

# **APPENDIX A**

## **Dry Year Tool Templates**

## Dry Year Strategy Tool

**DESCRIPTION OF TOOL: Demand Exchange Program**

This program allows BPA to buy power from program participants to reduce peak loads. The objective of the DEMX is to balance the power purchase price risk with options to meet the demands for power.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> Energy produced under various conditions, not affected by drought or market conditions</p>	<p><b>Range of Energy Production [aMW]</b> The energy gain is generally in the range of 10% to 20% of the contracted MWs  15aMW to 240aMW</p>	<p><b>Total cost to implement tool? Include:</b></p> <ul style="list-style-type: none"> <li>• Administrative costs (marketing, study maintenance and load analyses)</li> <li>• Services of software provider (Apogee at the moment)</li> <li>• Curtailment power purchases from participants</li> </ul>	<p><b>[\$/MWh]</b> BPA traders and schedulers determine the price to be offered for each hour. The price is determined on a case-by-case basis based on market conditions  Minimum of 1 megawatt of curtailment to avoid large aggregations in reaching blocks of 25 megawatts (which is the typical unit for power trading)</p>
<p><b>Does this tool provide enhanced reliability benefits?</b>  Yes, allows BPA to reduce loads during demand shortages, high market prices or transmission constraints.</p>	<p><b>[peak MW or other unit]</b>  Varies and depends on the commitment of each participant to curtail a specific amount of power for a certain number of hours. The curtailments can last from 5 – 8 hours  150 MW currently contracted – 1200 MW could potentially be contracted</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p> <ul style="list-style-type: none"> <li>• BPA is able to buy power for much less than the market price during peak periods</li> <li>• BPA is able to sell power on the open market at peak times for more than it would be able to sell at Priority Firm and Surplus Firm prices</li> </ul>	<p><b>[\$/MWh]</b> BPA traders and schedulers determine the price to be offered for each hour. The price is determined on a case-by-case basis based on market conditions</p>

BENEFITS:		COSTS:	
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	<ul style="list-style-type: none"> <li>• Participant receives slight economic benefit for participant and region</li> <li>• Eases transmission congestion</li> </ul>	<p><b>Economic impact on Region or portion of Region, including:</b></p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	<p>The tool should be implemented in such a way so that there is:</p> <ul style="list-style-type: none"> <li>• No impact on, participant's labor force or, supply chain gap</li> <li>• No undue economic impact on industry etc</li> </ul>
TIMING ISSUES			
<p><b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)</p>	<p>Available anytime- yet depends on number of participants, MWs offered and the hourly intervals</p> <p>There is some seasonal shape associated with the water heater load. This load tends to be less in the Spring</p>	<p><b>Time needed to implement?</b></p> <ul style="list-style-type: none"> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead-time?</li> </ul>	<ul style="list-style-type: none"> <li>• Depends on when participants commit to participate.</li> <li>• There is a pre-purchase option, which depends on early agreement with BPA and participant on the amount and price of energy. (This is only 1 to 2 days in advance)</li> </ul>
OTHER CONSIDERATIONS			
<p><b>Certainty that tool can be implemented?</b></p>	<p>Very certain the tool can be implemented. However, uncertain if parties will elect to curtail</p> <p>In the new contracts, the intent is to include the pre-purchase option. This will make the availability and cost of this tool very certain</p>	<p>Any special requirements, e.g. governor's declaration of drought emergency?</p>	<ul style="list-style-type: none"> <li>• Each participant must have a compatible meter to monitor their energy use and curtailment</li> <li>• Slice customers require greater effort</li> </ul>
PROS		CONS	
<ul style="list-style-type: none"> <li>• Can provide significant peak load reduction, with some net energy savings.</li> <li>• Potentially a cost-effective tool if market prices are high</li> </ul>		<ul style="list-style-type: none"> <li>• Uncertainty of whether parties will elect to curtail</li> </ul>	

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **Distributed Generation** - Reciprocating Engine Generators - (heat rate 10050 Btu/kWh)

Allows for increased production of power from small generation sites throughout the region to stabilize market.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> include: Units can be operated and marketed without regard to hydro system</p>	<p><b>Range of Energy Production [aMW]</b></p> <p>Possible addition of 20-100MWs</p>	<p><b>Total cost to implement tool? Include:</b></p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p>The cost of this tool is a combination of Fixed Costs and Variable Costs.</p> <p>Fixed Costs include: the cost of the generator, transformer, and site development</p> <p>The Variable cost include the price of the gas or diesel used in the generation of power</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p>Offers increased reliability and cap. 20-100MWs, which helps stabilize market.</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p>Can help stabilize the energy market and allows BPA to sell capacity produced by the units</p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to Region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	<p>Ability to site in areas which help alleviate Transmission congestion</p> <p>Ability to use for ancillary service sales</p>	<p>Economic impact on region or portion of region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	<ul style="list-style-type: none"> <li>• Noise impact of 70db per unit</li> </ul>

TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Year-round usability. Duration of use in some cases depends on the length of the lease and ability to renew it	<b>Time needed to implement?</b>	Requires investment in predeveloped site to be a realistic option <ul style="list-style-type: none"> <li>• Lead time depends on the availability of equipment and set up time.</li> <li>• Expect 2 to 3 months to installation</li> <li>• Once units are fully operational lead time is minimal</li> </ul>
OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	Very certain once lease and equipment is provided	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	<ul style="list-style-type: none"> <li>• TBL wants all generation over 3aMW telemetered</li> <li>• Permits needed</li> </ul>
PROS		CONS	
<ul style="list-style-type: none"> <li>• Units can be sited in location which help alleviate transmission congestion</li> <li>• Units can be turned on remotely</li> <li>• Can start within 10 minutes</li> <li>• Potentially a cost-effective tool is market prices are high</li> </ul>		<ul style="list-style-type: none"> <li>• Can have environmental impacts particularly when diesel is used</li> <li>• Potentially a costly tool (i.e. cost of site prep and machine purchase or rental) if market prices are low</li> </ul>	

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **DSI Load Buy-Down**  
 Buying down industrial load in times of high power prices or severe energy shortages.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<b>Energy produced under various conditions?</b> Include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions	<b>Range of Energy Production [aMW]</b>  500 MW – 1000 MW	<b>Total cost to implement tool?</b> Include: <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<b>[\$/MWh]</b> Will vary and will need to be negotiated. Depend on: price of aluminum; price of power; and circumstances of each DSI at that time  The shorter the duration of the reduction, the more costly the tool
<b>Does this tool provide enhanced reliability benefits?</b>	<b>[peak MW or other unit]</b> 500 MW- 1000 MW	<b>Impact on BPA rates and other financial indicators?</b>	<b>[\$/MWh]</b> Same
<b>Other benefits?</b> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>		Economic impact on region or portion of region, including: <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	Could impact local economies and communities; however, provisions in the contract that workers be fully compensated should eliminate any undue economic impacts to specific areas
TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Can be used any time of year	<b>Time needed to implement?</b> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	Probably 1 to 3 weeks to negotiate

OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	Certain depending on amount of DSI load operating, and price BPA is willing to pay	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	May want to include provision that workers associated with DSI are fully compensated
PROS		CONS	
<ul style="list-style-type: none"> <li>• Can provide a large reduction in demand</li> <li>• Potentially a cost-effective tool is market prices are high</li> </ul>		<ul style="list-style-type: none"> <li>• May have long-term impacts on the Aluminum industry in the Northwest</li> </ul>	

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **Irrigation Load Buy-Down** (This tool should not be confused with any long-term programs to acquire water for environmental or other purposes)

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> include Scenarios depicting effectiveness of tool under a variety of market, drought and other conditions</p>	<p><b>Range of Energy Production [aMW]</b></p> <p>Tool potentially allows for more generation from water left in system and reduces load in April – September timeframe</p> <p><b>2001 results:</b> Utility Program and Snake River Program: 11.5 aMW 80-100 kaf</p> <p>Columbia River Irrigators Program: 50aMW 300-400 kaf</p> <p><b>Constraints:</b> Program limited to 15% of irrigable acreage to avoid third party impacts</p>	<p><b>Total cost to implement tool?</b> Include:</p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p style="text-align: center;"><b>[\$/MWh]</b></p> <p>Price is negotiated based on value of power and value of commodity foregone. A Locality Adder may be included where water is reasonably expected to stay in system and to increase generation</p> <p>BPA's preference is that local irrigation districts negotiate and implement contracts with farmers with BPA reimbursing them for administrative expenses</p> <p>Minimum of 10 acres to participate in program to limit administrative costs</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p><b>[peak MW or other unit]</b></p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p style="text-align: center;"><b>[\$/MWh]</b></p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	<ul style="list-style-type: none"> <li>• Water savings</li> <li>• Some increase flows possible</li> </ul>	<p>Economic impact on region or portion of region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	<p>Could impact local economies; however, limiting program to 15% of irrigable acreage, which is the maximum acreage taken out of production by USDA commodity programs, should eliminate any undue economic impacts to specific areas</p>



TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Energy saving/ generation is April - September	<b>Time needed to implement?</b> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	<p>Best if program infrastructure is set up in advance. Program needs to be in place ASAP, or, at least, prior to farmers buying seed in February</p> <p>May negotiate this to be an option where we pay a little each year in order to have a firm call option</p>
OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	Advance infrastructure can increase certainty	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	A governor's drought declaration may make this tool easier to implement, but not absolute requirement
PROS		CONS	
<ul style="list-style-type: none"> <li>• Can provide both energy savings and increased generation (in cases where other water right holders not likely to take water back out of system)</li> <li>• Potentially a cost-effective tool if market prices are high</li> </ul>		<ul style="list-style-type: none"> <li>• If need is for load reduction or generation in winter, this tool does not provide load reduction/ generation until spring</li> <li>• Potentially a costly tool if market prices low</li> </ul>	

## Dry Year Strategy Tool

**DESCRIPTION OF TOOL: Long-term Market Purchases**

Acquire energy purchases for Qs that have the highest probabilities of deficits.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> Include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions</p>	<p><b>Range of Energy Production [aMW]</b> 100aMW – 1000aMW</p>	<p><b>Total cost to implement tool?</b> Include:</p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p><b>[\$/MWh]</b> Depends on what the market price is for the Q and the year</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p><b>[peak MW or other unit]</b> Yes, if the purchase includes HLHs</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p><b>[\$/MWh]</b> Depends on what the market price is for the Q and the year</p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>		<p>Economic impact on Region or portion of Region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	
TIMING ISSUES			
<p><b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)</p>	<p>Can be purchased for any Q</p>	<p><b>Time needed to implement?</b></p> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	<p>Very little lead time needed</p> <p>Purchasing well in advance of need may result in lower price paid</p>

OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	High certainty once the contract is purchased	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	
<p style="text-align: center;">PROS</p> <ul style="list-style-type: none"> <li>Once the contract is purchased, this tool provides high certainty of energy being available</li> </ul>		<p style="text-align: center;">CONS</p> <ul style="list-style-type: none"> <li>A firm contract may end up costing BPA in most water conditions (since in most water conditions we expect to be surplus)</li> </ul>	

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **Long-term Option Purchases**: Acquire energy options for Qs that have the highest probabilities of deficits.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions.</p>	<p><b>Range of Energy Production [aMW]</b> 100aMW – 1000aMW</p>	<p><b>Total cost to implement tool?</b> Include:</p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p style="text-align: center;"><b>[\$/MWh]</b></p> <p>Depends on what the market price is for the Q and the year Option fee = Strike Price =</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p><b>[peak MW or other unit]</b> Yes, if the option includes HLHs</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p style="text-align: center;"><b>[\$/MWh]</b></p> <p>Depends on what the market price is for the Q and the year Option fee = Strike Price =</p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to Region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>		<p>Economic impact on region or portion of region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	

TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Can be purchased for any Q	<b>Time needed to implement?</b> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	There will be a date by which the Options will need to be struck. This could lead to some wrong call decisions, thus additional cost
OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	High certainty once the Option is purchased	<b>Any special requirements, e.g. governor’s declaration of drought emergency?</b>	
<b>PROS</b> <ul style="list-style-type: none"> <li>• Once the Option is purchased, this tool provides high certainty of energy being available</li> </ul>		<b>CONS</b> <ul style="list-style-type: none"> <li>• An Option will end up costing BPA in most water conditions due to the option fee – though the cost will not be as much as a firm purchase. Need to realize that the option is insurance against high market prices</li> <li>• Since there will be a date by which the Options will need to be struck. This could lead to some wrong call decisions, thus additional cost</li> </ul>	

## Dry Year Strategy Tool

**DESCRIPTION OF TOOL: Power Exchanges:**

Power is exchanged on a ratio of delivered energy to returned energy

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> Include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions.</p>	<p><b>Range of Energy Production [aMW]</b> Could be an energy gain if there is a ratio greater than 1-to-1 associated with the transaction</p> <p>40 aMW – 400 aMW</p>	<p><b>Total cost to implement tool?</b> Include:</p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p><b>[\$/MWh]</b> There is no price or dollar cost associated with this tool. However, there could be energy impact at time of initial delivery</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p><b>[peak MW or other unit]</b> Could improve reliability dependent on agreement of how energy is returned 40 MW – 400 MW</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p><b>[\$/MWh]</b> There is no price or dollar cost associated with this tool. However, there could be energy impact at time of initial delivery</p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	<p>This tool is a way to reshape FCRPS generation from energy long periods to energy short periods</p> <p>Provides economic and reliability benefits to the region with which the energy is exchanged</p>	<p>Economic impact on region or portion of region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	
TIMING ISSUES			
<p><b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)</p>	<p>Can be used at any time we are able to set up exchange agreements – most probable would be in the Spring/Summer when California is hot</p>	<p><b>Time needed to implement?</b></p> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	

OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	Not very certain. Availability is dependent upon other regions having a desperate need for power	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	In 2001, most exchanges required the first MW to be returned within 24 hours. The second MW was returned on an agreed upon future month
PROS		CONS	
<ul style="list-style-type: none"> <li>• Can provide energy reshaping from energy long periods to energy short periods</li> <li>• Potentially a low-cost tool if the energy price in the period of energy delivery is less than the energy price in the period energy is received</li> </ul>		<ul style="list-style-type: none"> <li>• Potentially could cost BPA if the energy price in the period of energy delivery turns out to be more than the energy price in the period energy is received</li> </ul>	

## Dry Year Strategy Tool

**DESCRIPTION OF TOOL: Marketing Campaigns and/or Public Awareness that Affect People’s Electricity Consumption Behavior**

This tool is the first step in the regional curtailment plan. It is associated with the amount of conservation that could be elicited by public requests for prudent energy use.

Check box, if this is primarily a Dry Year Tool  Yes

Check box, if this tool is regularly used by PBL in the course of doing business  No

BENEFITS		COSTS	
<b>Energy produced under various conditions?</b> Energy was saved – and the result is not a function of drought or market prices because the consumer was not seeing the market price	<b>Range of Energy Production</b> This is very hard to quantify because it's next to impossible to remove the effects of other actions. California reported a 25% reduction in electricity use as a result of behavioral changes requested by the governor	<b>Total cost to implement tool?</b> Include: <ul style="list-style-type: none"> <li>• Costs are the cost of designing and printing ads</li> <li>• Also a potential political cost</li> <li>• Costs were largely covered by BPA</li> </ul>	Inexpensive but very short-lived and temporary
<b>Does this tool provide enhanced reliability benefits?</b>	No – this tool is very unpredictable in its effect, and very short-lived by its nature	<b>Impact on BPA rates and other financial indicators?</b> Negligible as a cost, significant as a replacement for power purchases	
<b>Other benefits?</b> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	N/A Some economic benefit in terms of region's cost of electricity Consumers' bills were lower. Locational benefits are possible – but difficult to measure and unpredictable to count on	<b>Economic impact on region or portion of region, including:</b>  N/A	
TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Available any time – more so in the winter when peaks in this region are higher due to heating and lighting loads	<b>Time needed to implement?</b> .	Basically little to no lead time is needed because these measures are behavioral. Turning off lights, thermometer set backs, etc



OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	It definitely is available, the results are difficult to measure or predict	<b>Any special requirements?</b> Definitely need political support from people who can speak with authority – like the Governor	
PROS		CONS	
<ul style="list-style-type: none"> <li>• Inexpensive</li> <li>• Can have an immediate impact</li> <li>• Magnitude can be substantial</li> </ul>		<ul style="list-style-type: none"> <li>• Is unpredictable in timing and magnitude</li> <li>• Very short-term measure</li> </ul>	

This tool is informal in nature and is associated with the amount of curtailment that could be elicited by media requests for prudent energy use. It is a lot of tools wrapped up into a marketing or advertising campaign.

The requests for prudent energy use would be accompanied by:

- Press releases and press conferences by the governors promoting energy efficiency and energy conservation actions;
- Print ads developed by BPA and made available to the customers to run in their papers;
- Ads in major newspapers;
- Open letter from the governors;
- Emergency Response Team – providing a coordination role with respect to communications regarding the energy situation;
- ERT also coordinates news releases.

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **Regional Curtailment Plan** (Governor's Emergency Powers)

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<b>Energy produced under various conditions?</b> Include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions	<b>Range of Energy Production [aMW]</b>  5% to 15%+ of load, dependent on which stage of curtailment is exercised	<b>Total cost to implement tool?</b> Include: <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<b>[\$/MWh]</b>  Lost revenue payments
<b>Does this tool provide enhanced reliability benefits?</b>	<b>[peak MW or other unit]</b>  5% to 15%+ of load	<b>Impact on BPA rates and other financial indicators?</b>	<b>[\$/MWh]</b>
<b>Other benefits?</b> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	Some economic benefit in terms of region's cost of electricity was down – consumers' bills were lower. Locational benefits are possible – but difficult to measure and unpredictable to count on	Economic impact on region or portion of region, including: <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	Impact on region's industry and economy  Could have impact on BiOp measures
TIMING ISSUES			
<b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)	Can be used in any season	<b>Time needed to implement?</b> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	Discussions with the states' governors prior to a dry-year could improve the lead time

OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	It is highly likely that the mandatory curtailment portion of this tool would only be implemented after, or in conjunction with, all BiOp operations stopped and the FCRPS run purely for power production	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	Governors must declare a power emergency.  Slight differences between each states requirements
PROS		CONS	
		<ul style="list-style-type: none"> <li>• Potentially large impact to region's economy</li> <li>• Potential impact to BiOp measures</li> </ul>	

It is highly likely that the mandatory curtailment portion of this tool would only be implemented after, or in conjunction with, all BiOp operations stopped and the FCRPS run purely for power production.

## Dry Year Strategy Tool

DESCRIPTION OF TOOL: **Summer Storage Agreement**

Store energy in Canada to improve reliability in the following year.

Check box, if this is primarily a Dry Year Tool

Check box, if this tool is regularly used by PBL in the course of doing business

BENEFITS:		COSTS:	
<p><b>Energy produced under various conditions?</b> Include scenarios depicting effectiveness of tool under a variety of market, drought and other conditions</p>	<p><b>Range of Energy Production [aMW]</b></p> <p style="text-align: center;">3000 MW-Mo</p> <p style="text-align: center;">Could have negative energy impact on current year</p>	<p><b>Total cost to implement tool?</b> Include:</p> <ul style="list-style-type: none"> <li>• Payments to parties</li> <li>• Administrative costs</li> <li>• Other costs</li> </ul>	<p style="text-align: center;"><b>[\$/MWh]</b></p> <p>The cost could be:</p> <ul style="list-style-type: none"> <li>• Forgone sales</li> <li>• Purchases</li> <li>• The use of other tools to reduce load</li> </ul> <p>No cost for storage agreement</p>
<p><b>Does this tool provide enhanced reliability benefits?</b></p>	<p><b>[peak MW or other unit]</b></p> <p style="text-align: center;">Limit storage over peak hours</p>	<p><b>Impact on BPA rates and other financial indicators?</b></p>	<p style="text-align: center;"><b>[\$/MWh]</b></p>
<p><b>Other benefits?</b></p> <ul style="list-style-type: none"> <li>• Water savings</li> <li>• Environmental benefits</li> <li>• Economic benefits to region</li> <li>• Locational benefits, e.g. to ease transmission congestion</li> </ul>	<p style="text-align: center;">Reduces Loss of Load Probability in the following year</p> <p style="text-align: center;">Could improve ability to maintain chum flows in fall and winter</p> <p style="text-align: center;">Improve Canadian project refill</p>	<p>Economic impact on region or portion of region, including:</p> <ul style="list-style-type: none"> <li>• Third party impacts</li> <li>• Undue economic impacts to a particular industry, business type</li> </ul>	<p style="text-align: center;">Impact on BiOp actions</p> <p style="text-align: center;">Could be some PNCA impacts/considerations</p>
TIMING ISSUES			
<p><b>Timing, or season of power production, or savings?</b> (e.g. available only in Jun. – Aug.)</p>	<p style="text-align: center;">This would reduce power production in the current year, and increase power production in the following year</p>	<p><b>Time needed to implement?</b></p> <ul style="list-style-type: none"> <li>• Must be implemented by a certain date, e.g. before Feb. 1?</li> <li>• Lead time required to implement?</li> <li>• Can steps be taken ahead of dry year to shorten lead time?</li> </ul>	<p>The agreement can be reached and implemented very quickly; however, it takes time to store the energy so BPA would want it in place by May or June</p>

OTHER CONSIDERATIONS			
<b>Certainty that tool can be implemented?</b>	Agreement is certain, however the actual storage is not	<b>Any special requirements, e.g. governor's declaration of drought emergency?</b>	Need a drought emergency in order to impact BiOp flows to store the energy
PROS		CONS	
<ul style="list-style-type: none"> <li>Reduces Loss of Load Probability in the following year</li> </ul> <p>Could improve ability to maintain chum flows in fall and winter of the following year</p>		<ul style="list-style-type: none"> <li>Impact to the BiOp flows and/or spill</li> <li>May have economic impact if the energy price at the time of storage is higher than the energy price at the time of storage release</li> </ul>	

# **APPENDIX B**

## **Dry Year Tool Background Information**

## **Demand Exchange Pilot Program**

### **Program Background**

The Bonneville Power Administration (BPA) sells wholesale power to Northwest public- and investor-owned utilities; large industrial companies called direct service industries (mostly aluminum smelters), Federal agencies, and entities outside the Northwest. BPA is faced with the newer challenge of managing pressures on its resource system due to rapid load growth, system constraints due to the biological opinion requirements for fish operations, historical challenges of unpredictable weather conditions, market volatility, and physical plant reliability issues. As a result, BPA is more susceptible to the financial risk of extremely high power purchase prices in order to meet obligations to power sales customers during supply constraint periods.

BPA assumes market risk and insulates firm power sales customers from spot market volatility by selling firm power at fixed rates. Although capacity constraints have not historically been a serious problem in the Pacific Northwest, the experience of eastern U.S. utilities that paid up to \$7,000 per megawatt-hour for power during the summer of 1998 persuaded BPA to seek a solution to a potential problem. Further impetus for load management came from the Northwest Power Planning Council reliability study that suggested under certain conditions, that there is a one-in-four chance of BPA not being able to meet the region's power needs during a winter cold snap.

These conditions created both reliability and marketing issues for BPA. In terms of reliability, BPA is primarily concerned with the ability to meet peak load during periods of supply constraint using a mix of demand-side management (DSM) and distributed generation resources. In terms of marketing, BPA is interested in using DSM and distributed generation to mitigate the costs of purchasing on the spot market during periods of supply constraint as well as in marketing the energy created by these resources when economical.

The objective of the Demand Exchange program (DEMX) is to balance the power purchase price risk with options to meet the demands for power. In addition, it is possible that by reducing peaks at various times throughout the year BPA may be able to sell power on the open market for more than we would be able to sell it at the Priority Firm and Surplus Firm prices.

In August 1999, perceptions and behavior towards power purchasing and the related function of managing the load side of the load-resource balance equation fundamentally changed. These fundamental changes were caused by dramatic swings in the market price of power. A year later, on a sweltering day in August 2000, Daishowa America, a paper mill in Port Angeles, Washington, stopped grinding wood chips into pulp for several hours, drawing on pulp inventory instead, and sold the curtailed power. It did not use back to BPA through the DEMX. BPA used the power to mitigate its exposure to the volatile spot market. The customer made a nice profit, and more importantly, BPA proved it could mitigate its market exposure as well increase the reliability of the system through the utilization of the....

### **Program Development**

BPA, through the Energy Efficiency Organization (EE), performed research into distributed generation that revealed several alternatives for providing extra power capacity on a temporary basis. The research was performed in two major categories: Supply Analyses and Technology.

The Supply Analyses research focused on development of a supply curve study to determine the availability of demand side resources in the BPA control area for purposes of peak load management. The technology research focused on identifying the various applications (metering, software, etc.) necessary for the central dispatch, measurement, and verification of such resources.

### **Supply Curve Study**

Historically, demand-side management programs run by BPA and its utility customers in the Northwest have focused almost exclusively on improving energy efficiency. Two recent developments reoriented the focus of regional demand-side planners: capacity constraints and large swings in power prices during peak periods. These developments can be addressed by investments in new generating capacity or by developing programs that help end users implement dispatchable load management (DLM) measures. The purpose of this study was to take a first look at the technical potential for measures applied to end use loads served by BPA and its public utility customers in the Northwest.

This was a new topic for demand-side planning in the Northwest. BPA found that much of the prior research from other regions of the country was based on programs conducted more than 10 years ago. New communication and control technologies are now available that could substantially ease the implementation of DLM measures. However, little primary research has been



conducted that fully characterizes the performance of these emerging technologies. The BPA demand exchange supply curve study began the process of looking at the potential for DLM, with the understanding that additional work is required before the technical and economic potentials are fully understood.

### **Technology Research**

After reviewing data from several technology vendors, BPA determined that it would be technically feasible to supply generation on an as-needed basis. With that, BPA developed a plan to provide temporary, regional distributed generation during critical supply constraint periods.

The DEMX voluntary load curtailment (VLC) relies on specialized software applications. The software supports Internet trading of curtailment. Notification, pricing, benefits, capability, and verification are functional components of these types of software. These specialized software applications are generally obtained from third-party providers on a cost-effective basis compared to in-house development.

BPA contracted for an Interactive Internet auction site with the objective of providing a quick and cost effective means of communicating and facilitating peak shaving transactions.

### **Program Marketing**

BPA did not advertise the DEMX widely. Instead, BPA relied on BPA account executives (AE) to contact specific customers that met the load characteristic. In the early stages of program development, it was more cost-effective to target the marketing as opposed to doing a mass marketing campaign. Moreover, BPA did not want to widely publicize an unproven product.

The AEs targeted participants who could provide at least 1 megawatt of curtailment so that it didn't require large amounts of aggregation to receive curtailments in blocks of 25 megawatts, which is the typical unit for power trading. The AEs also worked through other retail utilities to contact industrial customers of those utilities. In some cases small utilities themselves became participants.

BPA began issuing contracts in August 2000 and by October 2000 had signed four energy users with a total of 125 megawatts curtailable for several hours, or up to 275 megawatts for a single hour.

## **Contractual Arrangements**

The DEMX contract provides a mechanism for BPA to reduce peak loads in times of demand shortages, high market prices, or transmission constraints. The participating entity pledges to curtail specified load amounts in one-hour block increments, in exchange for payment by BPA for doing so.

## **Pricing**

Each time they decide to call an event, BPA's traders and schedulers also determine the price to be offered to customers for each hour. The price is determined on a case-by-case basis based on market conditions, rather than by using a consistent rule such as offering 50% of the market price. After the event, BPA technicians calculate the payment due using the bid price specified, regardless of the actual spot price on the day of the event.

## **A Comparison with Real-Time Pricing**

Under real-time pricing, the price of electricity is continuously variable, tracking the wholesale market price or some value derived from it. An energy user who is willing to manage energy usage actively and to curtail use during price peaks can achieve significant annual savings as compared to a traditional tariff. But an energy user who doesn't pay attention to the price, or who cannot curtail, can end up paying very high prices during major spikes. Under VLC, on the other hand, the energy user pays a standard rate that is designed to average out the highs and the lows, but during price spike events, the user can "sell back" the curtailed energy to BPA for a higher price. An energy user who doesn't respond to curtailment opportunities ends up paying the regular rate.

Thus, VLC appeals to customers who are risk averse when it comes to electricity costs. Energy trading isn't their business, they don't want to be active energy managers, and they don't want to worry about the consequences of not actively managing energy or of being unable to curtail usage because of business obligations. They're happy to pay a standard rate and have the opportunity to sometimes get something back.

## **Program Mechanics**

The general process to call an event, which means an announcement of an offer to buy curtailment at a specified price when the wholesale market price reaches some trigger level, begins with a bid or price offering by the BPA trader. This is usually tied in some way to the wholesale price, although sometimes traders may offer a standard price whenever they call an event. The announcement is by email, telephone, page, or fax, and may be automated. The energy user then goes to a website, where details of the offer are presented.

The energy user responds with a commitment to curtail a specific amount of power for certain hours.

Currently under the DEMX, participating customers are notified either one or two days before the actual event and may be offered a price at that time based on the day-ahead futures market for electricity. Energy users are expected to respond within hours of the offer. Because energy users are being paid for curtailing power, it is necessary to estimate how much power they would otherwise have used. Various methods are used to establish a baseline for each energy user for each event, based on some measure of prior usage. After the event, BPA calculates the results and the payment.

### **Notification and Response**

BPA traders and schedulers identify a need for curtailment based on either price or resource constraints.

They then submit, via the DEMX website, a price bid/quote for curtailment on a day-ahead or two-day-ahead basis. BPA sends each participant an alert via email, fax, pager, or cell phone, and participants can check the website to find the price and details of the offer. Participants respond to the offer both by email from the website and by fax, in order to ensure that the message gets through. Once communicated, bids are firm, with penalties for noncompliance, but BPA can accept or reject a bid. Once BPA accepts a bid, both parties are committed to settle at that price, regardless of any subsequent market price changes.

### **Measurement and Verification**

The general strategy is to maximize the use of existing meters, and to measure as close as possible to the load shed or generation. Depending on the size and shape of the participant's load, metering for the DEMX, in most cases, can be accomplished by using the facility revenue meter(s).

Payment is based on the reduction of average demand compared to a baseline for each hour. Load reduction pricing and all related metering are done on an hourly interval basis. BPA is still experimenting with how to calculate the baseline, generally based on the prior four weeks' worth of data. The baseline load curve is usually calculated on an hour-by-hour specific basis.

### **Penalties**

The participant's actual load reductions must conform to the pledged amount to within a specified error for BPA to gain full advantage and for the

participant to receive the maximum compensation. However, if the participant fails to meet its total pledged amount, BPA will credit all pledged amounts under the following formula:

*If the participant fails to meet its total pledged amount, BPA will require shortages greater than 10% of pledged amount to be replaced at double the BPA bid.*

For example: Participant said they would give you 1 megawatt in the pledge and only gave you 800 kilowatts. They would be in default by 100 kilowatts. They would only get 900 kilowatts times the value for power as promised by BPA and would have a debit of 100 kilowatts times double the BPA bid price for power replaced.

### **Billing and Settlement**

Once the curtailment activity has been certified, the information is transferred into a daily transaction data form. This statement was created to track the daily activity for each customer on an hourly basis. It indicates the hour in which the curtailment occurred, the pledged load for curtailment, actual load curtailment, and the rate of payment. From this information the total payment (or penalty) for each daily activity can be determined.

This daily information is then summarized in a monthly statement format. The summary transaction data form has information necessary for the billing agents to properly credit the participating customer's power bill. It itemizes daily curtailment activity and sums the total curtailment activity for the month. It also includes the proper accounting information for the billing agent to use.

Once both forms are completed, the Peak Load Project Manager certifies the summary data form. A copy of the summary data form is sent to the customer's AE and the Energy Efficiency Representative (EER) for their records. If the curtailment customer is a BPA direct customer or one of BPA's servicing utilities, BPA hand delivers the data form statements to the billing agent assigned to the participating customer. Information from the data form is then transferred into the customer's wholesale power bill as a line item credit.

If the curtailment customer is not a BPA customer, the data form statement is hand delivered to the billing agent assigned to the account and Accounting Operations.

The invoices are hand carried to the PBL analyst who is assigned to the participating customer. Accounting Operations is copied on the ones that are not BPA customers.

### **Program Performance**

Although BPA is a winter-peaking utility, it called curtailment events during the summer of 2000 when it saw spot market prices as high as \$1,300 per megawatt-hour.

Although capacity constraints have not been a serious problem in the Northwest, BPA has experienced an energy shortage created by abnormal weather conditions, unexpected load growth, and unreliable generating resources.

Although agreements among BPA DSI customers have lowered the megawatt potential to close to 544 megawatts, the program has demonstrated a high degree of success.

To date, BPA has received over 9,300 megawatt-hours of curtailments under the program. The amount of curtailment received for an 8-hour period per event has averaged 9.41 megawatt-hours.

### **Set-up costs**

The amount of set-up effort required ensuring the reliability of energy-user commitments is intensive. BPA AEs and EE representatives and engineers had to work with all participants individually to identify the load for each curtailable load and explain how the calculation of a baseline load must be adjusted when a machine is down for routine maintenance. There are costs associated with the marketing, study maintenance schedules, and load analyses required to assure proper measurement and verification.

### **Savings**

As mentioned previously, savings as a result of the DEMX were realized by purchasing curtailment at a lesser price than the prevailing spot market price. As a result of this approach, the DEMX has realized gross savings of \$1.9 million. However, because a megawatt of curtailment is considered more difficult and less ideal to purchase than purchasing a megawatt from the spot market, BPA traders devalue the dollar worth of a curtailed megawatt by 30 percent. Therefore, net savings reflective of this 30 percent devaluation is \$1 million over the 12-month period.

## **Economic Impact**

The economic impact on participants was minimal. That is, unlike long-term load reductions, there is no significant impact on the labor force or supply chain gaps.

BPA Account Executive Chuck Forman said, "There is a small, positive economic impact on participants. Since participation is voluntary, participants only bid in and reduce usage (or increase generation) if they expect some positive benefit. But the benefits are small. The total megawatt-hours and dollars involved are very small in the context of overall plant economics and revenues. Since this is a very short term and intermittent "curtailment" of power use, there is no labor impact (layoffs, reduced hours worked, etc)."

## **Obstacles to Voluntary Load Curtailment**

Although interest in the use of VLC is rising, there are obstacles to its widespread use:

### **Metering requirements**

To join the BPA DEMX, an energy user must have an interval data meter and, preferably, the ability to communicate that interval data frequently or on demand. However, because many commercial and industrial firms already have interval data meters, metering requirements did not present a significant obstacle to participation. Moreover, under the pilot phase of the program, BPA offered to share portions of upgrade costs based on dependent load characteristics and the potential for participation.

### **Baseline calculation**

Another drawback of VLC is the difficulty of determining how much electricity an energy user didn't use when there is no reliable and objective way to know what the energy user would have used without the incentive of the program. Usage is measurable; curtailment is not. Any algorithm to estimate a baseline for curtailment opens the door to disagreement, conflict, charges of bias, and game playing. It is very much an art to calculate.

### **Regulation**

Another constraint is regulatory. Although BPA did not encounter the additional requirement of a formal rate filing and approval by FERC for the DEMX, other utilities establishing these programs had to first seek permission from state Public Utility Commissions. However, more

important to BPA is the regulation of market prices through price caps. Due to the recent price caps implemented by FERC, prices are effectively capped in the \$100 per megawatt-hour range. This has lessened the ability for some participants to curtail economically and will impact the overall effectiveness of the program.

### **Environmental constraints**

Environmental restrictions prevent many energy users with backup generators from operating those generators except during an actual power outage. If they could operate generators during the threat of an outage, then that threat and the corresponding price spikes could be reduced.

### **Program Assessment**

The advantage of VLC, relative to response to prices (RTP), is that it allows BPA to reduce its exposure to the market by lining up the equivalent of generating resources a day or two in advance of a projected event. With RTP, on the other hand, you can only guess at the energy user's response to prices. But, the disadvantage of the two-day-ahead market is the greater risk that, after we make a bid, the market price may change dramatically. BPA could eventually get to a point of implementing a real-time market that solicits curtailment an hour in advance or even 10 minutes in advance.

# **Distributed Generation**

**DRAFT**

Northwest Power Planning Council  
New Resource Characterization for the Fifth Power Plan

## **Reciprocating Engine Generators for Peaking and Emergency Service**

May 16, 2002

This paper describes the technical characteristics and cost and performance assumptions to be used by the Northwest Power Planning Council for assessments involving reciprocating engine generators for peaking and emergency service. The intent is to characterize a typical facility, recognizing that actual facilities will differ from these assumptions in the particulars. We anticipate using these assumptions in price forecasting and system reliability assessment models. The assumptions may also be used in analyzing the issue of maintaining adequate system reliability. Others may use the Council's technology characterizations for their own purposes.

Reciprocating engine-generator sets are a mature technology, extensively used in transportation and remote power supply applications. The basic technology has been central to the automotive industry for a century. The automotive industry has driven significant improvements in the power density, efficiency, and emissions characteristics of reciprocating engines in recent decades.

The role of reciprocating engine-generator sets in the western electricity grid has been limited until recently. Engine-generators have been used for standby and peaking power service in scattered locations, for power production using landfill and other biogases and for small combined heat and power (CHP) applications. The latter are fairly common in areas such as California with historically high retail rates and CHP incentives. The prominence of reciprocating technology increased significantly during the 2000 - 2001 power price excursions as utilities and large retail users sought alternative sources of power by installation of modular generation. Most of these installations consisted of batteries of reciprocating engine-generator sets. Though many installations were temporarily permitted and were dismantled once power prices moderated, some were developed as permanent installations.

Reciprocating engine-generator sets include compression ignition (diesel) units and spark-ignition machines designed to operate on natural gas. Compression-ignition machines generally operate on liquid fuels, principally distillate fuel oil, though large low-speed machines can operate on residual fuel oils. Spark-ignition machines are designed to operate on gaseous fuels including natural



gas, propane, refinery, and other industrial waste gases, biogases, and synthetic gases. Though based on the same basic block as compression-ignition engines, spark-ignition designs operate at a lower compression ratio. This reduces the power density, resulting in somewhat greater cost per unit output. Low-cost gensets based on automotive engines are available for limited-duty applications. Machines intended for continuous duty are based on more costly, heavier railroad and marine engines. Because tuning for optimal efficiency and for minimum emissions is not coincidental, machines are often available in separate high-efficiency and low-emission configurations.

# **DSI LOAD REDUCTION AS A DRY YEAR STRATEGY TOOL**

## **DESCRIPTION**

In times of high power prices or severe energy shortages buying down industrial load is a natural remedy. There is already a program in place that accomplishes exactly this, the Demand Exchange. The Demand Exchange is a BPA program that enables PNW industrial loads, which includes the DSIs to participate in buy-downs over the Internet. The Demand Exchange may be the best method for securing all industrial buy-downs, including the DSI, achieving least reductions through a single program. The Demand Exchange is being explored as a tool separately so this paper will explore DSI Load Reductions as a tool.

There are 10 smelters in the PNW whose individual electric load ranges from 150 MW to 480 MW. Two or three smelters could make several hundred MWs of load reduction available to the region. Reducing the region's exposure to a high priced power market or free up power when no resources are available.

Currently seven smelters are shutdown while three are operating at less than full capacity. One is operating at 25 MW, one at 175 MW, and the other is operating at 310 MW. This would establish around 500 MW of smelter load available for load reduction.

## **BENEFITS**

Energy produced under various conditions? (Including scenarios depicting effectiveness of tool under a variety of market, drought and other conditions.) The amount of energy that can be made available with this tool will probably depend on three things: 1) the amount of DSI load operating; 2) the price BPA is willing to pay; and 3) the duration of any buy down.

1. Provided slow economic recovery continues beyond FY02 without a stronger recovery until FY04 the region will possibly see approximately 500 MW of smelter load available during most of this rate period. If aluminum prices rise and power prices drop the amount of available load will increase.
2. The price BPA must pay for load reductions will depend on how profitably smelter operations are and where power market prices are.
3. The longer the duration of the load reduction the greater the amount of energy that will be produced with this tool. One of the cost factors a DSI will consider when negotiating a price will be shutdown and re-start costs. A short duration will cause these costs to be spread over less energy.

## **Range of Energy Production**

- Probably a minimum of 500 MW and possible a total of 1,000 MW late in the rate period if economic conditions improve.

**Additional smelter restarts?**

- Most recently aluminum prices have been around \$0.61/ to \$0.62/lb. This is well below the average of the past 10 to 15 years of \$0.70/lb to \$0.72/lb. Recent forecasts have aluminum prices basically remaining at or below current levels through 2005. Add to that the fact that IP02 rates are forecast to remain above \$30 MWh through the current rate period makes the likelihood of additional restarts seem dim.
- For example, assuming \$30 MWh power prices and an aluminum price of \$0.68/lb only two PNW smelters break even. These two smelters would add 570 MW to the amount of load reduction available to the region late in the rate period.
- Of the 570 MW of load capacity specified in the previous bullet 170 MW is at the most efficient smelter in the PNW. This capacity might restart prior to a rise in aluminum prices making 670 MW of load available.

**COSTS**

**Total cost to implement tool?**

- **Purchase price (cost)** will vary and will need to be negotiated. The negotiated price will depend on several factors including the price of aluminum, price of power, and circumstances of each DSI at that time.
- If both aluminum prices and power prices are high the price that BPA must pay will be high. This is because the smelter will want to recover lost profit, shutdown costs, and restart costs.

<p><b>High Aluminum Prices High Power Prices</b></p> <p>High Negotiated Price</p>	<p><b>High Aluminum Prices Low Power Prices</b></p> <p>Load Reduction Not Needed</p>
<p><b>Low Aluminum Prices High Power Prices</b></p> <p>High Negotiated Price</p>	<p><b>Low Aluminum Prices Low Power Prices</b></p> <p>Load Reduction Not Needed</p>

- Another cost BPA will need to keep in mind is lost revenue from the buy-down of load served by Federal purchases. This cost is probably best represented as a part of the purchase price cost.
- Other administrative costs are likely to be equal to regular power purchase costs.

**Does this tool provide enhanced reliability benefits?**

- This tool provides enhanced reliability because it is not subject to resource or transmission failure.

### **Impact on BPA rates and other financial indicators?**

- BPA's sales revenues will be reduced and purchase costs increased causing all BPA rates to go up. But this may be the preferred economic choice over a higher priced purchase that causes a greater increase in BPA rates

### **Other Benefits?**

- The benefit over additional power purchase is that water may be made available for other uses or there may be a reduction in thermal pollutants.

### **Negative Benefits?**

- Negative economic impact to rural communities if smelter is so located. Not only are aluminum employees impacted but related industries and small businesses of these communities are negatively impacted during the load reduction.
- Increased political consequences over that of a power purchase.
- Smelter may stay down beyond the period of the load reduction. Once exercise may not be available for a long period of time.

## **TIMING ISSUES**

- This tool is available to the extent smelter load is up and operating.

### **Time needed to implement?**

- This will depend of several things: 1) price BPA is willing to pay; 2) amount of time needed to shutdown smelter; and 3) ?????.

### **Can steps be taken ahead of dry year to shorten lead-time?**

- Sure, if one wants to incur costs up front. Such as paying a smelter for the option and negotiating a price ahead of time. Expect this to be expensive.

## **OTHER CONSIDERATIONS**

### **Certainty that tool can be implemented?**

- Tool is certain except for two limiting factors: 1) amount of DSI load operating; and 2) cost or price BPA is willing to pay.

### **Any special requirements?**

- Lead time for negotiating load reductions varies. Headquarters for some smelters are located outside the PNW and may take longer to negotiate than smelters whose headquarters are located in the PNW.
- May want to include provisions that workers associated with load reduction are fully compensated for a certain period of time. Similar provision negotiated in previous load reductions.

## REGIONAL CURTAILMENT PLAN

This tool identifies the process by which the governor of each state would initiate and implement regional load curtailment.

As shown below, there are some differences between states in what is required for the governor to declare a power emergency.

### WASHINGTON

RCW 43.21G.010

Legislative finding -- Intent.

The legislature finds that energy in various forms is increasingly subject to possible shortages and supply disruptions, to the point that there may be foreseen an emergency situation, and that without the ability to institute appropriate emergency measures to regulate the production, distribution, and use of energy, a severe impact on the public health, safety, and general welfare of our state's citizens may occur. The prevention or mitigation of such energy shortages or disruptions and their effects is necessary for preservation of the public health, safety, and general welfare of the citizens of this state.

It is the intent of this chapter to:

- (1) Establish necessary emergency powers for the governor and define the situations under which such powers are to be exercised;
- (2) Provide penalties for violations of this chapter.

It is further the intent of the legislature that in developing proposed orders under the powers granted in RCW 43.21G.040 as now or hereafter amended the governor may utilize, on a temporary or ad hoc basis, the knowledge and expertise of persons experienced in the technical aspects of energy supply, distribution, or use. Such utilization shall be in addition to support received by the governor from the department of community, trade, and economic development under RCW 43.21F.045 and \*43.21F.065 and from other state agencies.

[1996 c 186 § 507; 1981 c 295 § 11; 1977 ex.s. c 328 § 1; 1975-'76 2nd ex.s. c 108 § 15.]

NOTES:

\*Reviser's note: RCW 43.21F.065 was repealed by 1996 c 186 § 524, effective July 1, 1996.

Findings -- Intent -- Part headings not law -- Effective date -- 1996 c 186: See notes following RCW 43.330.904.

Severability -- 1977 ex.s. c 328: "If any provision of this 1977 amendatory act, or its application to any person or circumstance is held invalid, the remainder of the act, or the application of the provision to other persons or circumstances is not affected." [1977 ex.s. c 328 § 20.]

RCW 43.21G.040

Governor's energy emergency powers -- Energy supply alert -- Construction of chapter.

(1) **The governor may** subject to the definitions and limitations provided in this chapter:

(a) **Upon finding that an energy supply alert exists** within this state or any part thereof, **declare a condition of energy supply alert**; or

(b) **Upon finding that an energy emergency exists** within this state or any part thereof, **declare a condition of energy emergency**. A condition of energy emergency shall terminate thirty consecutive days after the declaration of such condition if the legislature is not in session at the time of such declaration and if the governor fails to convene the legislature pursuant to Article III, section 7 of the Constitution of the state of Washington within thirty consecutive days of such declaration. If the legislature is in session or convened, in accordance with this subsection, the duration of the condition of energy emergency shall be limited in accordance with subsection (3) of this section.

Upon the declaration of a condition of energy supply alert or energy emergency, the governor shall **present to the committee any proposed plans for programs, controls, standards, and priorities for the production, allocation, and consumption of energy during** any current or anticipated condition of energy emergency, any proposed plans for the suspension or modification of existing rules of the Washington Administrative Code, and any other relevant matters the governor deems desirable. The governor shall review any recommendations of the committee concerning such plans and matters.

Upon the declaration of a condition of energy supply alert or energy emergency, the emergency powers as set forth in this chapter shall become effective only within the area described in the declaration.

(2) A condition of energy supply alert shall terminate ninety consecutive days after the declaration of such condition unless:

(a) Extended by the governor upon issuing a finding that the energy supply alert continues to exist, and with prior approval of such an extension by the committee; or

(b) Extended by the governor based on a declaration by the president of the United States of a national state of emergency in regard to energy supply; or

(c) Upon the request of the governor, extended by declaration of the legislature by concurrent resolution of a continuing energy supply alert.

In the event any such initial extension is implemented, the condition shall terminate one hundred and fifty consecutive days after the declaration of such condition. One or more subsequent extensions may be implemented through the extension procedures set forth in this subsection. In the event any such subsequent extension is implemented, the condition shall terminate sixty consecutive days after the implementation of such extension.

(3) A condition of energy emergency shall terminate forty-five consecutive days after the declaration of such condition unless:

(a) Extended by the governor upon issuing a finding that the energy emergency continues to exist, and with prior approval of such an extension by the committee; or

(b) Extended by the governor based on a declaration by the president of the United States of a national state of emergency in regard to energy supply; or

(c) Upon the request of the governor, extended by declaration of the legislature by concurrent resolution of a continuing energy emergency.

In the event any such initial extension is implemented, the condition shall terminate ninety consecutive days after the declaration of such condition. One or more subsequent extensions may be implemented through the extension procedures set forth in this subsection. In the event any such subsequent extension is implemented, the condition shall terminate forty-five consecutive days after the implementation of such extension.

(4) A condition of energy supply alert or energy emergency shall cease to exist upon a declaration to that effect by either of the following: (a) The governor; or (b) the legislature, by concurrent resolution, if in regular or special session: PROVIDED, That the governor shall terminate a condition of energy supply alert or energy emergency when the energy supply situation upon which the declaration of a condition of energy supply alert or energy emergency was based no longer exists.

(5) In a condition of energy supply alert, the governor may, as deemed necessary to preserve and protect the public health, safety, and general welfare, and to minimize, to the fullest extent possible, the injurious economic, social, and environmental consequences of such energy supply alert, 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 which have been developed by the governor or the agency and reviewed by the committee.

(6) In addition to the powers in subsection (5) of this section, in a condition of energy emergency, the governor may, as deemed necessary to preserve and protect the public health, safety, and general welfare, and to minimize, to the fullest extent possible, the injurious economic, social, and environmental consequences of such an emergency, 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 requirements affecting or affected by the use of energy, including those relating to air or water quality control; and (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.

The governor shall immediately transmit the declaration of a condition of energy supply alert or energy emergency and the findings upon which the declaration is based and any orders issued under the powers granted in this chapter to the committee.

Nothing in this chapter shall be construed to mean that any program, control, standard, priority or other policy created under the authority of the emergency powers authorized by this chapter shall have any continuing legal effect after the cessation of the condition of energy supply alert or energy emergency.

If any provision of this chapter is in conflict with any other provision, limitation, or restriction which is now in effect under any other law of this state, including, but not limited to, chapter 34.05 RCW, this chapter shall govern and control, and such other law or rule or regulation promulgated thereunder shall be deemed superseded for the purposes of this chapter.

Because of the emergency nature of this chapter, all actions authorized or required hereunder, or taken pursuant to any order issued by the governor, shall be exempted from any and all requirements and provisions of the state environmental policy act of 1971, chapter 43.21C RCW, including, but not limited to, the requirement for environmental impact statements.



Except as provided in this section nothing in this chapter shall exempt a person from compliance with the provisions of any other law, rule, or directive unless specifically ordered by the governor.

[1987 c 505 § 83; 1985 c 308 § 1; 1981 c 281 § 1; 1980 c 87 § 23; 1979 ex.s. c 158 § 1; 1977 ex.s. c 328 § 4; 1975-'76 2nd ex.s. c 108 § 18.]

#### NOTES:

Effective date -- 1985 c 308: "This act is necessary for the immediate preservation of the public peace, health, and safety, the support of the state government and its existing public institutions, and shall take effect June 29, 1985." [1985 c 308 § 2.]

Severability -- 1981 c 281: "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [1981 c 281 § 3.]

Severability -- 1977 ex.s. c 328: See note following RCW 43.21G.010.

#### RCW 43.21G.030

Intent in developing energy production, allocation, and consumption programs. It is the intent of the legislature that the governor shall, in developing plans for the production, allocation, and consumption of energy, 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, during a condition of energy supply alert or energy emergency. In developing any such plans, provisions should be made for the equitable distribution of energy among the geographic areas of the state.

It is further 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.

[1977 ex.s. c 328 § 3; 1975-'76 2nd ex.s. c 108 § 17.]

NOTES:

Severability -- 1977 ex.s. c 328: See note following RCW 43.21G.010.

**OREGON**

ENERGY RESOURCES

EMERGENCY POWERS

176.750 "Energy resources" defined. As used in ORS 176.750 to 176.815, unless the context requires otherwise, "energy resources" includes electricity, natural gas, petroleum, coal, wood fuels, geothermal sources, radioactive materials and any other resource yielding energy. [1974 c.5 s.2]

176.755 Policy. (1) The Legislative Assembly finds that the lack of energy resources and other energy resource emergencies may threaten the availability of essential services and transportation, and the operation of the economy, jeopardizing the peace, health, safety and welfare of the people of Oregon. (2) The Legislative Assembly finds it necessary to provide an orderly procedure for anticipating and responding to energy resource shortages and to grant, under conditions prescribed in ORS 176.750 to 176.815, emergency powers to order involuntary curtailments in the use of energy resources to the Governor and other state and local officers.

(3) The Legislative Assembly declares it the policy of Oregon to assist the President of the United States in effective management and control of such factors and situations as contribute to an emergency affecting or likely to affect Oregon; to cooperate with other states in matters related to an emergency affecting or likely to affect Oregon; to meet extraordinary conditions in Oregon arising out of the crisis, by taking such steps as are necessary and appropriate; and generally to protect the peace, health, safety and welfare of the people of Oregon. [1974 c.5 s.1]

176.760 Information to be available to Governor. (1) On a continuing basis the Governor may obtain all necessary information from energy resource producers, suppliers and consumers, doing business within Oregon, and from political subdivisions in this state, as necessary for the Governor to determine whether shortages or an emergency will require energy resource conservation measures. Such information may include, but is not limited to:

- (a) Sales volumes.
- (b) Forecasts of energy resource requirements.
- (c) Inventory of energy resources.
- (d) Local distribution patterns of information under paragraphs (a) to (c) of this subsection.

(2) In obtaining information at any time from energy resource producers or suppliers under subsection (1)(c) of this section, and in obtaining any other

information under subsection (1) of this section during a state of emergency proclaimed under ORS 176.775 to 176.785, the Governor may subpoena witnesses, material and relevant books, papers, accounts, records and memoranda, administer oaths, and may cause the depositions of persons residing within or without Oregon to be taken in the manner prescribed for depositions in civil actions in circuit courts, to obtain information relevant to energy resources that are the subject of the proclaimed emergency.

(3) In obtaining information under this section the Governor:

(a) Shall seek to avoid eliciting information already furnished by a person or political subdivision in this state to a federal, state or local regulatory authority that is available for the study of the Governor; and

(b) Shall cause reporting procedures, including forms, to conform to existing requirements of federal, state and local regulatory authorities. [1974 c.5 s.3; 1975 c.601 s.1]

176.765 Confidentiality of information; use; liability. (1) Notwithstanding any other law, information furnished under ORS 176.760 and designated by that person as confidential, shall be maintained as confidential by the Governor and any person who obtains information which the person knows to be confidential under ORS 176.750 to 176.815. The Governor shall not make known in any manner any particulars of such information to persons other than those specified in subsection (4) of this section. No subpoena or judicial order may be issued compelling the Governor or any other person to divulge or make known such confidential information, except when relevant to a prosecution for violation of subsection (5) of this section.

(2) Nothing in this section prohibits use of confidential information to prepare statistics or other general data for publication, so presented as to prevent identification of particular persons.

(3) Any person who is served with a subpoena to give testimony orally or in writing or to produce books, papers, correspondence, memoranda, agreements or other documents or records as provided in ORS 176.750 to 176.815 may apply to any circuit court in Oregon for protection against abuse or hardship in the manner provided in ORCP 36 C.

(4) References to the Governor in this section include only individuals designated for this purpose in writing by the Governor.

(5) In addition to any penalties under ORS 176.990, a person who discloses confidential information in violation of this section willfully or with criminal negligence, as defined by ORS 161.085, may be subject, notwithstanding any other law, to removal from office or immediate dismissal from public employment. [1974 c.5 s.4; 1977 c.358 s.8; 1979 c.284 s.119]

176.770 Curtailment priorities. In consultation with appropriate federal, state officials and officials of political subdivisions in this state the Governor, unless otherwise provided by law, shall cause to be established, and revised as appropriate, standby priorities for curtailment in the use of energy resources. However, involuntary curtailments may be ordered only by means of executive orders issued under ORS 176.750 to 176.815. [1974 c.5 s.5]

176.775 Content of Governor's proclamation of lack of energy resource or resource emergency. Whenever the Governor declares by proclamation that lack of an energy resource or any energy resource emergency threatens or is likely to threaten the availability of essential services, transportation or the operation of the economy, the Governor shall state the nature of the energy resource shortage or emergency. [1974 c.5 s.6]

176.780 Action authorized by proclamation under ORS 176.775. Whenever the Governor has issued a proclamation under ORS 176.775, the Governor may by executive order direct actions:

- (1) Reducing energy resource usage by state agencies and political subdivisions in this state;
- (2) Promoting conservation, prevention of waste and salvage of energy resources and the materials, services and facilities derived therefrom or dependent thereon, by state agencies and political subdivisions in this state;
- (3) Directing the establishment by state agencies and political subdivisions in this state of programs necessary to implement and comply with federal energy conservation programs, including but not limited to allocation or rationing of energy resources and the distribution of the state's discretionary allotments. [1974 c.5 s.7]

176.785 Proclamation of state of emergency. Whenever the Governor determines that an existing or imminent severe disruption in the supply of one or more energy resources, in Oregon or elsewhere, threatens the availability of essential services, transportation or the operation of the economy, jeopardizing the peace, health, safety and welfare of the people of Oregon, after consultation with the President and majority and minority leaders of the Senate and the Speaker and majority and minority leaders of the House of Representatives, the Governor may by proclamation declare that a state of emergency exists with regard to such resources. In the proclamation, the Governor shall recite with specificity the nature of the severe disruption in the supply of one or more energy resources. [1974 c.5 s.8]

176.790 Duration of emergency under proclamation; renewal or extension of proclamation. (1) A proclamation of emergency and all orders and rules issued as a result of the proclamation under ORS 176.750 to 176.815 shall continue in effect for 30 days unless the Governor rescinds it and declares the emergency ended before the expiration of the 30-day period.

(2) A proclamation may be renewed or extended only by joint resolution of the Legislative Assembly unless 60 days have elapsed from the date of the original proclamation. [1974 c.5 s.8a]

176.795 Actions authorized by proclamation under ORS 176.785. (1) During any emergency proclaimed under ORS 176.785, the Governor by executive order may order involuntary curtailments, adjustments or allocations in the supply and consumption of energy resources applicable to all suppliers and consumers. However, the Governor may not order such curtailments, adjustments or allocations which discriminate within any class of consumers. It is the intent of the Legislative Assembly that any such curtailments, adjustments and allocations be ordered and continue only so long as demonstrably necessary for the

maintenance of essential services or transportation, or the continued operation of the economy; and that all such curtailments, adjustments and allocations be applied as uniformly as practicable within each class of suppliers and consumers.

(2) Any involuntary curtailments of electrical or natural gas load, pursuant to subsection (1) of this section, shall be made by executive order to the Public Utility Commission of Oregon requiring the commission to implement plans for curtailment adopted pursuant to ORS 757.710 to 757.730.

(3) In addition to orders issued pursuant to subsection (1) of this section, the Governor by executive order may:

(a) Modify transportation routes and schedules as necessary to conserve energy resources to the extent permissible under federal law and regulations.

(b) Specify the times and manner in which energy resources are supplied or consumed, consistent with the restrictions imposed by subsection (1) of this section.

(4) Any restrictions or involuntary curtailments, adjustments or allocations ordered, except those ordered under ORS 176.775 and 176.780, shall give due consideration to the needs of commercial, retail, professional and service establishments whose normal function is to supply goods or services or both of an essential nature including but not limited to food, lodging, fuel, medical care facilities, during times of the day other than conventional daytime working hours.

(5) During an emergency proclaimed under ORS 176.785, the Governor by executive order may prescribe and direct activities promoting the conservation, prevention of waste and salvage of energy resources and the materials, services and facilities derived therefrom or dependent thereon. [1974 c.5 ss.9,11]  
176.800 Construction of ORS 176.750 to 176.815. (1) Nothing in ORS 176.750 to 176.815 is intended as a delegation of legislative responsibility for the appropriation or authorization of expenditure of public funds, as provided in the Constitution and laws of this state.

(2) The powers vested in the Governor under ORS 176.750 to 176.815 are in addition to, and not in lieu of, emergency powers vested in the Governor under ORS 401.015 to 401.580 and 401.990 or any other law of Oregon.

(3) It is the intent of the Legislative Assembly that if ORS 176.750 to 176.815 and 176.990 are held unconstitutional as applied to contracts executed before February 26, 1974, ORS 176.750 to 176.815 and 176.990 nevertheless are effective with respect to contracts executed on or after February 26, 1974, and with respect to renewals or extensions of existing contracts on or after February 26, 1974. [1974 c.5 ss.10,14,15]

176.805 Status of proclamation, order or directive as rule; judicial review. (1) Any proclamation, executive order or directive issued pursuant to ORS 176.750 to 176.815 shall be deemed to be a rule subject to ORS 183.310 to 183.550, except that jurisdiction for judicial determination of the validity thereof pursuant to ORS 183.400 is conferred upon the Court of Appeals.

(2) Any such proceeding in the Court of Appeals shall be given precedence on the docket over all other cases, except prior cases arising under ORS 176.750 to 176.815 and 176.990. The court may appoint a master to take evidence and

make proposed findings of fact and conclusions of law in such case. [1974 c.5 s.12]

176.809 Governor's energy emergency contingency plan. (1) The Governor, in consultation with the Office of Energy and the Economic and Community Development Department, shall compile existing data and prepare an extensive statewide contingency plan to maintain emergency services, continue productivity and reduce hardship during an energy emergency.

(2) As used in this section, "energy emergency" means a severe fuel oil shortage caused by international market conditions or hostilities, or any other emergency threatening the availability of any energy resource necessary to maintain essential services and transportation, the shortage of which jeopardizes the health, safety and welfare of the people of the State of Oregon. [1981 c.597 s.2]

176.810 [1974 c.59 s.2; 1975 c.606 s.14; renumbered 176.820]

176.815 Cooperation with local governments. (1) The Governor shall solicit suggestions and recommendations from local governments in preparing the statewide contingency plan under ORS 176.809.

(2) The contingency plan developed by the Governor under ORS 176.809 shall utilize, with the approval of the local governments, the services and facilities of local governments to implement the plan. [1981 c.597 s.3]

176.820 Office of Energy Account. There is continuously appropriated from the Motor Vehicle Division Account to the Office of Energy, for deposit in the Office of Energy Account, sufficient moneys for the payment of expenses incurred under chapter 606, Oregon Laws 1975; subject to limitations on payment of expenses as approved under legislative authority. [Formerly 176.810]

Note: Legislative Counsel has substituted "chapter 606, Oregon Laws 1975" for the words "this 1975 Act" in section 14, chapter 606, Oregon Laws 1975, compiled as 176.820. Specific ORS references have not been substituted, pursuant to 173.160. These sections may be determined by referring to the 1975 Comparative Section Table located in Volume 18 of ORS.

#### PENALTIES

176.990 Penalties. (1) Violation of ORS 176.765 (5) is a Class A violation.

(2) Any person who willfully fails or neglects to comply with an executive order issued under ORS 176.750 to 176.815, or a directive of the Governor implementing such an executive order, shall forfeit and pay into the State Treasury a civil penalty not to exceed \$1,000 for each such failure for each day such failure persists.

(3) In addition to or in lieu of the civil penalty available under subsection (2) of this section, the Governor may direct the reduction or termination of supply of any or all energy resources being supplied to the noncomplying party by any person or political subdivisions in this state whose activities in furnishing energy resources are subject to allocation, rationing, regulation or other control under ORS 176.750 to 176.815 or any other law of Oregon. A noncomplying party is entitled to restoration of supply as soon as the party has achieved compliance.

(4) The Governor may apply to any circuit court for appropriate equitable relief against any person who violates or fails to carry out an executive order or directive under ORS 176.750 to 176.815. [1974 c.5 s.13; 1999 c.1051 s.164]

## MONTANA

90-4-301. Legislative findings and intent. (1) The legislature finds that energy in various forms is increasingly subject to possible shortages and supply disruptions, to the point that there may be foreseen an emergency situation, and that without the ability to gather information, regularly monitor energy supplies and demand, formulate plans, and institute appropriate emergency measures to reduce or allocate the usage of energy through a program of mandatory usage curtailment or allocation, a severe impact on the health, safety, and general welfare of our state's citizens may occur. The prevention or mitigation of the effects of such energy shortages or disruptions is necessary for preservation of the public health and welfare of the citizens of this state.

(2) It is the intent of this part to:

- (a) establish necessary planning, information gathering, and energy emergency powers for the governor and define the conditions under which such powers are to be exercised;
- (b) provide for the regular monitoring of energy supplies and demand; however, nothing in this part may be construed to authorize the establishment of an independent state energy forecasting program; and
- (c) provide penalties for violations of this part.

History: En. Sec. 1, Ch. 473, L. 1979; amd. Sec. 1, Ch. 204, L. 1981.

90-4-302. Definitions. As used in this part, the following definitions apply:

(1) "Bulk pipeline terminal" means a facility that is primarily used for storage for marketing of petroleum products and that has total bulk storage capacity of 50,000 gallons or more.

(2) "Distributor" means any person, private corporation, partnership, producer, individual proprietorship, public utility, joint operating agency or cooperative that engages in or is authorized to engage in the activity of generating, producing, transmitting, or distributing energy in this state.

(3) "Energy" means petroleum or other liquid fuels, natural or synthetic fuel gas, or electricity.

(4) "Energy emergency" means an existing or imminent domestic, regional, or national shortage of energy that will result in curtailment of essential services or production of essential goods or the disruption of significant sectors of the economy unless action is taken to conserve or limit the use of the energy form involved and the allocation of available energy supplies among users.

(5) "Energy facility" means a facility that produces, extracts, converts, transports, or stores energy.

(6) "Energy supply alert" means a condition of energy supply on a national, regional, state, or local basis that foreseeably will affect significantly the availability of essential energy supplies within the ensuing 90-day period unless

action is taken under 90-4-309 to reduce energy usage by state agencies and political subdivisions.

(7) "Person" means an individual, partnership, joint venture, private or public corporation, cooperative, association, firm, public utility, political subdivision, municipal corporation, government agency, joint operating agency, or any other entity, public or private, however organized.

(8) "Petroleum pipeline company" means a person who owns or operates in Montana any pipeline used for the transportation of petroleum products or their derivatives. This definition does not include pipelines used to transport crude petroleum from producing wells to refineries.

(9) "Petroleum products" means propane, butane, propane/butane mix, motor gasoline, kerosene and other middle distillates, aviation gasoline, jet fuel, number 4 fuel oil, residual fuel oil, and alcohol fuels, whether in natural or synthetic form.

(10) "Prime petroleum supplier" means the person who makes the first sale of a petroleum product into the state distribution system. Any person who is considered to be a Montana prime supplier by the U.S. department of energy is included in this definition.

(11) "Refiner" means a person that owns, operates, or controls the operations of one or more refineries located in Montana.

(12) "Refinery" means an industrial plant, regardless of capacity, that processes fossil or renewable feedstock or manufactures refined petroleum products, except when the plant exclusively produces petrochemicals.

History: En. Sec. 2, Ch. 473, L. 1979; amd. Sec. 2, Ch. 204, L. 1981; amd. Sec. 74, Ch. 545, L. 1995.

90-4-303. Repealed. Sec. 82, Ch. 545, L. 1995.

History: En. Sec. 3, Ch. 473, L. 1979.

90-4-304. Supply of vital public services during an energy supply alert and energy emergency. The governor shall, with the advice of the committee, in developing provisions for the allocation, conservation, and consumption of energy, give due consideration to supplying vital public services such as essential governmental operations, health and safety functions, emergency services, public mass transportation systems, food production and processing facilities, and energy supply facilities during conditions of an energy supply alert or energy emergency. In developing any energy allocation programs, provisions shall be made for the equitable distribution of energy among the geographic areas of the state which are experiencing an energy shortage.

History: En. Sec. 4, Ch. 473, L. 1979.



90-4-305. Information obtainable by governor. (1) The governor may obtain information on a regular basis from energy resource producers, suppliers, public agencies, and consumers and from political subdivisions in this state that is necessary for the governor to determine the need for energy supply alert and emergency declarations. The information may include but is not limited to:

- (a) sales volumes by customer classifications other than for petroleum products;
- (b) forecasts of energy resource requirements for the particular type of energy involved for a period not to exceed 2 years; and
- (c) inventory of energy resources and reserves available for use in meeting a shortage in a particular energy source.

(2) In order to help anticipate and mitigate the effects of shortages of petroleum products, the governor may monitor the supply of and demand for these products by obtaining the following monthly reports submitted no later than 20 days after the last day of the month, on forms prescribed by the governor, from the following persons:

- (a) Each refiner shall submit Montana refinery processing data by fuel type in custody including:
  - (i) inventory stocks at the beginning and end of the month;
  - (ii) receipts during the month;
  - (iii) inputs during the month;
  - (iv) production during the month;
  - (v) shipments, losses, and refinery fuel use during the month.
- (b) Each prime petroleum supplier shall submit:
  - (i) 3-month projections of his Montana supply and stock of petroleum products that the supplier anticipates supplying to Montana customers; and
  - (ii) the actual volume of petroleum products delivered in the state the previous month.
- (c) Each petroleum pipeline company shall submit reports by fuel type of Montana pipeline terminal delivery, throughput, and export.
- (d) Each bulk pipeline terminal operator shall submit end-of-month reports of inventory stock levels of finished petroleum products in custody in Montana by type of product and storage location.
- (e) Each prime petroleum supplier shall submit quarterly reports of monthly marketing sales in Montana by standard point locator index, or other method prescribed by the governor, and fuel type of petroleum products designated by the governor.

(3) In obtaining information under subsections (1) and (2) during a state of energy emergency, the governor may subpoena witnesses, material, and relevant books, papers, accounts, records, and memoranda; administer oaths; and cause the depositions of persons residing within or without Montana to be taken in the manner prescribed for depositions in civil actions in district courts, to obtain information relevant to energy resources that are the subject of the proclaimed emergency or associated disaster.

(4) In obtaining information under this section, the governor shall:

- (a) avoid eliciting information already furnished by a person or political subdivision in this state to a federal, state, or local regulatory authority that is available for the governor's study; and
  - (b) cause reporting procedures, including forms, to conform to existing requirements of federal, state, and local regulatory authorities.
- (5) Except as provided in subsection (2), this part does not require the disclosure by a distributor of confidential information, trade secrets, or other facts of a proprietary nature.
- (6) (a) The information required under subsection (2) is subject to the following restrictions:
- (i) Except in accordance with a proper judicial order, a public officer or employee charged by the governor with the custody of this information may not divulge or make known in any manner any information that is specific to a particular distributor.
  - (ii) The public officers and employees charged by the governor with the custody of the information provided for in subsection (2) may not be required to produce any of it or evidence of anything contained in it on behalf of any party to any action or proceeding under this part, except when the information concerned is directly involved in the action or proceeding, in which case only that information directly pertinent to the action or proceeding may be admitted.
- (b) This section does not preclude access to the information by the legislative auditor in carrying out the functions under Title 5, chapter 13.

History: En. Sec. 5, Ch. 473, L. 1979; amd. Sec. 3, Ch. 204, L. 1981; amd. Sec. 75, Ch. 545, L. 1995.

90-4-306. Advice of distributors and consumers. The governor shall actively solicit the advice of consumers, through the legislative consumer committee established in 5-15-101, and of distributors throughout the information gathering, planning, and implementation process described in this part.

History: En. Sec. 6, Ch. 473, L. 1979.

90-4-307. Submission and approval of curtailment plans. (1) The governor may at any time require a distributor of an energy resource to prepare for the governor's approval a plan for the curtailment of the distribution of that resource in the event of a state of energy emergency. Plans must be submitted in the form and within limits that the governor shall specify and must recognize the obligations and duties that may be placed upon distributors subject to this part by other jurisdictions, both state and federal.

- (2) Approval of plans for curtailment must be based on the following factors:
- (a) the consistency of the plan with the public health, safety, and welfare;
  - (b) the technical feasibility of implementation of the plan;
  - (c) the effectiveness with which the plan minimizes the impact of any curtailment;

- (d) the needs of commercial, agricultural, retail, professional, and service establishments whose normal function is to supply goods or services, or both, of an essential nature, including but not limited to food, lodging, fuel, and medical care facilities; and
- (e) the regional agreements or contracts of the distributors.

History: En. Sec. 7, Ch. 473, L. 1979; amd. Sec. 76, Ch. 545, L. 1995.

90-4-308. Governor's considerations. In determining whether to declare an energy supply alert or energy emergency, the governor shall consider:

- (1) availability of regional and national energy resources;
  - (2) local, state, regional, and national energy needs and shortages;
  - (3) availability of short-term alternative supplies on a local, state, regional, and national basis;
  - (4) the economic effect of the declaration and the implementation of any curtailment or conservation plans;
- and
- (5) any other relevant factors.

90-4-309. Energy supply alert. (1) The governor may upon finding that an energy alert condition exists, declare the same for a period of not longer than 90 days, setting forth the reasons therefor. Such declaration may be renewed for 90-day periods thereafter upon a finding that the energy alert condition will continue for such further period.

(2) Whenever the governor has declared an energy supply alert, he may by executive order direct actions:

- (a) reducing energy resource usage by state agencies and political subdivisions;
- (b) promoting conservation, prevention of waste and salvage of energy resources and the materials, services, and facilities derived therefrom or dependent thereon, by state agencies and political subdivisions.

History: En. Sec. 9, Ch. 473, L. 1979.

90-4-310. Energy emergency powers of governor. In addition to existing powers and duties, the governor has the following duties and special energy emergency powers, subject to the definitions and limitations in this part:

(1) The governor may, upon finding that a situation exists that threatens to seriously disrupt or diminish energy supplies to the extent that life, health, or property may be jeopardized, declare a condition or state of energy emergency, at which time all of the general and specific emergency powers enumerated in this section become effective.

(2) The condition of energy emergency terminates after 45 consecutive days unless extended by a declaration of the legislature by joint resolution of a continuing condition of energy emergency of a duration to be established by the legislature.

(3) The conditions of an energy emergency alternatively cease to exist upon a declaration to that effect by either of the following:

(a) the governor; or

(b) the legislature, by joint resolution if in regular or special session.

(4) In a declared state of energy emergency, the governor may:

(a) implement programs, controls, standards, priorities, and quotas for the production, allocation, conservation, and consumption of energy, including plans for the curtailment of energy. However, in so doing, the governor shall impose controls, quotas, or curtailments according to the nature of the end use to be made of the energy consistent with existing transmission and distribution systems serving the geographic area affected by the energy emergency.

(b) suspend and modify existing pollution control standards and requirements or any other standards or requirements affecting or affected by the use of energy, including those relating to air or water quality control; and

(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, localities, and other persons.

(5) This part does not mean that any program, control, standard, priority quota, or other policy created under the authority of the emergency powers authorized by this part has any continuing legal effect after the cessation of a declared state of energy emergency.

(6) Because of the emergency nature of this part, all actions authorized or required under this part or taken pursuant to any order issued by the governor are exempted from all requirements and provisions of the Montana Environmental Policy Act, including but not limited to the requirement for environmental impact statements.

(7) Except as provided in this section, this part does not exempt a person from compliance with the provisions of any other law, rule, or directive unless specifically ordered by the governor, or unless impossibility of compliance is a direct result of an order of the governor.

History: En. Sec. 10, Ch. 473, L. 1979; amd. Sec. 1, Ch. 387, L. 1981; amd. Sec. 78, Ch. 545, L. 1995.

90-4-311. Obligations of state and local executives. To protect the public welfare during conditions of energy alerts or emergencies, the chief executive of each political subdivision of the state, including local governments with self-government power, and each state agency shall carry out in its jurisdiction such energy supply alert or energy emergency measures as may be ordered by the governor.

History: En. Sec. 11, Ch. 473, L. 1979.

90-4-312. Coordination with federal provisions. In order to attain uniformity, as far as is practicable throughout the country in measures taken to aid in energy crisis management, all action taken under this part and all orders and rules made

pursuant to it shall be taken or made with due consideration for and consistent when practicable with the orders, rules, actions, recommendations, and requests of federal authorities.

History: En. Sec. 12, Ch. 473, L. 1979.

90-4-313. Compliance. Notwithstanding any provision of law or contract to the contrary, all persons who are specifically ordered by the governor to comply with an order issued or action taken pursuant to this part shall comply.

History: En. Sec. 13, Ch. 473, L. 1979; amd. Sec. 79, Ch. 545, L. 1995.

90-4-314. Orders to distributors. The governor may order any distributor to take such action on his behalf as may be required to implement orders issued pursuant to 90-4-310 and no distributor or person is liable for actions taken in accordance with such order.

History: En. Sec. 14, Ch. 473, L. 1979.

90-4-315. Liability. No distributor or person is liable for damages to persons or property resulting from action taken in accordance with orders or rules issued pursuant to this part or actions taken pursuant to orders, rules, actions, recommendations, and requests of federal authorities

90-4-316. Rules and executive orders. Notwithstanding the exemption from the provisions of the Montana Administrative Procedure Act granted to the governor in Title 2, chapter 4, MCA, the governor may adopt rules necessary to implement this part and cause their adoption and publication to be completed in the same manner as the adoption and publication of agency rules. In addition, executive orders of the governor implementing provisions of this part shall be published in the Montana Administrative Register upon request of the governor.

History: En. Sec. 16, Ch. 473, L. 1979.

90-4-317. Disaster and emergency laws supplemented. The powers vested in the governor under this part are in addition to and not in lieu of emergency powers vested in him under Title 10, chapter 3, or any other law of Montana.

History: En. Sec. 17, Ch. 473, L. 1979.

90-4-318. Governor may authorize expenditure. The governor may authorize the incurring of liabilities and expenses to be paid as other claims against the state from the general fund, in the amount necessary, when an energy emergency is declared by the governor and justifies the expenditure as set forth in 10-3-311 for other emergency or disaster expenditures.

History: En. Sec. 18, Ch. 473, L. 1979.

90-4-319. Penalties. A person convicted of violating this part is guilty of a misdemeanor. Each day of violation, after notice of violation, constitutes a separate offense.

History: En. Sec. 19, Ch. 473, L. 1979.

# **APPENDIX C**

## **Summary of and Responses to Written Comments Received**

(To be completed once all comments received)