

2005



NARUC

The National
Association
of Regulatory
Utility
Commissioners

Technical Assistance Briefs: A Primer on Energy Assurance for Public Utility Commissions

Prepared by
The Institute of Public Utilities

April 2005

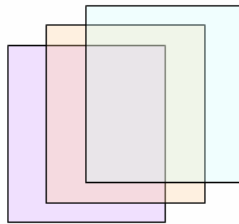
Funded by the U.S. Department of
Energy's Office of Electricity and
Energy Assurance

**TECHNICAL ASSISTANCE BRIEF ON
CRITICAL INFRASTRUCTURE PROTECTION**

**A PRIMER ON ENERGY ASSURANCE FOR
PUBLIC UTILITY COMMISSIONS**

NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS
AD HOC COMMITTEE ON CRITICAL INFRASTRUCTURE

APRIL 2005



NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS

1101 Vermont, N.W., Suite 200

Washington, DC 20005, USA

Phone: (202) 898-2200

Fax: (202) 898-2213

admin@naruc.org

**NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS
AD HOC COMMITTEE ON CRITICAL INFRASTRUCTURE**

Letter from the Chair

Commissioner Connie O. Hughes, New Jersey Board of Public Utilities
March 2005

As Chair of the NARUC Ad Hoc Committee on Critical Infrastructure, I am proud to present to public utility regulators, policymakers, utility industry leaders, and consumers, this landmark series of technical briefs on a complex set of issues pertaining to our nation's critical utility infrastructures. These documents identify key strategies for our consideration as we meet ongoing challenges within each of the electricity, natural gas, water, and telecommunications sectors.

I trust that the documents will enhance the understanding and appreciation of critical infrastructure protection, particularly with respect to the role of state public utility commissions, as well as assist in the development of appropriate policies and strategies in this vital area.

The Committee appreciates and is grateful for the assistance in preparing these reports by Dr. Janice A. Beecher, Institute of Public Utilities at Michigan State University and Dr. James B. Atkins, Regulatory Heuristics. I also acknowledge the support and funding provided by the U.S. Department of Energy's Office of Electricity and Energy Assurance under the leadership of Mr. Alex de Alvarez and assistance of Ms. Alice Lippert. I also thank the National Association of Regulatory Commissioners, the NARUC Staff Subcommittee on Critical Infrastructure, and our other state partners including the National Association of State Energy Officials, the National Conference of State Legislatures and the National Governors Association.

Commissioner Connie O. Hughes
Chair, Ad Hoc Committee on Critical Infrastructure

This Technical Brief (Paper No. 3) is part of a series of reports prepared under the direction of the NARUC Ad Hoc Committee on Critical Infrastructure. Funding for this project was provided to NARUC by the U.S. Department of Energy in cooperation with the National Association of State Energy Officials.

The purpose of these complementary and reinforcing papers is to provide public utility commissioners and other participants in the regulatory policy community with introductory overviews, suggested protocols, and additional resources on critical infrastructure protection issues.

Paper 1. *Issue Paper on Critical Infrastructure Protection.* The federal and state roles in critical infrastructure protection are introduced and explored, with a special focus on the role of the state agencies and public utility commissions.

Paper 2. *Utility and Network Interdependencies: What State Regulators Need to Know.* As explored here, almost all utilities operate networks, and these sector networks are highly interdependent, which in turn relates to consideration of vulnerability and planning which takes on an added dimension of complexity needs, as well as regulatory considerations.

Paper 3. *A Primer on Energy Assurance for Public Utility Commissions.* The primer provides an introduction to energy assurance planning, which broadens traditional energy emergency response and planning to include critical infrastructure protection and energy and fuel shortage mitigation.

Paper 4. *State Government Organizational Issues, Roles, and Policy.* This discussion paper explores state governmental roles with respect to critical infrastructure protection, with a focus on the state public utility commissions and regulatory policy considerations.

Paper 5. *Regional Coordination and Intergovernmental Communication in the Energy Sector.* This paper highlights the importance of regional coordination and communication, focusing in particular on the protocols developed for the Energy Emergency Assurance Coordinators (EEAC) system that has identified state level energy experts for petroleum, gas and electricity.

Paper 6. *Critical Infrastructure Information Sharing Rules: Model Protocols for States.* The paper discusses both federal and state actions to date regarding the sharing of critical infrastructure information and provides a framework for future cooperation and efforts to harmonize information sharing among state commissions, the FERC and the Department of Homeland Security.

Paper 7. *NARUC Inventory on State Energy Assurance Planning.* The paper reports in detail the findings of a 2004 assessment of state commissions regarding energy assurance planning and related policy issues.

Paper 8. *NARUC Inventory on Gas Curtailment Planning.* The paper reports in detail the findings of a 2004 assessment of state commissions regarding gas curtailment planning and related policy issues.

INTRODUCTION

Planning for threats from all-hazards requires a preparation, information, and communication. Many federal, state, and private agencies are involved in planning for and responding to energy emergencies. Their roles are defined by ownership, judicial or legislative authority, proximity to the energy asset, and level of preparedness. Coordination between these key players is essential for an effective energy assurance effort.

Energy assurance is the ongoing and collaborative effort among federal, state, local governments and the private sector to ensure a robust, secure, and reliable energy infrastructure.

Energy assurance is a relatively new area of focus. The federal government is examining its roles and responsibilities, given the Homeland Security Presidential Directives issued in December 2003.¹ Different agencies offer information sharing and emergency communications networks,

while others coordinate table top exercises, workshops and conferences to prepare first responders.

States have approached energy assurance distinctly in terms of authorizing the lead agency and distributing key responsibilities among the various organizations operating in their State. These approaches fall into four general categories (see Exhibit 1):

- 1) State Commissions are the lead agency because of their jurisdiction of regulated electricity and natural gas utilities;
- 2) The State Energy Office is the lead agency on energy assurance, and supports the energy emergency assurance coordinator effort and may lead or participate with the State Emergency Management Agency or ESF-12 functions;
- 3) The Governor or Attorney General appoints some other agency to take the responsibility for energy assurance planning; or
- 4) Other states have separated coverage of petroleum emergencies, asking the Economic Development or Environmental or other agencies to take those responsibilities.

Energy assurance planning links traditional energy emergency response and planning with broader critical infrastructure protection efforts and energy-shortage mitigation efforts.

¹ [The White House, 2003. "Critical Infrastructure Identification, Prioritization, and Protection," Homeland Security Presidential Directive 7 \(HSPD-7\) and "National Preparedness," Homeland Security Presidential Directive 8 \(HSPD-8\) \(December 17, 2003\).](#)

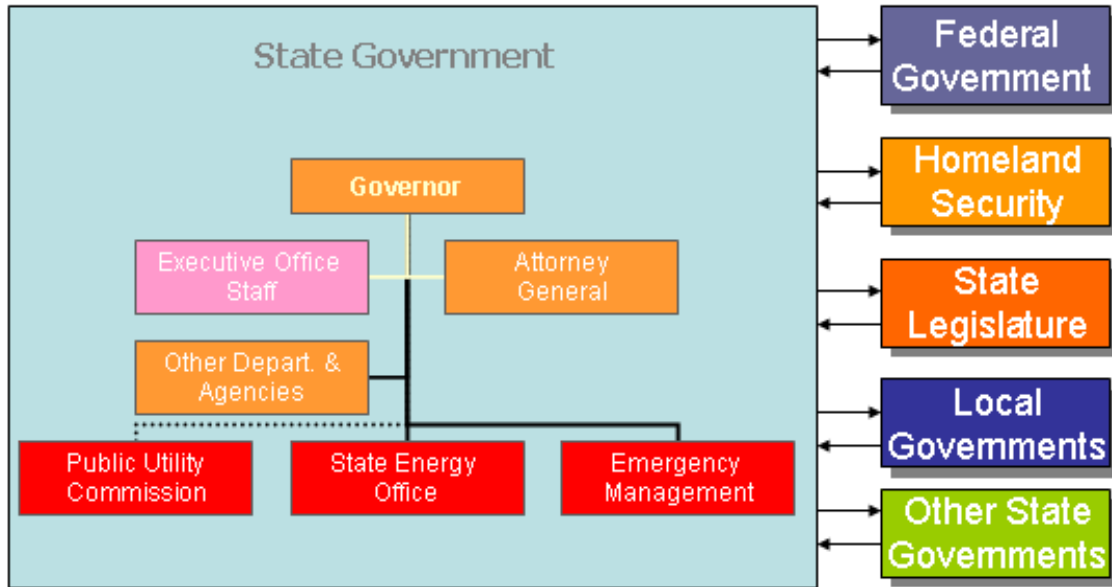


Exhibit 1. Key Stakeholders Involved in State Energy Assurance Planning

Note: The graphic is not an organizational chart; state public utility commissions may or may not be constituted as executive agencies and organized under the office of the governor.

The variety of approaches to energy assurance can make it difficult for interstate coordination, since each participant likely hails from a different agency. In the case of political appointments, state energy assurance planners must be aware of personnel changes in order to ensure continuity during emergencies.

PUCs have been at the forefront of energy infrastructure issues resulting from their jurisdiction over certification, ratemaking, quality-of-service, integrated resource planning, fuel cost-recovery and facility siting. Such utility oversight is important since utilities have been the front-line responders to energy emergencies and other contingencies which threaten the reliability of electric and gas systems. At a minimum, state PUCs must understand the roles they have accepted, with whom they must coordinate inter- and intrastate, and the tools and networks available to them. This primer provides background information to help PUCs in this regard.

FEDERAL EFFORTS

Energy assurance has evolved significantly over the past three decades. During the 1970's, as a result of international disruptions to petroleum supplies, energy emergency planners focused on petroleum shortages. Over the past 15 years, states began to integrate the use and efficiency of electricity and natural gas in

their plans. Since 9/11/01, states have emphasized planning for attacks on energy infrastructure.

With the creation of the U.S. Department of Homeland Security (DHS), the President established a single point of contact for coordinating critical infrastructure protection and assurance planning activities by federal, state, local and private-sector interests. DHS determined which agencies would take the lead and supporting roles in protecting critical infrastructure and key assets in each sector of the economy. The U.S. Department of Energy (DOE) is the designated lead federal agency regarding the protection of critical infrastructure in the energy sector. In particular, the Office of Electricity and Energy Assurance (OEE) has been the primary office within the DOE responsible for working with the DHS, other federal agencies, states, local governments, and the private sector to coordinate the secure and reliable operation of the nation's energy infrastructure.

The OEA is also responsible for administering the energy components of Homeland Security Presidential Directives (HSPD). In December 2003, the President issued HSPD-7 concerning Critical Infrastructure Identification, Prioritization, and Protection. From a state commission perspective, HSPD-7 serves as an important starting point in the development and implementation of cooperative federal/state energy assurance planning. In particular:

- Under the lead of the Secretary of the DHS, federal departments and agencies are to work with **state** and local governments and the private sector to identify, prioritize, and coordinate the protection of critical infrastructure
- Sector-specific agencies (DOE in this instance) are to collaborate with other Federal agencies, **state** and local governments, and the private sector to conduct or facilitate vulnerability assessments, encourage risk management strategies and provide training
- The Secretary of the DHS shall produce a comprehensive, integrated National Plan for Critical Infrastructure and Key Resources Protection, which includes a specific energy sector plan. OEA submitted the energy sector plan in July 2004 for DHS review. The Plan included a strategy to identify, prioritize, and coordinate the protection of critical infrastructure resources and articulated how DOE intends to work with other federal, state, and local governments.

Also issued in December 2003, HSPD-8 established policies to strengthen the preparedness of the United States to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved delivery of Federal preparedness assistance to state and local

governments, and outlining actions to strengthen preparedness capabilities of federal, state, and local entities.

STATE ORGANIZATION EFFORTS

OEA works closely with four organizations representing state government in energy security and assurance efforts:

- National Association of Regulatory Utility Commissioners (NARUC) cooperated in the surveying of commissioners and the development of white papers and protocols on cost recovery issues, energy supply curtailment plans, and critical infrastructure. (See Appendix for NARUC Resolution.)
- National Association of State Energy Officials (NASEO) co-sponsored seasonal workshops on the energy outlook, which examined natural gas, gasoline, heating oil, propane and diesel fuel supply and prepared its 85-page State Energy Assurance Guidelines in June 2004.
- National Governors Association (NGA) promoted joint federal and state planning, the development of response strategies for possible energy emergencies, and recognized that all federal actions must give consideration to existing state laws and programs, and state and local officials must be included in any federal planning process.
- National Conference of State Legislatures (NCSL) prepared its own 113-page primer on energy security for state policymakers in April 2003

During 2004, NARUC conducted two different state inventories related to energy assurance. Despite the number of publications available and information-sharing networks in play, there is no one-stop source of information on what state commissions are doing in energy security. The Institute of Public Utilities at Michigan State University administered the web-based inventories in mid-2004.

Commissions from thirty-two states and the District of Columbia responded. Ten of the states participating in the survey have designated their Commissions to be the lead agencies in energy assurance planning and emergency response. Another nine state Commissions are very involved in activities such as preparing plans, participating in regional planning and coordination, designating a security coordinator on the PUC staff, examining FOIA rules regarding critical infrastructure information. Ten state Commissions responded that they participate with the other agencies in their state when invited. Four state Commissions offered incomplete responses and eighteen Commissions did not respond. The complete results are documented in “*NARUC Inventory on State Energy Assurance Planning* (paper number 7 in this series of NARUC technical briefs).

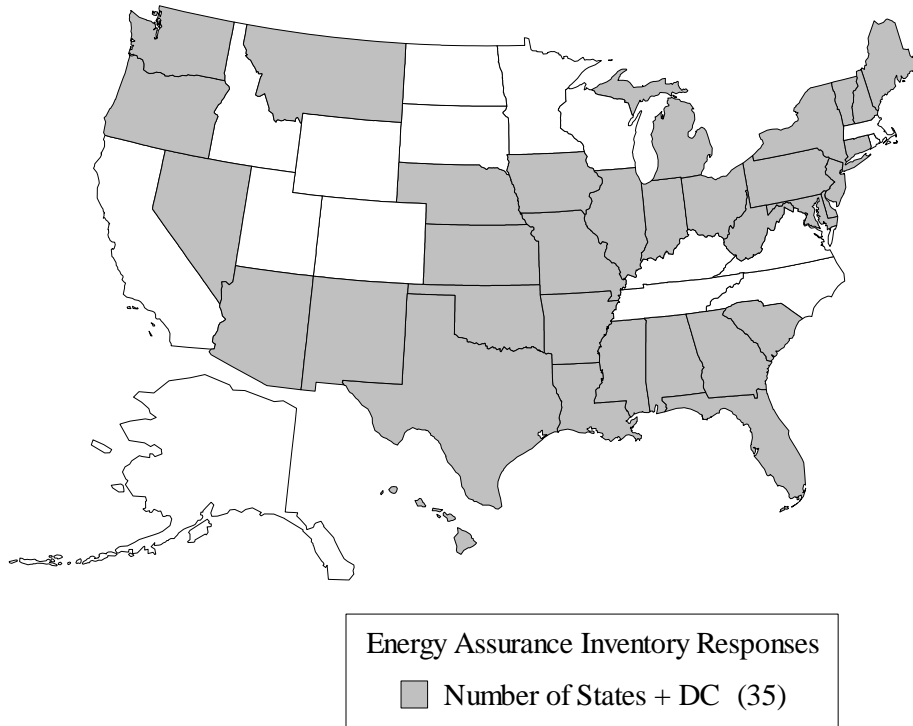


Exhibit 2. State Public Utility Commissions Represented in the Energy Assurance Inventory. States not participating in the inventory appear as white.

Different tools and information-sharing networks have been put into place by these state organizations. One example is the development of the Energy Emergency Assurance Coordinators (EEAC) System, which was launched officially in February 2004, by OEA, NARUC, and NASEO. The EEAC system serves as a communications network for 150 key state personnel to exchange information and coordinate with each other and OEA during energy emergencies.

PLANNING CONSIDERATIONS

Effective energy assurance planning involves organizing and building cross-agency communications and response mechanisms in a regional setting, coordinating with both public and private stakeholders, understanding energy production, use and the vulnerability of energy systems, and lastly, identifying

fuel-related supply issues and shortage-response measures.² All of this must be accomplished within state jurisdictional constraints, while operating within the federal emergency support function structure. Assessing the vulnerability of our energy systems and mitigating these vulnerabilities is an important component of energy assurance planning. Sound energy assurance is an iterative process revolving around planning; assessment and mitigation (see Exhibit 3).

The January 2004 New England electricity grid reliability situation brought to light a number of energy assurance issues, which state commissions across the nation can learn from. One recommendation from the “Interim Report on Electricity Supply Conditions in New England during the January 2004 ‘Cold Snap’” was that the “ISO New England should review established procedures and protocols for communicating with state officials and announcing unusual emergency actions and should engage state agencies to refine these procedures.”³ The Report also pointed to the need to have a greater “dialogue with state and local regulators about permitting of dual-fuel units”, and to “evaluate the economic incentives to install dual-fuel capability, including whether permitting restrictions reduce those incentives.” This is just one example of how state commissions can work more closely with other states and regional entities to improve energy planning and better respond to threats to energy assurance.

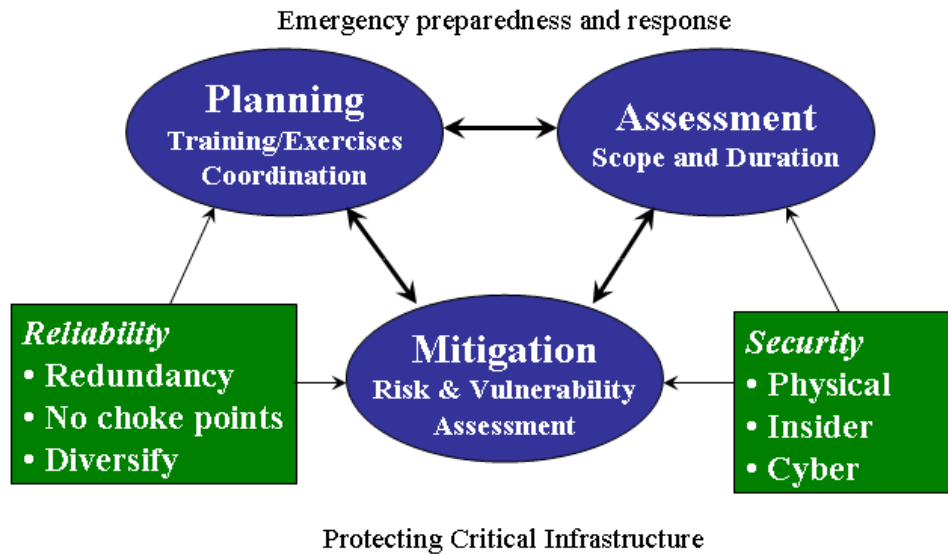


Figure 3. The Elements of Energy Assurance

Source: National Association of State Energy Officials, “Using the Energy Assurance Guidelines,” The State Energy Assurance Planning Workshop, Camp Dawson, West Virginia, June 30, 2004.

² National Association of State Energy Officials (NASEO), 2004. *State Energy Assurance Guidelines, Version 1 Review* (June 2004).

³ Independent System Operator New England Inc., “Interim Report on Electricity Supply Conditions in New England during the January 14 - 16, 2004 ‘Cold Snap,’” Market Monitoring Department (May 10, 2004).

THE ROLE OF STATE COMMISSIONS

What is the appropriate role for state commissions in planning, assessing and promoting energy assurance? How do state commissions integrate energy assurance considerations into their current or future regulation of jurisdictional utilities?

To promote and become more integrally involved in energy assurance planning, state commissions should explore the following questions with jurisdictional utilities concerning their critical infrastructure:

- Have key energy assets been identified, digitally-mapped and ranked from a security perspective?
- Have critical physical and cyber risks and vulnerabilities been identified?
- Have interdependencies, such as the linkage between natural gas supply and the reliability of gas-fired generation been quantified?
- What is the planning horizon and geographic scope of the utilities assessment process? Does it accurately characterize and quantify extended and multiple contingencies?
- Have appropriate options to respond to these vulnerabilities been developed and tested?
- Have downstream impacts on other utility sectors (such as water, transportation, and telecommunications) and societal impacts been identified?
- Has the utility presented an appropriate business case for making security investments and sought to recover prudent critical infrastructure investments?
- Has the utility implemented changes that will enhance reliability and security, including business continuity?
- How has security been integrated into the ongoing business strategy of the utility?
- Have investments in utility and end-user efficiencies or alternative energy sources been investigated to minimize the adverse impacts resulting from an energy shortage or emergency?
- Has a mechanism been established to update planning and response plans “post event” to improve the utilities best practices?

For State Public Utility Commissions, some simple questions are in order. Given its current authorities, how can your Commission include energy assurance measures in ongoing formal and informal processes? What additional authority or coordination is needed to improve your Commission’s role in energy assurance planning?

NEXT STEPS

In the post September 11, 2001 environment, state commissions should continue to work to enhance critical infrastructure protection, energy emergency preparedness and reliability as part of their day to day efforts. State commissions should also re-examine their respective roles and relationships with their Governor's offices and other state agencies in ongoing emergency response efforts which impact energy systems. State Commissions can play an important role in working with State Energy Offices to regularly update energy emergency plans to assure that current reliability rules and market policies are included. Additional policy enhancements and rule makings should be considered to ensure the adequate availability of fuels, especially natural gas, due to the competing demands between traditional uses of natural gas verses the increasing use for electricity generation. This is especially true in states that have transitioned to competitive electricity markets.

A case can also be made that state commissions should become more proactive in developing state specific and regional policies to promote energy assurance related investments by utilities. This will require the continued facilitation of regional coordination on energy assurance issues between state commissions, DHS, DOE, FERC, regulated utilities and the relevant industry [Information Sharing and Analysis Centers \(ISACs\)](#). Ultimately, prudent investments by utilities for energy assurance measures should be brought to state commissions to allow for cost recovery. Cost recovery protocols have recently been developed which can guide state commissions in this effort.⁴

⁴ National Regulatory Research Institute, 2004. *Model State Protocols for Critical Infrastructure Protection Cost Recovery*. Report to the NARUC Ad Hoc Committee on Critical Infrastructure-Version 1 (July 2004).

APPENDIX: NARUC RESOLUTION ON ENERGY EMERGENCY PREPAREDNESS (2001)

WHEREAS, In light of the high state of alert that the nation is experiencing, the National Association of Regulatory Utility Commissioners (NARUC) finds that further ensuring the security and reliability of the nation's energy supply and delivery infrastructures is of the highest public interest; and

WHEREAS, NARUC supports the National Governors Association's (NGA) Policy Statement on Energy Emergency Preparedness, adopted as part 7 of its Comprehensive National Energy Policy (NR-18) at the NGA's 2001 Annual Meeting; and

WHEREAS, NARUC supports the Office of Homeland Security to ensure a coordinated emergency preparedness effort at the federal, state and local levels; and

WHEREAS, NARUC supports the Federal Energy Regulatory Commission's (FERC) September 14, 2001, statement of policy regarding Extraordinary Expenditures Necessary to Safeguard National Energy Supplies, Docket No. PL01-6-000, which recognizes that utility companies may face uncertainty about recovery of costs associated with further efforts to safeguard energy infrastructures, and which seeks to assure companies that FERC will approve applications to recover prudently incurred costs necessary to further safeguard the reliability and security of our energy supply infrastructure in response to the heightened state of alert; and

WHEREAS, NARUC believes that the federal government, the States, territories, and energy industries should undertake regular comprehensive review and updates of emergency plans, rules, orders, and programs. Such efforts should assess the vulnerability of energy supply and delivery infrastructures to determine the efficacy and appropriate levels of response, to adopt necessary procedures, and to encourage the energy industry to put in place additional measures as may be needed to further safeguard energy resources and infrastructure. Furthermore, should energy supply disruptions occur for any reason, States should be prepared to respond quickly and effectively by having in place well-developed contingency plans; now therefore be it

RESOLVED, That the National Association of Regulatory Utility Commissioners (NARUC) convened in its November 2001 113th Annual Convention in Philadelphia, Pennsylvania, commits to cooperating and working with the Office of Homeland Security, the U.S. Department of Energy (DOE), the U.S. Department of Transportation, the Federal Energy Regulatory Commission, the Federal Emergency Management Agency, the National Governors Association, the National Association of State Energy Officials, and

the National Emergency Management Association to develop and integrate energy emergency response plans and procedures; and be it further

RESOLVED, That NARUC encourages the DOE to expand its cooperative relationship with the States on energy emergency preparedness matters and, as part of this effort, to undertake a comprehensive review and updating as needed of plans, rules, orders, and programs designed to assess the vulnerability of energy supply and delivery infrastructures and respond to supply disruptions when they occur; and be it further

RESOLVED, That NARUC supports the Nuclear Regulatory Commission's working with the States in the review of the safety and security of the nation's nuclear power plants, including the containment vessels, spent fuel pools, dry cask storage facilities, operational control facilities, and security measures, as necessary; and be it further

RESOLVED, That DOE should undertake a review of the Strategic Petroleum Reserve to establish recommendations on its appropriate size and to develop more specific criteria on its use; and be it further

RESOLVED, That States should approve appropriate applications by electric and gas companies subject to their jurisdiction to recover prudently incurred costs necessary to further safeguard the reliability and security of our energy supply and delivery infrastructure.

Sponsored by the Committees on Electricity and Gas. Recommended by the NARUC Board of Directors, November 13, 2001. Adopted by NARUC November 14, 2001.

FOR FURTHER READING

Electricity Sector Information and Analysis Center.

Energy Information and Analysis Center.

Department of Homeland Security, *National Response Plan*, December 2004, Supersedes FEMA 229 (April 1999). See Emergency Support Function #12, Energy Annex.

Independent System Operator New England Inc., 2004. "Interim Report on Electricity Supply Conditions in New England during the January 14 - 16, 2004 'Cold Snap,'" Market Monitoring Department (May 10, 2004).

Information Sharing and Analysis Centers Council.

National Association of State Energy Officials (NASEO), 2004. *State Energy Assurance Guidelines*, Version 1 Review (June 2004).

National Association of State Energy Officials, "Using the Energy Assurance Guidelines," The State Energy Assurance Planning Workshop, Camp Dawson, West Virginia, June 30, 2004.

National Conference of State Legislators, *Energy Security*, ISBN 1-58024-287-1 (April 2003).

National Governor's Association, 18.7 Energy Emergency Preparedness Resolution, Annual Meeting 2001.

National Regulatory Research Institute, 2004. *Model State Protocols for Critical Infrastructure Protection Cost Recovery*. Report to the NARUC Ad Hoc Committee on Critical Infrastructure-Version 1 (July 2004).

Office of Energy Assurance, U.S. Department of Energy, 2002. *Vulnerability Assessment Methodology, Electric Power Infrastructure*. Washington, DC (September 30, 2002).

The White House, 2003. "Critical Infrastructure Identification, Prioritization, and Protection," Homeland Security Presidential Directive 7 (HSPD-7) (December 17, 2003).

The White House, 2003. "National Preparedness," Homeland Security Presidential Directive 8 (HSPD-8) (December 17, 2003).

The White House, 2003. *National Strategy for the Physical Protection of Critical Infrastructures and Key Assets*. Washington, DC: The White House (February 2003).