

THE NATIONAL INFRASTRUCTURE ADVISORY COUNCIL

**FRAMEWORK FOR DEALING WITH DISASTERS AND
RELATED INTERDEPENDENCIES**

FINAL REPORT AND RECOMMENDATIONS

JULY 14, 2009

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II. EXECUTIVE SUMMARY

A Framework for Dealing with Disasters and Related Interdependencies

Introduction

Through the Secretary of the Department of Homeland Security (DHS), the National Infrastructure Advisory Council (NIAC) provides the President with advice on the security of the 18 Critical Infrastructure and Key Resource (CIKR) sectors and their information systems.

At the January 8, 2008 NIAC Business meeting, the NIAC elected to study *A Framework for Dealing with Disasters and Related Interdependencies*. This Study was designed to explore the United States' ability to respond to and recover from a major disaster that results in a prolonged loss of infrastructure services expanding beyond a local area.

To develop the Study findings, the NIAC held a facilitated one-day workshop table-top exercise that brought together key stakeholders from the private sector, legal community, and government. The scenario outcomes from the workshop were supplemented with the results from a series of chief executive-level executive interviews from select infrastructure organizations.

Findings

The NIAC collected available information and explored potential avenues to improving CIKR recovery following a disaster event. As a result of this process, the NIAC identified four broad areas of policy change to improve critical infrastructure recovery from major disaster-type events or outages. The NIAC developed findings in four areas: 1) *statutory, regulatory and policy impediments* in disaster recovery; 2) opportunities for *strengthening key Federal Statutory authorities*; 3) strategies for *improving collaboration and communication*; and finally, 4) the importance of *organizational relationships in successful implementation* of the resulting recommendations.

Statutory, Regulatory and Policy Impediments

The NIAC identified specific statutory, regulatory and policy constraints to CIKR disaster recovery that arise from all levels of government, whether it is Federal, State or local. The report outlines some of the specific constraints found by the NIAC, but did not pursue developing a comprehensive list. The NIAC documented specific cases uncovered during the study and also sought to establish a process for systematically identifying and addressing these challenges in each case where they are found.

The NIAC found a need for all relevant government entities to go about identifying and cataloging all their statutory, regulatory and policy impediments to CIKR recovery along with the necessary steps to address them during an emergency.

The NIAC identified the following specific needs for relief from constraints to CIKR recovery:

- Timely relief or waivers from statutory and regulatory restrictions during CIKR disaster recovery operations
- Relief from statutory and regulatory restrictions that might place CIKR operators in legal jeopardy for pursuing actions that benefit the common good during disaster recovery operations
- Relief from requirements for Environmental Impact Statements (EIS)
- Reconsideration of regulations that can have the unintended consequence of unnecessarily creating cross-sector dependencies or interdependencies
- Relief from vehicle restrictions in a disaster area during a recovery effort
- Coordinated disaster recovery between the Federal Government and the Banking and Finance Sector
- Sector-regulator coordination on waivers for document filing requirements specific to disaster recovery operations
- Waivers on restrictions for chlorine transportation between checkpoints during an emergency

Strengthening Key Federal Statutory Authorities

Through careful legal research and consultation, the NIAC made the determination that there is need to review the substance and implementation of key Federal statutory authorities used by the government in responding to major disaster-type events.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5121 *et seq.*, and The Defense Production Act of 1950 (DPA), 50 U.S.C. 2061 *et seq.*, are important legal authorities for restoring critical infrastructure following the occurrence of a disaster. Both statutes, however, are in need of review by the Federal government to correct deficiencies in their provisions and implementation by the Executive Branch.

Improving Private Sector-Government Cooperation and Communication

The NIAC found many areas where improved cooperation and information sharing between the different actors involved in disaster recovery had the potential to significantly improve disaster response and recovery efforts. Improved cooperation and communication between the private sector and relevant government authorities are critical to optimizing CIKR recovery during all phases of preparation and communication. Specific needs identified by the NIAC to improve cooperation and communication between the private sector and government include:

- Clearly established protocols for disaster area credentialing and access for CIKR disaster recovery workers
- CIKR operator involvement in Federal, State and local government emergency planning and exercises
- Improved understanding of community and CIKR dependency upon drinking water and Wastewater services
- Improved Multi-Jurisdictional Decision Making and Communication
- Private sector CIKR participation in Emergency Operations Centers (EOC) during disaster recovery efforts

Recommendations

A Process for Identifying and Addressing Statutory, Regulatory and Policy Impediments to Recovery

- A. DHS should institutionalize processes and provide funding as needed to systematically develop and maintain at the Federal, State and local (especially major metropolitan) government levels, catalogs of laws and regulations that may need to be suspended or modified during disaster scenarios. Similar to an effort undertaken by the City of New York, planners should apply the following four-step process in their disaster preparedness work:
 1. Identify relevant disaster scenarios and compile existing response plans for each.
 2. Determine for each whether the government planned response:
 - a. Complies with all applicable Federal, State and local laws and regulations, and
 - b. Could pose any meaningful risk of hindering CIKR/ community recovery or incur liability for the acting government authority
 3. Catalog all instances where planned action is not authorized and determine whether the applicable laws or regulations can be modified, suspended, or waived. Draft appropriate emergency orders for use during a disaster
 4. For laws or regulations that cannot be modified, suspended, or waived, planners should develop a work-around. Government should seek to identify all legal and regulatory requirements affecting CIKR operators for which no timely legal waiver process presently exists, and take steps to afford waiver.
 5. Private Sector CIKR operators should conduct an effort in parallel with these steps as well to identify areas of statutory or regulatory impediment and communicate these to the relevant authority.
- B. The Executive Branch should work with Congress and State legislatures to pass legislation with provisions that allow the executive branches in government, at the federal and state levels, to grant blanket waivers for statutes and regulations identified as impeding recovery efforts during an emergency or disaster-type event.

Potential Federal, State and Local Action to Address Statutory, Regulatory and Policy Impediments to Disaster Recovery/Preparedness

- A. DHS should request that Congress initiate legislation to assure that the Stafford Act applies to all catastrophic events regardless of cause, and that the public does not suffer by virtue of an excessive concern to preclude benefits from the Stafford Act going to private sector critical infrastructure operators.
- B. The Executive Branch should conduct a major review of the Defense Production Act (DPA) with the aim to maximize utility for the restoration of critical infrastructure.
- C. Congress should validate the “Alternative Arrangements” rule of the Council on Environmental Quality (CEQ) to address the lengthy waiver process for EIS.

The NIAC recommends a list of specific actions to address other statutory, regulatory, and policy impediments which include:

- A simple process for emergency waivers for document filing deadlines with regulatory agencies
- A solution to chlorine transportation restrictions between checkpoints in a disaster area
- A simple process for expediting vehicle restrictions
- A standardized and coordinated approach for processing requests and issuing waivers for regulatory filing requirements for banks during a disaster

Improved Private Sector-Government Cooperative Efforts in Disaster Recovery

- A. The DHS, Federal Emergency Management Agency (FEMA) and DHS Office of Infrastructure Protection (IP) should collaborate to develop and disseminate best practices for authorities to use in credentialing and granting access to CIKR workers in a disaster area during an emergency. The developed solution should:
- Leverage recent accomplishments and lessons learned from the Gulf Coast region during hurricanes Gustav and Ike
 - Collaborate the All Hazards Consortium (AHC) and similar, well-positioned organizations
- B. DHS-FEMA and DHS-IP should develop reliable best practices for information sharing during disaster recovery operations, including:
1. Inclusion of private sector CIKR operators in EOCs and planning exercises
 2. Strong sector-to-sector communication during a disaster
 3. Sector information sharing mechanisms, such as the sector Information Sharing and Analysis Centers (ISACs), for sector communications outside the disaster area
 4. EOC decision makers establishing and communicating recovery priorities

Cooperative Planning for CIKR Emergency Preparedness

- A. The DHS-FEMA and DHS-IP should collaborate with regulatory agencies to identify potential disaster scenarios where the lead authority for government response is unclear to private sector CIKR owners and operators and develop a workable response plan.
- B. DHS should include the Water Sector in all disaster/emergency response and recovery training and exercises as a best practices approach to planning. Recommendations also outline steps for:
1. Availability of grants for water systems auxiliary backup power systems investments for key Water Systems sites during electrical outages.
 2. Elevation of Water Services to an “emergency support function” (ESF) within the National Response Framework (NRF) during the next revision cycle.
 3. Inclusion of a Water/Wastewater Agency Response Network (WARN)-focused curriculum in Emergency Management Assistance Compact (EMAC) training programs.
- C. DHS-FEMA and DHS-IP should collaborate to develop and disseminate a best practices guide for disaster planning exercises to State and local governments. These best practices should promote inclusion of private sector CIKR operators in planning and executing disaster exercises and scenarios and include the following elements:

1. Regionally-based exercises that emphasize CIKR disaster recovery planning and response.
 2. Table top exercises focusing on communication between multiple levels of Government
 3. Involvement of CIKR owner-operator participation in all relevant planning for exercises.
 4. Clearly established roles and responsibilities for government and private sector CIKR owner operators during major disasters
 5. Communication and coordination on CIKR restoration priorities.
 6. After-action review of disaster events and exercises to include Federal, State and local governments as well as CIKR owner-operators to identify gaps and lessons learned
 7. Validation of emergency plans from smaller CIKR owner-operators
 8. Acknowledgement that different governments will have different priorities for restoration of some types of CIKR outages
- D. Emergency response authorities should help protect private sector resources from *ad hoc* commandeering by local officials.

III. BACKGROUND ON THE NIAC

Through the Secretary of the Department of Homeland Security (DHS), the National Infrastructure Advisory Council (NIAC) provides the President with advice on the security of the 18 Critical Infrastructure and Key Resource (CIKR) sectors and their information systems. These CIKR sectors span the U.S. economy and include the Banking and Finance, Transportation, Water, Energy, and Emergency Services Sectors, among others. The NIAC also advises the lead Federal agencies that have critical infrastructure responsibilities and industry sector coordinating mechanisms. Specifically, the Council has been charged with:

- enhancing cooperation between the public and private sectors in protecting information systems supporting critical infrastructures in key economic sectors and providing reports on the issue to the President, as appropriate;
- enhancing cooperation between the public and private sectors in protecting critical infrastructure assets in other key economic sectors and providing reports on these issues to the President, as appropriate; and
- proposing and developing ways to encourage private industry to perform periodic risk assessments of critical information and telecommunications systems.

IV. BACKGROUND ON THE FRAMEWORK FOR DEALING WITH DISASTERS AND RELATED INTER-DEPENDENCIES STUDY

At the January 8, 2008 NIAC Business meeting, the NIAC considered and voted to select three topics presented for the Council's consideration. These topics were: *A Framework for Dealing with Disasters*; *Developing a Regional Cooperation Framework*; and *Sector Interdependencies*. Deliberation indicated significant interest in all three topics and led the NIAC to combine the three interconnected subjects, fashioning a study to explore the challenges presented by regional disasters and the corresponding cross-sector interdependencies.

Careful exploration of the three topics by the Working Group further focused the Study to examine the United States' ability to respond to and recover from a major disaster that could result in a prolonged loss of infrastructure services expanding beyond a local area. This refocused effort was named the *Framework for Dealing with Disasters and Related Interdependencies Study*. The Working Group, in re-focusing the scope of the Study, while maintaining the three focus areas, established a clear set of outcomes for the effort. The Working Group specifically would seek to identify areas of policy, law and regulation that impede or constrain the disaster recovery efforts of critical infrastructure owners and operators in the private sector. The Study was also charged with identifying policy-level approaches and solutions to identified impediments, as well as improvements to the challenge of deploying needed Federal resources to disaster areas.

The resulting solutions are intended to be applicable to planning and preparedness efforts underway at the State, local, and regional levels, as well as at the Federal level. Implementation of such policies will serve to strengthen the resilience, public health, and economic stability of our nation when dealing with the challenges of a natural or man-made disaster. Given the time and resources available, the NIAC did not have the opportunity to meaningfully interact with

tribal and territorial governments during the Study. However, the recommendations in the report directed at State and local authorities are designed and intended to be broadly applicable. The NIAC suggests that these recommendations should be carefully considered and appropriately tailored for use by tribal and territorial governments and their CIKR owner-operator partners.

V. APPROACH

The Study was conducted to develop findings with applicability to Federal, State and local government statutory, regulatory and policy issues; private sector business continuity planning and risk mitigation; and cooperation between Federal, State and local governments and the Critical Infrastructure Sectors.

In initiating the Study, the NIAC chose to examine “the ability to respond to and recover from a *major disaster* that could result in a prolonged loss of infrastructure services expanding outside a local area.” The NIAC was charged with examining these disasters in the context of both natural disasters and terrorist-originated events.

As a foundation for the Study’s findings, the NIAC held a facilitated one-day workshop that brought together key stakeholders from the private sector, legal community, and government. During the exercise the group exchanged their views and information on two hypothetical scenarios that were developed in detail by the National Infrastructure Simulation and Analysis Center (NISAC) to stimulate and guide the Workshop discussions. The first scenario presented a hypothetical electrical outage caused by an accident and resulted in loss of electricity services in the Washington D.C. area for approximately two weeks. The second scenario was similar, but based upon damage to the electrical infrastructure from a terrorist attack and resulted in a larger electrical outage in the greater metropolitan Washington, D.C. area, lasting for as much as three weeks.

In developing and choosing the scenarios for the workshop exercise, the NIAC selected electrical outage events due to the resulting cascading dependencies among the other sectors, which the NIAC found to include all critical infrastructure sectors to differing degrees. The effect was that over time, an electrical outage had increasing and significant impacts on almost all critical infrastructure sectors. Another significant factor in the NIAC’s selection of a long term electrical outage event was that it presented the opportunity to study these dependencies and the statutory, regulatory and policy impediments that arise when infrastructure service providers are pushed outside the limits of their short term continuity of operations plans, but without the distraction of dealing with mass casualties or mass destruction. The result was two scenarios that allowed the participants in the exercise to focus specifically on the elements of critical infrastructure services recovery and the challenges they face in accomplishing this task during a major disaster-type event. The workshop itself was a major success with over 40 participants from critical infrastructure providers in the National Capital Region participating in a rigorous discussion that provided the NIAC a wealth of information in cross-sector dependencies and impediments to CIKR recovery.

The outcomes from the workshop were supplemented with the results from a series of 16 C-level executive interviews from select infrastructure organizations to allow the NIAC to maintain an

awareness of executive-level concerns, issues and solutions during such an event. The NIAC's analysis and exercise included a majority of the sectors identified as CIKRs by the National Infrastructure Protection Plan (NIPP).

While the NIAC specifically focused on improving the ability of critical infrastructure to respond to and recover from disaster type events, the Council also acknowledges that community recovery efforts occur in parallel to this critical infrastructure recovery effort, and that infrastructure recovery is most often in support of these community recovery efforts. The focus of this report on critical infrastructure recovery is not intended to shift the priorities of authorities responsible for the recovery of their State or local community, but rather to identify means and processes to assist in that goal.

VI. FINDINGS

The NIAC identified four broad areas of policy change to improve critical infrastructure recovery from major disaster-type events or outages. The first area for potential improvement is that CIKR operators face *statutory, regulatory and policy impediments* in disaster recovery, but also that it is possible to minimize these challenges through methodical planning and preparation. Second is the opportunity for improving CIKR disaster recovery through *strengthening key Federal Statutory authorities* for responding to disasters. This includes the need to examine two existing Federal statutory authorities used in disaster response – the Stafford Act and the Defense Production Act. The challenge of improving CIKR recovery is not limited to addressing laws that are impediments to recovery, but also includes reviewing the laws that might help, to make sure they are shaped to address the challenges of the modern world. The third area identified for potential improvement to CIKR disaster recovery involves a broad range of issues and ideas for *improving collaboration and communication* between the private sector and levels of government involved in disaster recovery. The fourth and final set of findings centered on the importance of *organizational relationships in successful implementation* of the recommendations put forth in this report.

A. STATUTORY, REGULATORY AND POLICY IMPEDIMENTS

The NIAC identified specific statutory, regulatory and policy constraints to CIKR disaster recovery from outcomes of the workshop, and in the executive-level interviews of CIKR operators as well as from other sources. While the report does outline some of these specific constraints found by the NIAC in the findings and recommendations that follow, the NIAC did not pursue developing a comprehensive list. These constraints and impediments arise from all levels of government – Federal, State or local – and can be specific to a particular event. The NIAC sought to document the specific cases found during the study and to establish a process for systematically identifying and addressing these challenges in each case where they are found.

The NIAC did not find reason to advocate broad, indiscriminate suspension of laws and regulations that govern business during a state of emergency. In general, these laws, regulations and policies are vitally important to protecting and maintaining the public good. However, the NIAC did find that some laws, regulations, and policies that are designed to protect the public good during *steady state* periods can hinder or impede the public good during a major disaster-type event. Critical Infrastructure services are vital to the public welfare and interruption of critical infrastructure services can directly endanger public safety and public health. The clearest examples of this include loss of electricity, loss of water services, and interruption of communications, which can have immediate effects upon the health and safety of a community. These connections between the community and the infrastructure sectors and these challenges extend to all of the other critical infrastructure sectors as well. In those cases where specific laws, regulations, and policies are identified as impeding re-establishment of critical infrastructure services, the NIAC advocates development of reasonable and legally-sound solutions that will allow public officials and CIKR owner-operators to best recover from service interruptions and re-establish strong protection for public health and safety during a disaster.

Broadly Applicable Findings on Statutory, Regulatory and Policy Impediments

Described below are specific statutory, regulatory and policy impediments to disaster recovery identified during the course of the Study, which need to be addressed by the Department of Homeland Security through policy, coordination, or funding.

The NIAC found examples of statutory and regulatory restrictions during CIKR disaster recovery operations for which there exists no process for timely release or waiver. Some of the constraining laws, regulations and policies have existing processes for obtaining general or case-specific waivers from the relevant rules, but others lack a provision for timely waiver. Sometimes, even where adequate waiver authority exists, the NIAC found that the waiver processes can cause significant delay or risk to the CIKR operators as they seek to re-establish critical infrastructure services during a disaster.

Both through the interviews and at the workshop, CIKR operators shared with the NIAC instances of waiver processes that delayed response and recovery. The Energy Sector shared that the regulations that require specific mixes of fuel for different localities can cause delays for those in need of fuel. Several sectors informed the NIAC that driver hour restrictions limited the hours that their CIKR recovery workers could work within or going to a disaster area and thus slowed their ability to restore services.

The NIAC also found that even where waivers commonly are given, there can be problems in the exercise of the waiver authority. One example of this is movement of vehicles into a disaster area, which can be a major issue because of the various laws, rules and regulations affecting vehicles. Each State has different requirements and different waiver processes. Further, disaster recovery can involve movement of large equipment on short notice. Oversized load permitting presents another set of challenges for those moving large equipment or assets into a disaster area. From the Electricity Sector, the NIAC learned that one of the largest inhibitors to moving distribution line workforces is traveling across States to affected areas. Despite the need for timely response, operators are legally required to obtain waivers and/or permits for each vehicle to travel through each State. The NIAC was informed that in some cases operators traveled at risk while simultaneously negotiating the permit and waiver processes, while others described situations in which they had to detour and drive around a State to reach a disaster area to avoid law-breaking. Moreover, it appears that State waivers of weight and size requirements sometimes may violate Federal law or put the State at risk of losing Federal funding; this is explained in detail in Appendix C.

The NIAC found that in many cases, statutory and regulatory restrictions can place CIKR operators in legal jeopardy for pursuing actions that clearly benefit the common good during disaster recovery operations. During the study, the NIAC repeatedly heard from CIKR operators that during recovery operations, they often face opportunities to take actions that restore critical infrastructure services and clearly strengthen public health and safety, but also place them in violation of laws or regulations, which at times can incur a risk of criminal penalty. In some instances, no waiver authority exists, while in others, waiver authority does exist but cannot be exercised in a manner timely enough to support their infrastructure recovery efforts. The NIAC found no instances where an operator was sanctioned or prosecuted for taking these actions, but such situations put those involved at risk. As a result, these statutory and regulatory

restrictions could deter CIKR operators from taking the appropriate and necessary actions to recover CIKR services during a disaster. This topic is outlined in greater detail in Appendix D.

The NIAC found that Environmental Impact Statement (EIS) requirements are a common impediment to reestablishing critical infrastructure services in some sectors during a crisis.

An unusual situation exists with respect to EISs, because although waiver provision exists, the validity of that provision is open to question. Under the current regulations of the Council on Environmental Quality (CEQ), it is possible during an emergency to agree to *alternative arrangements* to the preparation of an EIS. However, a recent Supreme Court decision has left a question as to the validity of these regulations, without which there might be no legal basis for avoiding preparation of an EIS for critically needed actions following a disaster. This topic is explored in greater detail in Appendix E.

The NIAC found that advance preparation of plans and processes to address statutory, regulatory and policy impediments could significantly improve CIKR recovery efforts.

The enormity of a crisis situation causes most organizations and individuals involved to set aside their routine motivations and concerns to collaborate for the common good. But existence of a crisis does not suspend laws; rules still apply and must be observed. The challenge is to ensure the existence of a set of rules that will best assist everyone involved in addressing the crisis at hand to achieve the best possible outcome involving the least amount of loss of life or damage to property and economic loss. Regulatory rules are designed to manage risk. Any waiver or suspension of a regulation requires a process that involves presenting the necessary authority with needed information that will allow decision makers to weigh the risk of suspending the regulation against the benefit, given the emergency present.

Study showed that government organizations often do work responsively and quickly to address impediments that rise to their attention during emergencies, but that the decision making and workaround solutions available at this point can be severely limiting due to time and resource constraints. The NIAC concluded that application of a systematic process during preparedness planning can significantly reduce the adverse impact of a disaster on continuity of critical infrastructure services, and in turn, on community recovery, public health and public welfare.

Due to the large number of possible variations of CIKR recovery impediments that may exist across the 50 states and among the hundreds of local jurisdictions, the NIAC did not attempt to complete an exhaustive list of these obstacles. With a few exceptions such as the City of New York and the State of California, the NIAC did not find evidence that other states, localities or Federal agencies (except, to the extent noted below) have applied a systematic effort to identify and catalog or describe their own statutory, regulatory and policy impediments to CIKR response and recovery during a major disaster.

The one major exception to this identified gap was an effort currently being carried out under DHS-IP at the National Incident Management System (NIMS) and the National Infrastructure Coordination Center (NICC) that is engaged in a task to compile a broad list of legal impediments that might require suspension during a major disaster event. The NIAC acknowledges the significance and accomplishments of this effort. Given the scope of this challenge, the NIAC advocates widespread application of an approach used by the City of New York to develop comprehensive catalogs of statutory and regulatory impediments to CIKR

recovery within their jurisdiction, along with the accompanying, necessary action for each relevant authority.

Findings on Specific, Identified Statutory, Regulator, and Policy Impediments

In some sectors, the NIAC found examples of regulations that have the clearly unintended consequence of creating cross-sector dependencies or interdependencies. One such example uncovered by the NIAC was environmental regulation on emissions that created need for electric pumps on natural gas pipelines, rather than the previously used gas-powered pumps. The Energy Sector representatives to the NIAC explained that this regulation actually creates a cross-sector *interdependency* risk where none previously existed. Electrical generation surge capacity is commonly provided by gas-fired power plants, which are dependent upon the availability of natural gas. Not only does this policy create a dependency upon the Electricity Sector by the natural gas sector, but it could create an interdependency risk. With an interruption of one, both could go off-line and be unable to restart. In this situation, availability of natural gas for generation could be interrupted due to lack of gas line pressure from an electrical outage.

The NIAC found that critical infrastructure disaster recovery efforts can be impeded by restrictions on vehicle transit through other states to reach the disaster area. Federal, State and local laws and regulations can restrict needed vehicle access to disaster areas during CIKR recovery operations. Statutory and regulatory limitations on recovery vehicle transit can be due to State size or weight restrictions, as well as the multitude of local “frost laws” that limit weight on roads during specific portions of the year.

CIKR recovery efforts can also face emergency-imposed access restrictions in a disaster area as well. One example, from the Transportation Sector, was that security events can create access restrictions for the sector and hamper recovery efforts among dependent sectors. Port facility access protocols can be heightened during periods of elevation in Marine Security (MARSEC) levels, potentially limiting driver access to needed facilities. Drivers can face similar obstacles with entirely different protocols and challenges at other transportation nodes as well, complicating recovery support efforts in the sector.

The NIAC identified specific opportunities to improve coordination between the Federal Government and the Banking and Finance Sector during disaster recovery crisis operations. Banks and credit unions are dependent upon electric power, transportation, water, and telecommunications to maintain standard operations. The NIAC found that in the event of an interruption to any of these critical infrastructure services, banks have continuity plans that can shift operations to backup sites. Banks can readily coordinate with regulators to address regulatory filing requirements that might arise during small or isolated incidents. Larger regional or national-level disasters complicate the challenges of this process and also add the issues of employee safety, phone services, on-line banking, credit cards, and check processing, among others, to the list of operator concerns. These issues make regulator interaction exponentially more complex. In particular, banking processes associated with large back office activity, such as statement mailing, the Bank Secrecy Act filings, and mortgage processing would be the most challenging during a regional event. For these larger, regional disaster-type events, a standardized and coordinated approach to waivers for regulatory filing requirements would speed recovery of banking services and help maintain confidence and reliability in banking institutions

as well as delivery of critical services to customers. To address this, the Banking and Finance Sector could identify in advance the most likely and important regulations for relief requests, and relevant Federal and State regulators should develop a process for receiving, processing and communicating relief requests.

The NIAC found that elevated security concerns can impede the transportation of chlorine needed for water treatment during an emergency. This restriction has the potential to disrupt continuity of water services during an extended period of disaster recovery. Chlorine is vital to the Water Sector for treatment of water to meet regulation-required standards for potability and maintenance of water delivery systems.

The NIAC found conflicting views expressed regarding government's role in establishing restoration priorities for the Electric Sector. One C-level executive preferred more government involvement in establishing the restoration priorities both prior to and during an emergency, as well as government communication of these priorities to the community. He cited spending valuable time fielding queries from organizations inquiring about the status of their power when their attention would have been better directed towards restoration. In contrast, other C-level executives interviewed said that government involvement in establishing restoration priorities was neither required nor desired, pointing out that their utilities are complex system-of-systems, where engineering considerations and an understanding of community needs should determine the priorities. Further research on this issue reveals that policies for establishing Electric Sector restoration priorities are not consistent from state to state, or from utility to utility, and can vary somewhat by type of utility. The NIAC also identified challenges created for telecommunications and pipeline companies that operate across multiple utility jurisdictions when seeking to establish a common approach to restoration. State and local officials have the opportunity to optimize utility restoration through communication, coordination, and exercises with local operators. These efforts will serve to identify utility operator needs and establish appropriate expectations among the involved parties for utility restoration.

B. STRENGTHENING KEY FEDERAL STATUTORY AUTHORITIES

The NIAC concluded that DHS-FEMA and DHS-IP need to collaborate to review the substance and implementation of key Federal statutory authorities used by the government in responding to major disaster-type events.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5121 *et seq.*, and The Defense Production Act of 1950 (DPA), 50 U.S.C. 2061 *et seq.*, are important legal authorities for restoring critical infrastructure following the occurrence of a disaster. Both statutes, however, are seriously in need of review by the Federal Government to correct deficiencies in their provisions and in their implementation by the Executive Branch.

The Stafford Act, which is the principal mechanism for the Federal government's support to State and local governments in a disaster or emergency, presently omits coverage of major disasters caused by chemical, biological, radiological or cyber events. It also omits financial assistance to restore privately owned facilities damaged in a disaster, even where this must be accomplished

as promptly as possible to restore essential power, water and sewer, telecommunications or other services to the public, and resources to accomplish that are otherwise lacking. In addition, there is a perception among critical infrastructure operators that in the past the Executive Branch has been unduly concerned to avoid administering the Act in a manner that could benefit the private sector. Although this situation improved subsequent to the much-criticized response to Hurricane Katrina, concern remains that the scope of authority under this complicated Act may be dependent upon legal interpretations that can change from time to time. These points are made in greater detail in Appendix F.

The DPA contains a variety of extraordinary legal authorities on such subjects as priority contracting and allocation of materials, services and facilities; antitrust protection for companies collaborating, with the Government's approval, to share information or carry out supply or other actions; and financial assistance for the expansion of domestic production capability. A number of deficiencies in the Act's provisions and in its administrative implementation, affecting all of these subjects, have been identified within the Executive Branch, yet these problems remain unaddressed. These issues are described in Appendix G, which also sets out the relevant provisions of the DPA and relates its historical background.

C. IMPROVING PRIVATE SECTOR-GOVERNMENT COOPERATION AND COMMUNICATION

During the course of the Study, the NIAC found many areas where improved cooperation and information sharing between private sector and government actors had the potential to significantly improve disaster response and recovery. Many of these findings centered around the planning and exercise phases of disaster preparation, but the Study's workshop exercise itself showed the importance of strong communication between authorities and CIKR operators during an actual disaster recovery effort. Improved cooperation and communication between the private sector and relevant government authorities are critical to optimizing CIKR recovery during all phases of preparation and communication.

Communications during a disaster recovery effort is an enormously complex task involving: communication channels both formal and informal, structured and *ad hoc*; innumerable information inputs; and a broad spectrum of decision-makers, both public and private, applying available information to best protect the people, assets and systems for which they are responsible.

This information sharing brings a proportional set of challenges. CIKR owners and operators need information for their decision-making from other CIKR providers they are dependent upon as well as information from relevant local, state, and federal authorities. Success with this level of information exchange requires structure, established protocols, planning, and practice. Information sharing from the government to private sector carries legal and ethical concerns that must be addressed to avoid any appearance of providing an advantage to one group over another. Sharing information business to business in a crisis also can run into legal concerns, including antitrust law violations.

The NIAC found that critical infrastructure disaster recovery coordination and decision-making could be significantly improved with well planned, structured, and efficient participation of CIKR operators in Emergency Operations Centers (EOCs) during disaster

recovery efforts. EOCs are often employed during disaster response efforts by all levels of government. At the Federal level, the Joint Field Office (JFO) is set up and run by FEMA to connect all the relevant Federal resources and decision-makers to the information they need to support State emergency response efforts. EOCs are also employed at the State level, drawing together all of the information inputs and resources needed by state-level emergency management officials in order to conduct State response efforts. Some cities, counties, and municipalities also stand up their own EOCs to coordinate their disaster response efforts during a crisis. Any architecture or scheme designed to improve critical infrastructure operator information access through EOCs needs to acknowledge these different levels of interaction. It is probable that different operators would choose to plug-into EOCs at different levels, dependent upon the scale and size of their business and established relationships with the different government authorities. DHS should seek to achieve Private Sector integration into State Fusion Centers as well as EOCs. State Fusion Centers represent an opportunity to test and practice protocols, establish relationships and prepare strategically in advance of a crisis event.

The NIAC was also informed that successful approaches to government information sharing with the private sector through the different EOCs must acknowledge the need to establish a fair and ethically sound process. Government has an obligation to share information without even the appearance of preference among groups in doing so. The challenge presented here is not dissimilar to the challenges presented by the public-private partnership for critical infrastructure protection, as outlined in the National Infrastructure Protection Plan (NIPP). This approach, with its self-organized coordinating councils for the 18 Critical Infrastructure Sectors, could be used as a model to resolving these issues. The remaining challenge for government with this approach is communicating the resulting set of processes and protocols to the private sector and CIKR operators to achieve the needed level of participation.

EOCs present a significant opportunity to improve information sharing during disaster recovery efforts. CIKR operators said that sector-level representation at the State and local-level EOCs would significantly improve coordination between CIKR recovery efforts and State and local disaster response. This improved coordination will provide disaster recovery authorities with more reliable information, help them to better identify potential recovery pitfalls with respect to critical infrastructures and also allow for better coordination of recovery among dependent critical infrastructure sectors/operators. Sector-to-sector communication possible with CIKR representation at EOCs also provides more timely input for CIKR operators than reliance upon third-party transfer.

The NIAC found that CIKR recovery efforts would benefit from a well-planned, clearly established, and well communicated set of protocols for CIKR-worker credentialing and access in a disaster area. DHS has made significant progress in the last four years with regard to establishing a useful framework for disaster area credentialing and access for CIKR recovery efforts, which was recently applied in the Gulf Coast region during Hurricanes Gustav and Ike. However, the NIAC also found that these gains might not be present if major disasters happened in different regions of the country. The Federal government is a key actor with this issue because of the potential to collect and share best practices, but the Federal government is not the only actor and often has very little authority in responding to disasters because State and local governments hold much of the legal authority. As a result Federal authorities can have little influence on the ground with regard to who is granted access during disaster recovery. DHS has

an opportunity to help to replicate these successes with credentialing and access in other states across the country.

The NIAC found that to a large degree, improvement of CIKR recovery is dependent upon operator involvement in State, local, and Federal government emergency planning and exercises. Conversations during the executive interview process uncovered that critical infrastructure recovery is poorly understood by government decision-making authorities, and poorly reflected in disaster response plans because the owners and operators of the critical infrastructures themselves are often excluded from the process of developing exercise inputs and outcomes. These operators also presented a strong case that involvement in exercises and planning could significantly improve coordination and understanding between critical infrastructure providers and the different government decision-making authorities.

Because CIKR operators are not routinely included in the design and execution of disaster recovery exercises, different levels of government can, in many cases, make uninformed assumptions about what is possible with regard to CIKR recovery. The NIAC concluded that CIKR operator involvement in the process of developing exercises and intended outcomes has the potential to significantly improve CIKR recovery through better understanding and coordination, both among dependent CIKR sectors and between government and private sector CIKR owners and operators.

The NIAC found that existing plans and approaches for disaster recovery underestimate or overlook community and CIKR operator dependency upon drinking water and wastewater services for recovery. Workshop and executive interviews showed that there is a lack of prioritization in disaster planning for continuity and recovery of water services. Community recovery, including regional habitability, public health, healthcare, and operation of commercial facilities are all directly dependent upon availability of water services. Water service itself has two unavoidable infrastructure dependencies that must be adequately addressed: 1. electricity (for pumping stations); and 2. chemicals for water treatment (to meet potability requirements).

Disaster planning does not always acknowledge the importance and dependency of communities and critical functions upon water services. The NIAC was informed that while hospitals are at the top of the priority list for electricity restoration, water utilities are near the bottom. This planning fails to acknowledge that hospitals will not function without a water supply. In the National Capital Region (NCR), disaster plans during a water failure involve the fire department pumping untreated or partially treated water to critical hospitals for non-potable use (i.e. HVAC systems) and presumably involve shipping in bottled water for potable-required uses. There are weaknesses in this strategy due to the assumptions involved as well as dependencies upon the Emergency Services, Food and Agriculture and Transportation Sectors. In cases like these, stronger prioritization and planning for continuity of water services would strengthen overall disaster preparedness and response.

The workshop discussions also revealed that employment facilities are heavily reliant upon water service as well. Depending upon the continuity of operations plans for different businesses and the work-around solutions available to address the corresponding logistical and regulatory obstacles involved, water service interruptions will have an undetermined but most certainly

significant impact on workforce restoration efforts. The resulting workforce interruptions would result in significant economic loss.

The National Response Framework (NRF) lays out a structure to restore identified key infrastructures and functions for community recovery through 15 Emergency Support Functions (ESFs). Each function or infrastructure under an ESF has a clear priority and path for connection to emergency response decision makers as well as a supporting agency at the Federal level to support its recovery and management during a crisis. State and local response plans reflect parallel structures for NRF ESFs for coordination purposes. Currently, the Water Sector is supported as a subordinate function to four different ESFs under the NRF. Under this structure water and wastewater services does not have sufficient visibility with leadership or resources necessary to support these other ESFs.

The NIAC found that, in many cases, pre-established protocols can enhance communication among senior elected officials and improve multijurisdictional coordination and decision-making. Almost all disasters involve the authority of both State and local elected officials and many can involve multiple states and localities. NIAC interviews highlighted the need for improved multi-jurisdictional decision making and communications among senior State leaders, and between senior State and Federal leaders, during a disaster that crosses multiple State and jurisdictional boundaries. Without this coordination, there is significant potential of a misalignment in senior State leadership decision-making during recovery from a major disaster. The NIAC also concluded that some states will need to address this issue with neighboring countries when a disaster spans across our national border.

D. ORGANIZATIONAL RELATIONSHIPS AND IMPLEMENTATION

Disaster response and recovery is an enormously complex task and, as such, organizational structures and relationships are a significant factor in the success of any disaster recovery effort. A major theme among the findings of the NIAC was that DHS is positioned to coordinate among disaster recovery actors with best practices, program assistance, and information sharing across the country to improve disaster response and recovery. The challenge for the DHS is to take only those actions that help and provide value, and not to add layers, costs, and requirements for the actors in disaster recovery – the State and local authorities and private sector critical infrastructure operators who support community recovery efforts.

The NRF outlines and details the organizational authorities, roles, and responsibilities for all of the Federal, State, and local organizations involved in responding to a crisis. This document and the plans outlined within it will contribute significantly toward the goal of improved disaster response. However, the ability of the NRF-described organizations and authorities to work together during a crisis will determine the outcome of any particular crisis response. Successful execution of these plans is dependent upon practiced organizational interaction and functional protocols for communication – collaboration, coordination, and information sharing.

Involved Federal organizations play a critical role in providing coordination among all actors both before and during an event. The Office of Infrastructure Protection (IP) at DHS is responsible for much of the interaction and coordination with private sector critical infrastructure

owners and operators. The Federal Emergency Management Agency (FEMA), also part of DHS, is the Federal agency charged with providing operational support to state-level authorities during a disaster recovery effort. The potential challenge arises when, during a crisis, FEMA, as the operationally active lead at the federal level in supporting a state's recovery effort, is placed in the position of needing to coordinate and communicate with critical infrastructure owners and operators in the private sector. The success of many of the recommendations made in this report are contingent upon a strong collaborative relationship between IP and FEMA.

VII. RECOMMENDATIONS

In the preceding section, discussion presented the NIAC's findings under four logical headings: 1) *Legal and Policy Impediments*; 2) *Strengthening Federal Statutes*; 3) *Improving Collaboration*; and 4) *Organizational Relationships*. These four sets of findings led to development of recommendations that were resorted into two areas for potential action. *Legal and Policy Impediments* combined with *Strengthening Federal Statutes* under the heading *Actions to Address Legal and Policy Impediments*. Findings on *Improving Cooperation and Communication* resulted in a parallel set of recommendations, with the final set of findings on *Organizational Relationships* providing context for implementation of the recommendations, shaping the approach to all the recommendations to differing degrees. The recommendations of the NIAC are presented below.

A. ACTIONS TO ADDRESS STATUTORY, REGULATORY AND POLICY IMPEDIMENTS

1. A Process for Identifying and Addressing Statutory, Regulatory and Policy Impediments to Recovery

A. Cataloging Impediments and Waivers

DHS should institutionalize processes and provide funding as needed to systematically develop and maintain at the Federal, State and local (especially major metropolitan) government levels, catalogs of specific laws and regulations that may need to be suspended or modified during different disaster scenarios to improve CIKR recovery efforts. Similar to the effort that has been undertaken by the City of New York, the NIAC identified the following four key elements to this process:

1. Identify relevant disaster scenarios (e.g., hurricanes, earthquakes, pandemics, and chemical, biological, or radiological accidents or attacks) and compile existing response plans for each.
2. Determine for each element of the government entity's planned responses whether:
 - a. the planned actions comply with all applicable Federal, State and local laws and regulations, and
 - b. pose any meaningful risk of hindering CIKR/ community recovery or incur liability
3. Catalog all instances where the government entity's planned action is not authorized. For each of these instances determine whether the applicable laws or regulations can be modified, suspended, or waived and then draft appropriate emergency orders to be used during a disaster for inclusion in the disaster response plan
4. If a law or regulation cannot be modified, suspended, or waived, or if a planned response poses a meaningful risk of hindered CIKR /community recovery or potential governmental liability, planners should assess appropriate modifications to the operational strategy to develop a work-around. Government at all levels also should seek to identify all statutory and regulatory requirements affecting CIKR operators for which no timely legal waiver process presently exists, and should take steps to afford a potential waiver of those requirements when circumstances warrant following the occurrence of a disaster.

B. Private Sector CIKR Action for Cataloging Impediments

Private Sector CIKR operators should conduct an effort in parallel with these four steps to identify impediments specific to their operations recovery plans and then communicate to the relevant level of government or to the appropriate agency. Government should invite private sector representatives from relevant sectors to participate in their process to help government identify statutory, regulatory and policy constraints to CIKR recovery.

C. Authority to Grant Waivers on Impediments

The Executive Branch should work with Congress and State legislatures to pass legislation with provisions that allow the executive branches in government, at the federal and state levels, to grant blanket waivers for statutes and regulations identified as impeding recovery efforts during an emergency or disaster-type event.

2. Potential Federal, State and Local Action to Address Statutory, Regulatory and Policy Impediments to Disaster Recovery/Preparedness

A. The Stafford Act

DHS should propose legislation to assure that the Stafford Act applies to all catastrophic events regardless of cause and that the public does not suffer by virtue of an excessive concern to deny benefits of the Act to private sector critical infrastructure operators.

The Stafford Act's definition of "major disaster" should be amended to include chemical, biological, radiological and cyber events, so that the benefits of the Act can be extended in a disaster resulting from such an event.

DHS-FEMA and DHS-IP should examine whether section 406 of the Act ought be amended to allow, on a discretionary basis, financial assistance to speed the restoration of privately-owned power, water and sewage, telecommunications or other facilities damaged in a disaster where there is a clear public benefit to such action, just as it now allows such contributions to restore publicly-owned or nonprofit-owned facilities. Such assistance could, as appropriate, take the form of loans, and in all cases the recipient would have to reimburse the government for any insurance benefits received. Any such amendment would need to be carefully structured to avoid creating disincentives for critical infrastructure asset insurance, while ensuring that public welfare is adequately protected through timely restoration of CIKR services.

Congress should be asked to clarify generally that a restrictive interpretation of the Stafford Act to avoid benefiting the private sector, such as appears to have been experienced following Hurricane Katrina, is not intended. If such clarification is not forthcoming, the NIAC recommends that DHS should explore the possibility of adopting some response measures to benefit critical infrastructure outside of the Stafford Act, relying on the authority of the The Homeland Security Act.

These recommendations are set out in greater detail in Appendix E.

B. The Defense Production Act

DHS should request that the executive branch conduct a major review of the Defense Production Act (DPA), carefully considering the numerous recommendations that have been made for legislative initiatives, Executive Order changes, the promulgation of regulations, and administrative support for implementation of the Act, all with the aim of maximizing the potential utility of the DPA for the restoration of critical infrastructure. These issues are addressed in detail in Appendix F.

DHS should pursue an educational effort to achieve greater understanding of the DPA within Government at all levels and, as well, among the critical infrastructure sectors and operators.

C. Addressing the Waiver Process for Environmental Impact Statements

To address the lengthy waiver process for EIS, DHS should ask Congress to validate the “Alternative Arrangements” rule the CEQ has used to expedite EIS requirements during emergencies. The current CEQ “Alternative Arrangements” process has an uncertain legal basis because it has not yet withstood a direct legal challenge. Congressional action can and should re-establish this as a valid process for emergencies. As well, emergency planning efforts should incorporate this process into emergency response plans. Further details on the EIS and “alternative arrangements” process are available in Appendix D.

Similar to needed Congressional action on Federal environmental regulations, State and local governments need to examine their laws for EIS requirements as well as other similarly restrictive requirements that lack a timely process for CIKR operators to obtain waivers in response to a disaster.

Additionally, Federal, State and local authorities should identify any other legal, policy or regulatory requirement for which there is no timely legal waiver process that could impede CIKR operator recovery efforts during a disaster. For each identified impediment, the relevant government authority should seek to establish a legal work around process that would support timely disaster recovery efforts, or propose remedial legislation.

D. Addressing Specific, Identified Statutory, Regulatory, and Policy Impediments

The following is a list of further actions the NIAC recommends to address other, specific statutory, regulatory, and policy impediments to CIKR operator disaster recovery that were identified during the course of the Study.

1. DHS should work with the relevant Sector Specific Agencies and regulators to identify a process for emergency waivers for document filing deadlines with regulatory agencies on processes that need to be expedited during a disaster.
2. Relevant authorities must apply the process in recommendation A.1. to identify means for establishing relief from environmental laws, rules, or restrictions, where reasonable, that could significantly and negatively affect recovery efforts (e.g., some generators are restricted in hours of operation and in the type of fuel that can be used).
3. DHS should collaborate with the transportation, electricity and all other relevant sectors to identify actions that assist in expediting vehicle restrictions, including driver hour limitations, road size and weight restrictions, and port access restrictions, among others, during CIKR emergency recovery efforts.

4. DHS should ask Congress to consider legislation authorizing the waiver of Federal and State restrictions on the interstate movement of motor vehicles responding to a disaster. Two possible legislative approaches are discussed in Appendix F.
5. The Banking and Finance Sector Coordinating Council and the Treasury Department should collaborate to develop a standardized and coordinated approach for processing requests and issuing waivers for regulatory filing requirements for banks during a disaster. The Financial Services Sector should identify the most relevant and important regulations for relief requests, and regulators should develop a process for receiving, processing and communicating relief requests during a disaster.

B. IMPROVING PRIVATE SECTOR-GOVERNMENT COOPERATION AND COMMUNICATION IN DISASTER RECOVERY

1. Cooperative Response and Recovery for CIKR

A. Best Practices for Access and Credentialing

DHS-FEMA and DHS-IP should collaborate to develop a structured, commonly-applicable best practices decision-making process for authorities to use for credentialing CIKR workers and granting access to a disaster area during an emergency. The developed solution should:

1. Leverage recent accomplishments and lessons learned from the gulf coast region during hurricanes Gustav and Ike;
2. Collaborate with organizations such as the All Hazards Consortium (AHC) and others similarly well-positioned to work with private sector and with the state and local governments;
3. Develop and broadly disseminate a best-practices approach to access and credentialing by identifying the key, common elements of a successful program; and
4. Include methods and strategy to communicate access processes and policies to CIKR workers and operators for disaster planning and preparedness, as well as during a disaster.

B. Best Practices for EOCs and Information Sharing

DHS-FEMA and DHS-IP should collaborate to develop the best possible and affordable set of practices to improve State and local authority information sharing. DHS should promulgate the resulting best practices for information sharing to State and local emergency planning authorities. Best practices should include or address the following key elements:

1. Inclusion of private-sector CIKR operators in Federal, State, and local-level EOCs.
2. Private Sector CIKR participation in EOCs should use the sector partnership model and structure to ensure government ethical and legal concerns with information sharing to the private sector are properly addressed.
3. A structure to allow for sector-to-sector communication during a disaster to assist CIKR operators in their decision making.
4. Emergency response authorities should leverage existing sector information sharing mechanisms, such as sector Information Sharing and Analysis Centers (ISACs), for sector and cross-sector communication outside the disaster area.
5. State and local officials should support coordination of restoration priorities through communication and exercises with local operators to identify utility operator needs and establish appropriate expectations.

6. DHS should leverage Sector Coordinating Councils (SCCs), ISACs, Industry Associations and Protective Security Advisors (PSAs) to communicate the EOC participation process to private sector CIKR operators.

2. Cooperative Planning for CIKR Emergency Preparedness

A. Addressing Needed Water Services Recovery Mechanisms

DHS should elevate Water Services to its own ESF within the NRF to achieve higher prioritization of water systems during emergency response. At the State level, emergency managers can apply current structures to match changes to the NRF, in a manner most efficient to them. These changes should be applied during the next NRF review cycle, and in the interim, FEMA should consolidate responsibility for water services support under EPA or U.S. Army Corps of Engineers.

B. Best Practices for Water Services Recovery Planning

DHS-IP and DHS-FEMA should collaborate to promote inclusion of water services in all disaster/emergency response and recovery training and exercises as a best practices approach to planning. This effort should educate planners and involved organizations on the reliance of public health and welfare and other dependent sectors on water services. This effort will help to establish appropriate emphasis and investment in protective measures.

1. DHS should make sure homeland security grants are available to water systems to allow for appropriate investment in auxiliary backup power systems for key Water Systems sites during electrical outages.
2. State and Federal agencies should include a WARN-focused curriculum in EMAC training programs to improve understanding of WARN system networks and mutual aid and assistance programs within the Water Sector, which will improve water services recovery from major disasters.
3. DHS should collaborate with State and local governments to establish guidelines that will ensure emergency response plans address necessary chlorine transportation for water treatment during an emergency.

C. Private Sector CIKR Participation in Planning and Exercises

DHS-IP and DHS-FEMA should collaborate to improve preparedness exercises at all levels through inclusion of private sector CIKR operators in development, including an effort to develop and disseminate a best practices guide for exercises to State and local governments. Additionally, the NIAC identified the following key elements for this program to improve cooperative public-private sector exercises:

1. The program should encourage and support Regional Coalition Councils in developing and carrying out regionally-based exercises that emphasize CIKR disaster recovery planning and response. Exercises should also incorporate international planning elements in border States and regions.
2. The program should sponsor table top exercises focusing on communication between multiple levels of government and the multiple jurisdictions that would occur during a major disaster.
3. Federal, State, and local government exercise planning should involve CIKR owner-operator participation in all relevant planning exercises.

4. State, local and Federal government should work to clearly establish roles and responsibilities in all plans for both government and private sector during a major disaster. This will serve to resolve conflicts in guidance to private sector CIKR owner operators as well as provide clarity on government roles (e.g., FEMA's role).
5. State and local disaster recovery plans should establish and communicate CIKR restoration/recovery priorities in all relevant response plans
6. State, local and Federal government exercises should include a process for after-action review of disaster events and exercises to include local, State and Federal governments as well as CIKR owner-operators to identify gaps and lessons learned for application to relevant emergency response plans.
7. Exercises should include a process for gathering feedback and validation of emergency plans from smaller CIKR owner-operators during planning.
8. Guidance documents (NIPP, NRF, etc.) and response plans should be updated based upon exercise outcomes as well as recent events (such as Hurricanes Ike and Gustav).
9. Planning needs to acknowledge and account for potential political differences in priority for restoration of some types of CIKR outages.
10. DHS-IP needs to develop a process to assist CIKR operators with identifying and communicating lead authority in situations where it is unclear and impedes recovery.

D. Protecting Private Sector Resources

State and local emergency response authorities should establish a process or strategy to address CIKR resource protection requirements in a disaster area, as well as establish guidance for protecting private sector resources from *ad hoc* commandeering by local officials. These priorities and policies should be established through the described cooperative exercise planning process.

VIII. APPENDICES

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APPENDIX B: NATIONAL INFRASTRUCTURE ADVISORY COUNCIL MEMBERS

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Martha Wyrsh, *President and Chief Executive Officer, Spectra Energy Transmission*

APPENDIX C: WEIGHT AND SIZE ISSUES IN TRUCK TRANSIT

1. The Historical Background.

A Department of Transportation report published in 2000, *Comprehensive Truck Size and Weight Study* (accessible at <http://www.fhwa.dot.gov/policy/otps/truck/index.htm>), contains in its chapter 2 a description of the evolution of Federal involvement in the regulation of truck weight and size. Variations during the first half of the twentieth century in State regulation of truck weight, length, width and height, aimed at limiting damage to State roads, had given rise to concern over the adverse effect such diversity in regulations was having on interstate commerce. The enactment in 1956 of a new Federal highway construction program provided the occasion for the first establishment of Federal maximum weight and width standards, but they were made subject to a "grandfather" clause allowing continued operation of heavier trucks consistent with State limits that were in effect in 1956. As the Federal investment in the Interstate Highway System thereafter grew, the extent of Federal regulation increased, while the use of "grandfather" clauses was repeated by the Congress in subsequent legislation.

2. The Statutory Framework

Vehicle weight limitations on the Interstate Highway System and length limitations on that system and on Federally-aided highways are addressed respectively in 23 U.S.C. 127 and in 49 U.S.C. 31111-31115.

The former statute concerning *weight* does not preempt conflicting State laws, but it does restrict the appropriation of National Highway System funds to any State that does not allow the use of the Interstate Highway System within the State's borders by vehicles meeting the weight standards set out in the statute. It requires that States limit vehicles operating on the Interstate System to those meeting specific Federal maximum weights, but it also "grandfathers" higher weights that were authorized by State law at the time section 127 was enacted. The statutory maximum gross vehicle weight allowed is 80,000 pounds; this, however, is subject to the application of a "bridge formula" limiting weight on groups of axles, and to several State-specific exceptions, and States also are authorized to issue special permits for overweight vehicles and loads which cannot easily be dismantled or divided (so called "non-divisible loads"). A 1991 amendment to section 127 imposed a freeze on the maximum weights authorized by the States for "longer combination vehicles" (tractor-trailer combinations with two or more trailers) with gross weights above 80,000 pounds, thereby effectively preserving the grandfathered allowances for these vehicles while preventing further increases in their size and weight. Legislation enacted in the 1980s, in response to some States' imposition of weight limitations that were below the Federal maximum, a practice that had disrupted the flow of traffic across those States, requires States to accept vehicles meeting the Federal weight standards, thereby making the Federal "maximum" weight also a "minimum" weight for the States.

In contrast, the Federal *size* requirements in 49 U.S.C. 31111-31115 preempt conflicting State requirements for vehicles authorized by the Surface Transportation Assistance Act of 1982, and they are enforceable through injunctive relief. These provisions oblige States to allow the operation, on the "National Network" of highways (which includes both the Interstate System

and certain other designated routes) and on routes providing reasonable access thereto, of vehicles meeting specified width and length standards. The provisions, however, do not restrict the States' authority to impose vehicle height limits, and they have other features that diminish uniformity of the scheme of regulation. For example, some of the size requirements are variable depending on whether a State allowed use of a larger sized vehicle of that type as of a certain date in the past; States can request permission to make minor emergency adjustments to certain route designations and vehicle operating restrictions; and there are different rules for types of vehicles designated by the Federal Highway Administration as specialized equipment.

3. Waiver of the Requirements

States can and do have divergent restrictions, and on certain highways more strenuous ones than are required by Federal standards. Indeed, the 2000 Transportation Department report stated (p. II-12):

There are four basic weight limits: single axle, tandem axle, bridge formula and gross vehicle. These limits generally apply both on and off the interstate system. When taken together, the 50 States and the District of Columbia have created 40 different combinations of these eight limits. Only seven States apply the Federal limits Statewide without modification or "grandfather right" adjustment. Even in these seven, however, the upper limits for routine permits are all different.

It is apparent that the need to comply with divergent State motor vehicle requirements can have the potential to hinder or obstruct the interstate movement of resources and personnel *en route* to a disaster area. This gives rise to the question of whether those requirements can be waived under appropriate emergency circumstances.

The authority of the 50 States to waive State requirements allowed but not mandated by Federal law has not been examined, but no general statutory authority exists to waive the Federal weight and size requirements, and the authority to preempt State requirements that are stricter than the Federal standards is limited to the areas covered by the Federal *size* requirements.

This is in contrast to the situation pertaining to Federal "safety standards", such as those concerning driver hours. A driver operating in interstate commerce is subject only to the Federal hours of service regulations in 49 CFR Part 395, and not to any State regulation, and the Secretary of Transportation is empowered by 49 U.S.C. 31315(a) to grant waivers of those Federal regulations. Subsection (d) of section 31315 further provides that "[d]uring the time period that a waiver...is in effect..., no State shall enforce any law or regulation that conflicts with or is inconsistent with the waiver...."

4. Possible Legislative Solutions

The Congress could be asked to grant authority to the Executive Branch to waive, in appropriate emergency circumstances, Federal and State motor vehicle weight and size restrictions on the interstate movement of motor vehicles responding to a disaster, regardless whether or not they are operating on the National Network. One problem with this approach is that in most circumstances the Federal Government will be dependent on the States and localities for

information on conditions along the travel route, and in some circumstances a vehicle may need the active assistance of State or local personnel (such as in convoying an oversized load). Although the States' weight and size restrictions generally are not safety-motivated and they are not categorized as "safety standards", this dependence on local information creates practical problems of implementing such a waiver. Even so, the question remains whether a discretionary Federal waiver authority ought not exist for catastrophic situations.

An alternative might be for the Congress to grant such waiver authority to the Governors, perhaps allowing them to exercise it only on the basis of, and in accordance with the terms of, a request by the Federal Government that they do so.

APPENDIX D: LEGAL CONSTRAINTS THAT CANNOT BE TIMELY WAIVED

C-level executives interviewed in the course of this study expressed concern over the dilemma sometimes created for them and for their organizations when an emergency situation presents a clear need to depart temporarily from a regulatory or statutory requirement, but no legal authority exists to grant them timely relief from such a requirement. In this situation, it may be in the public interest to act in a manner inconsistent with a regulatory or statutory requirement, but the organization may be hesitant to do so because taking such action could pose personal and corporate risks of a civil, or even criminal, nature.

For example, operating permits issued under Title V of the Clean Air Act, 42 U.S.C. 7661(a-f), may limit cumulative emissions of particular pollutants over a certain time period (daily, monthly or annually), limit operating hours, specify the allowable fuels, or limit the use of alternative fuels such as heavy oil. There are numerous hypothetical emergency scenarios – such as the outage of a number of major generators or transmission lines or the disruption of a plant's normal fuel supply – under which there could be a clear necessity to operate an electric utility's facilities in a manner inconsistent with the terms of an operating permit. In those circumstances section 110(f) of the Clean Air Act, 42 U.S.C. 7410(f), does provide a procedure for a possible exemption from the operating permit's requirements when “there exists in the vicinity of [a] source a temporary energy emergency involving high levels of unemployment or loss of necessary energy supplies for residential dwellings”, but this may not be a realistic option since the process is time consuming and requires a public hearing and the approval of the President and the Governor. In the absence of an exemption, the organization could be subject to significant civil penalties (up to \$32,500 dollars a day per violation), and its officers and employees could even be potentially subject to criminal charges, for violating the terms of an operating permit. *See, e.g.*, 42 U.S.C. 7413. And even if the government agency refuses to enforce such violations, the organization could still be subject to citizen suits. *Id.* section 7604.

Another example is given in an October 2008 report from the Water Sector Decontamination Working Group of the Critical Infrastructure Partnership Advisory Council, *Water Sector Decontamination Priorities* (available at <http://www.amwa.net/galleries/securityino/CIPACDeconReportFinal.pdf>), in which representatives of the Environmental Protection Agency (EPA) participated. Discharges into navigable waters from point sources require National Pollutant Discharge Elimination System (NPDES) permits issued under section 402 of the Clean Water Act, 33 U.S.C. 1342. These permits contain standards for categories of discharges, and may include water quality based limitations. As with the Clean Air Act, the Clean Water Act also has civil and criminal penalty provisions and allows for citizen suits to enforce certain provisions. 33 U.S.C. 1319, 1365. The October 2008 report, however, points out (at p. 22) that the contamination of water at a public utility, as the result of a terrorist act or other cause, could require an organization to take prompt actions unauthorized by a NPDES permit, actions which may not be authorized under existing law:

When responding to a water contamination incident, water utilities may face challenges regarding compliance with State and Federal regulations. At times, the need to respond quickly to an incident and take actions to minimize the impact on public health and the disruption of water services may conflict with regulatory

requirements. For example, the Clean Water Act does not provide a waiver provision for suspending the section 402 permitting requirements for civilian discharges of pollutants to waters of the United States.

In September of 2005, the Congressional Research Service (CRS) issued a report entitled *Emergency Waiver of EPA Regulations: Authorities and Legislative Proposals in the Aftermath of Hurricane Katrina* (RL33107), in which it reviewed some of the environmental laws that could affect response and recovery actions, discussed existing waiver authority, and identified issues raised by pending legislative proposals to grant new waiver authority. The report identifies existing Federal waiver authority, including authority exercised in the wake of Hurricane Katrina, but it also notes (p. 2) that after Katrina the EPA had to "exercise its enforcement discretion (i.e., to decline to enforce against certain categories of violations)". It says (p. 7):

EPA has ... used enforcement discretion to allow on a temporary basis actions that would otherwise violate the Clean Air Act or other statutes and regulations. Examples cited in the press have included rules regarding vapor recovery at gasoline pumps and certification and registration procedures for tank truck carriers. EPA has provided CRS information regarding 12 cases in which enforcement discretion or "no action assurances" have been granted. Several of these instances affect multiple facilities. In addition, the agency provided information concerning cases in which EPA or the Department of Justice extended consent decree compliance deadlines due to *force majeure*.

The NIAC believes that the ability to take common sense response and restoration measures during an emergency ought not depend on prosecutorial discretion, and in any event, this prosecutorial discretion will not always protect an organization from a citizen suit. Various appellate courts have held that administrative proceedings and orders do not bar citizen suits. *See, e.g., Friends of the Earth v. Consolidated Rail Corp.*, 768 F.2d 57 (2nd Cir. 1985); *Texans United for a Safe Economy Educ. Fund v. Crown Cent. Petroleum Corp.*, 207 F.3d 789 (5th Cir. 2000); *Sierra Club v. Chevron, U.S.A., Inc.*, 834 F.2d 1517 (9th Cir. 1987). It is unfair to force critical infrastructure operators to choose between doing the right thing or complying with the law. Appropriate emergency waiver authority should be available for virtually all statutory or regulatory requirements.

The examples cited here are anecdotal in nature. There is a need to identify all potential Federal and State or local situations that may present this kind of dilemma. One purpose of the systematic analysis of constraining laws and regulations that the NIAC recommends in this report would be to identify other such potential problems so that steps can be taken to prevent them from arising in the future.

APPENDIX E: RELIEF FROM ENVIRONMENTAL IMPACT STATEMENTS AND THE ALTERNATIVE ARRANGEMENTS PROCESS

The NIAC learned through concerns raised during several of the executive-level interviews that attempts to respond to an infrastructure emergency could be seriously handicapped by a need to prepare an Environmental Impact Statement (EIS) in connection with a particular response. The National Environmental Policy Act (NEPA), 42 U.S.C. 4231 *et seq.*, requires the preparation of an EIS by a Federal agency before it undertakes a major action significantly affecting the quality of the human environment. In addition, some states have their own "NEPA laws."

NEPA does not contain any specific authority to waive the Federal EIS requirement. There is an exception from the EIS requirement under section 316 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5159, but this is limited in scope to specified types of action taken under that Act, and other kinds of situations can arise which implicate the NEPA requirement. The only available solution to problems created by the EIS requirement during emergencies is found in the regulations of the Council on Environmental Quality (CEQ) implementing NEPA. They provide as follows (40 C.F.R. 1506.11):

Where emergency circumstances make it necessary to take an action with significant environmental impact without observing the provisions of these regulations, the Federal agency taking the action should consult with the Council about alternative arrangements. Agencies and the Council will limit such arrangements to actions necessary to control the immediate impacts of the emergency. Other actions remain subject to NEPA review.

This provision has been invoked some 41 times; a table of past and present "alternative arrangements" can be viewed at <http://ceq.hss.doe.gov/nepa/regs/guidance.html>. According to the Reply Brief filed by the Government in the case of *Winter v. NRDC*, which was decided by the Supreme Court on November 12, 2008, without the kind of accommodation authorized by the CEQ regulation, "NEPA would have prohibited, *inter alia*, the government's prompt restoration of critical infrastructure for human habitation after Hurricane Katrina...." (p 5).

The need for a provision such as that contained in the CEQ regulation in emergency infrastructure circumstances is illustrated by case number 38 of the 41 cases in which the provision has been invoked. In that instance, in order to avoid a blackout affecting the National Capitol, the Secretary of Energy in 2005 issued an order pursuant to section 202(c) of the Federal Power Act, 16 U.S.C. 824(a(c)), ordering the operation of a generating station, despite the fact that such operations would have the consequence of exceeding the National Ambient Air Quality Standards of the Clean Air Act. This was a major action that could have significant effects on the quality of the human environment. To enable the generating station to operate, the CEQ approved "alternative arrangements" to the preparation of an EIS. These included a special analysis of potential impact and mitigation measures, opportunities for public involvement and continued consultations. Other circumstances might exist in which relief from the EIS requirement might be warranted by emergency circumstances, such as where generators needed to be put on Federal lands while a damaged electrical facility was being restored.

The Supreme Court's decision in *Winter v. NRDC* gives reason for concern as to whether the CEQ "alternative arrangements" regulation is a valid implementation of NEPA. In a dissenting opinion in that case two Justices opined that the provision is without any legal basis in the NEPA. Although the Court's majority upheld the Federal action that was at issue in that case, rejecting the need for an EIS, it did so while conspicuously avoiding comment on the validity of the CEQ's regulation.

APPENDIX F: THE STAFFORD ACT

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), P.L. 93-288, as amended, 42 U.S.C. 5121 *et seq.*, is the principal statutory mechanism for the Federal Government's support to State and local governments in an emergency or when a disaster strikes. Following a Presidential declaration of emergency or major disaster, Federal agencies are authorized by the Act to provide assistance to the governments of affected states and localities and to individuals, families and certain nonprofit organizations. A copy of the Act is accessible at the website of the Federal Emergency Management Agency (FEMA) (<http://www.fema.gov/about/stafact.shtml>), which is responsible for administering its major provisions.

Although enacted in 1988, the roots of the Stafford Act are in a series of statutes including the Civil Defense Act of 1950, P.L. 81-875, and the Disaster Relief Act of 1974, P.L. 93-288. The Stafford Act is a complicated law, which has evolved through numerous amendments. In the opinion of the NIAC, there is a need both to amend the Act in certain respects, and for Congress to clarify the breadth of its scope, in order to assure that it provides adequate authority for responding to potential disasters. Two recent studies support that view: a January 2007 report from the Business Executives for National Security (BENS) entitled, *Getting Down to Business: An Action Plan for Public-Private Disaster Response Coordination* (<http://www.bens.org/mis-support/Getting-Down-To-Business.pdf>), and an October 2007 analysis by the Center for Catastrophe Preparedness & Response of New York University (N.Y.U.), *The Stafford Act: Priorities for Reform* (http://www.nyu.edu/ccpr/pubs/Report_StaffordActReform_MitchellMoss_10.03.07.pdf).

While the NIAC did not attempt a thorough review of the Stafford Act with the aim of suggesting comprehensive revisions, the Council does make the following three recommendations.

First, the NIAC calls for legislative action to clarify the broad scope of the authority contained in the Stafford Act to assist the private sector following a catastrophic event. The NIAC makes that recommendation because of the perception found among critical infrastructure operators that the scope of recognized authority under the Act has varied over time, seemingly based on differing legal interpretations, and that the legal interpretations sometimes have appeared to be of an unnecessarily restrictive nature.

The perception of infrastructure operators is that, following Hurricane Katrina, the Federal Government strived to avoid taking actions that could be seen as benefitting the private sector, even if an action was needed in the public interest and the benefit to the private sector was inextricably connected with the well-being of the public. For example, the NIAC learned that following Hurricane Katrina an overflight of a privately owned utility's electricity grid by an aircraft of the Federal Government to ascertain the extent of damage and report it to the utility could not be expressly authorized, but ultimately had to be conducted as a corollary to a flight for some other, more directly "public" mission.

Another example of restrictive interpretation of the scope of the Stafford Act is given in the N.Y.U. study, which recounts that during Hurricane Katrina, BellSouth was forced to evacuate

its New Orleans switching facility out of fear that a crowd would invade its offices to try to seize its food, water and other provisions, after the Federal Government had declined to provide security assistance on the ground that the Stafford Act did not cover such assistance of private sector activities. Based partly on that experience, the N.Y.U. study recommends amendment of the Stafford Act to assure that, following a catastrophic event, utility workers are recognized as "emergency responders," enabling them to enjoy security escorts and priority access to food, fuel, water and shelter. The authors of the BENS report agree, calling for legislation to extend coverage of the Stafford Act "to include the private sector, with particular attention to the provision of security or protection of private-sector personnel and assets operating in a disaster zone." Although, as a result of the SAFE Port Act of 2006, P.L. 109-347, the Stafford Act now provides in section 427, 42 U.S.C. 5189(e), that Federal agencies generally may not deny or impede access to a disaster site, or impede the repair or restoration of services, by essential service providers including private sector service providers, that provision stops short of authorizing the positive protections called for in the N.Y.U. study.

However, the NIAC also heard that in the post-Katrina era there has been less reluctance of the Federal Government, due simply to a risk of criticism that the private sector benefitted, to take the actions that clearly were needed in response to the exigencies of a disaster. The improved responsiveness is encouraging – and the NIAC takes note also of the liberalizing amendments to sections 402(3)(F) and 502(a)(8) of the Stafford Act, 42 U.S.C. 5170(a)(3)(F) and 5192(a)(8), contained in the Post-Katrina Emergency Management Act of 2006, P.L. 109-295, which respectively authorize technical assistance to "recovery activities" and "accelerated Federal assistance and Federal support where necessary to save lives, prevent human suffering, or mitigate severe damage...." But the concern remains that the scope of the Act's authority is unclear and, even if recent experience in implementation of the Stafford Act is much improved from that after Hurricane Katrina, the Act remains vulnerable to potentially varying interpretations that may occur from one point in time to another.

There is an understandable reluctance on the part of the Federal Government to take actions, warranted in the public interest but also benefitting a private sector entity, that that entity could take for itself. But the possibility may exist that the private sector entity is not able to take those actions at the moment of need, and so authority on the part of the Federal Government to take them is required. The decision whether actually to take the actions should remain discretionary. What is now at issue is whether the authority to take the actions should be clearly acknowledged as a matter of law – as this report contends that it should – with the policy considerations on whether to take the actions being distinguished from limitations of law, and announced in advance as policy considerations so that they are well understood.

If the Congress fails to confirm a broad scope of authority to act under the Stafford Act in matters affecting the private sector, the Department of Homeland Security might consider exercising authority other than that of the Stafford Act in such matters. There is a general rule of appropriations law, to which both the Executive Branch and the General Accountability Office adhere with minor variations, that where an appropriation of funds exists for a particular object, it confers authority to incur expenses necessary to the proper execution of the underlying objectives for which the appropriation was made. I *Principles of Federal Appropriations Law* 4-19 *et seq.*; Opinion of the Office of Legal Counsel of the Department of Justice dated August 11, 1997, at http://www.usdoj.gov/olc/gsabc_op1.htm. The Homeland Security Act contains

broad principles of emergency preparedness and response that would support the use of appropriated funds to help restore critical infrastructure following a catastrophic event. If the Stafford Act were to be construed as unduly constraining a response to assist the private sector, the Department might consider invoking authority other than the Stafford Act, utilizing funds other than those appropriated to FEMA's Disaster Relief Fund pursuant to the Stafford Act and, if necessary, delegating authority to FEMA as an execution agent, in order to avoid any unreasonable constraints of the Stafford Act while meeting critical infrastructure objectives.

Second, the NIAC recommends a legislative proposal to amend the Stafford Act's definition of "major disaster" (section 102(2), 42 U.S.C. 5122(2)), a definition which establishes a precondition to assistance under the Act in the event of a catastrophic event:

"Major disaster" means any natural catastrophe ... or, regardless of cause, any fire, flood, or explosion ... which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act
....

This definition does not include several kinds of potential events that are of serious concern, such as chemical, biological or radiological acts or cyber attacks that could cause damage of great severity and magnitude to critical infrastructure. Although the Post-Katrina Emergency Management Act of 2006 amended The Homeland Security Act of 2002, P.L. 107-296, by adding as section 501(3), 6 U.S.C. 311(3), a definition of "catastrophic incident", no such change was made in the Stafford Act. This leaves in the Stafford Act a significant defect that warrants legislative action.

A third Stafford Act issue identified by the NIAC is the exclusion of privately owned facilities from its section 406, 42 U.S.C. 5172. Under this section, the Federal Government may make contributions to a State or local government or to a private nonprofit entity for the repair, restoration, reconstruction, or replacement of a publicly owned or nonprofit owned facility that has been damaged in a major disaster, but it may not make such payments where a privately owned facility is concerned. This distinction does not account of the urgency that could attend the restoration of vital privately owned public power, water and sewage, telecommunications or other facilities following a catastrophic event. The NIAC recommends that DHS study whether an amendment of this section is warranted.

The NIAC understands and agrees that insurance coverage of such facilities should be encouraged – as should the insurance coverage of publicly owned (unless a State has explicitly elected to act as self-insurer) or nonprofit owned facilities – but it can be argued that excluding the possibility of Government assistance with respect to privately owned facilities for that reason is to risk penalizing the public if, due to difficulties in collecting insurance payments or for any other reason, a privately owned entity is unable promptly to finance the restoration of its essential services. Section 312 of the Stafford Act, 42 U.S.C. 4155, already assures reimbursement of the Government to the extent that an assisted publicly owned or nonprofit owned entity receives insurance benefits, and the same principle should apply to privately owned entities. The making of contributions by the Government under section 406 is discretionary; should be understood to include loans, which ordinarily may be the form of financial assistance most appropriate for privately owned for-profit entities; and would seem to leave room for

appropriate negotiations, especially in a case where an entity – irrespective of its ownership – was considered blameworthy for maintaining insufficient insurance.

On the other hand, there are public policy arguments against government subsidization of for-profit entities, and a potential exists that an amended section 406 could be misused. Moreover, the Congressional research service has pointed out that "[s]ome might contend that such an expansion [of section 406] would result in considerably high Federal disaster relief expenditures as private, for-profit entities turned to Federal grants in lieu of insurance or loans." *Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Actions, and Funding*, updated March 6, 2007, p. 39 (RL33053).

In any event, section 406 ought not be interpreted as limited to the restoration, reconstruction or replacement of facilities in their preexisting form. For example, if overhead electrical or telecommunications wires are downed, and it would be preferable to have them be underground rather than overhead, section 406 should not be interpreted to exclude Federal Government financing to support that.

Late in the preparation of this report, the NIAC was informed that, in the absence of a declared emergency or disaster, the Stafford Act, as it is interpreted, cannot be invoked to accomplish the needed utilization of Federal resources in anticipation of a possible terrorist act of potentially catastrophic proportions. The NIAC did not have time to explore this issue in depth, and accordingly, make no recommendation with respect to it. It obviously is a serious matter, however, and warrants close examination.

APPENDIX G: THE DEFENSE PRODUCTION ACT

The Defense Production Act of 1950 (DPA), 50 App. U.S.C. section 2061 *et seq.*, is an important statute that can play a vital role in the restoration of critical infrastructure following the occurrence of a disaster. Unfortunately, the DPA is familiar to only a small universe within the Federal Government, and is virtually unknown outside it. Perhaps in part due to its low profile, it seems that although apparent deficiencies in both the Act and the administrative arrangements for its implementation have been reported within the Executive Branch, remedial legislation has not been sought and many of the administrative deficiencies persist.

This appendix sets out the historical background of the DPA, explains its key provisions, and then addresses some of the outstanding issues. The NIAC does not intend to endorse any specific proposals for amendment of the DPA or of the Executive Order that implements it. Rather, the NIAC seeks to draw attention to the existence of issues that need resolution and encourage the Executive Branch to give them the attention they deserve. At the same time, the NIAC notes that critical infrastructure operators ought to inform themselves of and play a role in the resolution of the issues.

I. Historical Background of the DPA

The DPA was enacted upon the commencement of the 1950-1954 Korean War, to assure that adequate productive capacity and supply existed to meet national defense needs. The Act was an omnibus measure containing a broad range of authorities such as those for contract priorities and allocation, the prevention of hoarding, requisition authority (amended a year later to add condemnation authority), price and wage stabilization powers, antitrust immunity for participants in voluntary agreements, and a host of other matters.

House Report 81-2759 described the Act's title I, section 101, powers for priorities and allocations "to promote the national defense" as "broad and flexible," saying:

They would include the power to issue orders stopping or reducing the production of any item; orders to prohibit the use of a material for a particular purpose or for anything except a particular purpose; and orders to prohibit the accumulation of excessive inventories. They would authorize the President to require filling certain orders in preference to other orders, or requiring the acceptance and performance of particular orders. Where limited action would be required to accomplish the necessary purpose, limited action could be taken.

1950 U.S. Code Cong. & Ad. News 3623.

In light of the extraordinary powers granted, the Act's provisions were then and ever since have been subjected to frequent short-term renewals, the most recent of which extends key provisions until September 30, 2009.

A year after the DPA's enactment, Senate Report 82-470 stated that:

Under the present flexible priority and allocation authority the executive branch has been able to prohibit recreational and amusement construction, to direct materials to the freight-car program, to limit the use of tin and other materials by specification

controls and by prohibiting their use where substitutes will do, to institute a controlled materials program for steel, copper, and aluminum

The act now authorizes these and many other types of controls over materials: Restrictions on imports and exports, rationing, and innumerable other production and distribution controls. It is to be hoped that most of these additional controls will not be needed, but if they are needed, arbitrary limitations imposed by statute might prevent the most effective use of the allocation authority.

1951 U.S. Code Cong. & Ad. News 1596.

It was not long before the Congress curtailed some of the DPA's extraordinary authority. In 1953 the Act's requisition and condemnation authority and price and wage control powers were allowed to lapse without renewal, and the priority contracting and allocation authority in section 101 was amended in its subsection (b) to allow the subsection (a) powers to be used to control the general distribution of material in civilian markets only if the President finds that the material is a "scarce and critical material essential to the national defense" and that defense needs cannot be met without causing dislocations in that market that will create "appreciable hardship." P.L. 83-95, 67 Stat. 129; *see* H.Rep. 83-516, 1953 U.S. Code Cong. & Ad. News 1747. Subsequent amendments expressly forbade use of the title I authority to impose wage or price controls or to ration gasoline among classes of end-users. P.L. 102-558, 106 Stat. 4198; P.L. 96-294, 94 Stat. 611.

Senate Report 82-470 had recognized in 1951 that "the defense-supporting industry category is much broader than it has been in past wars, and ... there is frequently no clear line of distinction between essential and non-essential industries." It quoted approvingly the testimony of an executive branch witness that "the twenty-thousandth tank produced this month (if this could be done) would be of less essentiality to the Nation than the first railway car, a valve to maintain New York City's water system, or even the first passenger automobile." 1951 U.S. Code Cong. & Adm. News 1597.

In 1975 the Act's definition of "national defense" was amended specifically to include activity related to "space." P.L. 91-379, 84 Stat. 796. In 1980, when the Congress added to section 101 a new subsection (c) allowing allocation or priority performance with respect to materials, equipment and services to maximize domestic energy supplies, it also amended the DPA to designate "energy" as a "strategic and critical material" and to provide in the Act's Declaration of Policy that preparedness programs, as well as actions to expand energy productive capacity and supply, are linked to the "national defense." P.L. 96-294, 94 Stat. 617.

Two more recent amendments to the DPA's definition of "national defense" have given even greater emphasis to the broad reach of that term. In 1994 the Congress enacted legislation placing the basic legal authorities for dealing with civil defense emergencies in title VI of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. section 5195 *et seq.*, and in conjunction with that change it incorporated into the DPA's "national defense" definition a statement that "such term includes emergency preparedness activities conducted pursuant to title VI" of the Stafford Act. P.L. 103-337, 108 Stat. 3110. Then, in

2003, the Congress further stipulated, in that definition, that "national defense" includes "critical infrastructure protection and restoration." P.L. 108-195, 117 Stat. 2892.

II. Provisions Relevant to Critical Infrastructure Restoration

An April 25, 2008, report of the Department of Homeland Security (DHS) issued pursuant to section 1002(b) of the Implementing Recommendations of the 9/11 Commission Act of 2007, P.L. 110-53, entitled, *Use of the Defense Production Act to Reduce Interruptions in Critical Infrastructure and Key Resource Operations During Emergencies*, reported (at p. 20) that "an increasing level of attention is being given to DPA authorities as tools for a full spectrum of emergency preparedness, response, and recovery activities, including critical infrastructure protection and response." The NIAC identified provisions in three areas of the DPA that are relevant to the restoration of critical infrastructure following the occurrence of a disaster. These are the Act's provisions concerning: 1. priority contracting and allocation; 2. voluntary agreements and plans of action; and 3. the expansion of productive capacity and supply. Each subject is discussed below.

1. Priority Contracting and Allocation

A. DPA Subsections 101(a) and (b)

Subsection 101(a) of the DPA, 50 App. U.S.C. section 2071(a), contains two different legal authorities, for contract priorities (in paragraph (1)) and for allocation (in paragraph (2)). The section reads as follows:

The President is hereby authorized (1) to require that performance under contracts or orders (other than contracts of employment) which he deems necessary or appropriate to promote the national defense shall take priority over performance under any other contract or order, and, for the purpose of assuring such priority, to require acceptance and performance of such contracts or orders by any person he finds to be capable of their performance, and (2) to allocate materials, services, and facilities in such manner, upon such conditions, and to such extent as he shall deem necessary or appropriate to promote the national defense.

As noted above, since 1953 the paragraph (2) allocation authority has been limited by subsection 101(b), which provides:

The powers granted in this section shall not be used to control the general distribution of any material in the civilian market unless the President finds (1) that such material is a scarce and critical material essential to the national defense, and (2) that the requirements of the national defense for such material cannot otherwise be met without creating a significant dislocation of the normal distribution of such material in the civilian market to such a degree as to create appreciable hardship.

B. Allocation

The paragraph (2) allocation authority has been employed in the conduct of controlled materials programs involving set-asides imposed on suppliers, production directives, and allotments of

items for use in approved programs. According to the implementing regulations of the Commerce Department, the only currently operating set-aside is for metalworking machines. The Commerce regulations contemplate the possible adoption of special rules for the allocation of critical and scarce materials and facilities in case of emergency. 15 C.F.R. 700.30.

C. Priority Contracting

The subparagraph (1) priority contracting authority, in contrast, is actively utilized on an ongoing basis. Priority contract performance, especially as implemented with respect to industrial resources, ensures sources of supply and timely availability of required items. It is viewed as helping to keep defense programs on schedule, resolve production problems and bottlenecks, and minimize costs.

Persons receiving rated orders must accept them and give them preferential treatment for items that the persons normally supply. Those persons, in turn, place rated orders with their own suppliers. Priority rating most commonly is used in government contracting, especially for military items, but the ability to rate contracts can be employed outside of the military area and it can be used to require a private entity to perform a contract with and give priority to another private entity if circumstances warrant.

There also is, in subsection 101(c), a separate authority targeted more narrowly on allocation or priority contracting to maximize domestic energy supplies.

D. Contractor Protection from Liability

Section 707 of the DPA, 50 App U.S.C. section 1157, contains an exculpatory provision that allows an exercise of the section 101(a) and (c) authority to function properly. It provides:

No person shall be held liable for damages or penalties for any act or failure to act resulting directly or indirectly from compliance with a rule, regulation, or order issued pursuant to this Act ..., notwithstanding that any such rule, regulation, or order shall thereafter be declared by judicial or other competent authority to be invalid. No person shall discriminate against orders or contracts to which priority is assigned or for which materials or facilities are allocated under title I of this Act ... or under any rule, regulation, or order issued thereunder, by charging higher prices or by imposing different terms and conditions for such orders or contracts than for generally comparable orders or contracts, or in any other manner.

E. Application to Critical Infrastructure Restoration

While the Department of Defense (DOD) imposes priority ratings on almost all of its roughly 300,000 contracts per year, use of this authority by other Federal agencies has been highly selective and only upon a showing of need. But priority contracting can play an important role in facilitating the acquisition of equipment, facilities or services needed to restore critical infrastructure. Some examples of actual uses of the authority are offered in the April 2008 DHS report on *Use of the Defense Production Act to Reduce Interruptions in Critical Infrastructure and Key Resource Operations During Emergencies* (pp. 12, 18-19). These include: authorizing an owner/operator of critical infrastructure to place a priority rating on its orders to expedite the

delivery of power generators and transfer switches needed to restore railroad operations in the New Orleans area after Hurricane Katrina; authorizing a company to place a priority rating on its order to expedite the delivery of perimeter security surveillance equipment being deployed at a major airport and a seaport terminal; assisting with the restoration of levies and waterways in the Gulf Coast region after Katrina; and facilitating recovery operations of State evacuation centers in the Gulf Coast. The report also notes (p. 19) that the use of priority contract ratings to speed restoration of refinery operations interrupted by flooding and fire during the summer of 2007, and in the replacement of the I-35W bridge that collapsed in Minnesota, was considered.

In addition, in the event of a national catastrophe that greatly reduced available supplies of any important item, use of the allocation authority in DPA subsections 101(a) could become essential to restoring critical infrastructure.

2. Voluntary Agreements and Plans of Action

A. DPA Section 708

DPA section 708, 50 App. U.S.C. section 2158, affords a defense against a lawsuit or prosecution under Federal or State antitrust law, and a breach of contract defense, for actions taken to carry out a "voluntary agreement," or a "plan of action" formed by the some or all of the private sector participants in the voluntary agreement.

The purpose of a voluntary agreement is "to help provide for the defense of the United States through the development of preparedness programs and the expansion of productive capacity and supply beyond levels needed to meet essential civilian demand in the United States." The green light for consulting with industry to organize such an agreement is a finding that "conditions exist which may pose a direct threat to the national defense or its preparedness programs." These requirements need to be understood in light of the DPA's expansive definition of "national defense" mentioned above. Participants must be "reasonably representative of the appropriate industry or segment of" the concerned industry. A voluntary agreement cannot become effective unless the Attorney General, after consultation with the Chairman of the Federal Trade Commission, makes a finding that its purpose "may not reasonably be achieved through a voluntary agreement or plan of action having less anticompetitive effects or without any voluntary agreement or plan of action...." Once a voluntary agreement is approved a plan of action under it can be adopted with less procedural delay than the voluntary agreement itself entails, although the plan of action does require the same finding by the Attorney General as is needed for the voluntary agreement.

B. Historical Experience

The precursor of section 708 was the 1942 Small Business Mobilization Act, which conveyed antitrust protection on collaborating companies during World War II. It was a broad authority with few restrictions.

As originally enacted in 1950, DPA section 708 conferred upon private sector participants complete immunity from, rather than merely a defense to, the antitrust laws for any act or omission to act requested by the President and found by him to be in the public interest as contributing to the national defense. The Attorney General's approval of the voluntary

agreement or plan of action was required, but without a need for any particular finding. There were no other procedural requirements and only minimal monitoring provisions.

Voluntary agreements under the original section 708 were used extensively to enable companies to cooperate in weapons manufacture, solving production problems and standardizing designs, specifications and processes, and they were used in other sectors of the economy to deal with such issues as stabilization of steel prices, saving of newsprint by newspapers, credit restraints and providing petroleum tanker capacity.

Section 708 also served as the basis for several voluntary agreements covering domestic and international petroleum allocation both during and after the Korean War. For example, in 1951 a voluntary agreement was adopted to allow the sharing and analysis of information about foreign supply shortages and then the channeling of oil to the shortage areas. Under a 1952 voluntary agreement a number of oil companies provided extra supplies of heating oil to meet a shortfall in East Coast markets, in the process dividing markets, sharing facilities and pooling shipping and refining costs; they operated at what the government's Petroleum Administrator said was a substantial loss to themselves, although they subsequently were the subject of a Congressional investigation. Subsequent to the Korean War, petroleum voluntary agreements were invoked to divert foreign supplies and expedite transportation within the U.S. of domestic oil destined for Europe and elsewhere during the 1956 Suez crisis; brought to a State of readiness but not invoked at the time of the Six Days War; and used to permit industry supply-demand analysis and advice to the government in response to the 1973 Yom Kippur War and OPEC embargo.

In 1975, while the Congress was enacting section 252 of the Energy Policy and Conservation Act of 1975 (EPCA), 42 U.S.C. 6272, according antitrust protection for oil companies that agreed to participate in a voluntary agreement to carry out the oil sharing system of the just-established International Energy Agency (IEA), it amended DPA section 708 to conform it with the new EPCA authority. This introduced numerous changes including those establishing detailed procedural safeguards, requiring heavy monitoring of and reporting on activities by the Justice Department and the Federal Trade Commission, and reducing the antitrust immunity to a defense. EPCA section 252 contained a breach of contract defense, and in 1991 Congress added the breach of contract defense to DPA section 708.

There presently exist under section 708 a Voluntary Tanker Agreement and a Voluntary Intermodal Sealift Agreement sponsored by the Maritime Administration.

C. Application to Critical Infrastructure Restoration

On August 20, 2004, the Executive Branch completed a report on the DPA and Executive Order 12919 implementing the DPA, which had been prepared on the basis of an interagency review. The report concludes (p. 1-11) that voluntary agreements under section 708 could be used to develop preparedness programs and plans for critical infrastructure protection and recovery, or (p. 2-4) to expedite production related to emergency preparedness by allowing exchange of information on production processes or new technological breakthroughs and other information needed to enhance preparedness and increase production capacity, or (p. 3-6) to develop plans to allocate resources to restore critical infrastructure. It gives the following examples of the potential purposes of voluntary agreements (p. 6-2): "achieving agreement on common measures

to reduce vulnerabilities, planning the removal of debris after a catastrophe, developing food and agriculture response plans, restoring refineries or oil production or electric facilities, coordinating and marshalling port assets, allocating resources to restore critical infrastructure, or expediting production related to critical infrastructures." Similarly, the April 2008 DHS report referred to above concluded (p. 15) that the section 708 voluntary agreement authority "could ... be important for addressing domestic energy emergencies, such as widespread damage to energy production or delivery systems caused by acts of terrorism or natural disasters."

The need for antitrust protection in order for critical infrastructure operators to exchange information and coordinate their responses to a disaster was mentioned by some of the critical infrastructure operators participating in the Study. A voluntary agreement under section 708 could be a vehicle for providing that protection. In addition, the January 2007 report from the Business Executives for National Security (BENS), *Getting Down to Business: An Action Plan for Public-Private Disaster Response Coordination* (<http://www.bens.org/mis-support/Getting-Down-To-Business.pdf>), suggests (p. 33) that section 708 be used by DHS to allow competitors, with Government notice and clearance, to allocate certain resources.

3. The Expansion of Productive Capacity and Supply

A. DPA Title III

Title III of the DPA, 50 App. U.S.C. 2093 *et seq.*, has as its purpose the development and expansion of production capability essential to the national defense. It employs financial incentives to that end. Title III includes authority for, *inter alia*: loans to expedite the performance of contracts with the Government; loan guarantees effected through purchase commitments, loss sharing agreements, or other means; purchases of or commitments to purchase industrial resources or critical technology items; and the installation of equipment in Government or privately owned facilities.

B. Historical Experience

The Title III authorities were used extensively during the Korean War to expand industrial capacity for many strategic and critical materials, machine tools and a number of other critical items needed to satisfy evolving defense requirements, and to expedite the delivery of supplies needed for defense production. These activities were credited with having played an important role in strengthening the industrial infrastructure. Use of the Title III authorities declined during the late 1950s and the subsequent decades, but the program was revived in the mid-1980s with a focus more on promoting the transition of new technologies from research and development to efficient and affordable production and the rapid insertion of these new technologies into defense systems. For example, a number of Title III projects have been undertaken to develop domestic production capabilities for advanced semiconductor and structural materials.

C. Application to Critical Infrastructure Restoration

At this time, the DOD reportedly has the only active program to employ the Title III authorities to establish domestic production capabilities. The 2004 interagency report on the DPA concluded, however, that Title III contains authority to provide financial incentives for critical

infrastructure (p. 2-6) and that such provisions could be important tools in bolstering homeland security (p. 3-6). It specifically noted that one of these provisions (section 303):

could be used in a variety of ways for critical infrastructure protection **and restoration** and other emergency preparedness needs. For example, purchases and purchase commitments could be used to stimulate creation of new production capabilities for leading-edge detection and protection technologies, and the authority to install Government-owned equipment could be used to install protection measures in critical production facilities." (p. 3-9, emphasis supplied).

The April 2008 DHS report indicated (p. 15) that "DPA Title III authorities could ... be used for the protection of energy infrastructure", for example, "to establish more agile production capabilities for critical items required for quick restoration of electric power generation and distribution capabilities."

III. Outstanding Issues That Need Attention

In this section the NIAC discusses some of the outstanding issues concerning the DPA and its implementation by the Executive Branch that the NIAC believes need priority attention by the Executive Branch and, as concerns potential statutory changes, by the Congress. It seems clear that deficiencies exist in both the DPA and its administrative implementation, and they must be dealt with in order for the Federal Government to be prepared to deal adequately with major disasters. Because a thorough review of these issues was beyond the capability of this Study, the NIAC does not attempt to address exhaustively the outstanding issues or adopt specific positions as to how the various identified issues should be resolved.

This report takes up selected issues below under four headings: 1. Priority Contracting and Allocation; 2. Voluntary Agreements and Plans of Action; 3. Title III Authorities; and 4. DPA Implementation.

1. Priority Contracting and Allocation

The 2004 interagency report identified a need for legislation to clarify the intended authority for the allocation of "services" under paragraph (1) of DPA subsection 101(a). It said (at p. 3-11) that in light of the special definition of this term in DPA section 702(16), 50 App. U.S.C. 2152(16), which in turn is based on other, very narrowly defined terms, a 1991 amendment to the DPA allowing the allocation of services under subsection 101(a) had inadvertently excluded the coverage of services for many of the purposes of the Act (including critical infrastructure restoration). In fact, the need for clarification of the scope of subsection 101(a) would seem to extend as well to paragraph (1) on priority contracting.

An issue raised by participants during the Study is the risk that in a disaster, the hoarding of motor fuel can greatly aggravate a fuel supply shortage. It is presumed that most or all states have legal authority to impose rationing schemes such as odd/even license plate plans, but the potential exists that the various State plans will be inconsistent with one another, resulting in drivers going from one State to another to take advantage of the differences. Potentially, the allocation authority of DPA subsection 101(a)(2), or the DPA's express anti-hoarding authority contained in its section 102, 50 App. U.S.C. 2072, could allow the imposition of national motor

fuel allocation or of anti-hoarding provisions. This may have been made impracticable, however, by section 105 of the Act, added in 1980, which precludes use of the DPA to ration gasoline among end-users. It is appropriate to guard against the introduction of gasoline rationing into normal markets, but a question exists whether there should be an exception from section 105 for catastrophic circumstances.

2. Voluntary Agreements and Plans of Action

Voluntary agreements could in principle be put in place in advance of the occurrence of a disaster, although it might be difficult to know in advance of the disaster what entities ought to be invited to participate. A large universe of participants possibly could be invited with the intention of having plans of action formed by those among them which have a capability to contribute in the response to a particular disaster. If voluntary agreements are not in place in advance of the disaster, however, it becomes important that the means exist to put them in place promptly. It is of concern, therefore, that according to the 2004 interagency report (pp. 3-12), there presently are statutory and regulatory obstacles that can delay the process of putting a voluntary agreement in place.

The statutory obstacle is that under DPA section 708(c)(2) and (e)(3)(B) respectively, at least ten days must lapse between consultation with the Department of Justice about the formation of a voluntary agreement and consultations with potential private sector participants in the agreement, and a notice of a meeting with the participants to form a voluntary agreement must be published in the Federal Register at least seven days in advance of the meeting. The regulatory problem is that section 708(e) requires any Federal Government department that sponsors a voluntary agreement to have in place regulations implementing section 708, and it stipulates in subsection (2)(B) that the regulations must be published at least thirty days before their effective date, whereas, so far as the NIAC is aware, no Federal department or agency has promulgated such regulations. (Still on the books at 44 C.F.R. Part 332 are outmoded 1981 regulations of the Federal Emergency Management Agency, which contain guidance to other agencies on what their section 708 implementing regulations should contain).

Other section 708 issues addressed in the 2004 interagency report (pp. 3-13, 3-15) include amending its subsection (c) language concerning the purposes for which voluntary agreements may be used to clarify their availability in a wide range of catastrophic events, and exempting the consultations with industry leading up to formation of a voluntary agreement from coverage by the Federal Advisory Committee Act.

3. Title III Authorities

The 2004 interagency report (at p. 3-6) identifies statutory changes that are needed in Title III in order for the authorities contained in that title of the DPA to support private sector critical infrastructure protection or restoration. Specifically, the Title III loan and loan guarantee authorities are linked to procurement under Federal Government contracts, so that such assistance presently cannot be provided to critical infrastructure businesses that do not contract with Government agencies for national defense purposes. In addition, the report suggested (p. 3-9) changes in wording to facilitate the use of other Title III authority for homeland security purposes.

4. DPA Implementation

A number of administrative deficiencies in the implementation of the DPA have been identified. As noted above, regulatory provisions for the exercise of the section 708 voluntary agreement authority are needed, but remain to be adopted. In addition, the 2004 interagency report argues for substantial amendment of the implementing Executive Order, No. 12919, which currently fails to reflect the broad scope of the DPA that has been confirmed by recent amendments to the definition of "national defense", and needs other changes such as clarifying the coordination roles of the National Security Council and the Homeland Security Council.

There also is a concern about the preparedness of Federal Government agencies to exercise the authorities contained in the DPA in case of a catastrophic event. One of the unmet recommendations of the 2004 interagency report (at p. 1-12; see also p. 6-4) is that "[r]elevant departments and agencies should have dedicated resources to create capabilities to utilize DPA authorities"; the report observed (p. 6-5) that no trained cadre of personnel to administer DPA homeland security functions exists in most civil departments and agencies. A June 2008 report by the General Accountability Office, *Defense Production Act: Agencies Lack Policies and Guidance for Use of Key Authorities* (GAO-08-854), found (p. 1) that "agencies responding to domestic emergencies and procuring resources in the areas of food and agriculture, health resources, and civil transportation, lack policies and guidance" for the use of the section 101 priority contracting and allocation authority, and that the DPA's other authorities such as those in Title III and section 708 generally have been little used by agencies other than the DOD. It said (p. 2) that the process for implementing priority contracting and allocation "is unclear and could potentially cause delays in emergencies as agencies navigate the process."

The April 2004 interagency report laments (p. 1-12) that "[m]ost of the Federal, State, and local government staff responsible for emergency response and recovery activities are not aware of the DPA and how it can help them accomplish their missions." This needs to change, and critical infrastructure operators likewise should acquire a better understanding of the DPA.

APPENDIX H: ANALYTIC FRAMEWORK FOR THE STUDY

Introduction

The execution of this study relied on significant input from Subject Matter Experts (SMEs) drawn from across many of the critical Infrastructure sectors. A structured approach for eliciting the input from the SMEs was a necessary element of the study approach, which took the form of two components. One was the execution of formal interviews with select infrastructure C-level executives. The second was the execution of a facilitated workshop in which two hypothetical scenarios provided the framework for detailed discussions regarding response actions to major infrastructure disruption events, and the factors that inhibit timely recovery from those events.

In addition to the workshop, the Study Group held 12 in-person meetings, 77 conference calls, and 29 discussions with C-level executive including 16 interviews to develop the findings, recommendations and the final report.

C-Level Executive Interviews

The series of C-level executive interviews were conducted as the first information gathering event of the study. The purpose of these interviews was to elicit expert input from those with first-hand experience in preparing for and responding to various disaster events as well as to obtain important insights related to sector interdependencies in preparation for the workshop to follow. The interviews were structured around three specific topic areas listed below:

1. Sector Interdependencies
2. Potential Statutory / Legal / Policy Impediments to Disaster Recover
3. Real World Experience in Dealing with Disaster Planning and Recovery

Sector interdependencies were a major focus area of the study, and it would have been of value to rigorously identify sector interdependencies through analysis and modeling and simulation, but available time and resources did not permit that approach. As an alternative, and one that could rely on real-world experience, the interviews contained a set of questions that attempted to identify, from the interviewees perspective, which sectors are most dependent on his/her respective sector and which sectors his/her sector was most dependent upon.

The potential statutory / legal / policy impediments was another major focus of the study. The information and insights obtained through the C-level executive interviews were instrumental in assisting in identifying those impediments. The NIAC was able to compile and understand potential impediments through the combined input from across the major infrastructure sector executive representatives.

Each sector and each entity within a sector have, in some cases, unique experiences, processes, and procedures for disaster response planning and execution. The interviews were critical to compiling this type of information to understand similarities, differences and commonalities across a diverse set of respondents.

In order to establish a structure and discipline for the interviews that were conducted, a set of formal questions were developed by the study team for use in each interview. These questions were distributed to each interviewee prior to the interview and remained the same for all interviews. In addition, two hypothetical disaster scenarios had been developed by the NIAC for the workshop and these were also provided to the interviewees for their review and reference in responding to some of the formal questions. The following are those questions.

C-Level Interview Questions

Sector Interdependencies

1. Triggering Event: How would the scenario triggering event impact your organization's ability to operate as a function of time from scenario initiation?
2. Resources & Plans:
 - a. What external resources (physical, human, or logistical) would you need to recover from event effects and/or continue to operate during this event?
 - b. Do you have any existing plans or agreements to secure the resources (physical, human, or logistical) you might need during this event?
3. Solutions:
 - a. What "work around" solutions would you be willing to invoke?
 - b. Would you need to collaborate with other companies and/or critical infrastructure sectors during this event?
4. Role of Government:
 - a. What role should the federal, state, or local governments play in the recovery / restoration effort?
 - b. Based on the scenarios, would you be able to provide the government with your "Top Three" recovery / restoration priorities? That is, could you provide the government with three physical, logistical or human resources that you would need to recover/restore first?
5. Other Factors:
 - a. Are there other factors associated with (or in addition to) the identified scenario events (and their potential effects and impacts) that should be incorporated to stimulate discussion and insights into critical response and recovery operations?

Potential Statutory/Policy/Regulatory Impediments

1. Planning: Do you involve your organization's legal advisors into the planning and/or discussions of large scale emergencies?
2. Execution:
 - a. Are there any laws, regulations or policies that you would need or would try to seek relief from because of the event?
 - b. Are you aware of any specific legal impediments or issues that would impact your organization during an emergency of this size and nature?
3. Recommendations: Based on the cause and impact of this event, do you have any suggestions or recommendations for changes or modifications to any existing law, regulation or policy?

Real World Experience

1. Exercises: Does your organization participate in any government sponsored or internal training exercises?
2. Your Experience:
 - a. Has your organization ever been significantly impacted by a large scale emergency?
 - b. Based on your experience dealing with recovery operations, what other issues do you think should be highlighted as part of this study?

The NIAC conducted a total of 29 conference call discussions with C-level executives, including 16 interviews with executives in the following CIKR sectors: Banking and Finance, Chemical, Emergency Services, Energy, Information Technology, Transportation, Water, Commercial Facilities, and Public Health & Healthcare.

Workshop

The workshop was subsequently conducted to bring together operators from most of the critical infrastructure sectors for a structured and facilitated information exchange conducted within the framework of two hypothetical disaster event scenarios. The information and insights acquired through the C-level executive interviews were important data sources for forming the basis of the workshop structure and contributed to identifying those areas in response planning and execution that warranted highlight and discussion focus.

The workshop was conducted at the Johns Hopkins University/Applied Physics Laboratory (JHU/APL) Warfare Analysis Laboratory (WAL) on November 13, 2008. The WAL facility is specifically designed to conduct such events because of its physical layout, visualization capabilities, and electronic data collection support systems. There were 47 participants in the workshop representing 14 of the critical infrastructure sectors.

The format of the workshop was established and developed to focus discussions on the critical study topic areas; sector interdependencies and statutory/regulatory/policy impediments to recovery. This format relied upon the context provided by two different disaster scenarios. These scenarios were designed to provide the basis for discussion of response activities by the various sectors in light of prolonged loss of infrastructure services expanding beyond a local area.

The first scenario involved an equipment failure at an electrical power station in the Washington, DC area. The severity of the electrical failure caused power outages lasting two weeks over an affected area encompassing all of Washington, DC, and its immediate surrounding area. The second scenario was also triggered within the electric sector, but its cause was a targeted terrorist event. Its impact was more severe than the first scenario, causing outages over a three-week period and extending beyond the greater Washington, DC area to adjacent counties and beyond.

Both of these scenarios were developed by the study team with support from the National Infrastructure Simulation and Analysis Center (NISAC). The NISAC is a modeling, simulation, and analysis resource that prepares and shares analyses of critical infrastructure and key

resources interdependencies, vulnerabilities, consequences of disruption, and other complexities. It is under the direction of the Department of Homeland Security Office of Infrastructure Protection and is comprised of two organizations – Sandia National Laboratories and Los Alamos National Laboratory. The NISAC generated the expanding electrical failure impacts based on the respective fundamental triggering events as well as the electrical sector recovery times that would be expected from those two triggering events. In order to drive the information gathering discussions to an appropriate level, some artificialities in the scenarios were required.

The facilitated discussion for each of the scenarios was conducted by time-stepping through the evolving events. At each time step, the status of select critical infrastructure sectors were sequentially presented and discussed on a sector-by-sector basis. Discussion was aided by reference to a set of pre-defined sector-specific issues and questions. These were intended to stimulate thought but not be constraining on the discussion. At the conclusion of each scenario discussion, a survey was conducted to capture critical thoughts and perspectives of the participants.

The workshop participants provided broad reaching and insightful discussions that proved to be highly valuable to the NIAC observations and recommendations. Documentation and recording of the workshop proceedings was facilitated by use of the facilities provided by the JHU/APL WAL. Of particular note was a networked system of laptop computers that was provided to the participants. These computers were used in two major modes. The first was to allow the participants to enter, in real time during the scenario walk-throughs, their thoughts, comments, and insights. Due to the networked configuration of these computers, all participants were able to see, again in real time, the information being entered by everyone else. This capability served to augment the verbal discussion and allowed participants to have their input recorded directly by them and not just by study team note takers (although the study team members also recorded notes from the verbal discussions). Post processing of the recorded participant computer notes allowed parsing of the comments according to the specific sector affiliation of the respondents, but not by name, which remained anonymous. The second major use of the networked computers was during conduct of the surveys following each scenario discussion and a final wrap-up survey. An element of the electronic support systems provided by the WAL and used during the workshop was formal survey tools allowing participant voting and response to a formal set of questions. Near real time post processing of the survey results allowed for feedback to the participants of quick look results of the surveys including statistics on the associated with the various responses.

The following is the survey that was conducted following each of the two scenario discussions. The same set of questions were posed, but were answered by the participants based on the specific scenario. The first four questions below were accompanied by multiple choice selections. The fifth required textual response.

Post-Scenario Workshop Survey

1. What sectors / organizations were you most dependent upon during recovery?
2. In which areas could the government have assisted in improving infrastructure recovery operations?

3. What cooperative activities and initiatives could have contributed to recovery efforts (government/sector, sector/sector, intra-sector)?
4. Select which areas you needed to seek legal/regulatory and/or policy relief from and indicate the degree to which such requests may be time consuming or difficult to obtain.
5. Discuss any other issues associated with this scenario that would contribute to the timely restoration of services and capability.

At the conclusion of the workshop, a final survey was conducted to allow the participants to provide their view of factors that would be of concern in a more diverse set of potential disaster events - diverse from the perspective of scope, duration or triggering event. Each of these questions, listed below, required textual responses.

Wrap-up Workshop Survey

1. What issues have broad applicability? (of those that had been discussed during the workshop)
2. What additional issues need to be addressed?
3. If the disaster event was significantly different from Scenario 1 and 2, but still a major long-term event (2+ weeks), comment on differences in sector interdependencies. Specifically, are there major interdependencies that were not addressed today?
4. Comment on what different cross-sector coordination may be required to enhance restoration / recovery operations.
5. What additional contributions could the government (federal, state or local) make in enhancing critical infrastructure recovery operations?
6. What additional contributions could the critical infrastructure sectors / private industry make to facilitate greater government support to recovery operations?
7. Comment on other legal / regulatory and/or policy issues that would occur in other major disaster events that might hinder recovery / restoration efforts.
8. How well does your organization's existing plan capture the issues discussed in Scenarios 1 and 2?
9. Comment on how your organization's emergency plans are coordinated with the federal, state and local planning initiatives (e.g., National Response Framework).
10. Comment on gaps and/or inconsistencies (if any) in the emergency planning guidance provided by the government (federal, state and local).
11. Provide any additional comments / highlight additional issues.