECA's recommendations reflect our overall endorsement of demand response programs as a consumer choice if it is designed properly and is cost-effective and is accompanied by strong and well-designed customer education programs as the means of introducing innovation to consumers. Furthermore, demand response programs offer an exciting approach to the introduction of customer choice with its attendant values and results, in states that have restructured and in states that have retained traditional cost of service regulation. As a result, our recommendations are directed to all state regulators.

- CECA recommends that where economically feasible, state regulators should support the deployment and cost recovery of advanced meters and associated communication networks. These advanced meters and associated communications networks should allow for demand response by customers without resulting in increased costs for other customers or customer classes. CECA recommends that state regulators focus first on the installation of such meters and associated demand response programs for large commercial and industrial customers and consider requiring the utility to install advanced meters for all customers over a certain size. The costs of the program must be cost effective and fair to all consumers and suppliers.
- CECA recommends that when demand response programs or pricing options are enacted, the program should reflect the costs associated with a consumer education program. The intended recipients of the program must receive educational materials about the program from the state public utility commission so that the effect of program participation can be readily understood.

Such materials must fully and correctly disclose the costs and potential impact of the program on the customer's bill.

Empowering Consumers To Make Environmentally Sound Choices

The ability of consumers to choose their retail electric power supplier has led to a substantial increase in public awareness of the environmental consequences of electric power generation, as states and competitive power suppliers have launched programs to educate consumers through public and commercial media campaigns and through environmental labeling in electric bills. Importantly, the introduction of these services has spurred states without retail choice to consider offering similar services within regulated service territories.

Residential customers have become more aware of how their energy usage affects the environment. With roughly one third of major airborne pollutants generated by the electric power industry, the environmental movement saw great opportunities in reducing environmental impacts by getting consumers more involved in the process. Electric industry restructuring offered an opportunity for presenting choices of conservation and energy efficiency programs as well as creating a demand for environmentally friendly generation resources. This report addresses how consumers can be empowered to make decisions on their electricity usage that positively impact the environment.

CECA Findings

Consumers have increasingly become vitally important participants in debates over the environment, and consumers can be proactive in their choices and decisions about their electric power services. Integrating the consumer decision-making process into the business of the electric power industry will speed the entry of new environmental products and services, and will provide a host of new marketing opportunities for the electric power industry. Key findings include:

- The nation's need for reliable electric power is inextricably linked to society's desire for a clean environment today and for future generations. Therefore, policymakers should consider societal goals when making or implementing energy and environmental laws and regulations.
- Energy efficiency programs, fuel diversity portfolios, and the customer's option to choose electricity products based on environmental attributes are significant components of any state electricity policy.
- Non-emitting resources including renewable energy, nuclear power, and renewable-energy based distributed generation are important components of a generation mix, regardless of whether the state has restructured or remains regulated. These resources provide environmentally friendly alternatives to traditional fuels that emit more air pollution.
- Energy efficiency programs offer both individual and societal benefits. However, under restructuring, some states have increased these programs while other states have decreased them. Through energy efficiency, consumers can save money without being inconvenienced while the environment benefits from reduced energy use.

CECA Recommendations

These recommendations with regard to empowering consumers to make environmentally sound choices in their electric power service are based upon the three overarching principles. The principle of “first do no harm” applies to the environment, ensuring that regulatory or other changes to the electric power industry will not leave the environment worse off than before. The principle of choice is well represented in these recommendations through the encouragement of more green power and energy efficiency options. Finally, the principle of innovation is promoted because the demands of informed consumers will spur new environmental goods and services. Key recommendations include:

- CECA recommends that all utilities or electric service providers offer green power choices for consumers, regardless of whether the utility is restructured or regulated. These options should provide voluntary, consumer chosen incremental additions to renewable energy resources in the electricity supply portfolio required by law or regulations.
- CECA recommends that cap and trade programs modeled on the successful SO₂ cap and trade program be considered for other pollutants associated with electricity generation.
- CECA recommends that electric power service providers be required to include disclosure statements in customers’ bills in order to inform them of the generation source and air emissions impact of their electricity sources.
- CECA recommends that federal and state regulators strengthen emissions reduction policies, including improving the thermal efficiency of existing electric power generation plants and the use of new technologies, when implementing regional planning processes.
- CECA recommends that if a renewables portfolio standard (RPS) is mandated by a state or by Congress, that all power suppliers be subject to the mandate.
- CECA recommends that policymakers embrace the deployment of “smart” meters as a central component of distributed energy net metering policies so that allowable electricity sold back to utilities can be priced at avoided costs.

Affordable Service For Low-Income Consumers

Low-income consumers, with little financial room to maneuver, are vulnerable to changes in regulatory or service structure—especially if those changes affect the monthly price for electricity. The move to electric industry restructuring, which has not been as smooth as anticipated, carries added importance when considered in the context of low-income consumers who are simply unable to cope with even mild swings in price volatility. In traditionally regulated states, low-income consumers will also suffer if changes in the wholesale market bring overall higher prices, even if only

during a short time frame. As noted earlier, a guiding principle that must be embedded in policy changes is to “first do no harm,” a principle that is paramount with regard to vulnerable customers. This report examines programs and policies adopted by states to assure access to essential energy services by the most vulnerable consumers, and makes recommendations for state regulators based on trends and experiences to date.

Low-income customers share the needs of all residential customers for equitable prices for essential electric service. However, low-income customers have additional needs because of their limited income. While the average family pays three - five percent of their annual household income for energy (electricity, heat), low-income families pay on average nine percent of their annual income for heat and electricity, with over half of low-income households paying upwards of 15-20 percent of annual income. With such a large portion of income going to essential energy services, it is easy to imagine the difficulty that ensues when prices increase unexpectedly. In addition, low-income consumers often cannot afford to purchase energy efficient appliances or take advantage of energy efficiency programs, even if these measures would reduce the total bill over the long run. Finally, low-income consumers tend to be targets of discriminatory marketers and other biased practices, leading to additional concerns about affordability in the competitive arena compared to other residential customers.

CECA Findings

The scope and funding for low-income affordability programs have been expanding in recent years. Studies have shown that when assistance is targeted to low-income customers based on an analysis of energy burden (percentage of household income necessary to pay the energy bill), benefits accrue to all ratepayers in the form of more timely and frequent payments by program participants.

- Most states that have restructured their retail electric service have expanded or created new universal service programs that provide bill payment assistance or energy management services or both to low-income customers. While electric industry restructuring provided an impetus to the creation or expansion of these programs, some states with traditional cost of service regulation have also created or expanded these programs in recent years.
- States have funded bill payment assistance programs with a modest charge imposed on all ratepayers, either in the form of a public benefits charge or included in rates charged for regulated distribution services.
- Bill payment assistance programs typically provide either a discount off the regular residential rate or calculate an individualized low-income customer credit that reduces the total bill to a reasonable percentage of the low-income household’s income (often called a Percentage of Income Payment Program).
- Energy efficiency programs targeted to low-income customers have built upon the successful DOE Weatherization Assistance Program, which has documented significant savings and cost effective installation of efficiency measures for low-income households.

- Administration of existing bill payment assistance programs has varied from utility-specific enrollment and administration to statewide automatic enrollment programs operated by a program administrator.
- Programs targeted to low-income energy customers typically serve very poor households who would otherwise be required to allocate approximately 15-20 percent of their total household income for essential utility services.
- Low-income households incur significant hardship when prices rise dramatically or when income is reduced. Such households have no cushion to maintain essential electric service when prices are volatile or bills are unaffordable.

CECA Recommendations

CECA's recommendations with regard to the implementation of programs that provide essential electric service to low-income consumers reflect the key principle of "first do no harm" and the key attribute of an optimal electric power system to assure stable and predictable rates for consumers in general and those who are most vulnerable in particular. It would be inappropriate to allow regulatory uncertainty, price volatility, or competitive forces to result in a degradation of the historical provision of access to essential electric service for those who are the most vulnerable.

- CECA recommends that states that have restructured and those that have retained traditional costs of service regulation continue to create, expand and implement bill payment assistance and energy management programs for low-income electric service customers. The specific program details and funding levels should be determined by each state taking into account the needs of its low-income customers.
- CECA recommends that when affordability programs are implemented, steps should be taken to expand the participation rate for such programs so that qualified low income customers can receive the program benefits. Specifically, state regulators should allow low-income customers who are already qualified for existing financial assistance programs to be automatically screened for eligibility in utility bill payment assistance and energy efficiency programs. Where the budget for such programs allows for expanded enrollment, qualified customers should be automatically enrolled.
- CECA recommends that bill payment assistance and energy assistance programs should be funded by all ratepayers through non-by-passable rates for distribution services in restructured states and in electric service or bundled rates for traditional cost of service states. All customer classes should contribute to funding these programs because of the broad societal benefits that occur when all customers can obtain essential electric services, thereby avoiding significant health and safety impacts on low-income families and their children. This approach may result in a variety of acceptable cost recovery mechanisms so that no single customer class pays more than a fair share of the cost burden for the program.
- CECA recommends that Congress expand the funding for LIHEAP and DOE's Weatherization Assistance Program to better respond to the needs of low-income electric service customers.

Expanded funding for these programs may require an expansion of the purposes and budgets of the programs to move beyond assistance for heating and cooling alone to take into account the entire residential energy bill of low-income consumers.

The Consumer Voice in Electric Power Service Policy Decisions

In a period of change in market structure and experimentation with new regulatory approaches, it is important that all affected stakeholders have the ability to participate in policy and regulatory decisions and have access to well-designed education programs so that new options and programs are understood. While these needs are particularly important in those states that have adopted electric industry restructuring, participation and education programs are also crucial in traditional cost of service states because consumers in those states need to participate in and understand new options and choices, such as those recommended by CECA in this report. In an optimal electric power system, consumers are not merely recipients of rates and programs. Rather, consumer participation in the program design and consumer understanding of available options and services will be crucial to the success of these new programs.

To achieve consumer benefits, consumers need effective advocates not only to represent their interests, but also to become active participants in the design of consumer-focused initiatives. The electric power system of the 21st Century will be more closely integrated in the lives of consumers, creating new opportunities for consumers to make choices and for industry to develop new competitive products and services. In order to achieve these benefits, however, well-designed education programs that “spread the word” and assure consumer awareness and understanding of service options will be extremely important. The focal point of this report with regard to the need for participation in regulatory proceedings is residential and small business consumers, since larger customers (industrial and large commercial customers) are typically well represented in regulatory proceedings.

CECA Findings

The public must be educated about the risks and potential benefits associated with the changes to a competitive electric marketplace. First, it is important that the public understand the nature and reasoning behind these policy changes, since the changes can affect prices, historical consumer protection policies, and service quality. Second, because the move to retail electric competition has proven extremely difficult, it is even more important that policymakers take consumer values and benefits into account when making policy decisions. Third, significant changes in the form of regulation and the nature of the relationship between consumers and their electric service provider should not be undertaken without meaningful opportunities for public involvement and participation.

- Without financial support and technical assistance individual consumers generally lack the means to participate in important policy and regulatory decisions about their electric power service. As a result, participation in regulatory proceedings necessarily relies primarily on publicly funded advocates and consumer organizations with access to intervenor funding.

- State public advocate offices have provided a vital service, particularly on behalf of residential consumers in many states. This office has often been a primary voice for consumers in complex regulatory proceedings, in which utilities and large industrial customers are generally well represented. Furthermore, these offices provide an important source of outreach and education efforts targeted to residential customers.
- It is unlikely that effective public participation in regulatory proceedings will occur without access to intervenor funding. Intervenor funding obtained through utility rates has seen a slow, but steady, growth.
- State consumer education campaigns associated with the move to retail electric industry competition have been moderately successful in raising consumer awareness of the option to choose an electric power supplier. The most successful programs have been funded by ratepayers through utility rates. This method of funding has typically generated a larger budget (which in turn has usually allowed for a professionally designed multi-media campaign) compared to those states that have relied on general fund appropriations or smaller additions to already small education budgets of public utility commissions.
- There is a lack of publicly available information about consumer opinions and values concerning the nation's electric power system, including environmental tradeoffs associated with energy policy.

CECA Recommendations

CECA's recommendations with regard to consumers having a voice in electric power decisions reflect the high priority that an optimal electric power system should place on informed participation in key regulatory policies and proceedings, and on well-designed consumer education programs. These programs should be funded through utility rates to assure that the programs are adequate and meet the needs of consumers. The overall benefits that will result from these programs will support the substantive recommendations concerning access to innovative pricing methodologies, electric generation service options, participation in low-income programs, and knowledge of the impact of customer choices concerning electric service on the environment.

- CECA recommends that those states that have not already done so should formally adopt a method of assuring intervenor funding to expand participation on behalf of consumers in regulatory decisions concerning electric industry policies and programs. Intervenor funding programs should be implemented in a consumer friendly manner so that reasonable fees and expenses that contribute to evidence and policy recommendations are compensated.
- CECA recommends that states fund the public advocate's office in sufficient amount to ensure that the office is able to effectively participate in all significant electric industry proceedings affecting residential and small business consumers.
- CECA recommends that consumer education programs should be undertaken by the appropriate state entities and funded by assessments in utility rates so that consumers better understand the nature of the changes taking place in the electric industry marketplace. Such consumer

education programs should be designed to reflect the “best practices” as identified in this report. The purpose of the consumer education programs should be to raise awareness of consumer rights and remedies and empower customers to make decisions about electricity programs and services, including alternative pricing and metering technologies, which may allow customers to reduce their overall electricity bill and reduce environmental impacts of energy production.

Consumers Benefits of a Robust Transmission System

The electricity transmission system, connecting the generation assets with end users, is a vital component of the electricity system. The transmission system allows electricity to reach far off retail markets, and supports the growth in green power by allowing new and alternative resources to be available to customers. Moving into the 21st Century, it will be even more important to maintain a robust transmission system to support the needs of consumers.

Where once all utilities were vertically integrated, competitive markets (wholesale and, in some states, retail) have created a system where the transmission, generation and distribution functions are now functionally separated. Regulatory uncertainty about the transmission system further exacerbates questions over the future ownership and earnings power of those functionally separated segments of the industry. The lack of market rules has contributed to a fear of instability for the entire system. This report details how electricity services are both enabled and constrained by the current transmission system, and how the system can be made more robust so that it allows for greater innovation and customer choice.

CECA Findings

With society in general and consumers in particular becoming more dependent on the digital economy, investments and improvements in the transmission system are necessary to provide the level of reliability, power quality, and security necessary to support the economy now and for generations to come.

- Upgrades to and expansion of the transmission grid to assure reliable service and enhanced national security are needed. Incentives to investment in the system have been lagging due to the uncertainty of consumer benefits. This is particularly the case for new technologies where the costs may be higher at the early stages of implementation and the actual consumer benefits difficult to project.
- Transmission capacity upgrades and investment in technologies can be funded through a variety of options including through the traditional utility rate base, through users of the system, and through non-utility investment by merchant transmission companies. Any of these methods, or a combination thereof, can meet the funding needs, but the regulatory “rules of the road” at both the state and federal levels do not currently reflect a widespread consensus on whether one or all of these methods should be relied upon.
- States are unlikely to agree to allow federal preemption of traditional jurisdiction over siting and planning for transmission projects. However, many states have encouraged the development of regional transmission organizations (RTOs) or other regional entities to oversee or operate transmission planning and operation. Cooperation among states, RTOs or other regional

entities and the federal government is needed to ensure that system planning and operation meets the needs of consumers.

- The deployment of new technologies and the stockpiling of critical spare parts will have a beneficial impact on reliability of service and future attainment of a “self-healing grid.”

CECA Recommendations

New consumer products and services will place increasing demands on the transmission system in the 21st Century—a system that is already strained and aging. Decisions policymakers make on upgrading the transmission system today will have ramifications for decades. Recommendations that will help provide maximum consumer benefits include:

- CECA recommends that Congress increase appropriated funds for research, development and demonstration of new transmission system technologies that will improve the reliability and security of the transmission system. Such funds should be prioritized based on their ability to achieve a “self healing” grid and improve the nation’s ability to respond to security threats and transmission bottlenecks.
- CECA recommends that a national priority be given to supporting a public/private collaboration to develop and deploy the self-healing electric power grid of the future, and to developing an appropriate and equitable funding mechanism for it.
- CECA recommends that clear market rules and appropriate rate mechanisms be established through collaborative regional planning processes, with strong state participation, so that transmission enhancements can be developed. The planning process should address the critical need for stability and certainty so that long-term investment in transmission grid enhancements, prioritized based on their importance for assuring reliability, security, and economic efficiency, can be encouraged and developed. This process should allow concerns about the siting of new transmission facilities to be resolved in a timely fashion.
- CECA recommends that demand response options and DE resources be considered as integral parts of transmission grid expansion.
- CECA recommends that pricing for transmission services should reflect the imposition of costs on all customers when there are system-wide benefits from the transmission project or upgrade and the imposition of incremental costs only on affected customers when the project or upgrade benefits only those affected customers. Under this approach, generation owners can make location decisions based in part on the costs associated with transmission, as well as other aspects of their siting decisions.
- CECA recommends that merchant transmission projects should be encouraged through a coordinated regional planning process.
- CECA recommends that DOE encourage new technologies by funding demonstration of advanced technologies and working with the industry to fund transmission-related research and development.

- CECA recommends that DOE and NERC continue their work to consider security challenges now facing power systems and RTOs or other regional entities and reliability councils should factor energy security issues into their decisions about system reliability.

Consumer Benefits of Adequate Generation Supply at Reasonable Prices

Results of electric industry restructuring have been mixed regarding the impact of these changes on assuring the development of a robust market of independent sources of electric power service. The mixed results of retail electric industry restructuring as it relates to generation supply proves challenging for policymakers. On the one hand, competitive markets may result in a possible volatile market of too much supply, followed by too little supply. On the other hand, traditional cost of service regulation can result in investment in large-scale generation supply facilities that do not allow for the introduction of more short-term trends or technological innovation. This report addresses the issue of sufficient generation supply by applying CECA's core principles and attributes of an optimal electric power system to determine the proper avenue for policymakers to take when making generation supply determinations.

CECA Findings

CECA's findings with regard to adequate generation supply at reasonable rates reflects our overall purpose in examining the wholesale generation market and investment patterns in the current regulatory environment, which is to assure consumers, specifically residential and small business consumers, adequate generation supply at a stable and predictable prices, no matter which regulatory approach is used at the state level.

Since the state has historically determined generation supply planning and has the jurisdictional tools to make sure that demand side resources are equitably valued, CECA's findings have focused on the implications of federal policy in supporting these goals.

- Investment in new efficient generation technology, as well as increased efficiency in existing generation facilities, is vital to the future reliability and security of the nation's electric system.
- There is a growing consensus that in order to stimulate investment in the generation industry, the regulatory "rules of the road" must rely on long-term price signals and create a market that relies on long-term investment and return.
- A wholesale market that relies on and reflects a balance of stable short-term and long-term price signals is likely to result in stable retail rates for residential and small commercial customers.

CECA Recommendations

Retail consumers, particularly residential and small commercial consumers, should have access to stable prices and should be protected against wholesale market volatility. Therefore, it is vital that FERC exercise its authority over interstate transmission in a manner that complements and

supports the historical state role in establishing long-term resource adequacy requirements, reserve margins, or service obligations.

- CECA recommends that state regulators, regional entities, and federal officials focus on the development of wholesale market structures that create proper incentives for short-term and long-term contracts and price stability in retail markets.
- CECA recommends that if a standard market design rule is adopted by FERC, such a rule should rely on regional planning entities that reflect the historical role of state regulators in assuring adequate capacity policies.
- CECA recommends that FERC encourage regional differences in the manner in which resource adequacy requirements are developed, but require that any method developed by states and regions must incorporate immediate penalties that are sufficient to prevent non-compliance.

Consumer Benefits of Proper Oversight and Market Enforcement

As restructuring of the electric power industry moves forward in those states that choose to do so, and as competition is injected into the wholesale power market, the prevention of market manipulation and market power abuse by electric service providers becomes a priority for policymakers. In maintaining the principle of “do no harm,” proper policies and programs that provide oversight and enforcement activities when market participants act improperly or illegally need to be in place to protect consumers. The CECA Forum focused on the federal market monitoring and enforcement tools that exist or should exist in light of FERC’s policy of moving to a competitive wholesale electric power market. CECA’s examination of FERC’s current statutory authority and its proposed market monitoring policies was undertaken in light of the initiatives that have occurred in those states that have adopted retail electric industry restructuring, as well as the regulatory tools that have been developed at both the state and federal level to oversee competitive markets.

CECA Findings

CECA’s Electric Industry Restructuring Forum has reviewed FERC’s proposals for market monitoring, the recent GAO report on FERC’s current statutory authority, and the state enforcement tools that have been adopted as part of the move to retail restructuring and finds:

- In general, FERC currently lacks some of the key enforcement tools and remedies associated with the oversight of a competitive market that are available to states that have adopted retail electric industry restructuring legislation, such as the ability to order retroactive refunds for unreasonable prices or assess civil penalties for violation of market rules.
- A well-designed FERC oversight and enforcement program can contribute to improving investor and public confidence that is currently lacking.

- FERC's proposed SMD recognizes the importance of market monitoring, but does not specify the necessary methods and means by which market monitoring will occur or how violations of the future rules will be enforced, but rather seeks additional guidance from those who provide comments and from results of future programs as developed at the regional level.

CECA Recommendations

CECA believes that FERC has taken seriously the admonitions contained in the GAO report of June 2002 by establishing the Office of Market Oversight and Investigations and has taken important steps to improve its market monitoring and enforcement efforts. However, CECA further believes FERC's inability to extend penalties for market power abuse beyond what is currently allowed is insufficient to protect consumers.

- CECA recommends that Congress grant FERC the authority to impose adequate civil penalties on market participants after a finding that unreasonable conduct has occurred and order refunds to affected consumers after a finding that an abuse of market power has occurred.
- CECA recommends that Congress grant FERC the proper enforcement tools and resources to supervise a competitive market that relies on market-based rates, where applicable.
- CECA recommends that FERC conduct enforcement of market power abuse with the cooperation of states so that consumers can be fully protected.

ABOUT THE PROJECT STAFF

Peggy Welsh is Senior Vice President of the Consumer Energy Council of America and served as the project manager for the CECA Electric Industry Restructuring Forum and served as author and editor of the Forum's final report. Prior to joining CECA, Ms. Welsh was Executive Director of the National Association of Regulatory Utility Commissioners and served as Executive Director of the Electric Generation Association (EGA), which became the Electric Power Supply Association in 1996. Ms. Welsh worked in the White House during the Ford Administration and began her career with U.S. Senator Dewey F. Bartlett (R-OK). In 1997 she won the national award for the utility sector from the National Business Women's Network.

Davis Bookhart is Senior Project Director of the Consumer Energy Council of America and served as primary researcher for the CECA Electric Industry Restructuring Forum and served as author and editor of the Forum's final report. Mr. Bookhart manages the research, development and implementation of CECA energy and telecommunications forums. Mr. Bookhart directed CECA's Universal Service Forum, co-authored the final report, *Universal Service: Policy Issues for the 21st Century* and facilitated the completion of the CECA report, *Distributed Energy: Towards a 21st Century Infrastructure*. Mr. Bookhart received a Master's degree in International Relations from the Fletcher School of Law and Diplomacy at Tufts University, and has worked in the People's Republic of China, the Lao PDR, and for the Carter Center.

Ellen Berman has served as President of the Consumer Energy Council of America since its founding in 1973. Ms. Berman served as editor of the CECA Electric Industry Restructuring Forum's final report. She has led a series of landmark public policy studies on a broad range of critical energy and telecommunications issues. Ms. Berman has served on numerous energy policy committees, including the Committee on Energy and Economic Development of the NAACP; the Office of Technology Assessment's Magnetic Fusion Research and Development Advisory Committee; the American Council for an Energy Efficient Economy's Building Efficiency Conference; the U.S. Department of Energy's Fuel Oil Marketing Advisory Committee; and the Office of Technology Assessment's Residential Energy Conservation Advisory Committee. Ms. Berman earned a B.A. in Russian language and literature from Barnard College.

Barbara Alexander served as a consultant to the Consumer Energy Council of America as the primary drafter of the CECA Electric Industry Restructuring Forum's final report. Ms. Alexander, a private consultant since 1996, was previously the Director of Consumer Assistance Division at the Maine Public Utilities Commission. Ms. Alexander received her J.D. from the University of Maine School of Law and specializes in consumer protection, service quality, universal service programs, and education policies to accompany the move to electric, natural gas, and telephone competition.