



Energy Security Committee Meeting



## *Preliminary Review of State Energy Assurance Plans*

Jeff Pillon, NASEO -- February 6, 2013



# Status of State Energy Assurance Plans



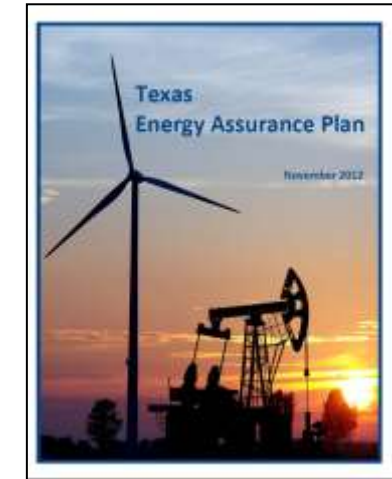
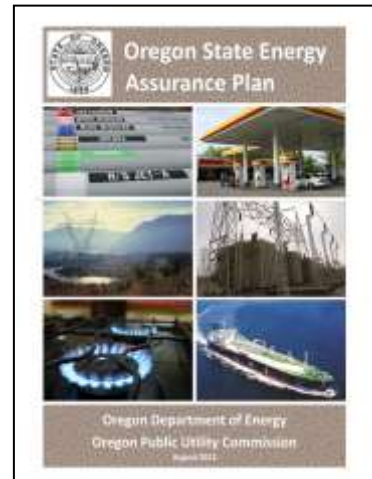
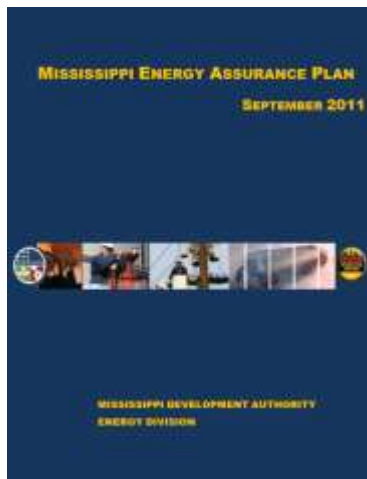
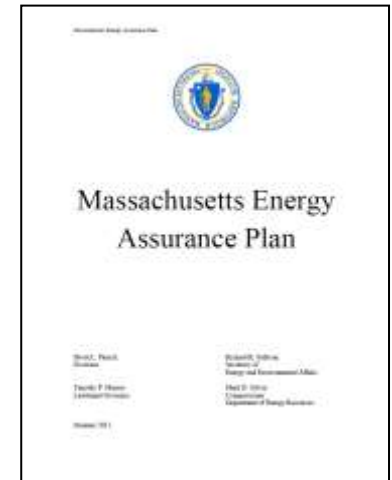
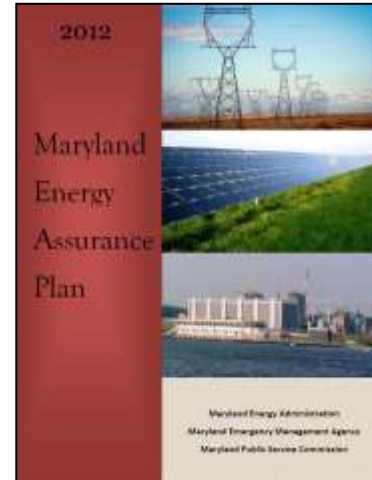
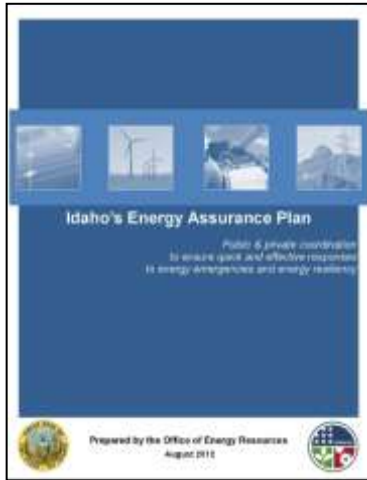
- The National Association of State Energy Officials (NASEO) has collected copies of 23 state energy assurance plans. Many of these plans will soon be available on the ISERnet for states for reference.
- The average size of the 23 plans, excluding large appendices is 216 pages. Plans ranging from 22 to 448 pages in length. The total page count for the 23 plans completed is almost 5,200 pages.
- The most state plans are expected to be available on the ISERnet by September 2013.
- NASEO has begun a review of state plans to identify best practices and unique and creative approaches in the various planning elements.
- The following examples are from a partial review of eight state plans. Further work will be undertaken to identify additional examples in the planning categories from additional states .
- Each plan is unique to the state's needs, organizational structures, energy infrastructures, types of hazards, and other factors. What may be a good plan for one state may not meet the needs of others.



# Select Planning Elements Examined



- Energy System Descriptions
- Roles and Responsibilities
- Communications
- Assessment and Tracking Tools
- Interdependencies
- Risk, Vulnerability, and Resiliency Assessments
- Petroleum Contingencies
- Emergency Electrical Procedures
- Natural Gas Curtailments
- Planning Details
- Training and Workforces Development



The preliminary review included plans from: Idaho, Illinois, Maryland, Massachusetts, Mississippi, Oregon, Pennsylvania, and Texas



# Energy System Descriptions

- **Idaho** – Includes description of total energy used and the various energy systems and the state's critical infrastructures under each. Includes detailed information on planned future additions to the energy systems and under risk and vulnerabilities section has additional system descriptions.
- **Illinois** – Includes descriptions of petroleum, natural gas, electricity. Levels of import/export are interspersed through out the plan. Infrastructure maps for each of the seven state emergency management regions.is also included.
- **Maryland** – Includes detailed descriptions of the various energy systems as well as the state's critical infrastructures under each. Includes detailed information on planned future additions to the energy systems
- **Massachusetts** – The plan provides trends in primary energy consumption, including energy consumption and expenditures by sector and supply sources and distribution systems .
- **Mississippi** – Energy systems are described as the first part of each set of the emergency plans. Systems described are petroleum, electricity, smart grid, renewables, natural gas, propane, coal, aviation gasoline and pipelines .
- **Oregon** – Provides an energy profile and sources of data for all major energy resources . A separate chapter details Oregon's renewables resources portfolio including biofuels and smart grid technologies.
- **Pennsylvania** –The Plan has a “Vulnerability Assessment Report” which includes the energy profile, geography and demographics of the state and in the appendix to the Annex has statistical tables of energy use infrastructure and demographic data .
- **Texas** – Interspersed through out the plan covering petroleum, total energy use, coal and renewables

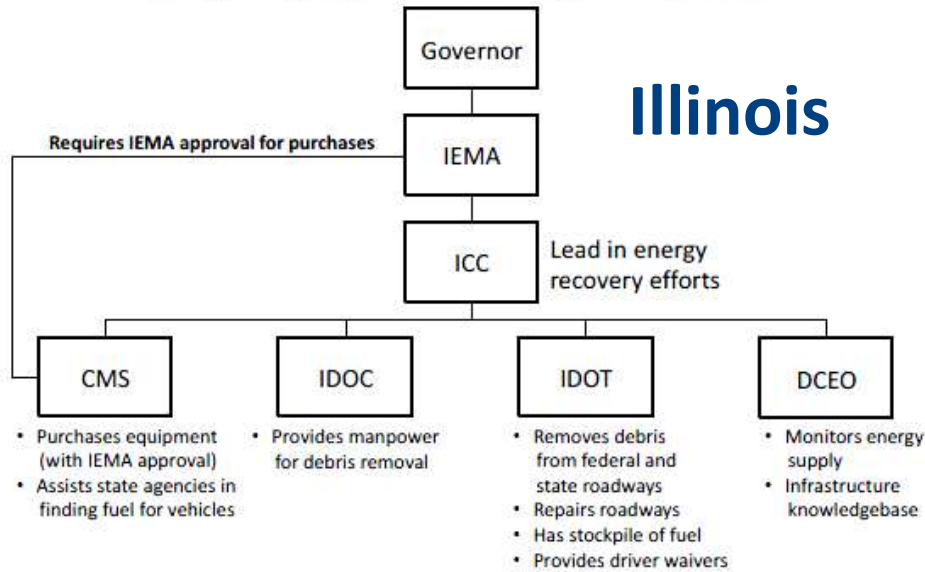




# Roles and Responsibilities

Energy Emergency Response Hierarchy and Responsibilities

## Illinois



## Texas



Figure 5: Texas energy emergency response hierarchy

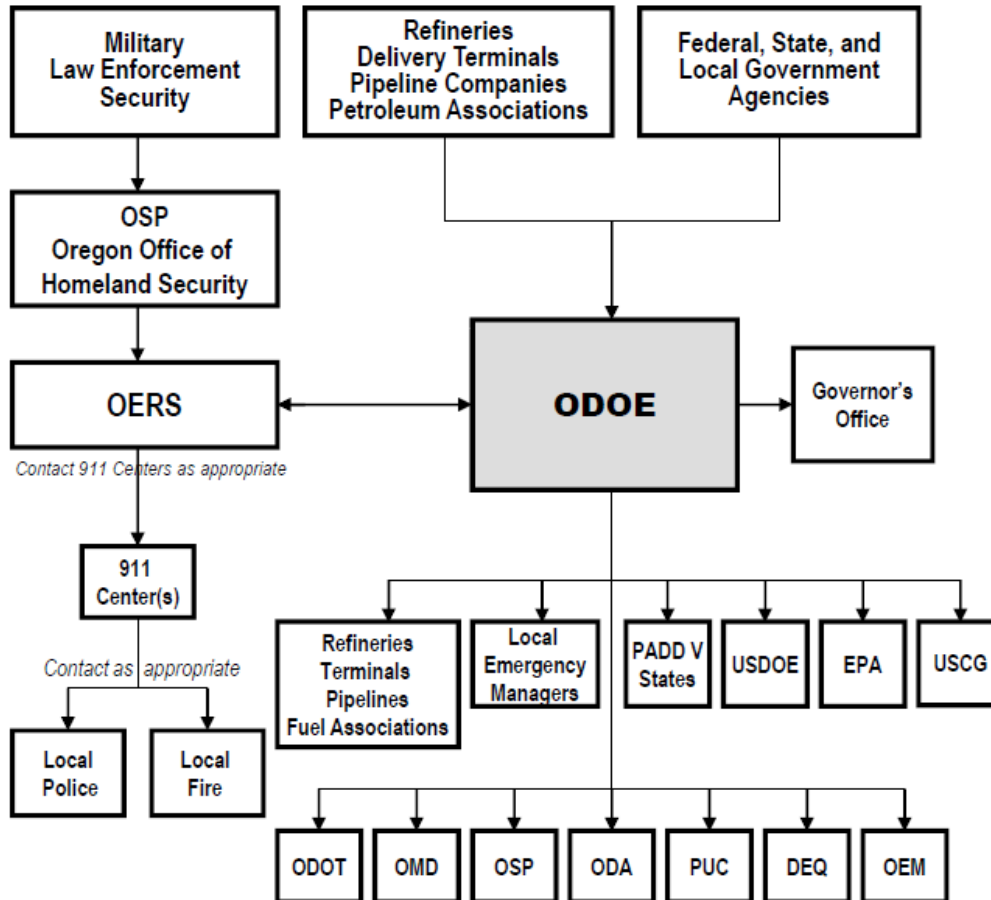


Figure 1.1

## Mississippi

# Oregon State Energy Assurance Plan

## Petroleum Alert and Emergency Notification Call Tree



### Alert and Emergency Notifications:

- To report suspicious activity, actual attacks, or other emergency situation at the terminals or pipelines.
- To report forecasted petroleum shortage or disruption.
- To report potential or actual attacks on the petroleum supply or distribution system.
- To report other energy events that may impact the the state's petroleum supply or distribution system.

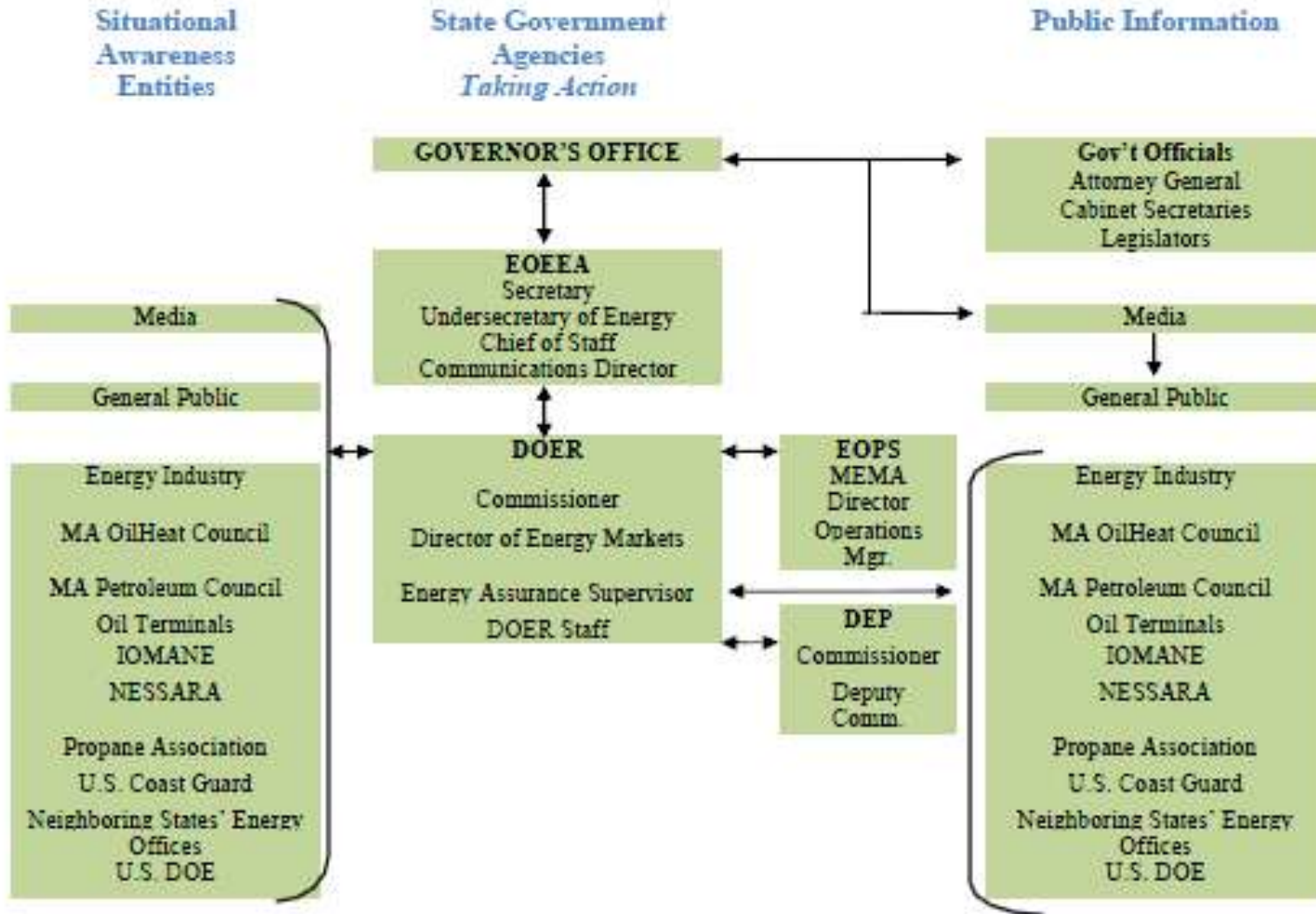
### ACRONYMS

DEQ:	Oregon Department of Environmental Quality
ODA:	Oregon Department of Agriculture
ODOE:	Oregon Department of Energy
ODOT:	Oregon Department of Transportation
OERS:	Oregon Emergency Response System
OEM:	Oregon Emergency Management
OMD:	Oregon Military Department
OSP:	Oregon State Police
PADD V:	Petroleum Administration for Defense District V: Alaska, Arizona, California, Hawaii, Nevada, Oregon, and Washington
PUC:	Public Utility Commission
USCG:	U.S. Coast Guard
USDOE:	U.S. Department of Energy
US EPA:	U.S. Environmental Protection Agency

## Communications

# Massachusetts Energy Assurance Plan

Diagram 1: Petroleum Emergency Communications



Note: Other diagrams show communication flows for natural gas and electricity

## Communications



# Illinois Energy Assurance Plan

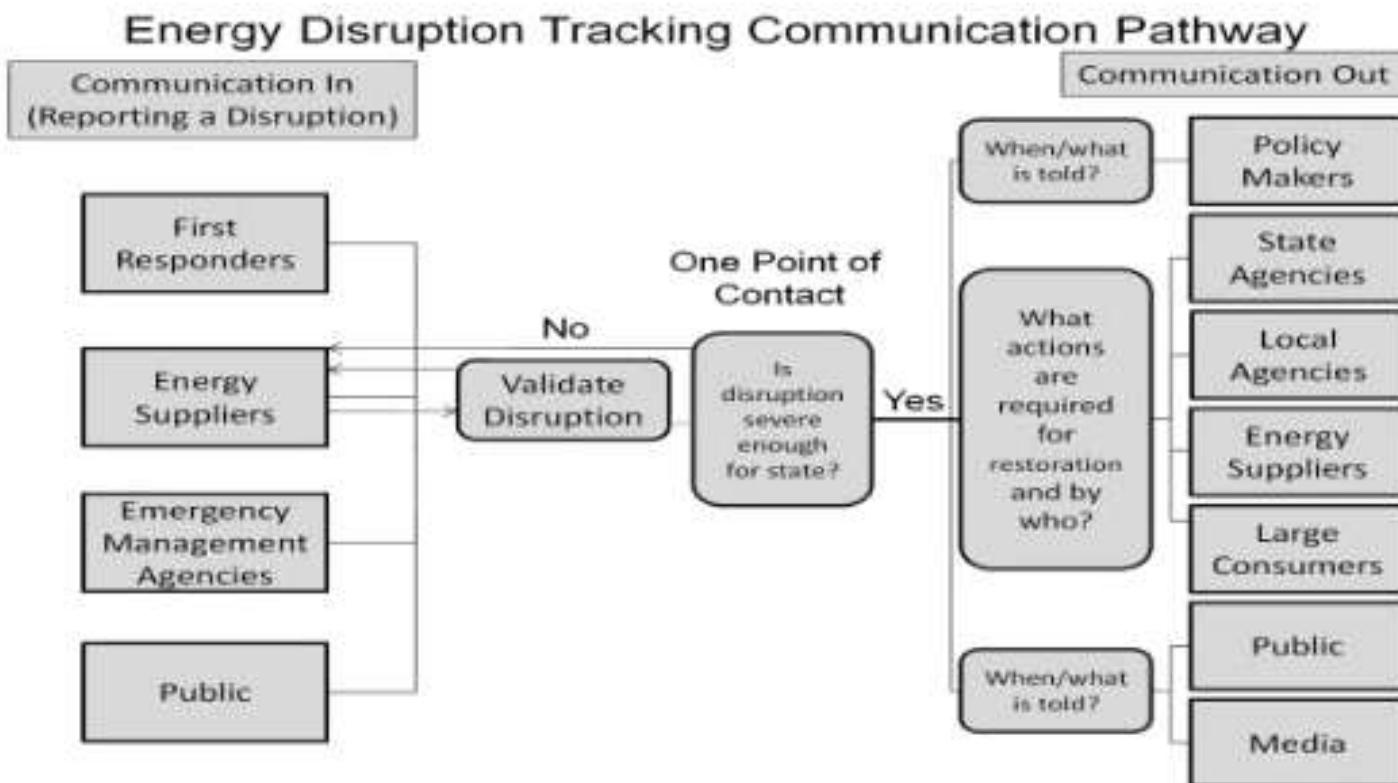


Figure 8. Within-state Communication Pathway for Energy Disruption Restoration

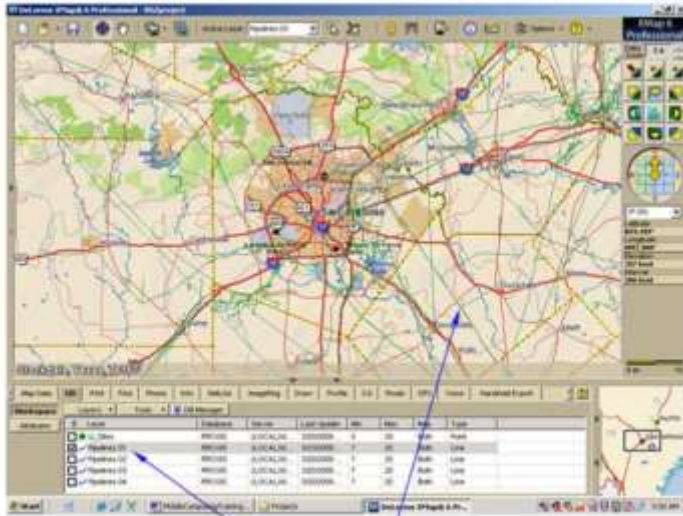
## Communications



# Assessment and Tracking Tools

## Texas Rail Road Commission Geospatial Maps

Figure 84: XMap pipeline layer sample



Pipeline in District 1 (Green lines in the map)

## Texas PUC Power Outage Tracking System

Utility Outage Reporting

(Public) PUBLIC UTILITY COMMISSION TX  
User: phobbs  
Last logged in: 7/13/2010 3:58:55 PM  
log out

Hurricane Alex change event  
Type: Electric • Dataset: 7/6/2010 3:57:00 PM •

Executive Summary County Report Company Report Zip Code Report Peak Outages Zip Code Search

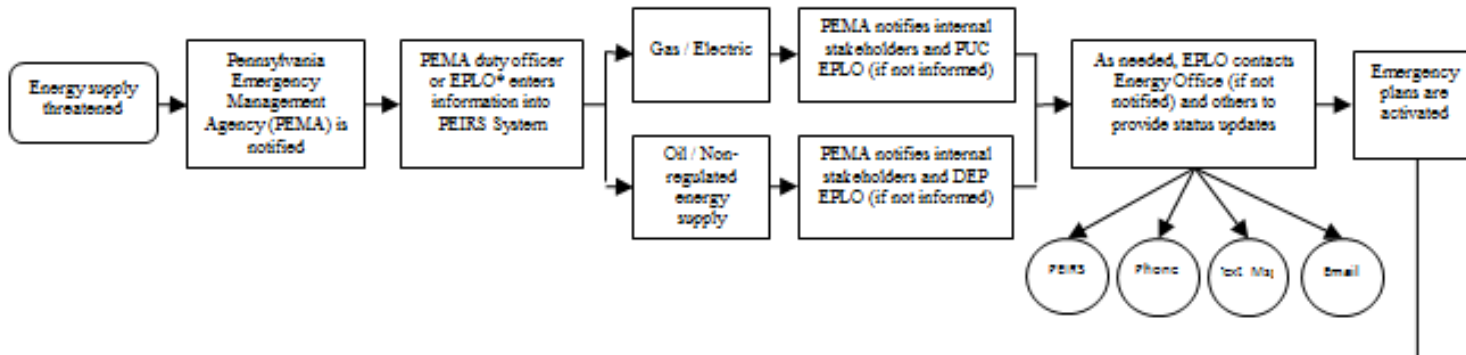
### Executive Summary Report

Message Center  
Data Entry  
Reports  
Charts  
County Exclusions  
FAQ  
Reset Passwords

Household Service	Households with No Service	Percent Out	Expected Restoration
358,702	1,241	0.35%	7/20/2010

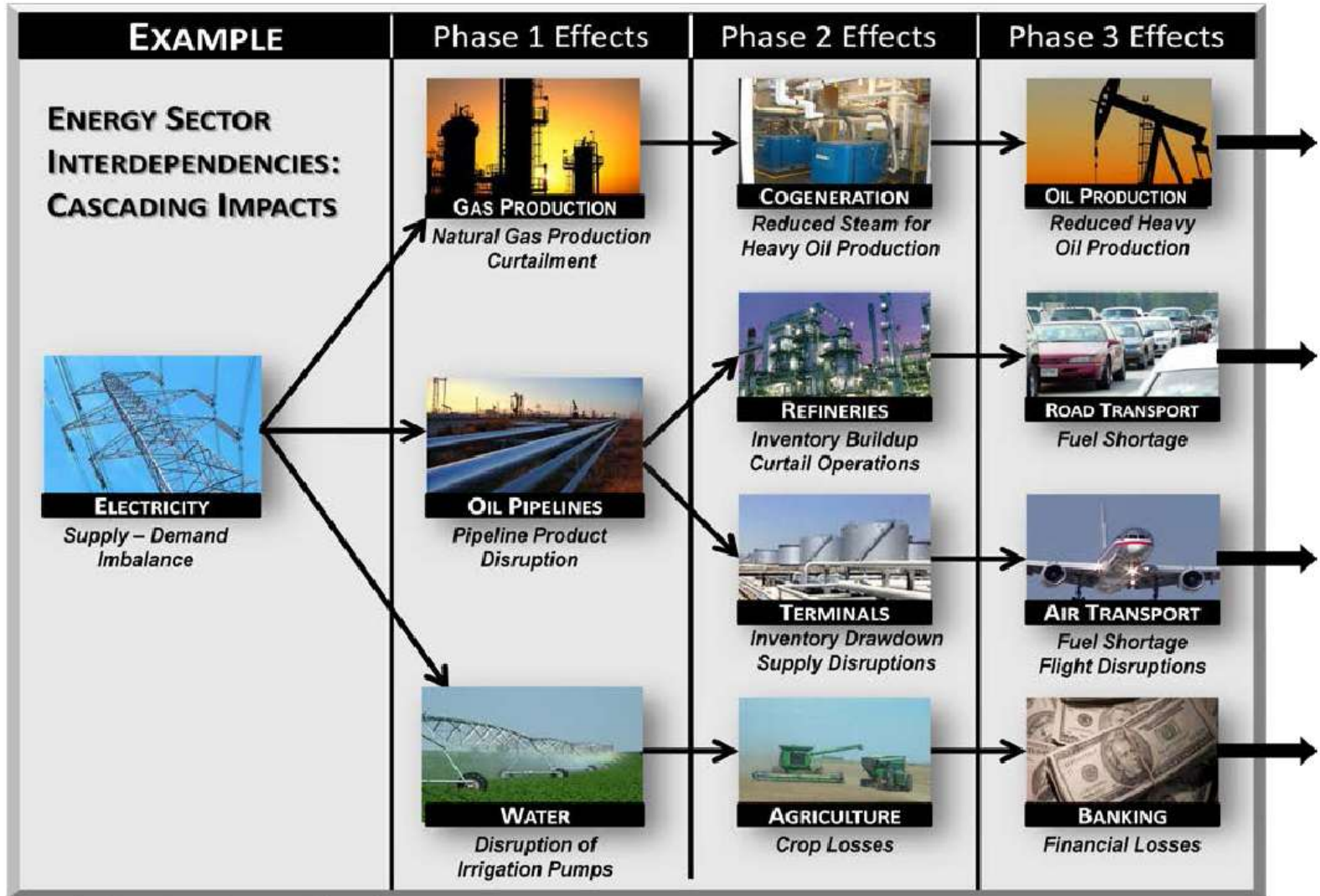
Company	Peak Out	Current Out	Total Customers	% Out	Restore Date	Last Reported
BROWNSVILLE PUBLIC UTILITIES BOARD	22	22	45,076	0.0%	7/12/2010	7/12/2010
AEP TEXAS CENTRAL COMPANY	4,703	1,188	205,400	2.4%	7/20/2010	7/12/2010
WHEELER ELECTRIC COOPERATIVE	108	108	7,128	1.5%	7/20/2010	7/20/2010

## Pennsylvania State Energy Assurance Disruption Tracking Process



Part of the High Level Workflow Diagram

# Oregon State Energy Assurance Plan



Cascading impacts continue past Phase 3.

## Interdependencies

# Earthquake Risk Study for Oregon's Critical Energy Infrastructure Hub

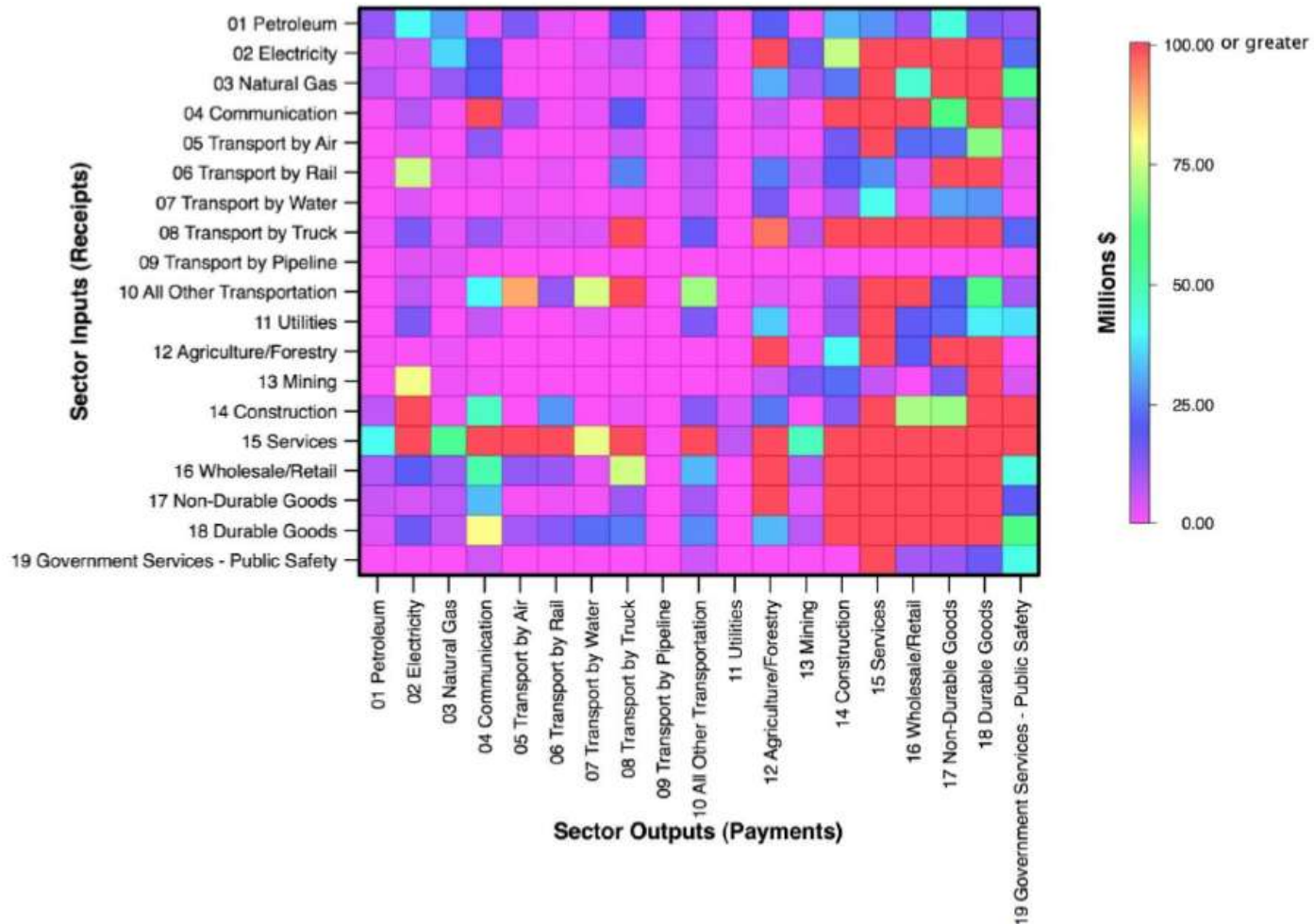
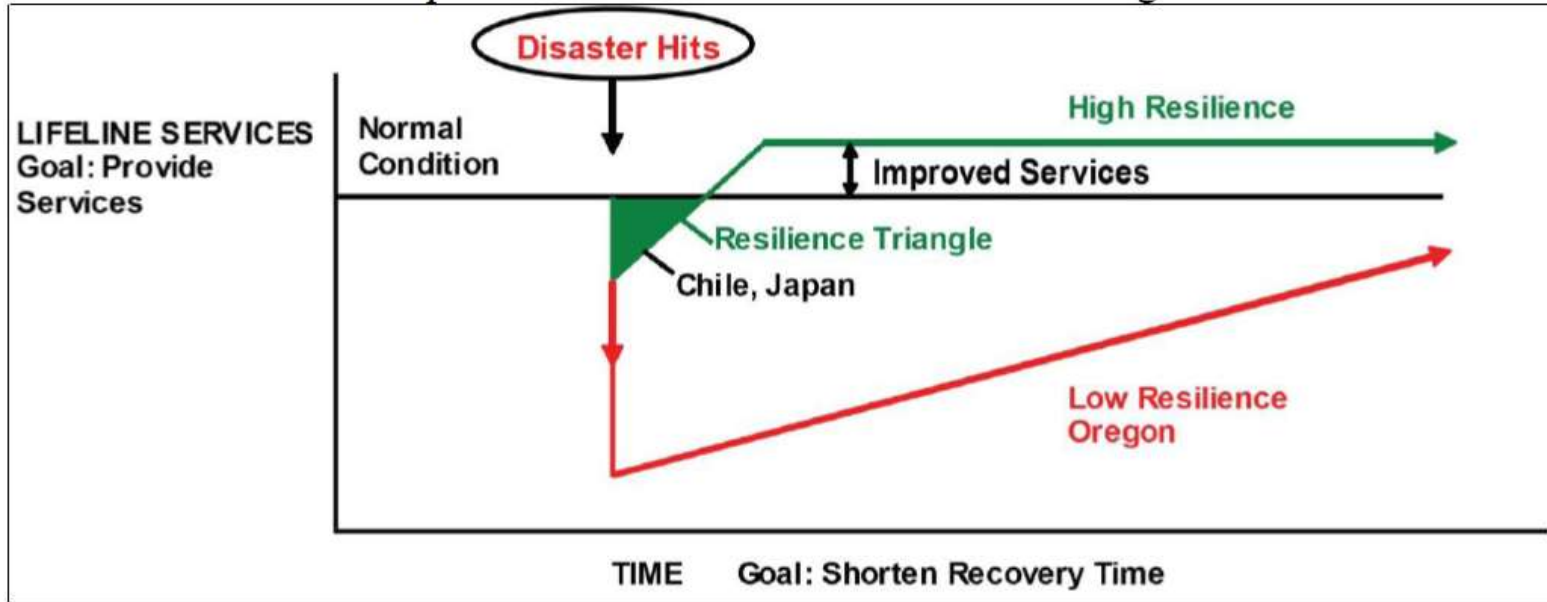


Figure A1. Visual representation of the input-output table of Table A2. Hotter colors (red, orange) indicate higher dollar value. Red indicates \$100 million or greater.

## Interdependencies

# Earthquake Risk Study for Oregon's Critical Energy Infrastructure Hub



*Resilience Triangle (modified from MCEER)*



*Left: These high voltage electrical transmission towers are built on a river bank in the CEI Hub susceptible to lateral spreading. (DOGAMI photo) Right: Structural damage to a high voltage transmission tower located at a river crossing in 2010 Chile earthquake (Technical Council on Lifeline Earthquake Engineering – TCLEE)*

## Risk, Vulnerability and Resiliency Assessments

# NYS2100 Commission Preliminary Report on Improving the Strength and Resilience of New York State's Infrastructure – January 2013

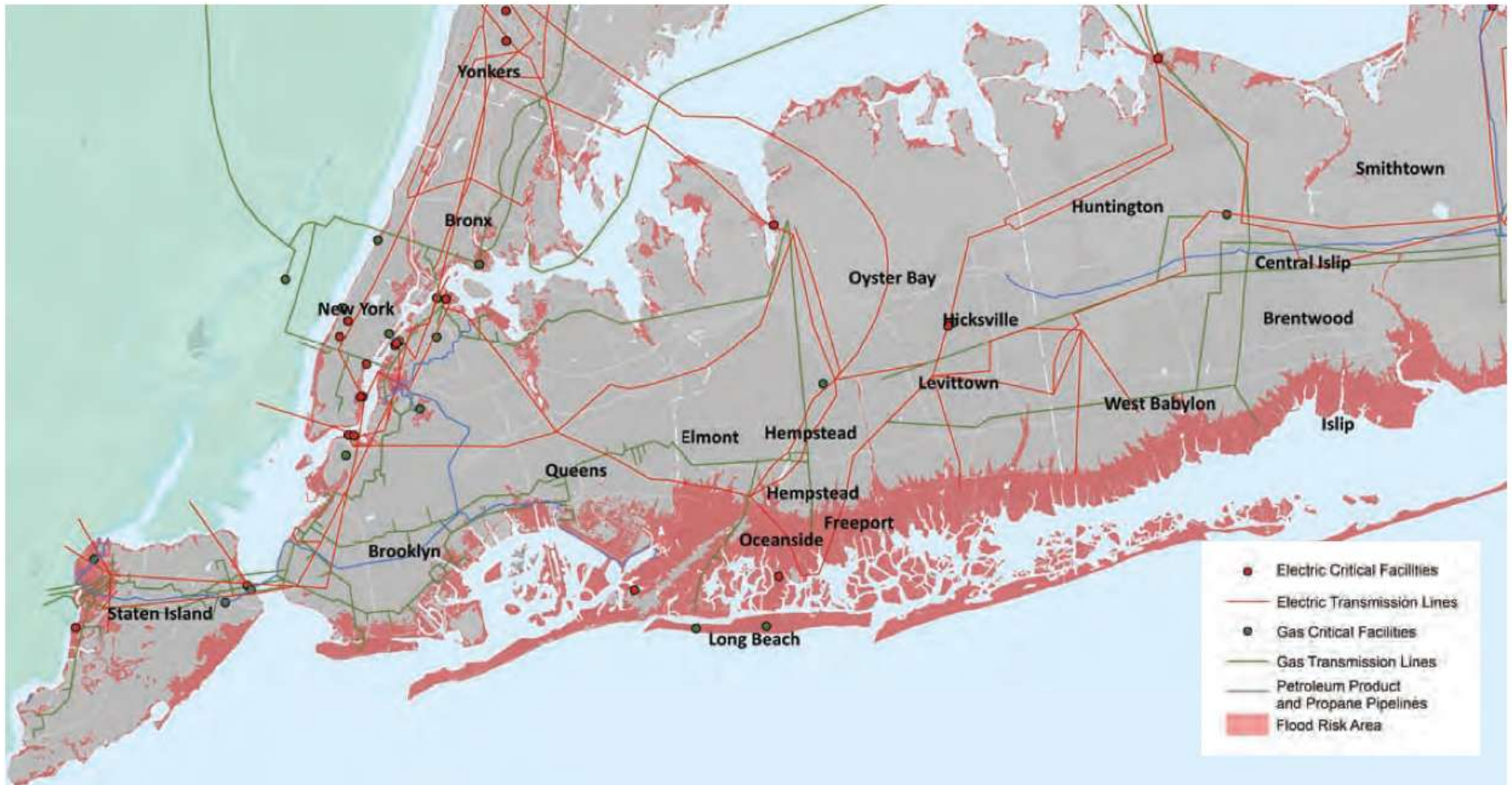


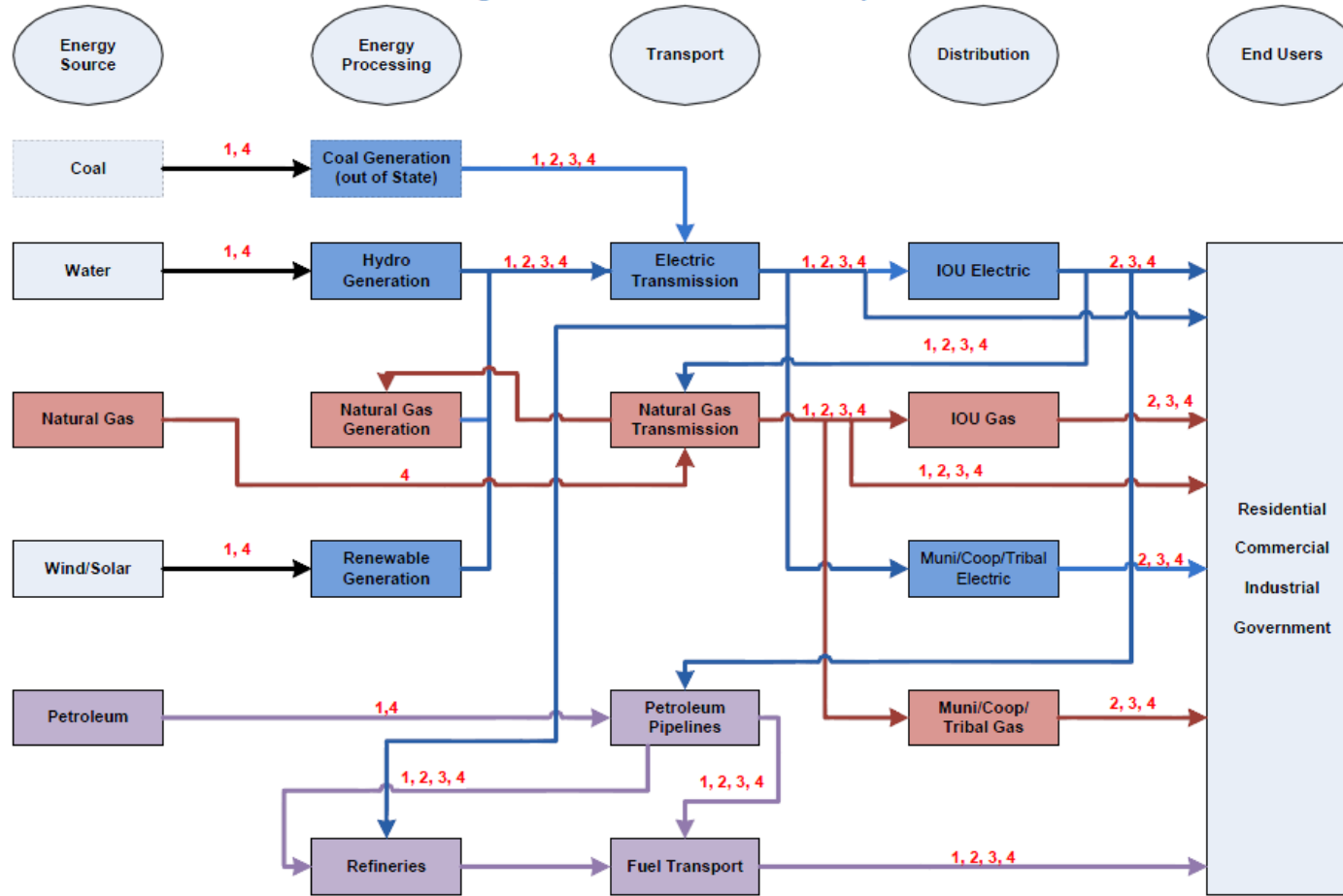
Figure E-02: New York Energy Network (State of New York, 2012)

<http://www.governor.ny.gov/assets/documents/NYS2100.pdf>

## Risk, Vulnerability and Resiliency Assessments

# Idaho's Energy Assurance Plan August 2012

Figure 31 - Risk Assessment Template



- Threat Groups**
1. **Deliberate** (terrorists, criminals, hackers delinquents, employees)
  2. **Natural** (hurricanes, tornadoes, floods, wildfires, earthquakes)
  3. **Accidental** (pipeline rupture, levee breaches, chemical spills, power outages, nuclear or biological contamination)
  4. **Systemic** (physical inability of energy delivery systems to meet demand)

## Risk, Vulnerability and Resiliency Assessments

# + Petroleum Contingencies

Many States have the following measures in their plans

## ■ Supply Management

- Environmental waivers of fuel specifications- IL, MA, OR, PA
- Waivers of motor carrier safety regulation (Driver Hours) – IL, MA, MS, OR, PA
- Contracts for emergency fuel purchase and emergency fuel storage management - ID
- Priority energy user program – MA, OR
- Odd/even and min/max retail gasoline purchases – MA, OR
- State set-aside program – MS, OR, PA

## ■ Demand Management

- Public information programs – MA, MS, OR, PA
- Ridesharing, vanpooling increased use of mass transit – ID, MS, OR, PA
- Increased enforcement of speed limits – ID, MD
- Flex-time employer scheduling – ID, MS, OR, PA





# + Emergency Electrical Procedures

- Plans should contain a summary of electric utility emergency plans and procedures for:
  - Independent System Operator
  - Local Electric Distribution Utilities
  - Municipal Utilities
  - Electric Cooperatives
- State plans for power outages should identify (1) what actions state government will take when utilities are no longer able to fully address consequences; and (2) the plans to respond to utility requests for state assistance. Some examples include:
  - Asking the public utility commission or Governor to echo public appeals to reduce electric use or, in severe situations, implement mandatory power curtailments
  - Facilitate access to areas that have been damaged to restore power
  - Provide fuel supplies for restoration if they have become limited due to the nature of the emergency
  - Facilitate the movement of out-of-state utility crews into the effected area
  - Providing aviation resources to help identify damage to transmission line, substation, and other facilities in remote locations





# Natural Gas Curtailments



- Plans should contain a summary of natural gas curtailment and emergency plans for the following groups:
  - Local Natural Gas Distribution Utilities
  - Emergency provisions for transportation customers supplied through Local Natural Gas Distribution Utilities
  - Interstate natural gas pipelines emergency and curtailment plans and procedures
  - Natural gas pipeline safety and emergency procedures at the state and federal levels
  
- State plans for natural gas shortages should identify (1) what actions state government will take when utilities are no longer able to fully address consequences; and (2) the plans to respond to utility requests for state assistance. Some examples include:
  - Asking the public utility commission or Governor to echo public appeals to reduce natural gas use or, in severe situations, before implementing additional mandatory curtailments (Maryland Level 4 Shortage)
  - Facilitate access to areas that have been damaged to shut off and repair any leaking pipes. Provide gasoline and diesel supplies for restoration if they are in short supply
  - Some state have not updated curtailment plans in many years and are now planning to do so (Texas EAP, page 30)



# Planning Details



1. **Program Elements**: description of the measure, what is the intent of the measure, when the measure should be used, legal authority
2. **Coordination**: role of the private and public sectors, relationship to the state's emergency management plan, affects on other jurisdictions, regional entities and the federal government , how will local governments be effected or have a role?
3. **Implementation**: estimated budget and staffing, estimated computer requirements and security, procedures, implementation lead time and administration including the roles of other state or local agencies, evaluation mechanisms
4. **Impact Assessment**: estimated demand reduction, estimated reductions in fuel consumption, estimated increase in supply, interdependency effects, social impacts, economic/financial impacts, information management, programmatic threats (for instance those associated with new or obsolescence technology)
5. **Risk Management**: historical performance and deviation of response measure (i.e. lessons from the past), define and monitor critical elements for the successful performance of the response measure, identify medium-to-long term impacts to reduce unintended consequences

Source: Energy Assurance Planning Framework, Level 3: <http://naseo.org/eaguidelines/framework/level3.html>



# Training and Workforce Development



- The rate of staff turnover due to retirements, reassignments, reorganizations, and departures from state service means states need to have a process that assures ongoing training and exercises
- A specific deliverable of the Energy Assurance Grant was a “Workforces Development Plan” which should be included with, or as a part of, the energy assurance plans to assure preparedness and sustainment of capabilities built over the last 3 years
- Pennsylvania has address this well in their plan which discussed the need for a trained workforce and defines and identifies resources and training in the following categories:
  - Initial
  - Advanced
  - Support
  - Continuing Education



# + Planning Improvements

- Some plans list contingency measures such as plans to implement a ridesharing program or flexible work hours in the petroleum emergency. Yet there may not be details on how this will be done. Level 3 of the Energy Assurance Guidelines Framework provided an outline on how contingencies plans should be detailed.
- Planning interfaces should be defined. A number of plans describe how the energy emergency response plans interface with the states general emergency or disaster response plans often as describe in the ESF-12 annex. Less common are summary descriptions of the private energy sector emergency plans and at what point would they look for states assistance or in a major disaster what actions would the states take that would assist in the recovery effort
- Emergency contact information is interspersed through out some plans. This makes it harder to quickly find the contact information and, when updated, the entire plan will need to be reissued. Contacts are best organized as a separate document or in an appendix.
- Some plans are heavily oriented to energy emergency response with little on longer term plans to reduce risk, vulnerabilities and enhance the resiliency of energy infrastructure. In other state plans this area has been extensively addressed



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# Closing... and Final Questions



City Hall 1906 Great San Francisco Earthquake



2011 Halloween nor'easter, sometimes referred to as Storm 'Alfred'



**Thank you!**

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