

# Washington State Energy Assurance and Emergency Preparedness Plan

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STATE OF WASHINGTON  
DEPARTMENT OF COMMUNITY,  
TRADE AND ECONOMIC DEVELOPMENT

**Energy Policy Division**

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**PART II – ENERGY ASSURANCE – TO BE WRITTEN – Target date 2008**

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**Energy Sufficiency and Reliability ..... TBW**

**APPENDICIES (separate electronic documents)**

Appendix A – Chapter 43.21F RCW, [State Energy Office](#)

Appendix B – Chapter 43.21G RCW, [Energy Supply Emergencies, Alerts](#)

Appendix C – Chapter 44.39 RCW, [Joint Committee on Energy Supply and Energy Conservation](#)

Appendix D – RCW 43.06.210 – 270 [Governor – Proclamations - Emergencies](#)

Appendix E – Chapter 194-22 WAC, [Washington State Curtailment Plan for Electric Energy](#)

Appendix F – [State Energy Assurance Guidelines – National Association of State Energy Officials](#)

Appendix G – Energy Suppliers and Key Energy Customers

## Executive Summary

The Washington State Energy Assurance and Emergency Preparedness Plan implements statutory requirements of Chapter 43.21F, Revised Code of Washington, wherein the Department of Community, Trade and Economic Development (CTED) is directed to prepare the state to address energy emergencies.

Energy emergencies take many forms, from blackouts to pipeline explosions to petroleum shortages, which can threaten the life, health and welfare of the public. The state must be prepared to address all emergencies, so response plans must be broad and flexible. Implementation may vary greatly from emergency to emergency.

This plan replaces previous plans that addressed electricity and petroleum emergencies separately, and incorporates into a single plan state response to energy emergencies of all types: petroleum, electricity and natural gas. This plan also incorporates for the first time efforts to address the security and adequacy of energy infrastructure.

The plan was developed with three main audiences in mind:

Agencies of the state, both executive and legislative, that are responsible for responding to energy emergencies and protecting energy infrastructure, including, but not limited to: the Office of the Governor, the Joint Committee on Energy Supply and Energy Conservation,<sup>1</sup> CTED, the Washington Utilities and Transportation Commission, the Department of General Administration, the Washington State Department of Transportation, the Washington State Patrol, the Superintendent of Public Instruction, and the Military Department;

Energy Suppliers, including public agencies (such as Public Utility Districts) and private companies (such as oil companies) that have business responsibilities for meeting energy demand; and

Energy consumers, including key service providers (such as transit authorities), who may have key capabilities to aid in emergency response, or who may want to know how state response plans affect or involve them.

Organizations and individuals that have responsibilities under this plan can use it as a guide, but specific tasks will only arise in response to impending or existing energy emergencies and through interaction with a CTED coordinated response team. Agencies, energy suppliers and key service providers will be notified by CTED in the event of an emergency.<sup>2</sup>

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<sup>1</sup> Formerly Joint Committee on Energy and Utilities created by Chapter 44.39 RCW. Composition of the Committee is established in the statute.

<sup>2</sup> Generally, these entities know who they are. CTED periodically updates its key contacts.

This plan was updated with close attention paid to the State Energy Assurance Guidelines (Appendix F), a collaboration of the US Department of Energy and the National Association of State Energy Officials (NASEO). CTED helped develop the Guidelines through participation on the NASEO Energy Data and Security Subcommittee.

Questions about this plan can be directed at any time to the CTED Energy Policy Division, 360-725-3117.

## Introduction

### Authority

State law directs the Washington State Department of Community, Trade and Economic Development to “prepare and update contingency plans for implementation in the event of energy shortages or emergencies.” RCW 43.21F.045(2)(a) (see Appendix A). The plans must conform to the directives of Chapter 43.21G RCW, the state energy emergency statute (Appendix B).

### Contents

This plan primarily addresses probable, imminent, and existing energy shortages.<sup>3</sup> Part I: Emergency Preparedness, is the contingency plan. Part II: Energy Assurance, is yet to be written, but will provide a description of proactive efforts to prevent future emergencies. Appendices are attached that contain important background information and supporting data.

The plan is intended primarily for use by public agencies, energy suppliers, and key service providers who have responsibilities or essential capabilities for responding to energy emergencies.

The plan is a guide, not a list of procedures, because every energy emergency is different, with circumstances that may change quickly and greatly. Response actions must be flexible. Response options are offered as a “menu” from which to select and implement.

Implementation is team oriented, relying heavily on coordinated day to day analysis and decision-making.

Roles and responsibilities are explained in the plan, based on Chapter 43.21G RCW, the state energy emergency statute. The governor is in charge, supported by the legislature’s Joint Committee on Energy Supply and Energy Conservation (Appendix C). Primary advice and implementation leadership is provided by the CTED Energy Policy Division in coordination with other state agencies.

Response options emphasize market solutions, industry efforts, public information, voluntary actions, and local and regional programs.<sup>4</sup> However, on condition of an Energy Supply Alert, the governor may mandate actions be taken by state and local government agencies. On condition of an Energy Emergency, the governor may mandate actions be taken by the private sector. Directives to government agencies are contemplated to reduce costs, provide a public example, and because government uses large quantities of energy. Mandates to the private sector are contemplated only for extreme situations.

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<sup>3</sup> RCW 43.21F.045(2)(a)

<sup>4</sup> RCW 43.21G.030

The plan provides information for interested parties to understand the way in which the state will address an energy emergency, including:

- General Approach to Energy Emergency Response;
- Actors, Roles and Responsibilities; and a
- Menu of Emergency Response Options (Described and Explained).

In addition, Part II of the plan describes Energy Assurance plans, including:

- Efforts Underway to Protect Critical Energy Infrastructure; and
- Efforts Underway to Ensure Adequate Energy Supply and Reliability.

### **Types of Energy Emergencies & Organization of State Response**

Energy emergencies come in all shapes and sizes, from blackouts to pipeline explosions to petroleum shortages. The nature of state response depends on what is needed to avoid, or end, the emergency. The way in which the state organizes itself to respond to an emergency can vary with the emergency. When an emergency occurs, CTED and other state agencies determine the best way to organize their response.

Small “emergencies” happen all the time and energy companies respond without government assistance. The more severe an emergency, the more likely it is that local, state or federal government action will be required.

#### **Disaster Response**

Sometimes an energy emergency is part of a larger emergency like an earthquake.

Most disaster response efforts are coordinated through the state Emergency Operations Center (EOC), operated by the Military Department, Emergency Management Division (EMD). Under most scenarios EMD provides policy direction and coordination for state response. State response is then implemented under the Washington State Comprehensive Emergency Management Plan (CEMP).<sup>5</sup>

In such a situation, CTED responds along with other state agencies in support of EMD. If there is an energy outage or shortage associated with the disaster, the CTED Energy Policy Division assists EMD by acting as liaison with affected energy companies.<sup>6</sup> Disaster assistance by CTED often amounts to no more

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<sup>5</sup> Washington State Comprehensive Emergency Management Plan, Edition II, Change 2, October 2003.

<sup>6</sup> All major state agencies have responsibilities to assist EMD in disaster response. For example, the Department of Ecology monitors toxic chemicals released during floods.

than monitoring and information sharing, because energy companies are responsible for repairing their own systems. The state responds to energy problems during the disaster as needed. For example, the EMD logistics group maintains lists of available generators for shelters and mass care facilities. CTED may be called on to contact oil companies for fuel for emergency response vehicles. Each disaster is different, and energy problems are identified, prioritized and resolved along with all other problems.

On occasion, the nature of a disaster dictates that a different state agency, other than EMD, provide policy direction for emergency response. In that case EMD operates the EOC in support of the lead agency. For example, in the case of Pan Influenza, the state Department of Health (DOH) would direct state response efforts under a DOH plan and the EOC would be operated by EMD in support. It is possible to imagine a scenario where an energy shortage is the main “incident” requiring state response, and is of such significant scale that EOC support is required. In that case CTED would direct state response under this plan and EMD would operate the EOC in support. A successful terrorist attack on multiple critical energy facilities might lead to such a situation.

In the most severe disasters, the federal government steps in to assist, and CTED is liaison with the US Department of Energy.<sup>7</sup> It is possible that a disaster can lead to a serious energy supply emergency. For example, hurricanes Katrina and Rita damaged petroleum production platforms in the Gulf of Mexico and shut down significant refining capacity in the Southeastern United States. Fuel allocation programs were implemented in various states. In such a case, it may be necessary for the Governor to formally declare both a disaster – by proclamation, and an Energy Emergency – through executive order, in order to invoke the specific extraordinary powers of disaster response and the energy emergency statute.<sup>8</sup>

In situations where an energy emergency is a component of a disaster, whether EMD is the lead with CTED support under the CEMP, or CTED is the lead with EMD support under this plan, CTED and EMD conduct operations in compliance with the National Incident Management System.

A second aspect of energy emergencies that influences state response is whether there is an actual service interruption or a shortage of energy supply.

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<sup>7</sup> During disasters requiring federal response, different state agencies are designated liaison with different federal agencies. Under the Washington State Comprehensive Emergency Management Plan, the CTED Energy Policy Division is liaison with the US Department of Energy (Office of Electricity Delivery and Energy Reliability) that together implement emergency response actions addressing energy issues under Emergency Support Function #12 (Energy).

<sup>8</sup> The governor’s extraordinary authorities for disaster response (Chapter 43.06 RCW) are extensive but less specific than the energy emergency statute. Declaring an energy emergency and invoking specific authorities makes clear that the governor’s orders are explicitly authorized, and not based on interpretation of a more broad and general authority.

## Service Interruptions

Sometimes energy service is interrupted, and demand cannot be met at any price. This is most true with electricity and natural gas service when infrastructure is destroyed or damaged, especially at the local distribution level. Customers are connected directly to electricity grids and natural gas pipelines. If the grid or pipelines are damaged, service can be lost.<sup>9</sup>

If damage to infrastructure is the cause of the emergency, then usually the solution is to repair the infrastructure. State response is limited because energy companies are responsible for repairing their own systems. The state does what it can to help, but direct assistance to energy companies is rare.<sup>10</sup>

In Washington, most energy emergencies are of this type, e.g. electricity lines knocked down by wind, trees or ice. EMD directs disaster response, and, if the outage is large enough, CTED supports EMD in the EOC. However, most blackouts are not large enough or last long enough to require CTED to go to the EOC. Monitoring, if needed at all, often can be done by phone or e-mail.

## Supply Shortages

Sometimes an energy emergency takes the form of a shortage. Petroleum product shortages typify this kind of emergency. Whether caused by infrastructure damage (tanker grounding, pipeline explosion) or by market factors (labor strike, economic upswing increasing consumption) supply becomes insufficient to meet demand.

The solution may not require repair of infrastructure, but increasing supply or decreasing demand. The state can play a more significant role in these types of emergencies, primarily by encouraging reductions in consumption. On occasion, a supply shortage threatens to become a service interruption. For example, low electricity supplies in the West in 2001 (combined with transmission congestion)

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<sup>9</sup> Damage to infrastructure does not always lead to loss of service. Generating plants have unscheduled outages all the time, and reserve plants are brought on line without any interruption to customers. During times of the year when demand is high and reserves are low the loss of infrastructure will more likely lead to loss of service. Also, it does not always require damage to infrastructure to have a loss of service. Operator error can do it. An overload due to a temporary fault can do it. In California in 2001, a congested transmission corridor made it impossible to get electricity to where it was needed; this led to load dropping that was implemented as rolling blackouts.

<sup>10</sup> Direct assistance to utilities has included provision of helicopters to repair remote radio repeater facilities, facilitating border crossings for repair crews, even acquiring assistance from the Navy (a submarine) to supply additional electricity.

resulted in rolling blackouts in California. In Washington, efforts to reduce demand and add new supply were successful, and blackouts were avoided.

A key feature of supply shortages is increased energy prices. The market impact of higher prices (both dampening demand and drawing new supplies to the state) is an expected and beneficial outcome, as it helps resolve the emergency. However, if prices increase quickly, reach high levels, and last a long time, they can have debilitating affects on residents and businesses. The state may need to take steps to address high prices and their negative economic consequences.<sup>11</sup>

In Washington, most energy emergencies that require significant implementation of this plan are of this type – supply shortages. However, these are also quite rare events, over the last twenty years essentially limited to the Exxon Valdez grounding, preparations for oil supply shortages prior to the Persian Gulf War and the war in Iraq, and the 2001 western electricity crisis. Most often, though supply gets tight and prices rise, no noticeable shortage occurs, as with the Olympic Pipeline explosion in Bellingham in 2002 and the high diesel prices in February, 2005. CTED monitors the situation and the governor may encourage conservation efforts, but there is no substantive state response.

In sum, energy emergencies have numerous causes - accidents, weather, market forces, and many potential consequences - from high prices to life endangerment. State response is therefore commensurate, fitting actions to situations. The following table provides a few examples of energy emergencies and differing state response.

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<sup>11</sup> In 2001, extremely high electricity wholesale prices caused the state to seek price relief from the Federal Energy Regulatory Commission (FERC). Eventually, the FERC capped spot market prices. The cap remains in place as of this writing. Under a declared Energy Emergency, the governor can establish programs and standards that regulate the production, allocation and consumption of energy. While the state would not set prices, these programs would affect prices, and could be constructed to provide price relief to selected customers or sectors. Legislative action could also provide cost relief, e.g. through tax policy.

Table 1: Types of Energy Emergencies and State Response

	<b>Energy Service Interruptions</b>	<b>Energy Supply Shortages</b>
<b>Infrastructure Damage</b>	<p><u>Inauguration Day Wind Storm</u></p> <p>Thousands of electric poles destroyed during arctic weather.</p> <p>EMD leads state effort to provide food, water, shelter, road cleanup, etc.</p> <p>CTED monitors emergency and reports on repair and restoration progress so EMD can plan accordingly. CTED offers assistance to utilities.</p>	<p><u>Exxon Valdez Grounding</u></p> <p>Closure of Prince William Sound and Port of Valdez (pipeline terminus) cuts off 25 percent of US oil production, most destined for the West Coast. Oil companies allocate fuel to distributors.</p> <p>Oil prices increase.</p> <p>Governor urges public to reduce petroleum consumption.</p> <p>CTED intervenes on behalf of food processors short on diesel (required for drying hops).</p>
<b>Other Causes</b>	<p><u>2001 West Coast Electricity Crisis</u></p> <p>Severe drought (second worst year of runoff on Columbia river) and manipulation of new California market structure leads to extreme high prices on west coast.</p> <p>Rolling blackouts in California.</p>	<p><u>2001 West Coast Electricity Crisis</u></p> <p>In Washington crisis leads to extreme rate increases and aluminum plant closures.</p> <p>Governor speeds up permitting process for new energy supplies.</p> <p>Governor requires conservation efforts by public agencies.</p> <p>Governor urges public to reduce electricity demand.</p> <p>Governor directs utilities to prepare for rolling blackouts. CTED holds curtailment workshop.</p> <p>Blackouts do not occur.</p>

**PART I**  
**EMERGENCY PREPAREDNESS**  
(Contingency Plan)

## **General Approach to Energy Emergency Response**

When an energy emergency occurs, or the potential for an emergency threatens, the CTED Energy Policy Division begins monitoring the situation. The Office of the Governor is briefed. If conditions warrant, CTED contacts representatives of appropriate response agencies, energy suppliers and key service providers to initiate communications. In most cases, situations are resolved without further state action. If conditions worsen, CTED can implement subsequent elements of the plan.

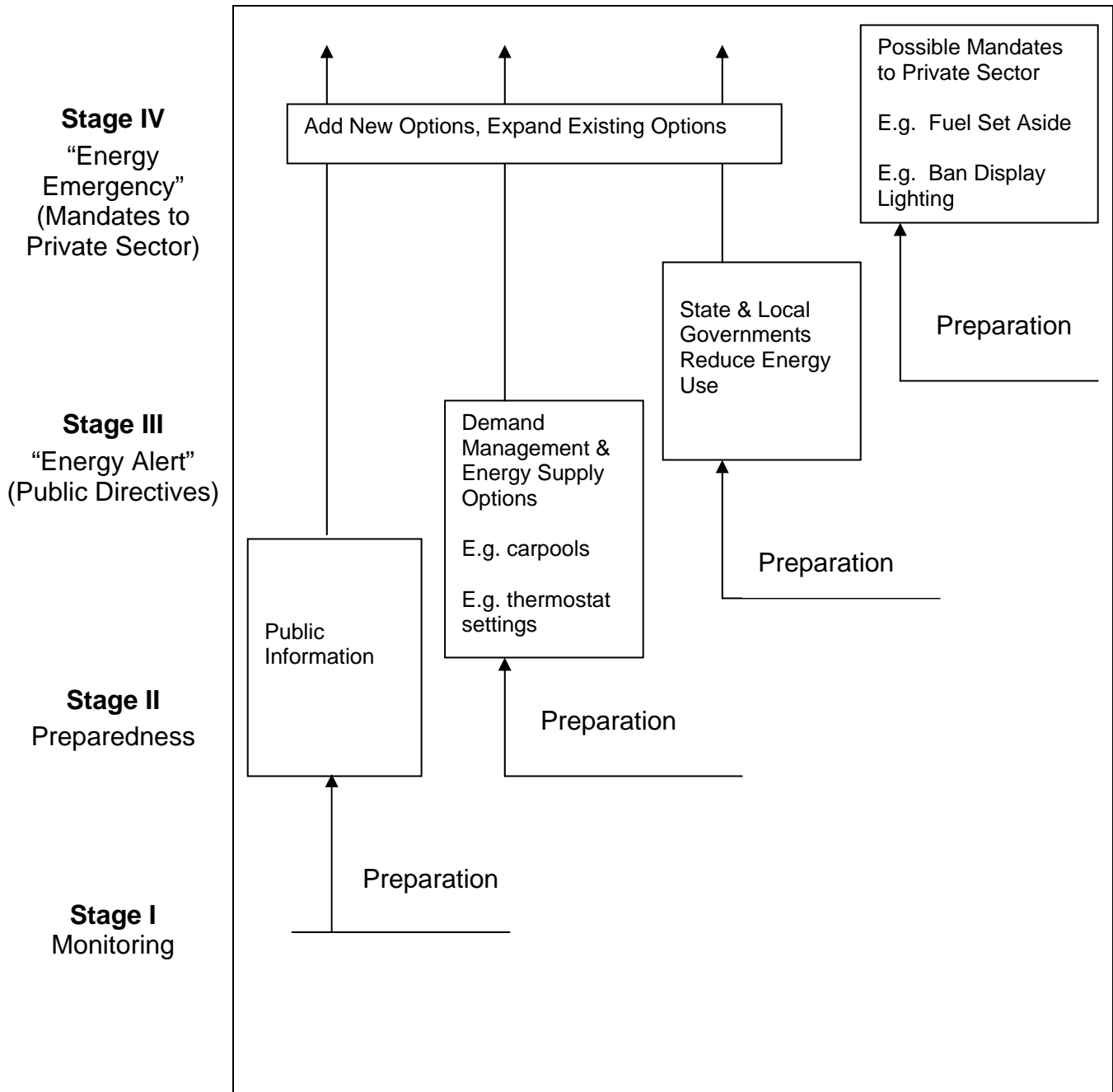
The plan operates under the assumption that a combination of market forces, such as price changes; industry actions, such as acquiring emergency supplies; and government intervention, such as disseminating information about an emergency, work together to resolve energy crises.

The CTED Energy Policy Division plays a central role advising the state on response alternatives and coordinating state-level decision making and response plan implementation. However, most actions that will help the state weather an energy emergency must be taken by individual agencies, businesses, and citizens.

The plan calls for the state to implement a phased array of increasingly stronger response actions corresponding to the severity of a crisis. For example, a public appeal to reduce discretionary driving will always precede the implementation of gasoline station queue management controls. Response actions themselves can be implemented by degrees. For example, initial low key efforts to warn the public about the need to reduce electricity demand, if ineffectual, can be followed by a robust public information campaign that includes media spots, fact sheets, conservation tips, and a hot line.

The following graph illustrates the general approach of the plan, to implement by stages a phased array of increasingly stronger response actions.

Graph 1: Illustration of General Approach to Energy Emergency Response



## Stages of an Energy Emergency

### Stage Definitions

The plan recognizes four stages of an emergency: Monitoring, Preparation, Energy Supply Alert, and Energy Emergency. Stages III and IV are established by statute and require gubernatorial action.<sup>12</sup>

### Stages

I	Monitoring	A situation where no immediate supply problems exist, yet conditions are such that it is possible that problems could develop.
II	Preparation	A worsening from Stage I conditions but no immediate threat to public health, safety, and welfare.
III	Energy Supply Alert	A situation which threatens to disrupt or diminish the supply of energy, to the extent that public health, safety, and welfare may be jeopardized. <sup>13</sup>
IV	Energy Emergency	A situation in which the unavailability or disruption of the supply of energy poses a clear and foreseeable danger to public health, safety, and welfare. <sup>14</sup>

The decision as to what stage we are in is a judgment call based on quantitative and qualitative measures, with key indicators being supply (for example available electricity generation or stocks of crude oil), demand, prices, and reported problems. Stages I and II are informal determinations made by CTED. Stages III and IV are formal declarations made by the governor through executive order.

Emergency response options are not strictly limited to specific stages unless they are dependent on the governor's emergency powers for implementation. In that case, they will be implemented only under Stages III or IV.

Rapid movement from stage to stage is not anticipated, but can happen if conditions deteriorate rapidly. While most supply emergencies evolve slowly, a

<sup>12</sup> RCW 43.21G.020 Definitions

<sup>13</sup> RCW 43.21G.020(7)

<sup>14</sup> RCW 43.21G.020(8)

significant event or combination of events could lead to immediate implementation of any stage of the plan, including a declaration of Stage IV Energy Emergency.

## Stage Descriptions

### Stage I – Monitoring

Key Characteristics – CTED Actions, No Public Notice

In dealing with an existing or potential energy emergency, information is the key for determining an appropriate response. Understanding existing supply and demand conditions and being able to anticipate future problems is basic.

The CTED Energy Policy Division tracks large amounts of energy data and related information in its statutory role as central repository for state energy information and to support its advisory responsibilities.<sup>15</sup> When an energy emergency occurs, or when a shortage threatens, the Energy Policy Division steps up its monitoring efforts. If monitoring shows the problem to be small or of short duration, no further action is needed. If monitoring shows the possibility for significant problems, CTED prepares to expand its response efforts. In any case, CTED briefs the Office of the Governor. If further state response is necessary, monitoring continues throughout an emergency and can be expanded if necessary.

A list of CTED energy emergency data and information resources, and a more detailed discussion of monitoring is included in the Menu of Emergency Response Options later in the plan.

### Stage II – Preparation

Key Characteristics: State Coordination with Industry, Emergency Response Team Activation, Public Information of General Nature

The purpose of the Preparation stage is to allow the state time to ramp up its efforts to address an evolving emergency. Because energy emergencies are so rare, and because they require the coordination of many different individuals in many different organizations, and because every emergency is unique (requiring the implementation of unique response actions) it is advisable to take time to prepare an appropriate response. For example, situation analyses need to be well done, and response plan recommendations should be the result of team review. The Office of the Governor needs time to digest situation analyses, review response plan recommendations, and prepare executive orders (if needed). Industry efforts to respond to a supply shortage take time too, and the

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<sup>15</sup> RCW 43.21F.045(2)(b)

Energy Policy Division needs to work with the industry both to understand the nature of the shortage and to develop possible solutions. While time is not always available, if it is, CTED will implement the following kinds of actions in the Preparation stage.<sup>16</sup>

- Establish a regular monitoring, analysis, and briefing function.
- Activate an Emergency Response Team.
- Review existing contingency plans and response options.
- Develop and submit initial response plan recommendations to the Office of the Governor.
- Implement selected response actions at the direction of the governor. Response actions at this stage are likely to include working with energy suppliers to solve problems and providing basic information to the media, businesses and citizens about potential problems and solutions.

### Stage III – Energy Supply Alert

Key Characteristics: Formal Government Declaration, Public Sector Directives, Public Appeals for Voluntary Action, Major Industry Initiatives.
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An Energy Supply Alert is declared by the governor through executive order. It makes available extraordinary powers that can be used to respond to an emergency, and convenes the Joint Committee on Energy Supply and Energy Conservation to review and comment on the governor's recommended response plans.

Emergency powers available under an Energy Supply Alert address state and local governments.

In a condition of Energy Supply Alert, the governor may issue orders to:

- (a) suspend or modify existing rules of the Washington Administrative Code of any state agency relating to the consumption of energy by such agency or to the production of energy, and
- (b) direct any state or local governmental agency to implement programs relating to the consumption of energy by the agency<sup>17</sup>

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<sup>16</sup> It is important to understand that response actions are not strictly limited to any particular stage of emergency. If the situation suggests that CTED should activate the Emergency Response Team under Stage I instead of Stage II it will do so. Response actions should be understood as continua. For example, public information can occur under any stage. Larger public information efforts are simply a continuation of earlier, low-key efforts. Categorization by stages is an attempt to simplify the process and make it more understandable, not to allocate specific actions to specific stages. On the other hand, response actions that require invocation of the governor's emergency powers can only be undertaken under stages III and IV, as they require official declarations by the governor.

<sup>17</sup> RCW 43.21G.040(5)

By declaring an Energy Supply Alert, the state recognizes that emergency conditions have worsened, and that expanded measures are needed to address the crisis.

- Monitoring and other efforts that were conducted under Stages I and II are expanded.
- Additional response actions may be implemented, including mandatory directives by the governor to state agencies and local governments.
- Public appeals for demand reduction likely will increase. For example, the state may ask private employers to voluntarily take steps to reduce demand (e.g. turning down thermostats in an electricity emergency or supporting flex time, car pooling and transit alternatives in a petroleum emergency).
- Public controls may be considered. For example, to make sure scarce gasoline supplies are safely and equitably allocated, the state may ask the oil industry to implement flagging (to notify motorists of available fuel) and other gasoline station queue management controls.
- Minor supply problems can be anticipated. These are handled by attempting to broker voluntary actions and allocations by energy suppliers.

#### Stage IV – Energy Emergency

Key Characteristics: Formal Government Declaration, Implementation of Strongest Response Measures Including Possible Mandatory Requirements for the Private Sector.

A Stage IV Energy Emergency has only been declared a few times in Washington's history, and, as of this writing, not since 1974. Such a declaration will be avoided if at all possible – for three reasons.

1. Severe service interruptions that one might expect to address as Energy Emergencies are often better addressed as disasters. In such cases, gubernatorial emergency powers are invoked and implemented; not under the energy emergency statute and this plan, but under the disaster management statute,<sup>18</sup> the comprehensive emergency management plan, and the leadership of EMD that is experienced in emergency management.

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<sup>18</sup> Authority for EMD includes Chapters 38.52 and 38.54 Revised Code of Washington (RCW) and Title 118 Washington Administrative Code (WAC).

2. Measures available to the state under an Energy Supply Alert are substantial, as are options available to energy companies. It is generally expected that even severe supply shortages can be successfully addressed without resort to the extraordinary powers available under a declared Energy Emergency.
3. Mandatory directives that are authorized under a declared Energy Emergency are controversial measures that have their own costs while restricting citizens' choices. In addition, emergency response policies in the past at both the federal and state level explicitly embraced more severe regulatory actions. Today, reliance on markets is the preferred policy, and regulatory actions like state-wide fuel allocation programs are discouraged and contemplated only as extraordinary measures for extraordinary conditions.

Nevertheless, it is possible to imagine an emergency or shortage so severe that it would require a declared Energy Emergency to address it. Therefore Stage IV options, while not anticipated, are included in the plan.

An Energy Emergency is declared by the governor through executive order. It makes available extraordinary powers that can be used to respond to an emergency, and convenes the Joint Committee on Energy Supply and Energy Conservation to review and comment on the governor's recommended response plans.

All the authorities that apply to Energy Supply Alerts also apply to Energy Emergencies. However, additional emergency powers also apply.

Emergency powers available under an Energy Emergency expand the governor's authority to mandate actions to the private sector (as compared to the public sector under an Energy Supply Alert).

In a condition of Energy Emergency, the governor may issue orders to:

- (a) implement programs, controls, standards, and priorities for the production, allocation, and consumption of energy
- (b) suspend and modify existing pollution control standards and requirements or any other standards or requirement affecting or affected by the use of energy, including those relating to air or water quality controls
- (c) establish and implement regional programs and agreements for the purposes of coordinating the energy programs and actions of the state with those of the federal government and of other states and localities<sup>19</sup>

All response actions implemented under Stages I to III may continue to be implemented under Stage IV and may be expanded.

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<sup>19</sup> RCW 43.21G.040(6)

Voluntary actions are still preferred in an Energy Emergency, but mandatory actions can be implemented. For example, the governor could order all electricity consumers to reduce their consumption by some percentage, or could ban certain consumptive uses altogether (such as for hot tubs or display lighting). An alternative would be to require a utility to reduce its sales by some percentage, and then let the utility figure out how to do it. The governor could order oil companies to set aside some percentage of their products for use by emergency vehicles or other essential services. Such alternatives can be controversial, and have costs beyond that of the loss of personal choice. For example, setting aside fuel removes it from markets, exacerbating the shortage. But it would also ensure that emergency response vehicles could do their job. In addition, some mandatory directives can be very difficult to enforce, complicating their use and diminishing their effectiveness. Under the energy emergency statute the penalty for failure to comply with the governor's orders constitutes a gross misdemeanor.<sup>20</sup>

Declaration of an Energy Emergency does not mean all available measures will be used. In fact, under a declared Energy Emergency, the priorities for response actions are the same as under any other stage. According to statute,

“It is the intent of the legislature that the governor shall, to the extent possible, encourage and rely upon voluntary programs and local and regional programs for the production, allocation, and consumption of energy and that involvement of energy users and producers be secured in implementing such programs.”<sup>21</sup>

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<sup>20</sup> RCW 43.21G.100 Gross misdemeanor penalties may be difficult to enforce, as it would require local prosecutors to bring charges. The Regional Electric Energy Curtailment Plan (see Demand Management Options) established monetary penalties. Counsel to Energy Policy advised it would be difficult to implement monetary penalties (e.g. fines) when state statute explicitly establishes the penalty as a gross misdemeanor.

<sup>21</sup> RCW 43.21G.030

## Actors, Roles and Responsibilities

### State Agencies

#### Department of Community, Trade and Economic Development

- Develops and implements contingency plans for energy emergencies and shortages.
- Monitors and analyzes potential and existing energy emergencies and shortages.
- Declares Stage I and II emergencies (Monitoring & Preparation)
- Activates and leads Emergency Response Teams.
- Briefs Office of Governor, Emergency Response Teams and stakeholders.
- Recommends response plans to Office of Governor.
- Implements governor's directives.

#### Office of the Governor

- Declares Energy Supply Alerts and Energy Emergencies (Stages III & IV).
- Invokes and implements gubernatorial emergency powers.
- Reviews response plan recommendations by CTED and Emergency Response Teams.
- Recommends response plan, provides to Joint Committee on Energy Supply and Energy Conservation for review.<sup>22</sup>
- Directs CTED and agencies to implement response plan.
- Participates in or leads public information efforts (possible at any stage).

#### Joint Committee on Energy Supply and Energy Conservation

- Convenes upon declaration of Energy Supply Alert or Energy Emergency.
- Reviews and comments on gubernatorial plans for state response.
- Approves extensions of Energy Supply Alerts and Energy Emergencies.

#### Washington Utilities and Transportation Commission

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on new energy supplies and demand reduction.
- Key liaison with investor owned electricity and natural gas suppliers.
- Key liaison with energy pipeline companies.
- Implements response actions that affect jurisdictional energy companies and that benefit from Commission analysis and authority.

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<sup>22</sup> As necessary: only under Energy Alert or Energy Supply Emergency.

## Military Department

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on local government emergency management issues.
- Lead disaster response agency.<sup>23</sup>

The Emergency Management Division is a division of the Military Department. If disaster-type response actions are necessary EMD implements them outside this plan. Regarding energy emergencies not linked to a disaster, EMD advises CTED on the potential impacts of response plans on local governments and emergency response capabilities. For example, how might a gasoline shortage affect the ability of first responders (law enforcement, fire companies, etc.) to do their job, and what solutions should be implemented?

## Department of General Administration

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on state agency energy supply and demand.
- Implements response actions that apply to state agencies, buildings, properties, and vehicles.

## Department of Transportation

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on transportation issues.
- Implements response actions that impact transportation capabilities, e.g. highway signage, HOV lane additions, park & ride expansion, ferry schedules, etc.

## Washington State Patrol

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on vehicle issues and public safety.
- Implements response actions that require state law enforcement.

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<sup>23</sup> As described earlier. EMD responsibilities during stand alone energy emergencies or shortages may be negligible. During disasters EMD implements the Washington State Comprehensive Emergency Management Plan (CEMP). CTED supports EMD. Aspects of this plan may apply, in the sense that similar response actions may be implemented, but the structure, organization and authorities of the CEMP are completely different from this plan.

## Superintendent of Public Instruction

- Emergency Response Team member.
- Reviews and advises CTED on response plan recommendations, with particular focus on issues affecting school buildings and school busses.
- Implements response actions that affect schools.

## Energy Suppliers

Energy suppliers in Washington are subject to a variety of laws, rules, ordinances and policies that govern service reliability and emergency response. No single federal or state law explicitly requires them to provide reliable service and to repair systems expeditiously when they fail. In fact, statutory requirements, if there are any at all, tend to be rather general.<sup>24</sup>

More specific requirements may, or may not, exist in rule (Washington Administrative Code) or in local jurisdiction codes or ordinances, or in individual company tariffs, or in organizational and company strategic plans, policies, and procedural documents.

Unregulated energy companies, like oil companies, have emergency related responsibilities addressing events like spills (regulated by the Department of Ecology), but are under no statutory requirements to provide reliable, adequate service. Market forces rule. If an oil company cannot deliver, customers will turn to other companies. However, there are strong financial and public relations incentives to provide reliable, adequate service. Such incentives also apply to regulated companies.

CTED believes these incentives, along with whatever general or specific reliability requirements may apply, are sufficient encouragement to get energy companies to develop, maintain and exercise emergency response plans, including those that address energy supply emergencies. As evidence, energy companies in Washington have coordinated emergency response efforts with CTED admirably in the past, even when there were differences of opinion.

A key principle of state response to energy emergencies is that energy companies have the knowledge, capability and responsibility (incentives if not requirements) to do the yeoman's work to solve problems and end the emergency. The state looks to energy companies for information and advice, and seeks to support the affected energy industry in its response efforts. The state is an important actor, with key authorities and capabilities, but is truly a minority partner, until things become severe.

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<sup>24</sup> For example, under US Code (the Federal Columbia River Transmission System Act), the Bonneville Power Administration is to be operated "...to maintain the electrical stability and electrical reliability of the Federal system." Another example: Under RCW 80.28.010, as regulated by the Washington Utilities and Transportation Commission, "Every gas company, electrical company and water company shall furnish and supply such service, instrumentalities and facilities as shall be safe, *adequate* and efficient, and in all respects just and reasonable." (Emphasis added)

Energy suppliers, with assistance from their contractors and associations, have the following responsibilities in relation to state response.

- Emergency Response Team Advisor
- Provide situation data and information to CTED.<sup>25</sup>
- Review and advise CTED on response plan recommendations, with particular focus on emergency supply and demand reduction issues.
- Implement response actions particular to energy service.
- Implement public information efforts separately and in conjunction with state efforts.
- Implement requests and directives from the governor.

Following is a list of the kinds of energy suppliers that may be involved in energy emergency response. A complete list is included by name in Appendix G.

### Electricity

Electric Utilities and System Operators (Generation, Transmission and Distribution companies and organizations)  
Electric Utility Associations  
Independent Power Producers

### Natural Gas

Interstate Transportation Companies (Pipelines)  
Local Distribution Companies  
Natural Gas Supplier Associations

### Petroleum

Refiners  
Wholesale Marketers  
Pipeline Companies (Crude and Products)  
Distribution Companies  
Retail Marketers  
Petroleum Industry Associations

## **Key Customers and Customer Representatives**

While all energy customers have an interest in resolving energy emergencies, a select few have capabilities to assist in state response. In addition, certain organizations can assist the state by representing a constituency of customers. These customers and

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<sup>25</sup> This may involve extensive effort. Situation data includes historical information, current levels of supply and demand, estimates of future supply and demand, and monitoring the effectiveness of emergency supply and demand programs. And in this case the responsibility is statutory, if CTED requests such data. RCW 43.21f.060(1)

customer representatives have the following responsibilities in relation to state response.

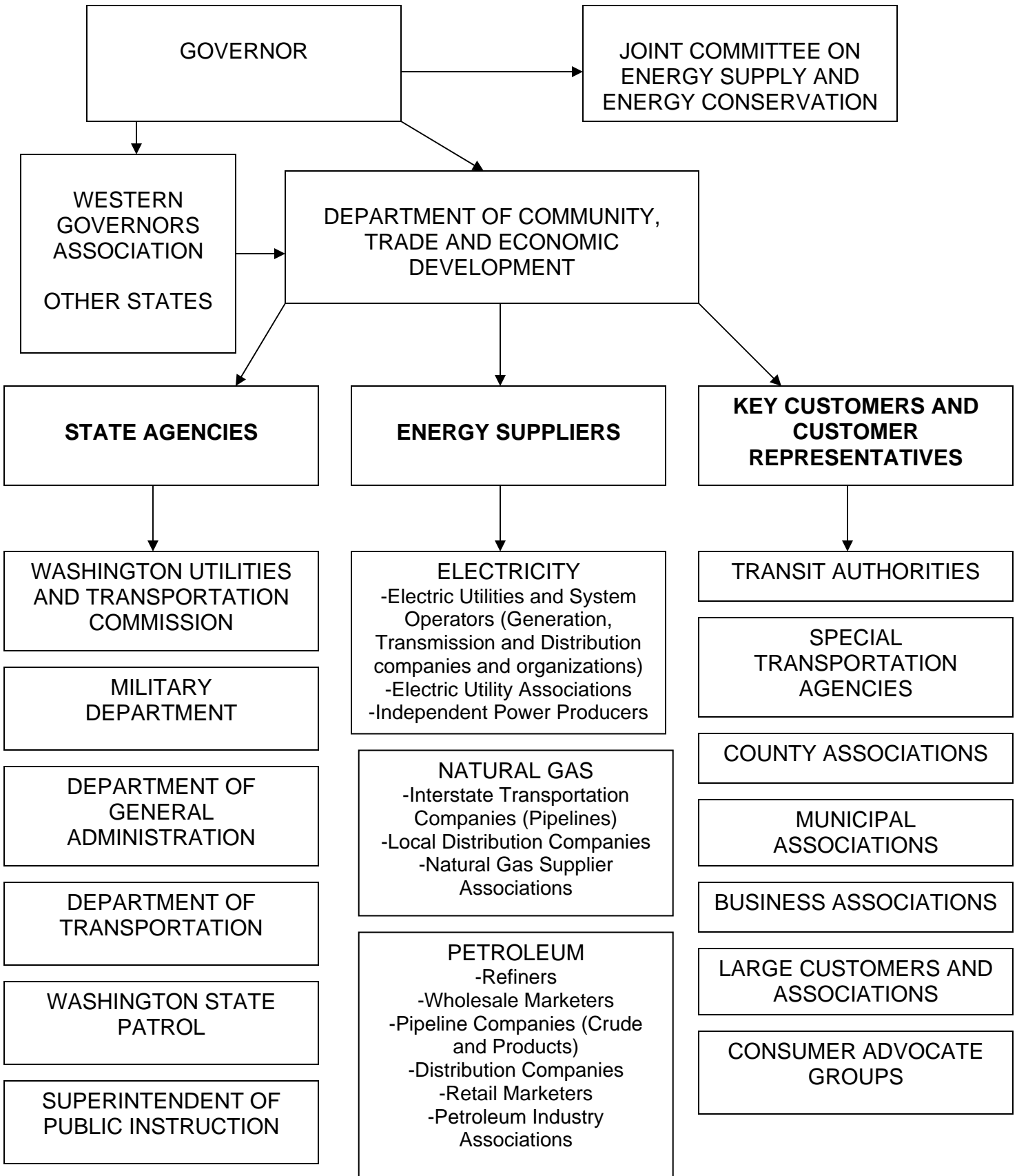
- Potential Emergency Response Team advisors or members.
- Review and advise CTED on response plan recommendations, with particular focus on local governments and businesses.
- Implement response actions particular to their businesses.
- Key liaison with local governments and businesses.

Following is a list of the kinds of energy customers and customer representatives that may be involved in energy emergency response. .

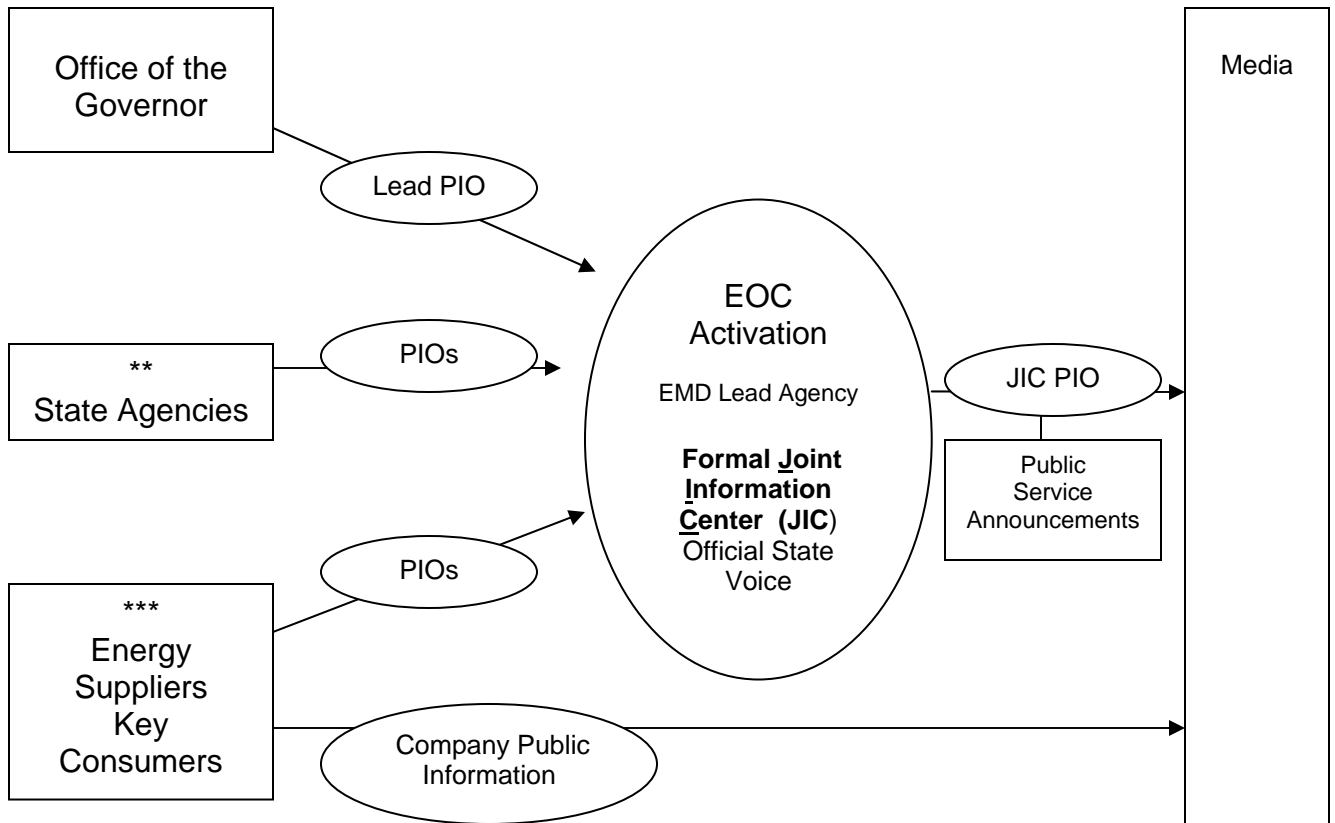
Transit Authorities  
Special Transportation Agencies  
County Associations  
Municipal Associations  
Business Associations  
Large Customers and their Associations  
Consumer Advocate Associations

Graph 2

# PARTICIPANTS IN STATE RESPONSE TO ENERGY EMERGENCIES



### Energy Emergency Public Information Flow Chart Under Disaster Scenario and Emergency Operations Center (EOC) Activation



**\* PIO**  
  
Public Information Officer

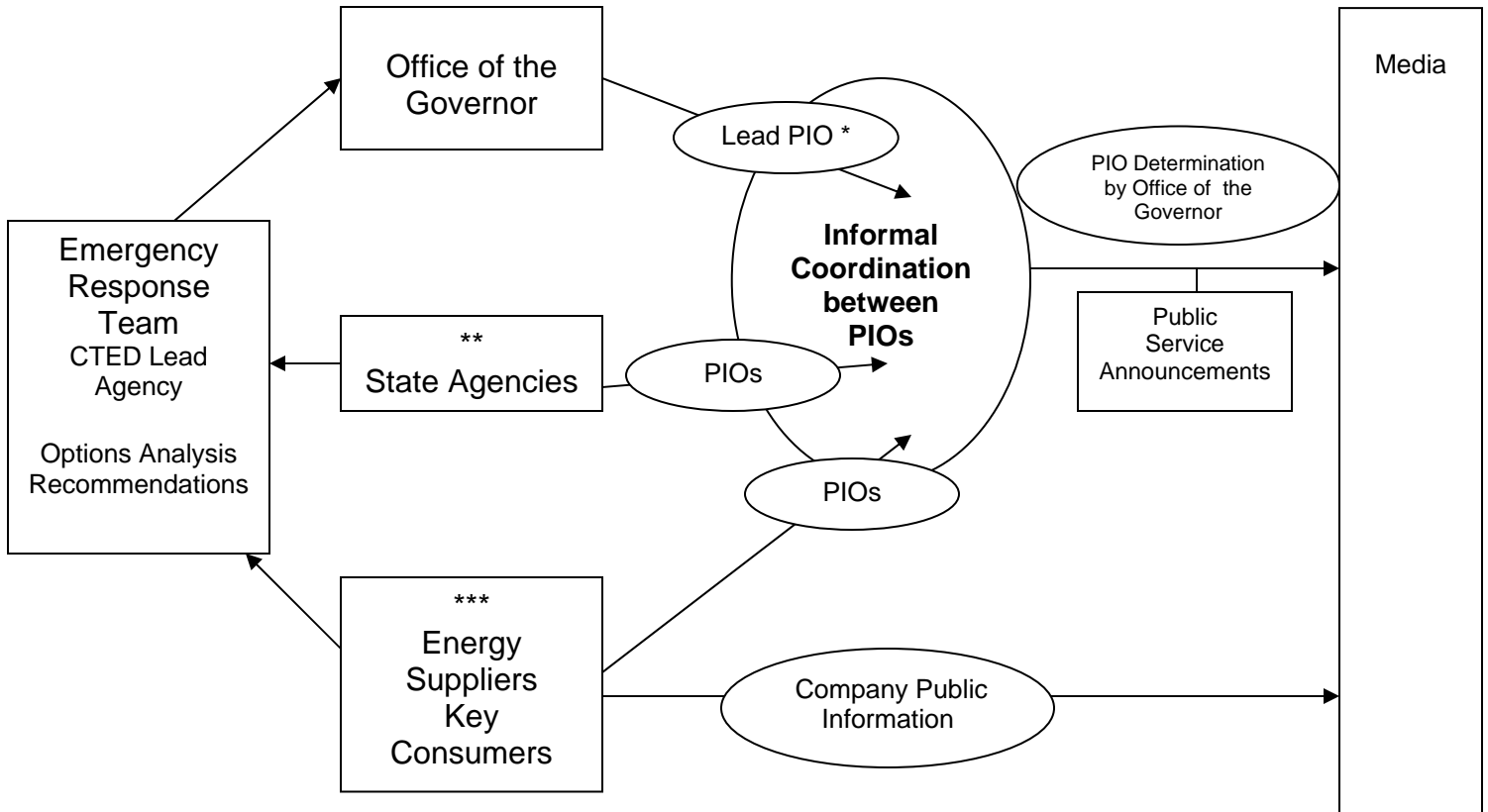
**\*\* State Agencies**  
  
Any and all agencies as EMD requires for Options Analysis and Emergency Response:

- Transportation advises on roads.
- CTED advises on energy issues.
- Etc.

**\*\*\* Energy Suppliers and Key Consumers:**

- Electric Utilities
- Natural Gas Utilities
- Oil Companies
- Energy Associations
- Transit Agencies & Associations
- Association of Washington Businesses
- Consumer Advocate Groups

### Energy Emergency Public Information Flow Chart Under Energy Supply Shortage Scenario and Without EOC Activation



**\* PIO**

Public Information Officer

- \*\* State Agencies**
- Community, Trade & Economic Development, Energy Policy Division
  - Utilities and Transportation Commission
  - State Patrol
  - Department of Transportation
  - Department of General Administration
  - Military Department, Emergency Management Division
  - Superintendent of Public Instruction

- \*\*\* Energy Suppliers and Key Consumers:**
- Electric Utilities
  - Natural Gas Utilities
  - Oil Companies
  - Energy Associations
  - Transit Agencies
  - Association of Washington Businesses
  - Consumer Advocate Groups

## Menu of Emergency Response Options

The options in this section constitute the heart of the contingency plan.

During an emergency this menu will be reviewed by an Emergency Response Team to identify the best actions to address that particular emergency.

Over time, options may be discarded and new options added. In fact, with each new emergency, responders should ask whether there are better options to implement than those on the list.

Emergency response options fall into a number of categories; listed below. For each category an overview is provided, followed by options that apply to individual fuels, multiple fuels or all fuels. Some overlap may occur. For example, public safety options may best be implemented as public information options.

### Response Option Categories

- Situation Monitoring and Analysis
- Public Information
- Public Safety
- Energy Demand Reduction
- Energy Supply Acquisition
- Energy Allocation
- Emergency Impacts Mitigation

### Situation Monitoring and Analysis

Situation Monitoring and Analysis Options – MA for Monitoring and Analysis <sup>26</sup>				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

During an energy emergency, monitoring is mandatory. However, at any time during an emergency, a determination must be made about the nature and scope of the monitoring effort.

Monitoring and analysis should be commensurate with the crisis. Average, regional data are easy to come by. Specific data, particularly proprietary data, are more difficult to acquire. Broad analyses of supply and demand can be easily done, but may not provide the level of detail necessary to inform the selection of response options. Robust, detailed analyses may consume

<sup>26</sup> Emergency Response Options are numbered according to category. The first option under Situation Monitoring and Analysis is MA-1. The second option under Public Information options is PI-2, and so forth.

significant resources. As a crisis worsens, and tradeoffs between options are weighed, more robust analyses may be required.

The CTED Energy Policy Division has many sources of data and information to support its monitoring and analysis efforts. Examples include:

- CTED's own data, e.g. from the Fuel Mix Program;
- Other state agency data, e.g. from the WUTC;
- Federal agencies, e.g. the USDOE, Energy Information Administration;
- Industry associations, e.g. the Northwest Power Pool.

In addition, CTED can acquire data from energy companies, and has statutory authority to acquire proprietary data to support its emergency responsibilities.<sup>27</sup>

CTED staff are members of a number of permanent government and industry organizations where emergency information can be shared, for example:

- The Western Interstate Energy Board – an interstate compact under the auspices of the Western Governor's Association; and
- The Western Electricity Coordinating Council - responsible for reliability of the Western Interconnection.

In addition, during emergencies, ad hoc public/private working groups are established to coordinate response efforts. During the 2001 western electricity crisis CTED was a member of the Readiness Steering Committee, that included 17 key government and industry representatives such as the Northwest Power and Conservation Council, the Pacific Northwest Utilities Conference Committee, regional aluminum companies, BPA, Puget Sound Energy and Seattle City Light. With such a group, extensive good information and analysis can be developed to guide the state and energy companies through a crisis.

Finally, a CTED staff member is designated Washington's primary Energy Emergency Assurance Coordinator (EEAC) who is liaison to the USDOE, Electricity Delivery and Energy Reliability Division. Each state EEAC has access to a secure federal website for information sharing about energy emergencies. State representatives share what they know about conditions in their states, and federal officials share what they know about national and international conditions. Problems are identified, and solutions are sought in a federal/states emergency response partnership.

CTED uses data and analyses from all its sources to develop briefings and make response plan recommendations to the Office of the Governor.

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<sup>27</sup> RCW 43.21F.060(1)

Situation Monitoring and Analysis Options – MA for Monitoring and Analysis				
Overview	<b>All Fuels</b>	Petroleum	Electricity	Natural Gas

### MA-1 Emergency Causes

CTED attempts to understand how crises develop, and why they occurred. Understanding the cause points the way toward possible solutions and may help avoid similar crises in the future. When Washington experienced the highest diesel prices in the nation in February, 2005, CTED investigated the cause. Based on initial findings, it was thought that Washington’s particular way of implementing diesel low-sulfur standards might be contributing to the problem. It turned out not to be the case. So the state did not pursue legislative or regulatory options to address the standard.

### MA-2 Historical Data

Historical supply, demand and price data provides a context for the current situation. The electricity price increases in 2001 were unprecedented and astonishing. Industry experts had not contemplated prices an order of magnitude above normal. The “unbelievable” prices made clear the severity of the crisis and the need for extraordinary action.

Historical trends, and the factors that affect them, can be key pieces of information. For example, gasoline prices have traditionally peaked in the early summer in response to increased driving, so high prices in the spring imply a long crisis. Mountain snow pack is a good predictor of reservoir filling, and January to July stream flow at The Dalles hydroelectric project on the Columbia River is a good predictor of potential hydropower production. While snow pack virtually disappeared in 2005, raising concerns about reservoir levels behind dams, estimated stream flow of 70 percent of normal (tracked throughout the spring) was a sign of adequate energy supply.

### MA-3 Current Situation

Although market indices, such as natural gas spot prices, provide a general sense of current conditions, they do not tell you what is happening or why, nor can they tell you what might happen next. Recent trends and futures prices may tell us more. CTED contacts all major players in a crisis to understand what is really happening. Individual players can be in very different situations, and a picture of the whole is needed. For example, during drought one utility may have surplus power to sell; another may be faced with a shortage requiring power purchases that lead to rate increases. During an oil shortage, one oil company may have surplus diesel to sell, while another is in allocation. Although problems at a single company do not normally make a crisis, CTED may discover that there are multiple problems. The entire market is made up of dozens of

companies' supply and demand positions, pricing problems, and capabilities (or not) to respond. CTED attempts to accurately assess the big picture.

#### MA-4 Future Conditions

Generally, CTED does not forecast energy supply or demand. CTED uses the forecasts and analyses of others to anticipate future problems. For example, in the spring of 2001 the Northwest Power and Conservation Council forecast a Loss of Load probability of 43 percent for the coming winter. For an industry that historically has planned for insufficiency once in 20 years, or 5 percent, the forecast by the Council was a shot across the bow. Knowing that future supply will be insufficient by a certain amount enables the state to take precautionary steps. Sometimes the state prepares for conditions that do not manifest. For example, prior to the first Gulf War, the USDOE warned states of potential oil shortages and extreme high prices. The state of Washington undertook extensive preparations for an oil shortage that never developed.

Situation Monitoring and Analysis Options – MA for Monitoring and Analysis				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

Crude oil is produced and sold in an unregulated international market. Petroleum products are refined and sold in unregulated international, national, and regional markets.<sup>28</sup>

#### MA-5 Petroleum Supply

- Crude oil reserves: total resource, economically developable, conventional, non-conventional, total, by region and country
- Strategic Petroleum Reserves (SPR): total, by country, status, distribution policy and potential distribution rates
- Crude oil stocks: total, US, west coast, Washington refineries
- Crude oil pipeline capacity, operating capacity, throughput to Washington refineries
- Crude oil production: world, by country, by state, by well type (old, new, production rates), rig counts, by type (conventional, non-conventional)
- Crude oil prices: refiner acquisition cost, West Texas Intermediate, spot, futures
- Crude oil supply to Washington refineries
- Refining capacity, operating capacity: world, US, west coast, Washington refineries, by product
- Planned / unplanned outages

<sup>28</sup> Referring here to price regulation. Environmental and antitrust laws and regulations still apply.

Petroleum product stocks: world, US, west coast, Washington refineries and marketers, by product

Petroleum product production: world, US, west coast, Washington refineries, by product

Petroleum product imports: US, west coast, Washington, net exports, by product

Petroleum product pipelines: capacity, operating capacity, throughput, by product

MA-6 Petroleum Demand

Petroleum product demand: world, US, west coast, region, Washington, Oregon, by product, by sector, by end use

MA-7 Petroleum/Economy

Petroleum product prices: world, US, west coast, Washington, selected cities (Seattle, Spokane, Tri Cities, Vancouver), by product, breakdown by crude, taxes, refiner margin, dealer margin.

Petroleum product costs: world, US, west coast, Washington, by product, by sector, by end use.

Economic Impact: by sector, by industry, population,<sup>29</sup>

Situation Monitoring and Analysis Options – MA for Monitoring and Analysis				
Overview	All Fuels	Petroleum	<b>Electricity</b>	Natural Gas

Electricity Supply Adequacy

The Pacific Northwest is unique because of its extensive hydropower resources. This creates some unique benefits (e.g. the fuel is free) and some unique problems. A key problem is our ability to determine how much generation is sufficient. In most places, energy planners can estimate future peak demand, and then build enough generation to meet it. In the Pacific Northwest, we already have the largest capacity reserves in the country – our big dams. But we cannot know from one year to the next how much water we will have. If we plan for the worst water scenario, we will have to build thousands of megawatts worth of generating plant, that may sit idle and unused (with no return on investment) should the decade turn wet. Generally we do not have a capacity problem (because of the huge dams). Instead, we have an energy problem, i.e. is there enough water to meet our average demand over the whole winter. So we track precipitation, snow pack and stream flow. This issue of “energy” adequacy

<sup>29</sup> Accurate economic impact analyses can be difficult to do. Developing the big picture and the magnitude of impact may be enough.

versus “capacity” adequacy also affects the options we employ in a crisis (see demand reduction and energy supply options).

MA-8 Supply

Electricity Generating Capacity: Western Interconnection, California, Pacific Northwest, by resource

Precipitation: historical normal, actual, forecast, inches, percent of normal, Canadian upper Columbia, Cascades (west slope, east slope), other selected

Snow pack: historical normal, actual, forecast, snow water equivalent, percent of normal, Canadian upper Columbia, Cascades

Stream flow: historical normal, actual, forecast, at Grand Coulee, at The Dalles, Million Acre Feet, percent of normal.

MA-9 Demand

Historical, actual, forecast, peak and energy, Western Interconnection, California, Pacific Northwest, Washington, by utility, by sector, by end use.

MA-10 Electricity System Reliability, Power Quality

Constrained transmission corridors

Voltage and frequency regulation

Spinning reserves

MA-11 Electricity/Economy

Electricity prices: US, West coast, Pacific Northwest, Washington, wholesale, by fuel, retail rates, by utility.

Economic Impact: by sector, by industry, by utility, population.

Situation Monitoring and Analysis Options – MA for Monitoring and Analysis				
Overview	All Fuels	Petroleum	Electricity	<b>Natural Gas</b>

MA.-12 Natural Gas Supply

Reserves: world, North American, US, western states, by quality.

Current Supply: by transportation company (interstate pipelines), throughput capacity, storage, by distributing utility, imports, exports, Liquid Natural Gas (LNG).

MA-13 Natural Gas Demand

World, US, west coast, region, Washington, by utility, by sector

MA-14 Natural Gas Reliability

System pressure, LNG peak shaving, underground storage.

MA-15 Natural Gas/Economy

World, US, west coast, region, Washington, wholesale prices, retail rates, by utility, costs by sector, population,

**Public Information**

Public Information Options – PI for Public Information				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

Providing the public with information about an energy emergency is generally regarded as the most important government response role. It is clearly the action, other than monitoring, most often implemented, and implemented if any action is needed at all.

During an emergency, the “word” of the state, particularly the governor, should be unbiased, authoritative, and caring. The public expects to receive accurate information about the emergency that allows them to protect themselves, their property and their interests, to the best of their ability. In addition, the state has the necessary authorities, contacts, facilities, and experience to address the public at a moment’s notice and under all circumstances.

There are two key reasons to provide information about an energy emergency to the public:

- a. to help citizens weather the emergency; and
- b. to tell citizens how to help end the emergency.<sup>30</sup>

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<sup>30</sup> This is not self serving for the state or energy companies. Public actions are almost always necessary to lessen or end an energy shortage.

Public Information Options – PI for Public Information				
Overview	<b>All Fuels</b>	Petroleum	Electricity	Natural Gas

### PI-1 Background Information

Background information provides a context for the current situation. The public will want to know how we got here, and where we might be going.

### PI-2 Situation Analyses and Progress Reports

A good situation analysis will inform the public about the nature, extent, and possible duration of the emergency; also the potential costs and impacts of the emergency. Allows the public to consider alternatives they can take to address their own situation. Explains what is necessary to end the emergency.

### PI-3 Response Plans and Updates

Informs the public about steps being taken, or considered, to address the emergency, and how that might affect them. Explains any requests or directives made to the public. Meant to calm the public, show that the emergency can and will be solved, and how they can help.

### PI-4 Tips and Instructions<sup>31</sup>

Practical information provided to the public to help them get through the emergency, including:

- Where and how to get good information;
- Survival options, tips and strategies; and
- Demand reduction options, tips and strategies.

### PI-5 Media Options

- Analyses, reports, memoranda, presentations.
- Press releases, editorials, Public Service Announcements, media spots, billboards, bus posters, wraps and cards.
- Fact and tip sheets, letters and bill stuffers, e-mail.
- Web pages, hot lines (live/recorded).
- Public meetings, classrooms, workshops.

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<sup>31</sup> Actual tips and strategies are included in other menu categories. More exhaustive lists are included in appendices, or must be developed at the time. For example, AAA has a list of tips for maintaining automobile efficiency. The public can be directed to AAA during an emergency. There is no need to recreate such a list in this plan.

## Public Safety

Public Safety Options – PS for Public Safety				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

In any emergency, public health and safety is goal one. In a petroleum emergency, high prices and long lines at gas stations can lead to frustration, anger and confrontation. In an electricity or natural gas emergency, risks to health and safety result from loss of service, for example, the inability to heat homes in the winter.

Public Safety Options – PS for Public Safety				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

Gasoline Station Queue Management Controls are designed to reduce public frustration with gas lines and high prices by bringing clarity, fairness and orderliness to a stressful situation.

If such controls are used prior to a Stage IV Energy Emergency, they would have to be implemented voluntarily by oil companies and retail outlets. However, if controls were not implemented industry wide and in a uniform manner, the controls themselves could cause frustration.

Enforcement is key. Many retail outlets might find it difficult to encourage compliance, and if non-compliance becomes widespread, it too could cause frustration. Police forces are not likely to provide enforcement, especially if the controls are implemented voluntarily.

### PS-1 Retail Outlet Flagging

Gasoline stations display flags when fuel is available.

### PS-2 Odd / Even Day Sales (based on vehicle license numbers)

Limits absolute number of vehicles that can purchase on any given day, reducing potential for long lines.

### PS-3 Minimum / Maximum Purchase Limits

Setting a minimum purchase amount reduces topping off.<sup>32</sup> Tank topping means more visits to the station, lengthening lines. Restricting tank

<sup>32</sup> "Tank topping," means refilling tanks when little gasoline has been used. This allows a consumer to always have a full tank.

topping may complicate things for a distance traveler who would like to top off a tank at the start of a trip.

Setting a maximum purchase amount limits hoarding. Hoarding exacerbates a shortage, setting aside needed fuel.

PS-4 Restricted Petroleum Product Tanks

Restrictions on the number, size, and type of tank customers are allowed to fill at retail stations limits hoarding and the temptation to set up home based service stations.

PS-5 Coordinated and Posted Hours of Retail Station Operation

Increases the probability that a dispersed number of stations are open overnight and on weekends, so motorists working odd hours have access to gasoline and to minimize the generation of long lines at gas stations prior to extended periods of closure (such as over weekends).

Public Safety Options – PS for Public Safety				
Overview	All Fuels	Petroleum	<b>Electricity</b>	<b>Natural Gas</b>

In electricity and natural gas emergencies, safety is generally related to loss of service. Washington electricity and natural gas consumption peaks during the winter, especially during arctic conditions.<sup>33</sup> Loss of electricity is the greatest concern, because nearly all heating systems rely on electricity for fans and sometimes for ignition, even natural gas furnaces. The risk is less with rolling blackouts than with extended outages like those that result from disasters. But rolling blackouts can be difficult to manage in extremely cold weather, and there is some risk that power will stay off far longer than anticipated.

PS-6 Warn public of indoor heating dangers

Certain appliances are safe for indoor heating, such as certified kerosene space heaters. Inappropriate practices include the use of charcoal braziers for indoor cooking, or ovens and stove tops for heating. In a natural gas shortage, electric space heaters can be used, however all space heaters must be used safely.

<sup>33</sup> The increase of air conditioning load is changing peaking trends in the Pacific Northwest. Eventually, summer peaks may equal the winter peaks. As with cold weather, very young and elderly citizens, the poor and homeless, are at risk during extreme hot weather.

PS-7 Home medical needs.

Most large electric utilities have programs for tracking and communicating with residential customers who have medical needs for continuous electricity supply. Generally, these customers understand that they must have their own back up or emergency plans for when the power goes out. In the case of planned rolling blackouts, utility contingency plans should ensure that these residents are notified of potential or planned outages.

PS-8 Small generator installation and operations.

Major electric utilities have on-going programs for training professional installers and customers how to safely install small generators. Improper installation can lead to utility worker injury or death (if generator is energized on an open line that is being worked on), or cause fires. Installation training efforts may be expanded in response to an emergency.

PS-9 Natural gas meter shutoff and appliance relight.

Business and residential customers often need reminding about how to deal with natural gas meters and appliances. The rule: leave the meter running unless the smell of gas warns of a leak. This is because it is very costly, time consuming and dangerous to relight appliances. If a customer depends on a company for relight, it may be many days before the company can meet all the relight demand. Shutting off the meter without cause means the customer could go for many days without gas for space and water heating and cooking, unnecessarily risking his or her safety.

**Emergency Energy Demand Reduction**

Emergency Energy Demand Reduction Options – DR for Demand Reduction				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

During a disaster, reduction of energy demand is not usually an issue. Energy cannot be moved to where it is needed because of damaged infrastructure, not because of insufficient supply. In an energy shortage, however, demand reduction is key. If additional supply were immediately available, there would be no emergency.

Generally, there are three ways to reduce demand: increase prices (to dampen demand), improve efficiency (use less energy for the same work), and curtail use (go without). In a supply shortage, all three approaches will likely be used. For example, in a petroleum shortage gasoline prices will increase, consumers will be encouraged to use the correct air pressure in tires, among other things, to improve gas mileage, and discretionary driving may be discouraged. In an electricity emergency, rates may go up, and customers will be encouraged to

purchase energy efficient products like compact fluorescent light bulbs, and to adjust thermostats (up in the summer, down in the winter). Such demand reduction options represent the bulk of the emergency response options available to the state.

Many demand reduction programs are best implemented by energy companies. Electric utilities, for example, can provide customers with coupons to reduce the cost of energy efficient appliances. The state can encourage energy companies to offer such programs, or, in a Stage IV Energy Emergency could mandate them. The preferred alternative is for energy companies and the state to partner in the effort to reduce demand. The governor, for example, can urge citizens to take advantage of demand reduction programs offered by energy companies.

Many of the following options can be implemented a number of ways, for example:

- a. As voluntary or mandatory;
- b. For unspecified or specified amounts (usually as a percentage);
- c. For unspecified or specified sectors (government, residential, commercial, or industrial); and
- d. For unspecified or specified uses (leisure boating, agriculture, etc.)

Emergency Energy Demand Reduction Options – DR for Demand Reduction				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

Most actions that would help reduce petroleum product demand must be taken by consumers: governments, businesses and individuals.

**Increase Petroleum Prices**

Petroleum product price increases are a natural consequence of supply shortages. Because higher prices dampen demand, and because they result from market forces (as opposed to regulatory action), they are key to resolving a shortage. Higher prices are, in fact, the preferred way to address a shortage. Ideally, high prices will draw supply to where it is needed, and no other action will be needed. In severe shortages, prices may climb too high, or last for too long. Additional state action may be needed to put a downward pressure on prices, or even to address the negative impacts of the high prices themselves. These options are addressed in the Crisis Impact Mitigation section below.

**Increase Petroleum Efficiency**

Because three-quarters of Washington’s petroleum consumption is used for transportation (most of it gasoline for cars and light trucks) transportation alternatives offer the best opportunity for reducing petroleum consumption. The goal is to use fuel more efficiently, either by upgrading vehicle performance, or by

employing alternatives to the “fuelish” daily, rush hour, single occupant vehicle commute.

#### DR-1 Improve Vehicle Efficiency

By maintaining a vehicle to operate at peak performance, an individual can improve the efficiency of the vehicle, saving money for the individual and fuel in a shortage. The more broadly applied, the greater the fuel savings.

Provide the public and fleet managers with tips on how to save fuel. Actions include tuning engines, maintaining proper tire pressure, and removing wind resistant equipment like luggage racks, among others. The Automobile Association of America (AAA) maintains a web site that provides extensive vehicle efficiency suggestions.

#### DR-2 Manage Car and Truck Fleets for Improved Efficiency

By prioritizing work needs, determining vehicle efficiencies, and scheduling work activities, fuel consumption can be reduced.

#### DR-3 Increase Transit Service

Increased transit service increases passenger miles traveled per gallon of fuel consumed.

- a. Adjust schedules and routes.
- b. Provide the public and employers with transit information.
- c. Increase parking for transit connections.
- d. Provide incentives for using transit.<sup>34</sup>
- e. Increase bus availability (through new purchases or use of school buses)<sup>35</sup>.

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<sup>34</sup> For example, provide vouchers or reduce fares to attract riders.

<sup>35</sup> May be complicated by several factors. Public transit systems are bound by federal guidelines on how to procure new vehicles. New bus purchases can take up to two years from start of bid documents to actual production and delivery. Much of that delay is due to chronic backlog at bus production facilities. An alternatives might be to pool state transit vehicles and move them to where they are most needed in the state.

#### DR-4 Increase Ride Sharing

Increased car pooling/ride sharing increases passenger miles traveled per gallon of fuel consumed.

- a. Increase ride-matching capabilities.
- b. Establish temporary park and pool lots.
- c. Provide the public and employers with park and pool information.
- d. Provide incentives for ride sharing, including waiving parking privileges.

#### DR-5 Control Parking

Parking controls act as a disincentive for driving alone and in certain situations save fuel by reducing congestion.

- a. Increase preferential parking for car-pools.
- b. Increase parking rates, waive parking privileges.
- c. Restrict parking on critical routes during peak hours.

#### DR-6 Add Emergency/Temporary High Occupancy Vehicle (HOV) Lanes<sup>36</sup>

Increasing HOV capacity while decreasing single occupancy vehicle capacity produces an incentive for commuters to carpool or use transit services, which saves motor fuel.

Designate critical arterials, freeway ramps and additional lanes as HOV only.

#### DR-7 Lower and/or Enforce Speed Limits

Generally, automobiles consume more motor fuel as traveling speed increases past 50 MPH. Large trucks and SUVs consume more at speeds greater than 40 MPH.

- a. Lower speed limits<sup>37</sup>
- b. Increase speed limit enforcement

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<sup>36</sup> WSDOT and the WSP advise that this is a high cost and time intensive alternative, limiting its viability as an option. The Energy Policy Division has retained this option in the plan for consideration under extreme shortages, recognizing that a robust analysis would be conducted prior to a decision to implement.

<sup>37</sup> WSDOT and the WSP advise that this is a high cost and time intensive alternative, limiting its viability as an option. The Energy Policy Division has retained this option in the plan for consideration under extreme shortages, recognizing that a robust analysis would be conducted prior to a decision to implement.

DR-8 Increase Flex-Time

- a. Fewer commute days (e.g. 4-10s, saves 20 percent fuel by limiting commute to four days in five). These savings can be lost if individuals drive on their off day.
- b. Staggered commute times (e.g. commuting on off peak hours or days saves fuel by reducing congestion and time stuck in traffic). Can be applied to school schedules, which would release some buses to be used for transit purposes.

DR-9 Expand Teleconferencing and Telecommuting Activities.

Using communication systems to move information rather than workers saves fuel by reducing the number of trips to work or meeting places. This option can have drawbacks, for example, increasing electricity or natural gas consumption because workers stay at home. The options must be considered carefully in a multiple fuel shortage.

DR-10 Request or Mandate a General Reduction in Petroleum Consumption

Petroleum is used for a many of purposes. Without specifying uses, consumers may find many ways to reduce consumption.

DR-11 Reduce Travel (land, air and marine).

Travel may be important or discretionary. Consumers should prioritize travel, reducing discretionary consumption first.

- a. Residential
- b. Government
- c. Business

DR-12 Hold Fewer Public Events

Large public events lead to the consumption of large amounts of fuel because of the number of vehicles traveling to and from the event and from congestion caused by parking. Fairs, for example could be curtailed. Such actions would have economic impacts, and could cause significant disappointment. However during severe shortages such actions could save significant amounts of fuel. The state might curtail events (such as agency retreats) as an example.

DR-13 Provide Increased Transit Service to Public Events

Decreases fuel use per person attending events.

DR-14 Turn down thermostats (heating oil, propane customers)

The value of this option depends on the duration of the emergency. Heating oil and propane are purchased ahead of time and kept in tanks, which are filled on a regular schedule that does not depend on tanks being completely empty. Slowing tank depletion could allow putting off tank refill, lessening demand. However, customers would have to estimate when to refill. This could also create problems for distributors scheduling refills. This option would only have significant value if a petroleum shortage lasts a reasonably long time.

DR-15 Use Substitute Products

Generally, product substitution will occur naturally because of price changes. For example, bio-diesel may become relatively more affordable as petroleum prices increase. However, government could choose to substitute for petroleum products at an earlier date, helping to ease a potential crisis. Supply of substitute products may or may not be available.

Emergency Energy Demand Reduction Options – DR for Demand Reduction				
Overview	All Fuels	Petroleum	<b>Electricity</b>	Natural Gas

To choose the best alternatives to deal with an electricity shortage in Washington, it helps to understand the difference between “capacity” and “energy.”

Capacity refers to the largest amount of electricity that can be produced at one time, and is measured in megawatts (MW). Add up the capacity of all the electricity generators in Washington and you get peak generating capacity. Compare this to Washington’s largest load on a cold winter day (peak demand) and you get excess capacity, the difference between how much you need and how much you have.

Most places in the nation, indeed in the world, are concerned about having sufficient capacity. A shortage means they do not have enough generators.<sup>38</sup> Strategies that “shave the peak,” or move demand from peaks to valleys, are useful. It would help to pay customers to wash clothes at night, when demand is low, instead of during the day when demand is high.

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<sup>38</sup> The issue usually is generator “availability,” and generator location, not installed capacity. In a few cases there may not be enough generators built. In most cases, however, there are enough generators, but for one reason or another too many are unavailable. They may be down for scheduled maintenance, or experiencing unscheduled outages due to accident, equipment failure or operator error. Occasionally a fuel line may be damaged. During one East coast ice storm, numerous coal plants were incapacitated when ice covered outdoor coal piles. Sometimes the downed generators are located in a particular area. There is plenty of generation available elsewhere, but insufficient transmission to transmit power to meet load usually supplied by local generators. Available capacity is insufficient to meet demand.

In the Pacific Northwest we have historically had more capacity compared to peak demand than anywhere else in America.<sup>39</sup> The Western Electricity Coordinating Council estimates our regional excess capacity at 24.2 percent.<sup>40</sup> This means we have almost one quarter more generating capacity than we need to meet our largest wintertime load. This excess is primarily due to large hydro resources. Most nuclear plants have a nameplate capacity of about 1000 MW. Grand Coulee Dam has a nameplate capacity of 6,888 MW.

This means, generally, that we can always meet our peak demand.<sup>41</sup> Demand reduction strategies that “shave the peak,” or move demand from one time period to another can have benefits, but will not solve the real problem in a hydropower based system – lack of water.

Energy is the amount of electricity that can be produced over time, usually measured in megawatt hours per year. A 1000 MW plant operating at full power 90 percent of the time would generate about 7.9 million megawatt hours each year (1000MW x .9 x 8760 hours per year). Even in the wettest years, there is not enough water in the Columbia and Snake River systems to operate hydropower dams at full capacity all year. Though Grand Coulee Dam has a nameplate capacity equal to six or seven nuclear plants, on average, it generates only enough electricity to equal a power plant of about 2,200 MW.

During drought years when we have even less water our large excess capacity is meaningless. When we need water, and water is not available, the only solution is to reduce electricity consumption to conserve energy. A key aspect of such conservation is that it always helps. Turning off lights in the middle of the night when demand is low does not help when you are capacity constrained. It does help when you are energy constrained. Load reduction options should be chosen in light of the specific characteristics of this region.

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<sup>39</sup> After the 2001 Western Electricity Crisis California built large numbers of new generators and now has an excess capacity of about 25 percent, surpassing the excess capacity in the Pacific Northwest at 24.2 percent.

<sup>40</sup> Source: WECC website at [http://www.wecc.biz/documents/library/publications/winter/Winter\\_2005-06\\_Assessment\\_WECC\\_11-05.pdf](http://www.wecc.biz/documents/library/publications/winter/Winter_2005-06_Assessment_WECC_11-05.pdf)

<sup>41</sup> This may change over time. As the region's demand for electricity grows, and the hydropower resource shrinks in absolute terms (due to fish constraints) and as a percentage (because new hydropower resources are scarce), capacity constraints may become more important. In addition, very low water can reduce capacity. Hydropower capacity is a measure of head (the distance water falls from behind the dam to the turbine). Head is lowered as water levels behind dams decrease. This can be offset somewhat through operational management of the dams, i.e. keeping key reservoirs high to preserve head and maximize hydropower generation from available water. In 2001, the final loss of load projections calculated by the Northwest Power and Conservation Council actually represented such capacity constraints. While other generation would have helped, more water was the key. Transmission constraints can also lead to capacity problems in localized areas. For example, loss of a cross Cascades transmission line can make it difficult to meet peak loads in Western Washington.

Though electricity supply shortages in the Pacific Northwest tend to be energy shortages there are other kinds of emergencies. Sometimes we may have enough generators to meet peak demand, and enough water to generate energy, but insufficient transmission to get the electricity from where it is produced to where it is being consumed. Load reduction options, like any options, need to address the real problem.

#### DR-16 Washington State Curtailment Plan for Electric Energy: Chapter 194-22 Washington Administrative Code (WAC) (Appendix E)

The state Curtailment Plan was adopted as rule in November, 1992. It is a reasonably comprehensive electricity emergency response plan, in that it incorporates many aspects of responding to an electric energy shortage, including: monitoring, public information, public safety, and the implementation of energy efficiency and curtailment options.<sup>42</sup> A key presumption of the plan is that the four northwest states: Washington, Oregon, Idaho and Montana, would implement the plan together. Each state adopted (as rule or policy) a similar plan, based on a regional plan developed by the four states and regional electric utilities.<sup>43</sup> In 2001, the four states did implement options that are similar to elements of the Curtailment Plan, for example the four governors made requests for voluntary reductions in electricity use. States worked together on these efforts, but did not explicitly implement their curtailment plans, certainly not in a coordinated manner. Going forward, the state Curtailment Plan should be regarded as one option among many that could be implemented in whole, in part, or not at all. This Energy Assurance and Emergency Response Plan takes precedence, and is the umbrella plan under which the Curtailment Plan may be implemented.

Much of the state Curtailment Plan deals with the issue of mandatory curtailment. While voluntary curtailment is always preferred, it may not achieve sufficient reduction in electricity use to avoid blackouts. But mandatory curtailment raises a host of questions and concerns. For example, should it be implemented by utilities or customers? If utilities implement mandatory curtailment they may do so differently. One utility may choose to curtail industrial load while serving residential and commercial load. A neighboring utility may choose the opposite. In this situation one industry may be shut down while its competitor operates in the neighboring utility service territory. This raises concerns about equity, and was one reason for developing a unified statewide approach, indeed a regional approach. On the other hand, if customers are ordered to curtail, say 10 percent compared to the same month in the previous year, a whole host of target setting, compliance tracking and enforcement issues arise. What if in the previous year

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<sup>42</sup> "Curtailment" may be a misnomer. The plan addresses efficiency and other options, not just curtailment (turning off the power).

<sup>43</sup> The Regional Curtailment Plan for Electric Energy. Northwest Load Curtailment Plan Task Force, May 22, 1992.

the house was occupied by a single person (using little energy), yet this year it is occupied by a family (using lots of energy). Should the family be required to comply, and reduce its consumption? This raises the issue of exemptions, approval of exemptions, and appeals of exemption rejections. Finally, there is the question of enforcement. Under the energy emergency statute (RCW 43.21G) failure to comply with the governor's directives is a gross misdemeanor that requires indictment by county prosecutors. Are county officials likely to prosecute residential customers for failure to turn off their hot tubs?

Following is the Table of Contents (subsection outline) for the state Curtailment Plan. One can get a sense of the issues addressed by the Plan from the headings.

- 194-22-010 Purpose and goal.
- 194-22-020 Definitions.
- 194-22-030 Curtailment stages.
- 194-22-040 Initiation of load curtailment.
- 194-22-050 Curtailment administration -- Stage by stage utility obligations.
- 194-22-060 Curtailment administration -- Suggested curtailment actions.
- 194-22-070 Curtailment administration -- Base year, base billing period data.
- 194-22-080 Curtailment administration -- Curtailment targets.
- 194-22-090 Curtailment administration -- Excess power consumption.
- 194-22-100 Curtailment administration -- Threshold consumption level.
- 194-22-110 Curtailment administration -- Mandatory curtailment enforcement.
- 194-22-120 Curtailment administration -- Exemptions and adjustments.
- 194-22-130 Curtailment administration -- State appeals board.
- 194-22-140 Utility exemption from plan.
- 194-22-150 Utility waiver of liability and financial relief.
- 194-22-160 Scheduling curtailment.
- 194-22-170 Purchase of curtailment requirements.
- 194-22-180 Consumer owned generation.
- 194-22-190 Return to normal operations.

## **Increase Electricity Prices**

### **DR-17 Increase Retail Electricity Rates**

Generally, short term electricity spot market prices and wholesale contract prices are no longer regulated.<sup>44</sup> These prices change daily to reflect supply and demand, sending price signals to wholesale power purchasers. During an electricity supply emergency these prices will increase automatically, perhaps quickly and greatly, according to the severity of the shortage. Retail rates, and to a degree BPA wholesale rates, are fixed when a shortage occurs, and must be

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<sup>44</sup> A cap does exist however. The Federal Energy Regulatory Commission capped spot market prices in the Western Interconnection at \$250/MWh during the 2001 western electricity crisis. As of January, 2006, a "hard" cap was set at \$400/MW. That cap remains, but it is reasonably high and prices can increase greatly without reaching the cap.

adjusted to pass any high priced purchases through to customers. Otherwise BPA's utility customers and utility retail customers will not see any price signal from the shortage, nor have incentive to reduce their electricity use.

Increasing retail rates during a shortage can be effective. Temporary rate increases send a consistent message to consumers and do achieve reductions in consumption. This means that the utility will make smaller purchases of high priced power, thereby costing its customers less in the long run. But rate increases are always controversial. If the shortage is due to drought, which is likely, heavily agricultural counties may already be reeling. Utilities that have sufficient supply will not want to raise rates, even if it would help dampen demand regionally. Utilities that must raise rates will often want to lessen the rate impacts themselves by spreading the increase over several years – lessening the price signal. Still, some level of rate increase is valuable in getting electricity users to take the emergency seriously, because reduction of consumption will likely be critical to weathering the shortage.

There are any number of rate strategies that have been tried by utilities over the last twenty years during times of crisis. The strategies were typically introduced at times of real energy shortages. These range from simple approaches like 50% general rate increases, to doubling of rates for the last 10% of power use – based on the previous year's energy consumption (the customer who saves 10% of weather-adjusted energy over last year doesn't pay the doubled rates), to paying customers a nickel for every kWh they saved compared to their last year's weather-adjusted bill.

### **Increase Electricity Efficiency**

The following actions, generally, characterize the implementation of energy efficiency measures.

- a. Audit facilities for potential energy efficiency measures;
- b. Retrofit facilities to improve energy efficiency;
- c. Purchase and install energy efficient lights, appliances and equipment;
- d. Adjust maintenance and operating practices and procedures to improve energy efficiency; and
- e. Track and evaluate energy use.<sup>45</sup>

Certain efficiency measures require long term commitments and may not have extensive short term benefits. During an energy emergency, measures that have the greatest short term benefits (in terms of energy savings) are preferred,

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<sup>45</sup> The two key measures here are items c and d. Regarding tracking energy use: reviewing past energy consumption, and comparing it with averages, may suggest whether there is potential for improvement. Tracking consumption after installation of measures shows where your savings have come from. While this may or may not help any individual facility owner, those responsible for multiple facilities can learn where to get the most cost effective results.

although some longer term measures may be accelerated for significant short term benefits. Preferred measures include tune-ups of residential or commercial heating, ventilation and air conditioning equipment (HVAC), and installation of easily replaced low cost items such as efficient light bulbs.

A list of potential cost effective efficiency measures is available from the Northwest Power and Conservation Council. Individual situations vary, and may require an energy audit and performance analysis to determine cost effectiveness. Large installations may require significant engineering and business analyses. Personal preferences differ as well, affecting decisions. However, a host of measures, easily purchased and installed, are relatively cost effective. Providing customers with actual estimates (choices), and lowering their purchase costs is key.

DR-18 Encourage or direct government facilities to improve energy efficiency.

- a. Scope can be general or selective, applied to state agencies only or to local government agencies as well.
- b. Develop a strategy for implementing energy efficiency measures. Consider all potential actions (above), from audits to installation.
- c. Seek ways to gain benefits of scale. For example, state government and local governments could partner to remove all standard incandescent bulbs in their facilities to replace them with compact fluorescent bulbs. They could facilitate this with a bulk buy of compact fluorescent bulbs from wholesalers or negotiate deals locally.
- d. Apply best practices learned from previous efforts to expand energy savings. For example, transfer all the low-cost energy efficiency strategies that have been implemented on the capital campus to all state facilities. This would include, for example, unplugging bulbs in soda machines, unplugging personal coffee makers, retraining janitors to turn off the lights and copiers, etc.

DR-19 Encourage or direct residents, businesses and industries to improve energy efficiency.

In the end, it is customers' decisions to reduce consumption that will determine how high prices will go and whether or not blackouts will occur. All efforts to aid customers in making good energy decisions are helpful, though there will undoubtedly be alternatives that are more cost effective than others and some that will save more energy than others. Customers need good energy information about consumption, alternatives, costs and paybacks. The state can provide some information to customers as well as refer them to other information sources.

DR-20 Encourage or direct electric utilities to ramp up and/or provide additional efficiency programs.

Many options for implementing energy efficiency measures are best initiated with a call to one's electric utility. Most utilities offer a number of programs, including energy audits and rebates for purchasing energy efficient measures. Some will provide a list of "approved" contractors that will provide estimates and install measures. The Northwest Power and Conservation Council has the most comprehensive list of efficiency programs operated by utilities in the state of Washington.

DR-21 Increase incentives to implement efficiency measures

While increasing rates acts as a disincentive to consume energy, the other side of the coin is lowering the cost of implementing efficiency measures – this is mainly achieved by increasing rebates.<sup>46</sup> Incentives can be increased a number of ways.

- a. Increase rebates from manufacturers.
- b. Increase rebates from utilities.
- c. Offer energy audits for less cost.
- d. Increase statutory tax credits for purchasing efficient equipment.

DR-22 Accelerate buy-down of energy efficiency measures

Certain efficiency measures have huge demand reduction potential if only they could be employed on a vast scale. Compact fluorescent bulbs, for instance, are easy to distribute and install - they are simply too expensive. The following example is true as of the writing of this plan. At the time of an energy emergency, this alternative may not be available, but a similar option may be.

Northwest utilities, through the Northwest Energy Efficiency Alliance, are pursuing accelerating efforts to "buy-down" the cost of compact fluorescent bulbs in the Pacific Northwest. The intent is to pay manufacturers to ensure that products are available to consumers for 99 cents per bulb (versus \$3-7 per bulb). A marketing campaign accompanies this buy-down effort so that customers appreciate the value of the product. Utilities approved of the way the first season buy-down worked (fall 2005) and, as of this writing, are preparing for a second season effort in the fall of 2006.

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<sup>46</sup> Utilities temporarily increase rebates for customers installing energy efficiency measures. Rebate programs could be applied to any and every measure set out by the Northwest Power and Conservation Council in the latest (5<sup>th</sup>) Northwest Electric Power and Conservation Plan.

## **Curtail Electricity Use**

Electricity curtailment means reducing consumption by simply turning off the power, i.e. doing without. This may mean not using an appliance at all (e.g. turning off the hot tub), or using an appliance less often (e.g. turning the thermostat down so the furnace does not operate until it gets colder). One of the simplest ways to curtail electricity use is to turn off some lights. The most serious use of curtailment is when an electric utility sheds area load (i.e. turns off the power completely to all customers in a specified area). This is usually implemented as rolling blackouts.<sup>47</sup>

As with petroleum curtailment, electricity curtailment can be implemented a number of ways:

- a. As voluntary or mandatory;<sup>48</sup>
- b. For unspecified or specified amounts (usually as a percentage);
- c. For unspecified or specified periods (usually for a month or billing period);
- d. For unspecified or specified sectors (government, residential, commercial, or industrial); and
- e. For unspecified or specified uses (hot tubs, display lighting, etc.).

### **DR-23 Implement Interruptible Load Programs**

Some utilities have large industrial customers who are able and willing to have power interrupted for a price. For lower rates, and under certain conditions, these customers' load can be shed as needed. Expanding these programs on short notice may be difficult. During a shortage customers may be able to demand a better price to participate. Unless the customer can be interrupted for a long time, this program works best to shave peak demand.

### **DR-24 Implement Electricity Buy-Back Programs**

An interruptible customer generally pays a lower rate when supply is good to be interrupted when supply is short. An alternative is to make a one time buy-back of electricity during a shortage. During the 2001 western electricity crisis several utilities and Bonneville paid customers to not use electricity; this was a successful, but costly, mechanism for reducing energy use, with employment, environmental, and economic costs.<sup>49</sup>

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<sup>47</sup> Occasionally load is shed by grid systems automatically, generally to save equipment during a fault. It can also result from equipment failure or operator error. This is not "curtailment" as used in this plan, it is an outage.

<sup>48</sup> See DR-1 Washington State Curtailment Plan for Electric Energy. Mandatory curtailment can be implemented a number of ways, but raises a whole host of complex issues.

<sup>49</sup> One consequence of paying some large power users to stop using utility electricity is that these customers rely on diesel back-up generation. Given the high costs of diesel, it can be both financially and environmentally costly to install and operate diesel back-up generation. Under

## DR-25 Encourage or Direct Utilities or their Customers to Curtail Electricity Use

One option is to let customers decide where or when to cut energy use. This has the advantage of giving customer's choices and letting them do what is most convenient for them. However, depending solely on customers' actions for significant curtailment is risky. Months may go by before significant curtailment is achieved, during which time lots of energy is consumed. This is a significant concern in a region that is energy constrained. Asking or directing utilities to determine where or when to cut energy can have benefits. Utilities understand their systems better than anyone else; any can implement a mix of programs in close communication with their customers to reduce consumption. However, most problems arise when curtailment becomes mandatory, regardless of who has been making load curtailment choices. And, whether curtailment has been voluntary or mandatory, failure to achieve a sufficient reduction in electricity use can lead to the most drastic option for reducing consumption: utility load shedding, or rolling blackouts.

## DR-26 Substitute with Alternative Fuels

While many consumptive uses are unique to electricity, such as for computer processing, some basic services can be provided with other fuels. The best example is the use of wood stoves or fireplaces for heating in lieu of electric systems. Such alternatives may or may not be advisable, and come with their own technical, safety and environmental concerns. For example, during arctic weather (when an electricity shortage in Washington is most likely) inversion layers will trap wood smoke, impairing air quality. During such times wood fires may not even be allowed. At some point, with lowering outdoor temperature, rising exhaust from fireplaces will actually lower indoor temperatures.

## DR-27 Utility Area Load Shedding - Rolling Blackouts

The most drastic curtailment option available to utilities is area load shedding, usually implemented as rolling blackouts. The rolling nature of the action is to share the pain, reduce the impacts of extended outages, and maintain sufficient residual energy in customers' homes and businesses to facilitate power restoration.<sup>50</sup>

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stages III and IV, the state can offer environmental waivers for operation of diesel generators with later offsets.

<sup>50</sup> Many impacts of extended outages, such as food spoilage, should not result from rolling blackouts. Load shedding in wintertime is risky, especially in very cold weather. If blackouts last too long, all the furnaces (and lights, and refrigerators, etc.) will kick on together. It will require more than the average amount of energy to cold start (or black start) the area that was blacked out. This kind of activity, especially if it exists in more than one place, can tax the utilities' ability to reenergize and stabilize the grid.

Issues that are a concern include:

- Notification of customers – Will the utility provide notification? Will it be done in a timely manner? Will the location be specific or general?
- Duration of outages – A 30 minute blackout can be weathered at a grocery store without problems. A 60 minute blackout can be weathered if the grocery store is notified so it can arrange for ice to keep food cold. A 90 minute blackout will likely lead to food spoilage, depending on the weather.
- Exemptions – Should any customers be exempt from rolling blackouts? If so, which ones?

Extensive discussions of these and other important issues are included in a number of documents, including the Regional Curtailment Plan for Electric Energy – Extended Draft.<sup>51</sup>

Emergency Energy Demand Reduction Options – DR for Demand Reduction				
Overview	All Fuels	Petroleum	Electricity	<b>Natural Gas</b>

Natural gas is used for a variety of purposes, and not just for energy. Prior to the recent price increases in natural gas, approximately 7 percent of US industrial natural gas use was as a feed stock for ammonia fertilizer. The impacts of a natural gas shortage on such uses can be a concern, but it does not represent the same kind of risk to life and safety as an electricity shortage. In fact, many important natural gas uses, such as for space and water heating, can be substituted for with electricity, because almost all natural gas users also have electricity.<sup>52</sup> The inverse is not always the case. However, as natural gas has become the preferred new resource for electricity generation, it has become a far more critical fuel.

### Increase Natural Gas Prices

#### DR-28 Increase Retail Natural Gas Rates

Natural gas wholesale and spot prices are unregulated, and will naturally increase with a shortage. However, like electricity, retail rates are set, and must be actively increased if consumers are to see price increases that will encourage demand reduction. The same processes and concerns that accompany electricity rate increases apply to natural gas.

<sup>51</sup> Get location.

<sup>52</sup> For example, consumers can use plug in space heaters to keep warm, or heat water on an electric stove (or hotplate). On the other hand, loss of electricity means many natural gas appliances will not work (electricity is necessary to operate fans in natural gas fired heating systems).

## **Increase Natural Gas Efficiency**

Unlike with electricity, there are few ways to increase natural gas efficiency in the short term. The one measure that can improve natural gas efficiency is the tune-up of HVAC systems and replacement of filters. Otherwise, about the only way to improve its combusting efficiency is to replace an old appliance with a new one. This can be done, but often at great expense, that sometimes requires time for research, estimates and installation. If a natural gas shortage lasts a reasonably long time, such actions can be effective.

### **DR-29 Provide Incentives for the Purchase of More Efficient Appliances**

Natural gas companies could provide information, free estimates, or perhaps even discounts for the purchase and installation of more efficient natural gas appliances. For example, gas companies could provide incentives for replacing old, inefficient natural gas furnaces with new, more efficient furnaces.

## **Curtail Natural Gas Use**

Natural gas curtailment means reducing consumption by simply turning off the gas, i.e. doing without. This may mean not using an appliance at all (e.g. turning off the hot tub), or using an appliance less often (e.g. turning the thermostat down so the furnace does not operate until it gets colder). Most of the options for reducing natural gas consumption during a shortage involve curtailment of natural gas use.

As with petroleum and electricity curtailment, natural gas curtailment can be implemented a number of ways:

- a. As voluntary or mandatory;
- b. For unspecified or specified amounts (usually as a percentage);
- c. For unspecified or specified periods (usually for a month or billing period);
- d. For unspecified or specified sectors (government, residential, commercial, or industrial); and
- e. For unspecified or specified uses (hot tubs, furnaces, etc.).

### **DR-30 Implement Interruptible Supply Programs**

Some utilities have large industrial customers who are able and willing to have natural gas interrupted for a price. For lower rates, and under certain conditions, these customers' gas supply can be shed as needed. Expanding these programs on short notice may be difficult. During a shortage customers may be able to demand a better price to participate.

### DR-31 Implement Natural Gas Buy Back Programs

An interruptible customer generally pays a lower rate when supply is good to be interrupted when supply is short. An alternative is to make a one time buy-back of natural gas during a shortage. Depending on the consumptive use, e.g. as a chemical feedstock or as furnace fuel, a gas buy back can mean a business shutdown or a slowdown. Rather than continuing to operate while paying sky-high gas prices, a company may be willing to shut-down or interrupt business if the buy back payment is high enough.

It may be that the best alternative is not for a natural gas utility to buy back the gas, but for an electricity generator to do so. In other words, the natural gas utility may be able to broker a deal between two customers – one that generates electricity and another with a process, feedstock or furnace use.

### DR-32 Encourage or Direct Customers to Curtail Natural Gas Use

One option is to let customers decide where or when to cut energy use. This has the advantage of giving customers choices and letting them do what is most convenient for them. However, depending solely on customers' actions for significant curtailment is risky. Months may go by before significant curtailment is achieved, during which time lots of energy is consumed.

### DR-33 Substitute with Alternative Fuels

Two key residential uses may be substituted with other fuels. The best example is the use of wood stoves or fireplaces for heating in lieu of natural gas systems. Such alternatives may or may not be advisable, and come with their own technical and safety concerns. For example, during arctic weather (when a natural gas shortage in Washington is most likely) inversion layers will trap wood smoke, impairing air quality. During such times wood fires may not even be allowed. An alternative would be to use indoor space heaters, fueled with propane bottles or electricity<sup>53</sup>.

A second substitute would be for cooking. Natural gas burners and stoves can be bypassed through the use of electrical burners, microwaves, toaster ovens and even hotplates. Charcoal or propane grills can be used but only out of doors and in a safe manner.

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<sup>53</sup> Because natural gas is used to generate electricity, electricity may also be short in a natural gas shortage. In such a case it may not be advisable to increase electricity demand by switching to electric space heaters.

## Emergency Energy Supply Acquisition

Emergency Energy Supply Acquisition Options – SA for Supply Acquisition				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

The alternative to demand reduction is increasing supply. During a supply shortage this can be an expensive and difficult task. In many cases it takes time to acquire additional supply. For example, oil tankers may have to change direction in mid-ocean, and can take days to arrive. New, large electricity generating plants simply cannot be permitted and built quickly. Smaller units, such as diesel powered generators, can be installed reasonably quickly, though it takes lots of them. The price for emergency energy supplies can be very high, in both capital and risk to the environment. During the 2001 western electricity crisis a Megawatt hour of energy sold for as high as \$2000, up from a historical range that rarely topped \$40. The long term increase in rates is still being felt.

Most actions necessary to acquire emergency energy supplies need to be taken by energy companies. Oil companies purchase additional crude oil, and electric utilities build or contract for new generation.

The state can assist in the acquisition of emergency energy supplies mainly by speeding up permitting processes or waiving environmental rules and laws to allow highly polluting emergency plants to operate.

Emergency Energy Supply Acquisition Options – SA for Supply Acquisition				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

### SA-1 Locate New Supplies of Oil

Finding new supplies of oil during a shortage is an oil company responsibility. The new supply will undoubtedly cost more, because the lost original supply will have affected market prices. The most significant loss of supply for Washington would be a shut down of the Alyeska Pipeline that terminates in Valdez, Alaska. This is the pipeline that was shut down after the grounding of the Exxon Valdez. Oil companies serving Washington had to find new sources of crude oil for Washington’s refineries. Such action is a reflection of the market structure of the oil industry, and takes place without any necessary action by the state.

## SA-2 Waive Supply-Impacting Regulations

Oil supplies must be delivered on time to avert shortages. During a shortage, speed of delivery is even more important. Therefore actions that facilitate the timely delivery of scarce supplies are worth considering.

While oil prices are not regulated, there are a host of regulations that address other aspects of oil industry operations. For example, air quality regulations may set petroleum product standards and schedules that dictate when and where the products can be sold. Waiving such regulations can sometimes make more product available and speed up their delivery to regions of short supply. The costs of waiving the standards must be weighed against the benefit of easing the shortage.

Most of these regulations are federal standards, and their waiver must be approved by federal agencies. However, for such waivers to take affect in Washington state, it may require legislative or executive action, for example, if the standards have also been adopted in statute or rule. An alternative may be to temporarily cease enforcement of the standards. In 2005, after hurricane Katrina, the US Environmental Protection Agency waived the low sulfur requirements of highway diesel, allowing off-road high sulfur fuel to be used on highways. Both the state Department of Ecology and Washington State Patrol are enforcement agencies, and both waived enforcement of the regulation in compliance with the EPA waiver.<sup>54</sup>

### 1. Air Quality Regulations

#### a. Low Sulfur Highway Diesel Standard - EPA

The US is gradually lowering sulfur content in all gasoline and diesel supplies. In the meantime, high sulfur products can be used for off road purposes, such as farming and logging. The two supplies cannot be mixed. During a shortage, inventories of high sulfur products could sit unused while the emergency continues. Waiver of the standard allows those inventories to be used to ease the shortage. Because off road diesel has different tax requirements, its use during an emergency for on road purposes raises issues of taxation and revenue.

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<sup>54</sup> Waiving enforcement without waiving the standard may raise liability issues. Under what authority, for example, is the enforcement being waived? In 2005, there was concern that enforcement might have to be restored if complaints were made.

b. Reid Vapor Pressure (RVP) Standard - EPA

Gasoline is a volatile liquid that reacts to atmospheric conditions. During summers, when temperatures are highest, gasoline has greater tendency to evaporate, leading to emissions of volatile organic compounds and their toxic constituents. RVP is a measure of evaporative potential, and the standard requires lower RVP during summer months in selected areas. RVP is lowered by removing certain chemical constituents of gasoline, lowering the amount of gasoline produced from a barrel of oil. Also, at certain times of the year, refineries produce either winter or summer stocks and keep them in inventory in preparation for their use. They cannot be sold while in inventory prior to the schedule in the standard.

Waiving the RVP standard allows for production of more gasoline per barrel refined, and allows depletion of preparatory stocks kept in inventory. Both of which help ease a shortage.

2. Transportation Regulations

a. Truck Driver Hours of Operation Standard – US Department of Transportation

For road safety, truckers' hours of operation are regulated. After a certain number of hours on the road, a driver must idle the vehicle for a length of time, so the trucker can get some rest.

Waiving (or adjusting) the hours of operation requirements would allow tanker trucks to operate more often, delivering fuel where it is needed to ease the shortage.

b. Jones Act Tanker Restrictions – US Department of Homeland Security

Section 27 of the Merchant Marine Act of 1920, also known as the Jones Act, reserves all domestic deep-sea, Great Lakes and inland waters commerce for merchant vessels owned, built, flagged and crewed in the United States. Waivers may be made for national security purposes. If, for whatever purpose, there are insufficient US tankers available to carry oil during a shortage, the use of foreign tankers may facilitate the delivery of needed oil supplies. In 2005, DHS waived the Jones Act after both Hurricane Katrina and Rita.

### SA-3 Draw Down Strategic Petroleum Reserve

The US Strategic Petroleum Reserve is the largest emergency reserve of crude oil in the world. Its maximum storage capacity is 727 million barrels. At the time of the Katrina and Rita hurricanes, the reserve stood at about 701 million barrels. The reserve was drawn down directly following the hurricanes about 17 million barrels. As of July, 2006, the SPR stood at 688 million barrels, with a presidential directive still in force to fill the SPR to 700 million barrels.

Drawdown of the reserve requires a presidential directive. The maximum achievable drawdown rate is 4.4 million barrels per day<sup>55</sup>. SPR drawdown supplies are sold to qualified oil companies based on specific bidding rules.

Drawdown supplies help alleviate a crude oil shortage. SPR supplies would not alleviate a product shortage unless it is due to insufficient crude oil when there is excess refining capacity. If the product shortage is due to insufficient refining capacity, the additional crude supply is superfluous.

Emergency Energy Supply Acquisition Options – SA for Supply Acquisition				
Overview	All Fuels	Petroleum	<b>Electricity</b>	Natural Gas

Most electricity generating resources cannot be constructed quickly enough to help during an electricity shortage. In the Pacific Northwest, notice of a potential supply shortage can be, at most, about a year. Lack of snow pack during the winter may portend insufficient hydroelectric generation the following winter. That is insufficient time to permit and construct utility scale generating resources. And an electricity shortage may come with much less warning.

### SA-4 Acquire Small Renewable Resources

Many small renewable generating resources can be purchased and installed quite quickly, including solar photovoltaic systems and small wind generators. Most of these systems would be operated in homes and facilities still connected to the grid. While new generation, they would act more as agents to reduce utility demand. However, they represent a truly tiny percentage of our resource requirements. The state could provide tax breaks, and utilities could provide incentives to install such systems. However, demand reduction strategies overwhelmingly provide more bang for the buck. Therefore utilities, strapped for cash, will use their funds to provide incentives for direct demand reduction, rather

<sup>55</sup> Source: US Department of Energy at <http://www.fe.doe.gov/programs/reserves/spr/spr-facts.html>

than the installation of distributed generation that would also reduce their demand.

#### SA-5 Install Diesel Generators

In 2001, during the Western Electricity Crisis, utilities and large industrial customers were able to permit and install from 75 to 100 megawatts of temporary diesel generation to ease the shortage. Most permits were filed in March and April, and installed by June. Most were run less than 20 hours, as the shortage abated. It is possible that additional generators could have been installed, though the short term availability of emission control equipment for these units is limited.

#### SA-6 Employ Locomotive and Marine Generators

In 2001, during the Western Electricity Crisis, at least one utility proposed the interconnection of railroad locomotives for emergency electricity generation. In addition, the Navy has the capability to interconnect marine vessels to provide emergency electricity generation. At the least, a vessel could be used to provide emergency generation to support emergency mass care centers, for example the Tacoma Dome in Tacoma.

#### SA-7 Request, Contract for or Mandate Must Run Generator Operations

On occasion, even during supply shortages, generators are occasionally not operated for scheduled or unscheduled outages. In 2001, during the Western Electricity Crisis, the California ISO was at times concerned that generators were being withheld unnecessarily, resulting in higher electricity prices. Such an issue is more important in California than in the Pacific Northwest, where meeting peak loads is rarely an issue. Nevertheless, during drought years, and as peaking issues become more pronounced in the region, the issue of withholding generation may become more serious. Requirements to run could be established by contract, though this would be difficult to do on short notice. The state could investigate generators withheld from operations and determine the credibility of withholding the generation, though it is unclear where the expertise would be drawn from and how an objective determination would be made. More likely, the state could request that generators be operated at higher levels of risk. While the governor has authority to mandate generator operations, even that mandate is subject to safety and other liability concerns. Perhaps, an order could be written with sufficient detail to facilitate the mandate, but this would be similar to a short term contract that would be a better solution anyway.

Emergency Energy Supply Acquisition Options – SA for Supply Acquisition				
Overview	All Fuels	Petroleum	Electricity	<b>Natural Gas</b>

Acquisition of new natural gas supplies during a shortage is generally not an option. If the US constructs significant new facilities for receiving Liquefied Natural Gas (LNG), then acquisition of new supplies during a shortage might be a viable solution.

SA-8 Increase LNG Deliveries

Not yet a significant option in the Pacific Northwest.

**Energy Allocation Options**

Energy Allocation Options – EA for Energy Allocation				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

When energy is in short supply, either locally or regionally, it is sometimes important to distinguish between customers. For example, emergency response vehicles should not go without fuel. Crops should not be lost.

Most allocation programs are implemented directly by energy companies. For example, oil companies allocate fuel to distributors to limit hoarding. Electricity companies restore service to telecommunications facilities, hospitals and police and fire stations first, if possible.<sup>56</sup>

During an energy shortage the state may be involved in fuel allocation on a case by case basis. For example, during the Exxon Valdez grounding, hops growers requested assistance from the state in acquiring sufficient diesel to dry their crops. State energy officials requested that oil companies resolve the problem, which they did. CTED believes that most fuel allocation actions can be carried out voluntarily. During an earthquake, for example, CTED believes that oil companies will voluntarily provide fuel to selected stations to supply emergency response vehicles. Mandatory allocation should not be required.

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<sup>56</sup> To the degree possible. Almost all circuits have priority customers on them. The circuit itself must be restored before individual service faults can be addressed. So high priority customers in an un-restored circuit will remain without power while low priority customers enjoy power from a restored circuit. When a circuit is restored, priority customers with individual service faults will be restored first. The general approach for utility response is to restore the system safely and to bring up the greatest number of customers at a time. Therefore large transmission circuits are restored first, then the largest distribution circuits, then individual service. In preparation for rolling blackouts, utilities will identify key priority customer circuits (such as Seattle area hospitals, or the SeaTac airport) for exclusion.

Under a Stage IV Energy Emergency, the state of Washington has statutory authority to mandate fuel allocation on a localized or state wide basis. For example, the state could order oil companies to set aside a certain percentage of supplies for priority customers. During an electricity supply emergency, the state could order a sector of customers to limit consumption, thereby allocating a fuller share to another sector. For example, the state could order residential customers to reduce their consumption by a certain percentage, while placing less restrictive requirements on businesses. As stated elsewhere in this plan, mandatory fuel allocation options have significant costs associated with them, and therefore will only be used under extreme conditions.

If the governor should consider implementing mandatory fuel allocation, state law requires that he or she give high priority to supplying vital public services, including, but not limited to:

- essential governmental operations,
- public health and safety functions,
- emergency services,
- public mass transportation systems,
- fish production,
- food production and processing facilities, including the provision of water to irrigated agriculture, and
- energy supply facilities.<sup>57</sup>

Energy Allocation Options – EA for Energy Allocation				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

#### EA-1 Oil Company Fuel Allocation to Distributors

On their own initiative, oil companies occasionally allocate fuel to distributors to limit hoarding. Fuel might be allocated at any percentage, e.g. 110 percent, 100 percent, and 70 percent. Allocation at 100 percent and above is purely to limit hoarding or movement of fuel out of region. Allocation below 100 percent is recognition that there is insufficient fuel to meet normal demand. A distinction must be made between oil companies' contract and spot customers, because allocation and terms of sale may differ between the two. For example, a company may not have any fuel available for spot sales.

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<sup>57</sup> RCW 43.21G.030

## EA-2 Emergency Fuel Delivery (Case by Case)

Occasionally, the state will receive requests for access to fuel. Under such circumstances CTED communicates with oil companies, assesses the situation, and may request that oil companies deliver fuel (or resolve the problem in some manner). In certain circumstances, CTED might work with oil companies in an effort to set up a localized fuel allocation program. For example, if a city or county was experiencing extreme shortages due to a pipeline breakage or other circumstance that caused the area to be isolated, CTED might ask oil companies to set up a local program of fuel allocation, to ensure that certain customers, such as emergency vehicles, received sufficient fuel.

## EA-3 Emergency Fuel Storage Management

Some state agencies have significant fuel storage capability. For example, the Department of Transportation has its own storage tanks and pumping stations for servicing its trucks. Transit companies also often have significant storage capacity and pumping facilities. During an emergency, it may be helpful to identify and manage these facilities in a coordinated manner to maintain inventory and supply priority customers.

## EA-4 Mandate Localized or State Wide Fuel Allocation (also called Fuel Set Aside)

Under the state energy emergency statute, the governor has the authority to allocate scarce petroleum supplies. The program could be run a number of ways, but the use of such a draconian program would only be considered in the most severe of energy shortages. Such a shortage would mean significant numbers of customers would be unable to find fuel, perhaps in any amount. Determining how much fuel should be set aside, where it should be stored and how it should be delivered, and who should receive fuel (when and how much) would require an extensive state wide effort and coordination with oil companies.

To establish a set aside program in Washington, CTED would likely implement a program similar to that existing in California. The California program includes the following:

- requires emergency declaration by governor,
- establishes criteria for qualification,
- requires filing of applications,
- requires auditing of selected applications,
- requires application review and approval, and
- provides a process for appeal that includes the right to a public hearing.

Energy Allocation Options – EA for Energy Allocation				
Overview	All Fuels	Petroleum	<b>Electricity</b>	Natural Gas

Generally, electricity allocation is not proposed as an option. Allocation is instead a result of other options or actions. For example, demand reduction curtailment options can be implemented uniformly (where all customers are requested or ordered to curtail use by a certain percentage) or selectively (where some customers curtail a greater percentage than others). Or, effective allocation may occur because priority customers are restored before others, or are excluded from load dropping programs. These are not primarily examples of fuel allocation, but are the results of the implementation of curtailment programs; therefore they are addressed under this plan as demand reduction options.

**EA-5 Request or Mandate Service to Selected Priority Customers**

With some difficulty, electric utilities can provide selective service under some conditions. For example, when conducting rolling blackouts, utilities can select certain feeders to exclude from outages. The governor could request or order utilities to exempt certain priority customers from such outages.

Energy Allocation Options – EA for Energy Allocation				
Overview	All Fuels	Petroleum	Electricity	<b>Natural Gas</b>

Generally, as applied to individual consumers, natural gas allocation is not proposed as an option. For most customers (like electricity), quantities of natural gas can not easily be provided to one customer over another. Rather, allocation occurs effectively as a result of certain demand management actions. For example, the residential sector may reduce demand 15 percent while the commercial sector reduces demand only 10 percent. If the demand reduction were the result of gubernatorial targets, this could be interpreted as an allocation of more natural gas to the commercial sector.

**EA-6 Request or Mandate Allocation of Natural Gas to Selected Priority Customers**

Natural gas could be allocated to certain selected priority customers for whom it is relatively easy to ensure supply. For example, the governor could request or order Local Distribution Companies (LDC) to sell natural gas to electricity generators. This would limit sales to other customers, and might require the LDCs to reduce demand elsewhere on their systems.

CTED is currently working with the US Department of Energy to investigate issues surrounding natural gas allocation. A shortage of natural gas generally affects all customers, but ownership of the gas is not the same everywhere. Wholesale petroleum suppliers operating in Washington state can be directed by

the Governor in time of emergency where to deliver their product, in part, because they own all the product. Natural gas distribution utilities do not own all the gas in their pipelines. They would have to curtail gas owned by others, or owned by them but contracted to others, to supply priority electricity generators. Transportation pipelines operating in Washington also do not own the gas, but are common carriers. Wholesale natural gas suppliers are located in British Columbia, Alberta and in western Rocky Mountain states.

**Emergency Impacts Mitigation Options**

Emergency Impacts Mitigation Options – IM for Impacts Mitigation				
<b>Overview</b>	All Fuels	Petroleum	Electricity	Natural Gas

While there are federal and state processes in place to mitigate the impact of disasters, such as through Federal Emergency Management Agency approved Small Business Administration loans, no such process is permanently in place to address the impacts of energy supply emergencies. Yet extreme price increases, if prolonged, can have severe impacts on citizens and businesses. For example, prolonged high gasoline prices can threaten the viability of senior citizen transportation programs. The state, through emergency legislative action, and through reprioritization of executive program funds, can act to mitigate the impacts of severe energy emergencies, though there is rarely enough funding for extensive mitigation.

Emergency Impacts Mitigation Options – IM for Impacts Mitigation				
Overview	<b>All Fuels</b>	Petroleum	Electricity	Natural Gas

**IM-1 Increase Funding for Low Income Home Energy Efficient Program, LIHEAP**

LIHEAP is a federally funded block grant that provides money to help low income households make home heating more affordable, avoid shutoff of utility services during the winter, and maintain a warm, safe, and healthy environment for households with young children, the elderly, and the disabled. The LIHEAP Act requires that the highest level of assistance be provided to the lowest income households with the highest energy consumption, taking into account family size. The state LIHEAP program is administered by CTED.

**IM-2 Increase Funding for the Low-Income Weatherization Assistance Program**

Weatherization is the application of energy efficiency measures to a home. These include ceiling, wall and floor insulation; closing heat-escaping gaps by caulking, weather stripping, or broken window replacement; and heating system improvements. The measures are applied according to established technical specifications, cost-effectiveness tests, and relevant building codes. CTED

contracts with a statewide network of 26 local agencies to do the weatherization work and provide home energy conservation education.

**IM-3 Increase Funding or Incentives for the Energy Matchmakers Program**

The Energy Matchmakers Program increases resources for low-income home weatherization by leveraging local matching dollars and resources from utilities, rental owners and other sources. Washington communities receive Energy Matchmakers funds when they provide a dollar-for-dollar match.

**IM-4 Increase Funding for a Range of Low Income Programs**

The programs above all address assistance for energy needs. With the increased cost of energy, low income families may need assistance in many other areas, as scarce income is used to meet energy needs. Basic emergency assistance programs are administered by CTED and the Department of Social and Health Services (DSHS).

- CTED - Emergency Shelter Assistance Program, ESAP
- CTED - Emergency Food Assistance Program, EFAP
- CTED - Food Stamp Program

**DSHS – Emergency Assistance Program**

- Food
- Clothing
- Counseling
- Housing
- Medical
- Transportation

Emergency Impacts Mitigation Options – IM for Impacts Mitigation				
Overview	All Fuels	<b>Petroleum</b>	Electricity	Natural Gas

With over 80 percent of petroleum products used for transportation, the impacts of a shortage, primarily high prices, will be felt mainly in the transportation sector. However, it is unclear what kinds of mitigation actions might occur, if any. A few years ago, \$3.00 per gallon gas was unthinkable. Contingency planners discussed what might be done if prices rose much above \$2.00. Having taken no steps to mitigate the impacts of recent high prices, it is difficult to know at what point the legislature would step in to help citizens affected by the high prices. Prior to the recent price increases, it was thought that senior citizen transportation agencies might be hardest hit and deserving of some relief. They appear to have weathered the recent price increases.

#### IM-5 Provide Fuel Tax Relief to Consumers

The easiest way to mitigate the high price of gasoline and diesel fuel is to repeal gasoline taxes, at least for selected consumers. Repeal of some percentage of state fuel taxes raises a number of issues. First, if applied across the board, it lowers the price during a period when consumption should be discouraged, not encouraged. Second, it reduces revenue dedicated to transportation projects. Neither is particularly desirable. If applied to selected consumers, the question is which customers. Businesses are hurt by high prices, but they may be able to pass price increases to their customers. Senior citizen transportation companies may have difficulty raising their prices without harming their clientele.

#### IM-6 Provide Transportation Subsidies to Consumers

This option may be beneficial for a number of reasons. First, it can act as an incentive to use a mass transit alternative. In this case it is more of a demand management tool. But it also may allow consumers without means to use necessary transportation services. For example, a subsidy paid to a transit authority would allow them to lower their prices, benefiting users. The state could seek federal funds or apply state funds for this purpose.

#### IM-7 Subsidize Transit Fuel Costs

During periods of high fuel prices public transportation agencies may need to increase rates to pay for the fuel. The legislature, or local governments, could provide subsidies, such as tax relief, to lower the cost of public transit alternatives. This would allow rates to remain lower and provide greater incentive to use public transportation alternatives.

## **PART II**

### **ENERGY ASSURANCE**

Section will include:

- Critical Energy Infrastructure Protection
- Energy Sufficiency and Reliability

Section is under construction. Target date for completion: 2008.