

**MODEL GUIDELINES**

**FOR INCORPORATING**

**ENERGY EFFICIENCY AND RENEWABLE**

**ENERGY**

**INTO**

**STATE ENERGY EMERGENCY PLAN**

**STATE OF [INSERT NAME]**

**Provided by**

**U. S. Department of Energy**  
**Office of Emergency Management**  
**And**  
**Energy Efficiency and Renewable Energy**

September 1999

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.1 Introduction_____	4
1.2 Legal Basis_____	4
1.3 Definition of Sustainable Redevelopment_____	5
1.4 “Wingspread Principals” for Disaster Preparedness_____	5
1.5 Purposes of the Guidelines_____	6
1.6 Four Phases of Contingency Planning For Sustainable Redevelopment_____	6
1.6.1 Hazard Mitigation and Preplanning_____	6
1.6.2 Disaster Response_____	7
1.6.3 Post Emergency Phase_____	7
1.6.4 Long-term Recovery Phase_____	8
1.7 Planning Guidelines For Sustainable Redevelopment_____	8
1.7.1 Renewable Energy Emergency Power Supplies_____	8
1.7.2 Energy-Efficient Buildings and Community Systems Strategies_____	9
1.7.3 Debris and Waste Management_____	10
1.7.4 Energy Efficiency Financing_____	10
1.8 Resources for Sustainable Community Disaster Preparedness_____	11
1.8.1 Federal and State Resources_____	11
1.9 Pre- and Post-Disaster Model Checklist_____	12

## **Preamble**

This model document was prepared for the U. S. Department of Energy by a working group comprised of state members of the National Association of State Energy Officials and the Alliance to Save Energy. This document is intended to serve as a planning guide for state and local emergency planners and supplement existing energy emergency management plans.

# **Model Guidelines For Incorporating Energy Efficiency and Renewable Energy Into State Energy Emergency Plan State of [Insert Name]**

## **1.1 Introduction**

For communities, businesses and individuals to function normally following a disaster, they must develop and maintain disaster-resistant transportation, community systems, energy supplies and businesses, i.e., a more sustainable community. Pre-disaster mitigation and rebuilding following emergencies can result in a stronger economy, a cleaner environment, and a more secure future by incorporating energy efficiency and renewable energy. The President's Council on Sustainable Development recommends that states integrate energy efficiency and renewable resources into disaster recovery and planning.<sup>1</sup>

This can be accomplished through a number of avenues. These include the establishment of an information clearinghouse, the implementation of a community-based planning process, the accessing of technical expertise through local, state, and federal governments, and through collaborations with the private sector.

## **1.2 Legal Basis**

The State Energy Conservation Program Improvement Act of 1990, (Federal Public Law 101-440), enacted in October 1990, requires that states, as part of the federal funding requirement for the State Energy Programs, submit to the U. S. Department of Energy an energy emergency plan for energy supply disruptions that is consistent with applicable Federal and State law. The contingency plan provided under this program should include implementation strategy or strategies (including regional coordination) for dealing with energy emergencies. Additionally, the State Energy Emergency Contingency Plan is based in part on Public Law 94-163, Section 362 of 1975. Federal state energy funds also can be used to support this planning activity.

---

<sup>1</sup> Sustainable Communities Task Force Report, P. 44, The President's Council on Sustainable Development, Fall 1977, Washington, DC.

### 1.3 Definition of Sustainable Redevelopment

Sustainable redevelopment is defined by the U. S. Department of Energy as “*the deliberate effort by disaster-prone communities to improve their economic health, environmental resilience, and quality of life as they plan for and recover from natural disasters.*” Examples of sustainable development activities for disaster recovery include the use of photovoltaics for emergency power generation, recycling storm debris into biomass, and building/rebuilding to meet or exceed the Model Energy Code.

### 1.4 “Wingspread Principles” for Disaster Preparedness

The “*Wingspread Principles for Sustainable Development,*” are practices designed to promote more disaster-resistant communities. “*To ensure for the safety of the people and the livability of communities now and in the future, significant resources for disaster planning, mitigation and recovery should be invested consistent with the following [Wingspread] principles:*

- *Sustainability – Disaster mitigation and recovery resources should be invested to improve the quality of life in the areas of public health and safety, environmental stewardship, and social and economic security.*
- *Planning & Incentives – Plans designed to reduce the impact of disasters and to encourage recovery should provide incentives to individuals, the private sector, and government to pursue sustainable development and redevelopment.*
- *Partnerships – Individual citizens, the private sector, and local, state, and federal government should act collaboratively as partners with shared goals and values to further the capacity of our communities to be self-sufficient.*
- *Locally-Driven Process – Decisions should be driven by a consensus-based, inclusive process that stakeholders use and trust to identify local sustainability priorities, leading to the investment of pre-and-post disaster resources that will meet those needs, emphasizing the need for local responsibility and self-sufficiency.”<sup>2</sup>*

State energy emergency plans should incorporate these principles to promote greater use of energy efficiency and renewable resources in mitigation and recovery activities.

---

<sup>2</sup> A public-private working group convened at the Johnson Wingspread Conference Center in Racine, WI in January 1998 to explore ways the federal, state, and local governments can better integrate energy efficiency and renewable resources into hazard mitigation activities. They produced a set of guidelines known as the “*Wingspread Principles for Sustainable Development.*”

## 1.5 Purpose of the Guidelines

The purpose of these Guidelines is both to serve as a state planning guide and to provide model language for incorporating energy efficiency and renewable energy into disaster planning and recovery. These guidelines are intended to supplement existing energy emergency management plans.

## 1.6 Four Phases of Contingency Planning For Sustainable Redevelopment

The Energy Emergency Plan has four phases for incorporating energy efficiency and renewable programs into disaster mitigation and recovery for sustainable redevelopment. Each phase is equally important. The four phases of the Plan are: 1) Hazard Mitigation and Preplanning, 2) Disaster Response, 3) Post Emergency Recovery (intermediate term), and 4) Long-term Recovery.

### 1.6.1 Hazard Mitigation and Preplanning Phase (pre-disaster)

During the preplanning phase, states should incorporate the following planning elements into emergency plans. Emergency managers should:

- Prepare a comprehensive, integrated energy emergency management plan that provides for the incorporation of energy efficiency and renewable resources.
- Create a statewide network or working group within existing emergency organizations of community leaders, planners, city and county officials, utility managers and energy office officials as champions of energy efficiency and renewable energy.
- Create a central source of information and coordination for sustainable redevelopment following a major natural disaster.
- Prepare guides, checklists, and forms for implementing the Plan.
- Develop and maintain statewide energy efficiency and renewable energy contact lists and resources for energy-efficient buildings, renewable energy and sustainable communities.
- Identify energy-financing resources such as HUD, SBA, commercial banks, etc.

### 1.6.2 Disaster Response Phase (immediately following disaster)

During the disaster response phase, energy emergency managers should work with state agencies on the emergency response team to insure maximum application of energy efficiency and renewable energy during the immediate response activities. This phase is concerned with restoring essential services, public safety, and welfare. During this phase, emergency managers should:

- Designate, within a disaster operations center, a central point of contact for information related to energy efficiency and renewable energy.
- Provide renewable energy systems as a temporary emergency power for essential services.
- Provide for the utilization of waste and debris generated by a disaster.
- Provide for the weatherization and/or purchase of energy-efficient temporary housing such as mobile homes.
- Provide for a joint pre-disaster hazard mitigation and re-weatherization retrofit of homes eligible for DOE/state weatherization assistance.

### 1.6.3 Post Emergency (Intermediate-Term Recovery)

Post-emergency phase activities begin once the immediate response is complete. During this phase, emergency managers should:

- Assist in conducting the post-emergency analysis and identify efficiency and renewable opportunities.
- Initiate a community-based planning process for sustainable recovery
- Provide information within existing emergency communication channels to disaster victims about energy efficiency financing, housing design and energy efficient appliances and materials.
- Provide local government officials information on efficient buildings and design, street lighting, water and waste treatment facilities, and transportation and municipal infrastructure.
- Provide for enforcement of energy codes and update if necessary.
- Identify bulk purchasing opportunities and federal/state resources of energy efficient appliances, heating and cooling, and energy efficiency materials for private and public buildings.
- Identify funding for the incremental costs of efficiency and renewable resources and provide incentives for enhanced recovery.
- Assist local leaders in drafting a framework for long-term recovery plans.

#### 1.6.4 Long-term Recovery Phase

Once intermediate recovery efforts are completed, emergency managers should assist local leaders and individuals to define goals for a long-term community redevelopment plan that includes the “Wingspread Principles” for sustainable communities. Long term recovery and planning phase activities should include:

- Developing community indicators for quality of life, economic viability, environmental impacts, educational opportunities, etc.
- Providing for a community-based planning process for mitigation and long term recovery.
- Integrating economy, environment, and quality of life into long-term planning.
- Identifying and making available exemplary approaches of other communities.
- Creating political and financial support for sustainable communities in disaster-prone areas.
- Identifying long-term funding sources for plan implementation.
- Obtaining sustainable redevelopment planning tools such Smartplaces, Places3, “Cities and Counties Resource Guide” and other tools available from the U.S. Department of Energy.

#### 1.7 Planning Guidelines For Sustainable Redevelopment

Reconstruction and mitigation activities following an energy emergency can result in a stronger economy, a cleaner environment, and a more secure future by incorporating energy efficiency, renewable energy, and other components of sustainable development. This can be accomplished through a number of avenues including the establishment of an information clearinghouse, the implementation of a community-based planning process, on the accessing of technical expertise through local, state & federal governments, and close collaboration with private businesses.

##### 1.7.1 Renewable Energy Emergency Power Supplies

Photovoltaics are a practical source of power both during and immediately following a disaster. Examples of photovoltaic applications include:

- Power for emergency shelters and schools: Emergency shelters require power for lighting, communication, and refrigeration of food and medical supplies. Schools are often designated as emergency shelters but may require portable generators or PV systems for “backup” during a loss of power. The installation of PV systems at schools can serve both an educational and emergency preparedness purpose.
- Battery power and chargers: Power for spare batteries and re-chargers can help maintain communications and lighting when utility power is unavailable.



- Backup power for fuel pumps: Photovoltaics can provide backup power for essential service station fuel pumps, facility lighting, and aircraft refueling. Emergency personnel should be notified of their location.
- Standby power: Test standby units during normal operations to ensure that the units are working and personnel are familiar with their location.
- Disaster recovery: Photovoltaics can play important roles in mitigating disasters and in speeding recovery. They are modular, can be erected quickly before distribution systems are restored, and are transportable for use in inaccessible sites. PV systems can power temporary street and security lighting, radio transmitter repeaters, arrow boards or message signs, radio base stations, electronic equipment, medical clinic needs, portable pumping stations, refrigerators, water purification systems, and other backup power during the response phase prior to restoration of normal power.

### 1.7.2 Energy-Efficient Buildings and Community Systems Strategies

Emergency mitigation, response, and recovery plans should incorporate strategies to encourage energy efficiency and renewable energy technologies in the reconstruction of community systems (water and waste water, street lighting, etc.) and residential, commercial, industrial and institutional buildings damaged or destroyed in disasters. Strategies for more efficient buildings include:

- Model Energy Code (MEC): New construction and major building repairs should meet or exceed the most recent edition of the Council of American Building Officials Model Energy Code. The MEC sets minimum requirements for new building construction and major repairs by regulating the exterior envelope materials, HVAC, water heating equipment, and electrical distribution and illumination systems. Energy-efficient buildings also are inherently more disaster resistant, are more weather proof, and can temporarily maintain adequate comfort levels when off the power grid.
- Energy-efficient community systems: Street lighting, local government buildings, water and waste water treatment facilities and transportation systems are key to the future health, safety, prosperity, and welfare of the community. Contingency plans should be developed and maintained that will insure that if these systems must be rebuilt, that cost-effective design and technologies can be incorporated.
- Temporary housing: Officials should insure that temporary housing such as mobile or manufactured homes are energy-efficient since temporary housing are often converted to permanent units.
- Energy efficiency improvements for temporary housing include: 1) weather skirting for mobile homes, 2) low-cost, no-cost improvements such as hot water heater efficiency improvements, caulking, weather sealing, and room ventilation such as fans, and 3) siting of temporary housing to protect from winds and solar gain.

### 1.7.3 Debris and Waste Management

Natural disasters create significant amounts of debris and waste materials. Too often, these materials are quickly moved to overcrowded landfills to open roads and permit rebuilding. Rather than discard this debris, emergency managers should predetermine the potential use of materials such as fallen trees, twisted metal and wire, and masonry road and building materials for recycling, aggregate, biomass or boiler fuel, etc. The Plan should:

- Identify possible users/purchasers of disaster debris: Potential users include recyclers, pulp and paper/forest product industries, landscape operators, solid fuel boilers, and excavation/land fill companies.
- Create waste management partnerships: The role of the following agencies should be determined as potential resource waste management partners and specified in the plan: 1) federal agencies, 2) state agencies and emergency management organizations, and 3) local government organizations.
- Create lines-of-communications: Establish lines of communications among partners, equipment availability and location, and the training requirements for debris removal and resource recovery prior to a disaster. Develop and maintain county-by-county lists of landfills and debris removal contractors.

### 1.7.4 Energy Efficiency Financing

Rebuilding efficiently is cost-effective. However, it often requires an upfront investment for items such as more efficient windows, HVAC, and increased insulation. Available financial resources available include:

- The Department of Housing and Urban Development has a special energy-efficient emergency mortgage program [FHA 203 (h) plus EEM] and the Title I Home Improvement Loans for disaster victims desiring to rebuild efficiently.
- The Small Business Administration provides low interest loans for noninsured losses to rebuild to the current energy code in force at time of the disaster. States may provide special funds for energy efficiency and renewable energy improvements for income-qualified applicants.
- Fannie Mae and private lenders have special energy financing programs that can be used by home owners for rebuilding efficiently.

Natural disasters provide an opportunity to publicize the availability of special financing, energy code requirements, and technical assistance utilizing existing FEMA and state emergency management. A simple consumer flyer providing disaster victims (within existing emergency communication channels) with energy financing, Model Energy Code, and building design information should be created.

## 1.8 Resources for Sustainable Community Disaster Preparedness

Numerous resources for energy efficiency and renewable energy technologies and disaster planning exist at federal, state, utility and nonprofit organizations. These should be identified and current contact lists maintained as part of the planning process.

### 1.8.1 Federal and State resources

- Federal resources:
  - The Federal Emergency Management Agency (FEMA) provides comprehensive emergency management planning and disaster recovery information. FEMA's "Project Impact " provides a resource guide for developing community-based hazard mitigation plans. FEMA may be contacted at 1-800-323-5248, on the Internet at <http://www.fema.gov> and through FEMA's 24-hour Fax-on-Demand system at (202) 646-FEMA.
  - The U .S. Department of Energy Office of Emergency Management maintains model state energy emergency plans, a data base of energy supply resources, and up-to-date state energy emergency contact information. They may be contacted at 202-586-5989 and on the internet at <http://www.nn.doe.gov>.
  - The U. S. Department of Energy Efficiency and Renewable Energy provides information on efficiency and renewable resources, sustainable technologies for disaster recovery and successful case studies.<sup>3</sup> DOE's "Operation Fresh Start" provides information on other federal agencies who deal with emergency management. This information may be obtained at 1-800-DOE-EREC and at <http://www.eren.doe.gov> on the Internet.
- State emergency management resources:
  - The state emergency management director is [insert name of state contact and local contact information]. Names of state emergency managers in other states may be obtained from FEMA's web address <http://www.fema.gov/fema/statedr.htm>. State Energy Emergency Information Coordinators may be obtained from DOE or the National Association of State Energy Officials at [www.naseo.org/TForces/energyinfo/emergency.htm](http://www.naseo.org/TForces/energyinfo/emergency.htm).<sup>4</sup>

---

<sup>3</sup>The State of Illinois provided state energy funds of \$1,300 as energy retrofit incentives to home owners building to a high energy standard. North Dakota provided similar incentive funding to homeowners to increase the purchase of energy efficient appliances and equipment. Useful publications at the DOE Operation Fresh Start web [\[www.sustainable.doe.gov/disaster/dparttoc.htm\]](http://www.sustainable.doe.gov/disaster/dparttoc.htm) site include: "Rebuilding Your Flooded Home," "Natures Power on Demand," EPA's "Preparing for Disaster Debris," and the Wingspread II Conference Outcomes.

<sup>4</sup>In February 1996, the National Association of State Energy Officials (NASEO) mutually agreed with the U. S. Department of Energy, Energy Information Administration, and the Office of Emergency Management (OEM) to operate a communication procedure for assessing energy markets during emergencies and maintaining an e-mail emergency contract

## 1.9 Pre- and Post-Disaster Model Checklist

To ensure that essential guidelines are included and properly executed, emergency managers should develop detailed checklists using the model below as a guide.

### MODEL CHECKLIST\*

#### Pre-Disaster

##### Hazard Mitigation and Preplanning:

- Prepare an integrated, comprehensive emergency management plan that provides for mitigation and long-term recovery.
- Make certain that the immediate response plan and the long-term mitigation plan reinforce each other and contain a community-based vision for sustainable redevelopment.
- Know where your resources are for both efforts and document.

#### Post-Disaster

##### Disaster Response (Immediate Response):

- Secure public safety and implement the emergency management plan.
- Assure that the emergency response team has access to the list of available resources in these guidelines.

##### Post Emergency Recovery (Intermediate term):

- Secure outside sources of expertise and communities that have developed sustainable development plans.
- Evaluate opportunities and develop a comprehensive strategy to incorporate energy efficiency and renewable resources.
- Find funding and implement intermediate actions.
- Draft a framework for developing longer-term plans for the community.

##### Long-term Recovery:

- Develop community indicators for a more sustainable community.
- Develop a comprehensive, long-term community vision and plan for sustainable recovery.
- Charge local planning and design professionals with implementation.
- Develop an ongoing communication strategy for stakeholders.
- Secure funding for the long-term sustainable redevelopment plan.

\* Model check list based in part on work from Wingspread II Conference, January 1998.