

***NASEO's Guidance for States
on Petroleum Shortage
Response Planning***

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“States should increase engagement with the oil and natural gas industry in their energy assurance plans, and industry members should assist the states in such efforts.” This point was echoed in the National Petroleum Council’s 2016 Emergency Preparedness Addendum and NASEO’s guidance should further this dialogue between states and petroleum industry partners.

**National Petroleum Council Report Emergency Planning and Preparedness: Enhancing
Emergency Preparedness for Natural Disasters**

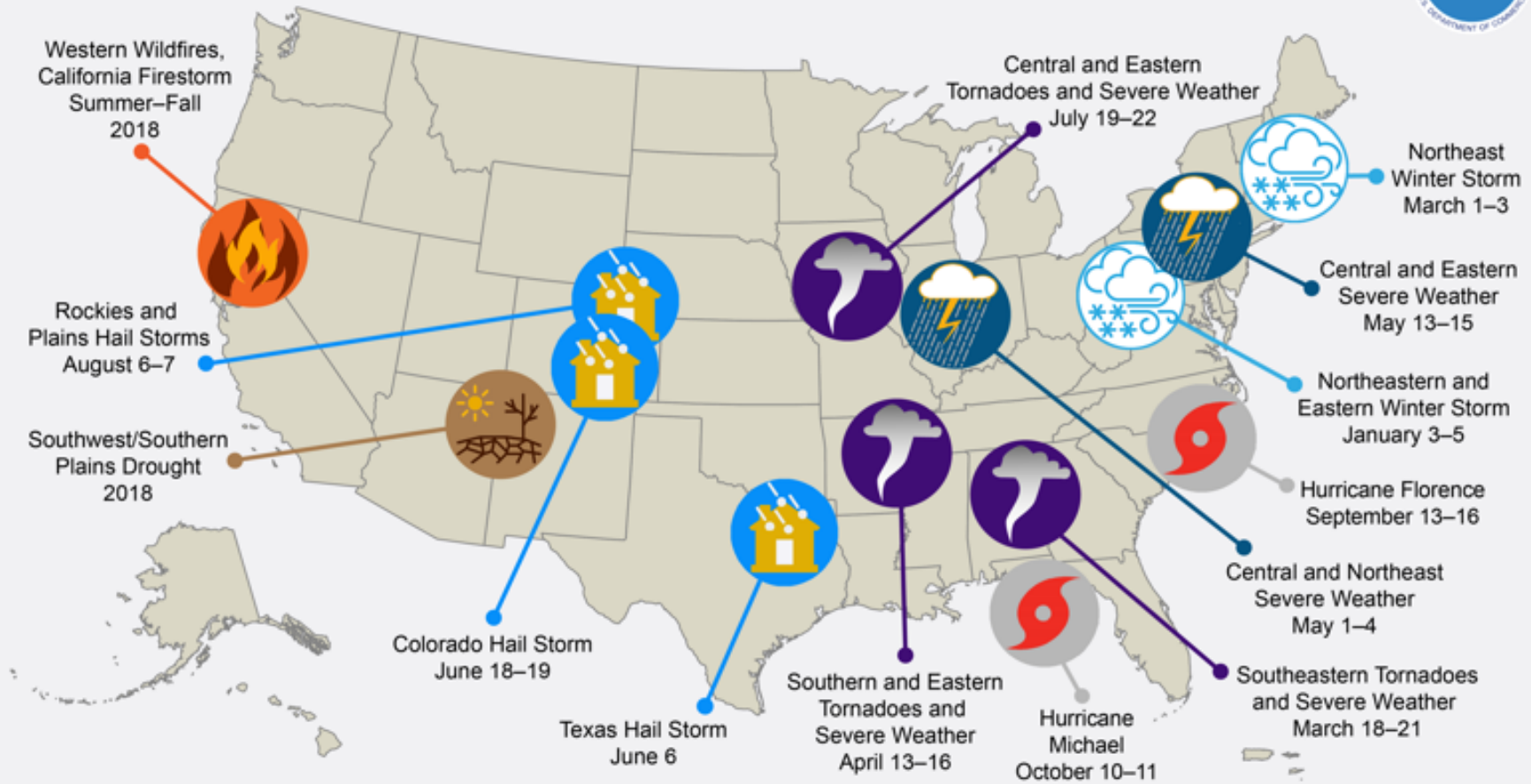


Risks to Petroleum and Liquid Fuels Supply Sector

- **Clear Path IV Exercise April 2016 in Portland, OR**
 - Examined the consequences and response to a major earthquake caused by the Cascadia subduction zone and resulting tsunami. The event would have catastrophic impacts on petroleum infrastructure in Oregon and Washington State.
- **Western Regional Coordination Meeting September 2016 in Sacramento, CA**
 - The workshop explored contingencies for managing petroleum shortages and the importance of developing plans that could be implemented in a regionally consistent way to facilitate response and implementation.
- **FEMA Workshops Summer 2016 in the Midwest**
 - States to examine the consequences of a power outage that could last more than a month. The availability of petroleum supplies for response and recovery was a concern.
- **Liberty Eclipse Exercise December 2016 in Newport, RI**
 - A cyberattack caused a large-scale power outage along the East Coast. Many East Coast refineries shut down, and in areas without power, access to fuel became limited.
- **Clear Path V Exercise June 2017 in Houston, TX**
 - Category 3 Hurricane making land fall near Houston and all of the refineries in Houston, Galveston, and Port Arthur shut down before land fall and following the storm 3.8 million customers were without power in Texas and Louisiana.
- **Hurricanes Harvey, Irma, and Maria in September 2017**



U.S. 2018 Billion-Dollar Weather and Climate Disasters

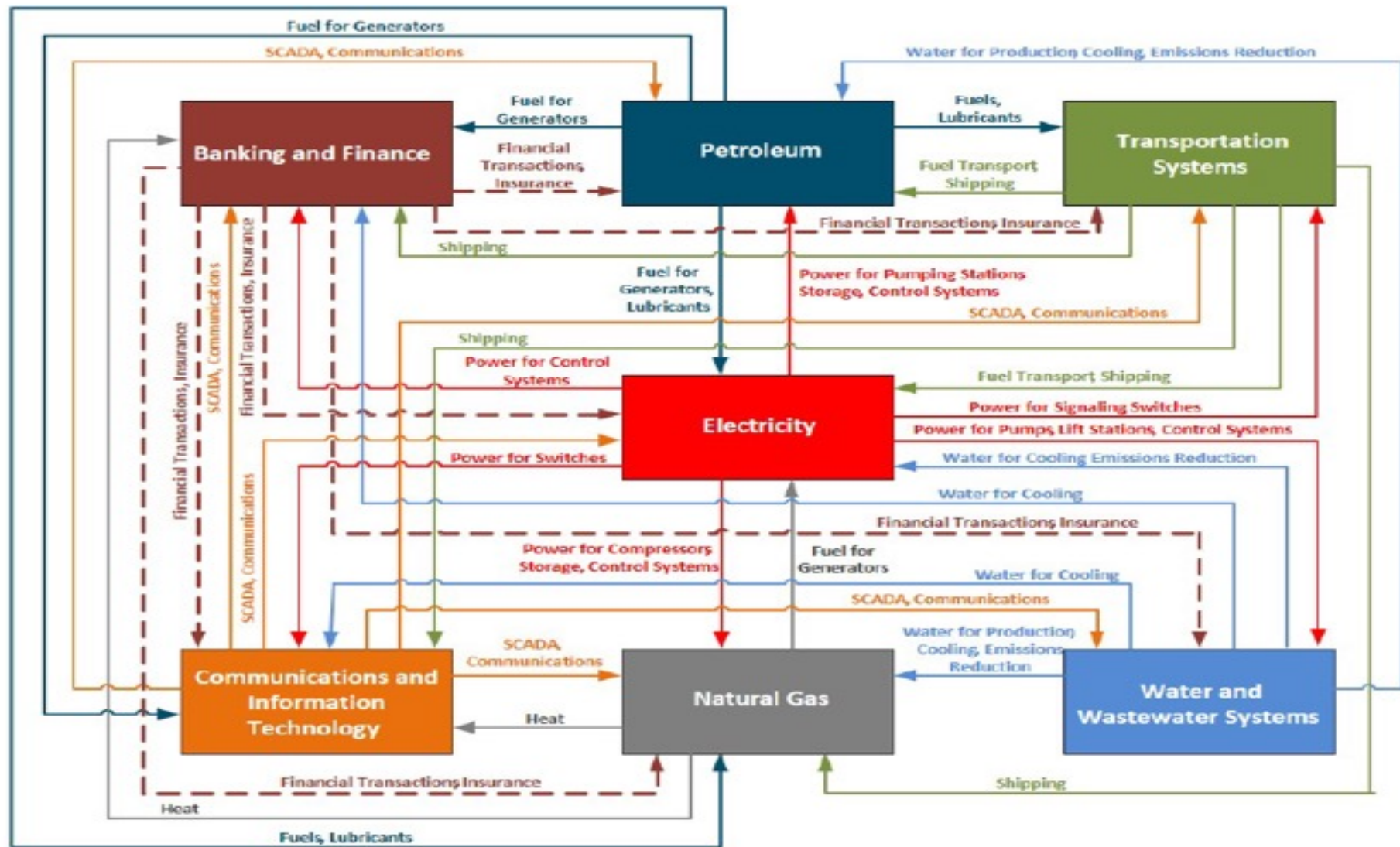


This map denotes the approximate location for each of the 14 separate billion-dollar weather and climate disasters that impacted the United States during 2018.

Source: National Oceanic and Atmospheric Administration’s National Centers for Environmental Information. U.S. Billion-Dollar Weather and Climate Disasters: Overview. <https://www.ncdc.noaa.gov/billions/>. Accessed on April 15, 2019



Interdependencies Among Critical Infrastructures



**GUIDANCE FOR STATES ON
PETROLEUM SHORTAGE RESPONSE
PLANNING**

February 2018



NASEO
National Association of
State Energy Officials

This guide is designed to provide assistance to the states as they update their energy assurance plans. It also summarizes key findings and serves as a companion document to NASEO's suite of energy assurance technical assistance offerings, energy emergency exercises, and coordination workshops.

Petroleum Shortage Response

Gasoline, Diesel Fuel, #2 Heating Oil, Propane, Ethanol, Biodiesel, Other Liquid Fuels

- **Vital first steps in the decision-making process**
 - Assess the consequences, severity and duration of the disruption to determine response
 - Know location, capacity and throughput of petroleum infrastructure and points of contact in each company
 - Monitor petroleum supply, demand and prices
 - Take preparation steps in advance of emergencies that can be anticipated and which allows plans to be put in place quickly so that states are being proactive rather than reactive
 - In a developing or worsening situation, it may require an ad hoc response to events and problems from local government, energy consumers, or suppliers. The State Emergency Operations Center and Emergency Support Function (ESF-12 Energy), if activated, can respond to these types of events on an as-needed basis

- **Taking action: specific response programs and measures**
 - Assure essential public safety needs are met working with the petroleum industry
 - Remove regulatory barriers to fuel resupply (waivers)
 - Inform the public on the severity and extent of the damage and how to moderate demand and conserve supply through public information outreach
 - Respond to serious consequences and interdependencies impacts



Petroleum Shortage Response Plans

Structure and Contents

- A. Dates and Linkages to Other Plans
- B. Organizational Changes
- C. Historical Petroleum Shortages and Local, State, and Federal Responses
- D. State Agencies' Roles and Responsibilities and Concept of Operations Plans
- E. *Coordination and Information Sharing Mechanisms (private sector and internal and external government and energy emergency assurance coordinators)*
- F. *State Petroleum Infrastructure and Supply Chains*
- G. *Data and Methods for Monitoring Petroleum Supply, Demand, and Prices*
- H. *State Petroleum Risk Assessments (Vulnerabilities, Consequences, Threats)*

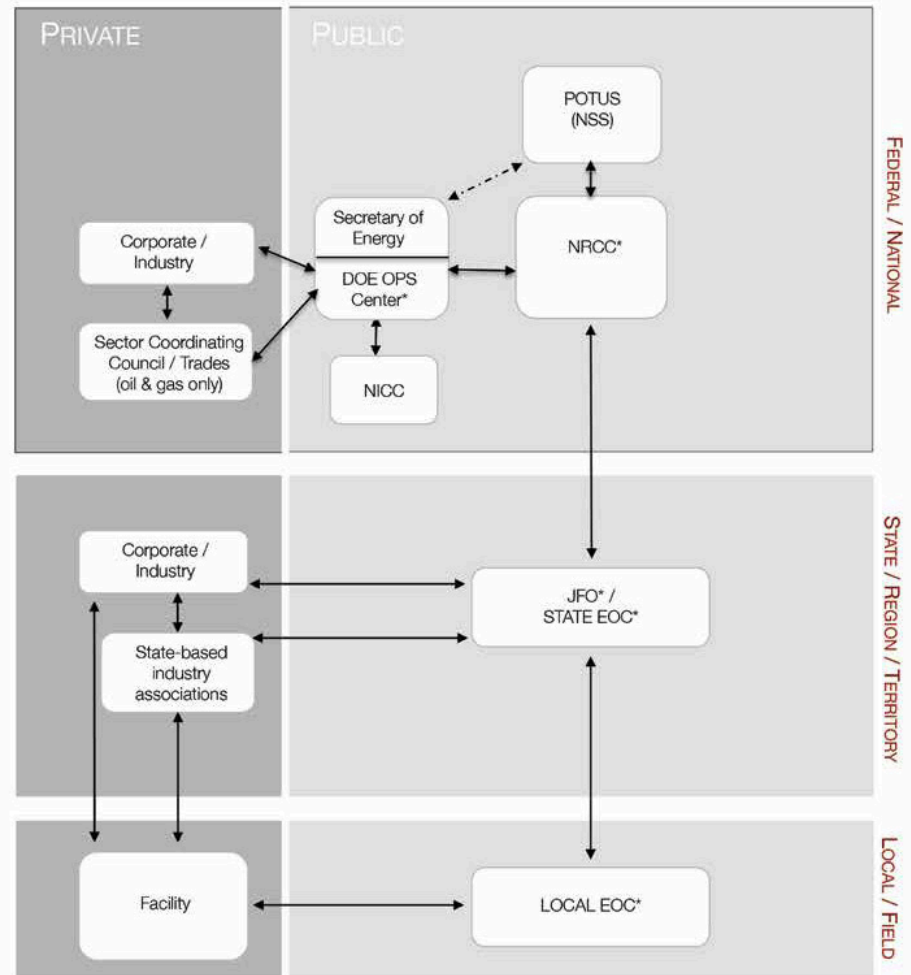


Information Sharing and State Energy Emergency

Assurance Coordinators

- Points of contact for states, U.S. Department of Energy, and industry in event of an energy emergency to share information
- Provide assessment, notification, news and updates on actions taken and situation reporting
- Primary and secondary contact for each sector (petroleum, electricity, natural gas) from each state
- Originally established in 1996. An updated memorandum of understanding was signed by the Secretary of Energy in 2016

ESF 12 OIL AND GAS INFORMATION FLOW:
INDUSTRY PERSPECTIVE



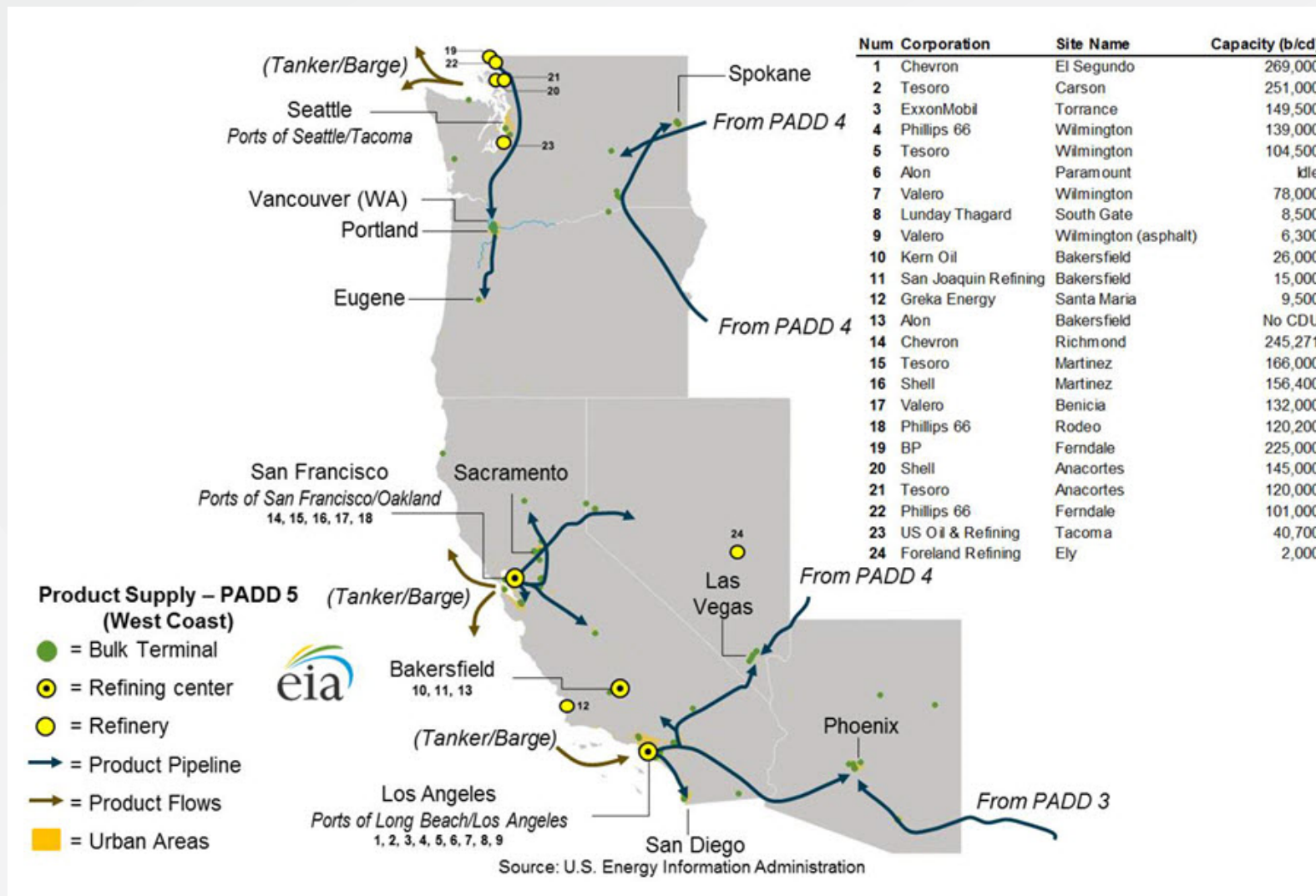
COMMUNICATION MECHANISMS

- Face to face
- Phone
- Email (exchange, listserv)
- Two-way radio
- Interpersonal relationships
- Public / private databases
- Social media
- Radio & TV

*Indicates ESF 12 presence at location



Understanding State and Regional Petroleum Infrastructure and Supply Chains is Essential



Monitoring Petroleum Supply, Demand, and Prices

CALIFORNIA ENERGY COMMISSION

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Petroleum Data, Facts, and Statistics

Under the Petroleum Industry Information Reporting Act (PIIRA), the Energy Commission collects data from refiners, producers, petroleum product transporters and marketers, and petroleum pipeline and terminal operators. Each entity is required to submit to the Energy Commission weekly, monthly, and annual reports on receipts, inventory levels, imports, exports, prices, and transportation sources. The Energy Commission analyzes and interprets this information to provide policy makers and the public with key insights on oil supply and demand fluctuations and potential issues. Data, Facts, and Statistics provide specific data and summaries.

California Petroleum Industry and Information

Overview of the Petroleum Industry Information Reporting Act

- How Oil & Gasoline Gets From the Well to Your Car
- Monthly California Petroleum Watch (Analysis)
- California Retail Fuel Outlet Annual Reporting (CEC-A15) Results

Refining & Processing

- Fuels Watch Report - Weekly Refinery Reports
- Crude Oil Imports by Refiner
- Oil Supply Sources to California
- Foreign Crude Oil Supply Sources to California Refineries
- California's Oil Refineries
- California Oil Refinery History
- Map of Refinery Locations

Almanac Information

- Electricity
- Natural Gas/ LNG
- Petroleum
- Power Plants
- Renewable Energy
- Transportation Energy

NYISERDA Transportation Fuels Report

April 10, 2019

Highlights

- Mid-Atlantic gasoline inventories decreased 2.0 million barrels (5.6%) since last week to 34.3 million barrels. Inventories are 1.9% above last year's level and 0.2% below the 5-year average.
- The weekly average Brent crude oil spot price increased \$2.29/barrel (3.4%) since last week to \$69.54/barrel. Current prices are \$2.51/barrel (3.7%) above the year-ago weekly average of \$67.03/barrel.
- East Coast jet fuel inventories increased 2.2 million barrels (24.7%) since last week to 11.0 million barrels. Inventories are 28.9% above last year's level and 18.9% above the 5-year average.

Retail Prices

Prices are from the "AAA Daily Fuel Gauge Report."

Regular Gasoline— For the week ending April 9th 2019, the New York State weekly retail gasoline price averaged \$2.748/gallon, an increase of \$0.023/gallon (0.9%) from last week's average of \$2.725/gallon. Compared to the year earlier price of \$2.767/gallon, the statewide average has decreased \$0.019/gallon (0.7%).

The all-time high of \$4.309/gallon occurred on July 9th, 2008.

Diesel— For the week ending on April 9th 2019, the New York State weekly retail diesel price averaged \$3.234/gallon, an increase of \$0.001/gallon (0.1%) from last week's average of \$3.233/gallon. Compared to the year earlier price of \$3.163/gallon, the statewide average has increased \$0.069/gallon (2.1%).

The all-time high of \$5.138/gallon occurred on June 18th, 2008.

Crude Oil Spot Prices

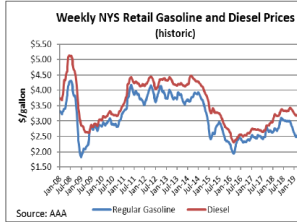
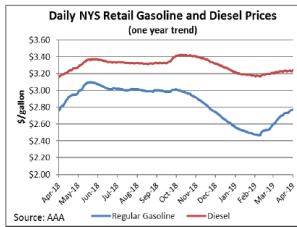
(see charts on page 3)

WTI— For the week ending April 5, 2019, WTI crude oil spot prices averaged \$62.36/bbl, an increase of \$2.87/bbl (4.8%) from the week-ago average of \$59.49/bbl. WTI prices are now \$0.71/bbl (1.1%) below the year-ago weekly average of \$63.07/bbl.

The all-time weekly average high of \$142.52/bbl occurred the week ending July 4th, 2008.

Brent— For the week ending April 5, 2019, Brent crude oil spot prices averaged \$69.54/bbl, an increase of \$2.29/bbl (3.4%) from the week-ago average of \$67.25/bbl. Brent prices are now \$2.51/bbl (3.7%) above the year-ago weekly average of \$67.03/bbl.

The all-time weekly average high of \$141.07/bbl occurred the week ending July 4th, 2008.



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This Week in Petroleum

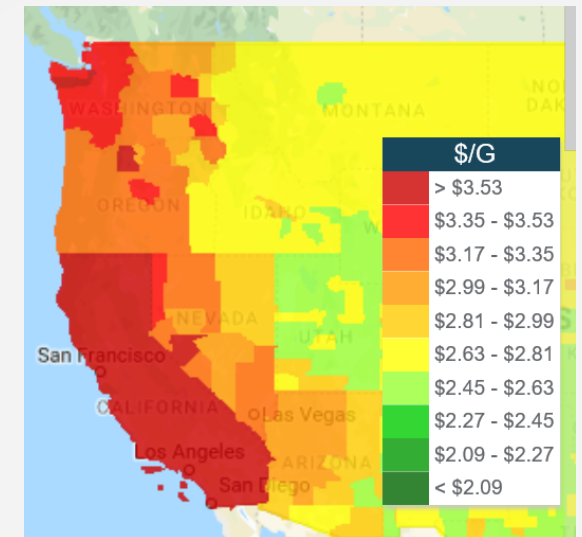
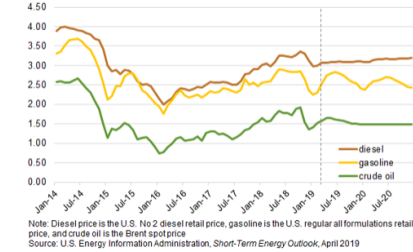
Release date: April 10, 2019 | Next release date: April 17, 2019

Correction Notice: "Figure 2 was republished on April 12 to reflect the forecast data in the U.S. Energy Information Administration's *Short-Term Energy Outlook*, April 2019 publication".

Summer 2019 gasoline prices forecast to be lower than last summer

In the April 2019 update of its *Summer Fuels Outlook*, a supplement to the *Short-Term Energy Outlook* (STEO), the U.S. Energy Information Administration (EIA) expects the retail price of regular-grade gasoline will average \$2.76 per gallon (gal) during summer 2019 (April through September). This expected average is down from the 2018 summer average of \$2.85/gal but slightly higher than the five-year (2014-18) summer average of \$2.74/gal. EIA forecasts that gasoline and diesel prices will be lower this summer compared with last year primarily because it expects Brent crude oil prices will be lower than last summer (Figure 1)

Figure 1. Gasoline, diesel, and crude oil prices dollars per gallon




You need to keep on top of what is going on in petroleum markets and many states are well positioned to do so



Prime Suppliers Monthly Report (EIA 782c)

Form Instructions

- The U.S. Energy Information Administration (EIA) Form EIA-782C, "Monthly Report of Prime Supplier Sales of Petroleum Products Sold for Local Consumption," is used to collect data on the sales of selected petroleum products by prime suppliers delivered into states for local consumption. The data are to analyze, model and forecast petroleum product consumption by state.
- The State Energy Offices (SEOs) are vitally interested in receiving information identical to that contained on the EIA-782C. To ensure consistent reporting, respondents may provide a duplicate of each Form EIA-782C directly to the appropriate state office. Information provided to SEOs is not subject to federal regulations governing disclosure of company level data described in Section 8. Contact your SEO for details on their data confidentiality policies and regulations.



Independent Statistics & Analysis
U.S. Energy Information
Administration

OMB No. 1974-0174
Expiration Date: 11/30/2020
Burden: 2.1 hours

FORM EIA-782C
**MONTHLY REPORT OF PRIME SUPPLIER SALES OF PETROLEUM PRODUCTS
SOLD FOR LOCAL CONSUMPTION**

Type of Report (Check One):
 Original
 Revision to Report Dated: Mo Day Year

REPORT PERIOD: Mo Year
 EIA ID NUMBER:

Enter the abbreviation of the State for which these data are being filed.

A separate form should be filed for each State. (See Appendix A of the form instructions for State abbreviations.)

PART 4. STATE DATA		
PRODUCT (Refer to Definitions)	PRODUCT CODE	MONTHLY SALES (Thousand Gallons) (For the report period, enter the total volume sold into the State where delivery of product occurs.)
Reformulated Gasoline		
Regular	153	
Midgrade	154	
Premium	155	
Conventional Gasoline		
Regular	159	
Midgrade	160	
Premium	181	
No. 1 Distillate	487	
Kerosene	311	
No. 2 Fuel Oil	470	
No. 2 Diesel Fuel		
15 ppm sulfur and under	472	
Greater than 15 ppm to 500 ppm sulfur (incl.)	468	
Greater than 500 ppm sulfur	469	
Aviation Gasoline (Finished)	111	
Kerosene-Type Jet Fuel	213	
No. 4 Fuel Oil	471	
Residual Fuel Oil ≤ 1% sulfur	501	
Residual Fuel Oil > 1% sulfur	510	
Propane, Consumer Grade	624	



State Petroleum Risk Assessments

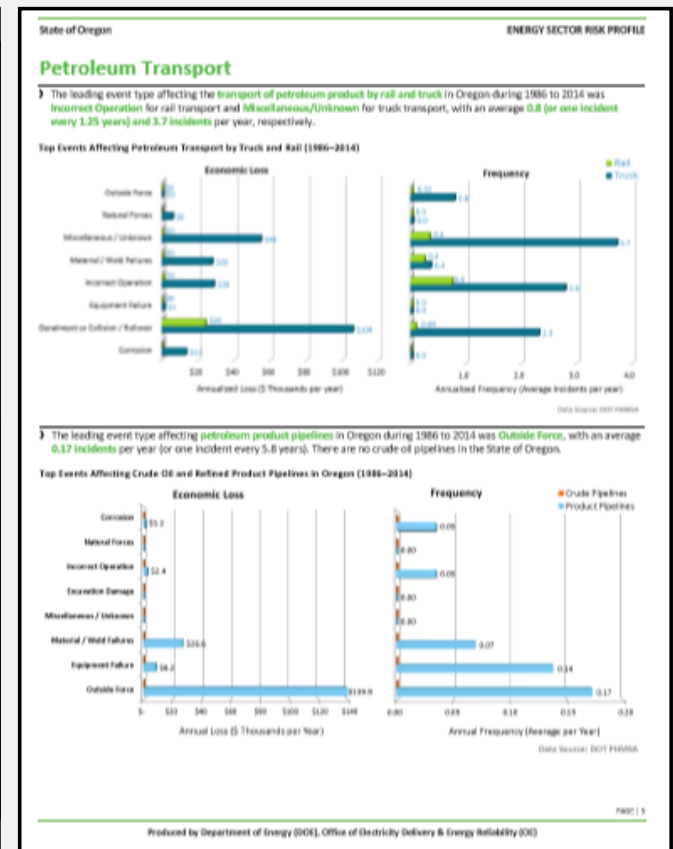
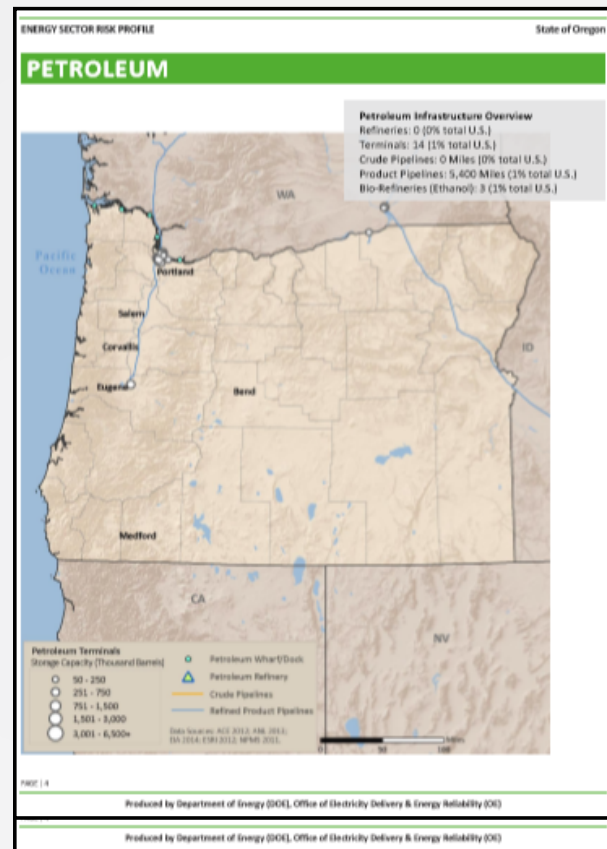
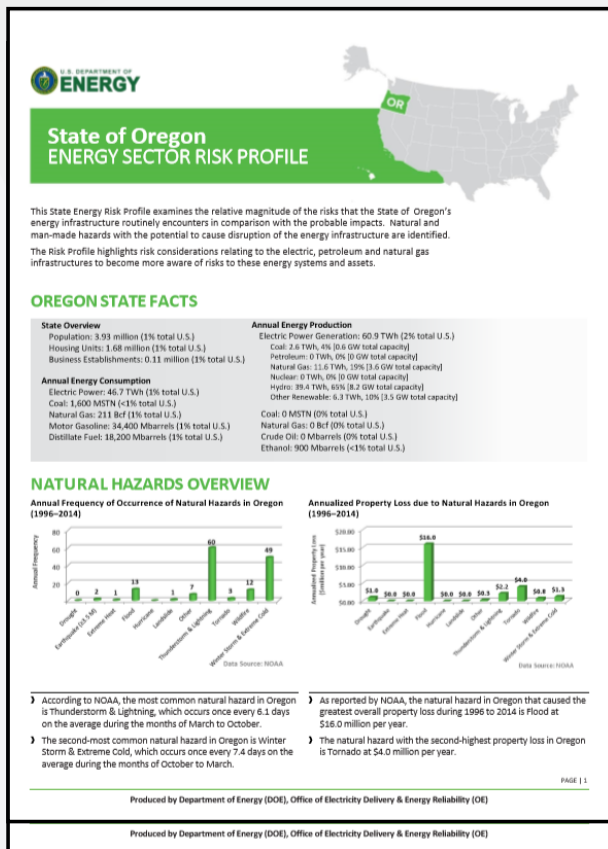
- **Consequences**
 - If something happens, what are the human and economic impacts to society?
- **Threats/Hazards**
 - What can happen?
 - What is the frequency/probability?
- **Vulnerabilities**
 - What are the weak links in the energy supply chain and infrastructure?
 - Are components antiquated/old and failure prone?
 - Are infrastructure co-located or have bottlenecks?
 - Why is it critical?

City Hall 1906 Great San Francisco Earthquake



State Energy Risk Profiles

- The profiles examine the relative magnitude of the risks that each state's energy infrastructure routinely encounters in comparison with the probable impacts. The profiles address natural and man-made hazards with the potential to cause disruption of the electric, petroleum, and natural gas infrastructures



Developed by the U.S. Department of Energy's Office of Electricity Delivery and Energy Reliability (<https://energy.gov/oe/activities/energy-assurance/state-and-regional-energy-risk-assessment-initiative>)

Response Programs and Measures

Tools in the Tool Box

- The guidance on specific actions are grouped into *Programs and Measures* and further broken down by state and federal/state.
 - Programs are more specific and detailed and use a consistent format based on the NASEO Planning Framework. The intent of the action, legal authorities, implementation steps, draft executive orders, and in some cases, draft rules and forms are provided.
 - Measures are not described in the same level of detail as programs. If a state wishes to further develop the actions identified as measures to include in their plan it is suggested they be developed in the same level of detail and format as the program descriptions.
- These action are all very situational dependent and should only be used to address the specific conditions they are designed to address.
- Some programs and measures should only be used in very consequential, large-scale disasters and events that would take longer to recover from. These are either actions to help the petroleum sector facilitate its responses or actions that would be used when the petroleum sector asked for governmental assistance.



Program Planning Framework Outline

- Program Title
- Summary
- Description
- Intent of Program
- Conditions Under Which Program May Be Used
- Legal Authority Including Other Legal Issues or Constraints
- Budget, Staffing, and Other Resource Constraints
- Implementation Procedures and Lead Time
- Operations and Administration
- Evaluation
- Impact Assessment
- Risk Assessment
- Advantages and Disadvantages



Petroleum Shortage Response Plans

- **Public information programs and the use of social media**
 - It is imperative to have a good program in place in advance with well described roles responsibilities and information on available resources
 - Social media can be used for dissemination of information and also needs to be monitors for rumor control
- **Reducing Demand and Conserving Supply**
 - Flexible work schedules and telecommuting
 - Ridesharing/vanpooling programs
 - Increased use of alternative fuel vehicles
 - Programs to increase the use of mass transit and alternative fueled vehicles
 - Improved vehicle maintenance
 - Public information emergency conservation actions
 - Home energy savings recommendations (propane, fuel, oil)
 - Demand will be curtailed to some measure if the emergency shuts down businesses and schools and price rise sharply



Federal/State Response Programs

Less Severe



More Severe

<p>Waivers of the Federal Motor Carrier Safety Administration Safety Regulations</p>	<p>Emergency action under the Federal Motor Carrier Safety Regulations (FMCSR) is automatically triggered under a declared state emergency. This waives the FMCSA safety rules which include limit on the number of hours a driver can operate. This allows drivers to make more fuel deliveries and fuel can be transported over longer distances to help elevate the shortage.</p>
<p>Waivers of Environmental Fuel Specifications</p>	<p>The U.S. Environmental Protection Agency and most states have requirements on gasoline and diesel fuel specifications that are designed to limit emissions. Waiving certain fuel specifications can increase overall supply and will allow supplies to be distributed in areas where the product may not normally be used.</p>
<p>Use of Alternative Fuel Vehicles Programs</p>	<p>States and local governments that have a significant number of alternative fuel vehicles (AFVs) in their fleets may have an opportunity to maximize the use of these vehicles during shortages of gasoline and diesel fuel. States could consider a number of options around prioritizing AFV usage and alternative fuel procurement during petroleum shortages.</p>
<p>Minimum Purchase and Odd-Even Purchase Programs</p>	<p>A minimum purchase plan is designed to help reduce long lines at retail gas stations, and typically involve requiring motorists to purchase a minimum amount of gasoline or diesel. This can be done either as a voluntary or mandatory measure. As an alternative or in addition, an odd-even plan could be implemented, where motorists can purchase gas every other day depending on their license plate numbers.</p>
<p>Petroleum Priorities for Essential Services Programs</p>	<p>This priority end-user program would require petroleum suppliers to provide sufficient liquid fuels to meet the needs of critical end-users such as first responders: law enforcement, fire, and emergency medical services, and any other essential service providers determined by the state or other legal authorities. This would only be used in the more serious, longer term shortages.</p>
<p>State Petroleum Set-Aside Programs for Bulk Purchases</p>	<p>State petroleum set-aside programs require each major oil company supplying the state to reserve (set-aside) a fixed percentage of petroleum products that are projected to be delivered to the state for final consumption each month. This set-aside would then be allocated for emergency needs to suppliers and in turn customers in amounts designated by the state agency administering the program. This would only be used in the most serious longer term shortages.</p>

Prioritization and State Petroleum Set-Asides

For Use in the Most Serious Longer-Term Shortages

- All non-contract customers would be cut off and contract customers would receive a significant percent reduction in their contract volumes.
 - Events that might cause include: New Madrid or Cascadia Subduction Zone earthquake, major electromagnetic pulse, nuclear denotation, major cyber attack, etc.
- Priorities could be implemented by the governor to address fuel supply reductions that would otherwise effect the operations of essential public services
 - Has never been used but may forestall the need to use petroleum set-aside program
- Petroleum set-asides requires prime suppliers to reduces supplies by a certain percentage (3% is typical) to be allocated by the state to address critical needs. Supplies would be allocated by supplier to their customers at the prevailing price. Unallocated fuel would be released back into the supply chain.
 - Last used in between 1974 and 1981 under a federal delegation of authority.
 - California used 1.1 billion gallons of gasoline in January 2019 and if they implemented a 3% gasoline set aside program they would have had a total of 33 million gallons to distribute to essential services
- Of the eight western states invited to the workshop five have states have set-aside programs detailed in their energy assurance plans, two mention a set-aside programs but they are not part of the plan, and one has no references to a set-aside program.



State Response Measures

State Weight Limits Waivers for Petroleum Tanker Trucks

The maximum gross weight limit that states must enforce on the federal Interstate Highway System is 80,000 pounds, unless a lower weight is derived from the bridge formula, or a higher weight is grandfathered. However, governors under emergency declaration may have the authority to waive weight limits for petroleum tanker trucks. Such measures would only apply on a state-by-state basis, and should trucks have to go out of state for fuel supplies, they would be subject to weight limits in the states through which they would need to pass. The plan should identify ways that relevant stakeholders will receive information about waivers on a timely basis.

Retail Gas Station Priorities for Essential Services

In recent years some state and local governments have become more reliant, or entirely reliant, on retail gas stations to meet their needs. Prioritizing gas station supplies for essential services may help ensure that essential public service needs supplied by retail gas stations can be met during a serious fuel shortage.

Emergency Generators and Transfer Switches for Retail Gas Stations

Several states have implemented programs for ensuring there is adequate gasoline supply along evacuation routes and for response and recovery from power outages. The options typically address either rewiring gas stations to be able to accept generators if there is a power outage or programs that would install on-site generators or provide a cache of generators to deploy to select retail locations.

Contractual Provisions for Fuel Supplies in an Emergency

Prior to any disruption, states may wish to consider training critical user organizations about the issues and techniques related to balancing price and secured contracting, since some organizations opt to reduce the price of fuel through spot contracts instead of relying on a contract, which may leave them vulnerable during shortages when spot-contract vendors are unable to acquire fuel in the market. States may also want to explore developing contracts that have provisions for additional emergency fuel supplies emergencies during a fuel shortage.

Expand State Fuel Storage and Strategic Reserves

A number of states have bulk fuel storage locations that are used to refuel state vehicles. States may wish to consider creating bulk storage locations for petroleum-based fuels, or expanding capacity at existing storage locations to have additional fuel available in case of a shortage. The State of New York has established gasoline and distillate fuel emergency reserves.

Federal Response Measures

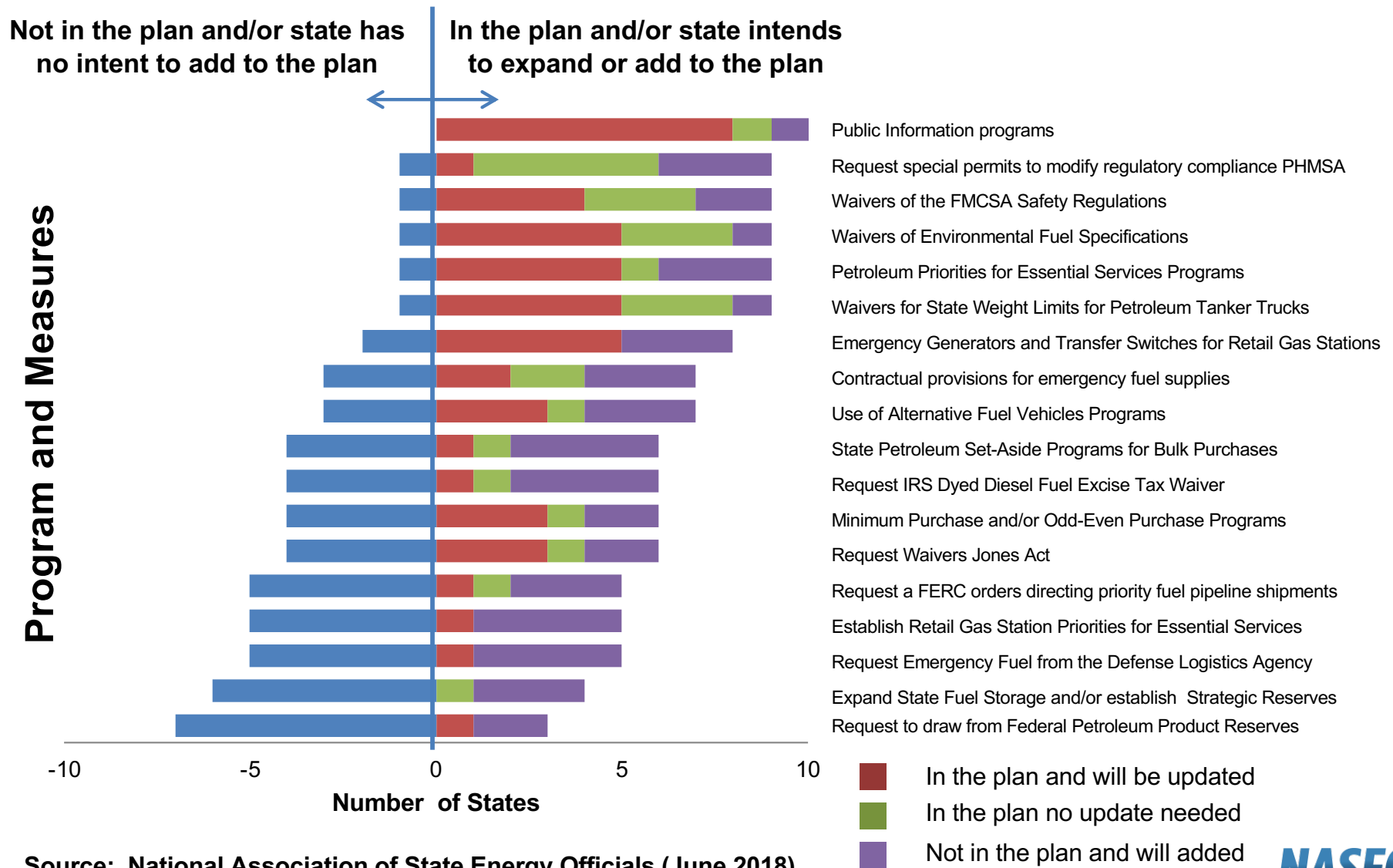
- Internal Revenue Service Dyed Diesel Fuel Excise Tax Waiver
- Waivers Jones Act which prohibits any foreign vessels from transporting goods between U.S. ports
- Federal Energy Regulatory Commission orders directing priority propane and liquid fuels pipeline shipments
- Pipeline and Hazardous Materials Safety Administration special permits to modify regulatory compliance
- Federal Petroleum Product Reserves
 - Northeast Gasoline Supply Reserve – 42 million gallons
 - Northeast Home Heating Oil (ULS) Reserve – 42 million gallons
- Emergency Fuel from the Defense Logistics Agency

Petroleum Shortage Planning Assessment Southeast Workshop February 2018

- Following the workshop participating States were asked to identify which programs and measures were either:
 1. Not included in the state plan and there is no intent to add it to the plan in the future.
 2. Included in the state's plan and no further updates are required.
 3. Included in the state's and will be updated to provide greater detail based on NASEO's petroleum guidance in the next plan update.
 4. Not included in the state's plan and it is the state's intent to add the program or measure in the next plan update.
- 10 out of the 12 states responded to the assessment



Petroleum Shortage Assessment Results



Source: National Association of State Energy Officials (June 2018)

Number of states* that already included, would like to expand upon, or add the following programs and measures to their state energy assurance plans

Number	Programs and Measures
10	Public Information programs
9	Request special permits to modify regulatory compliance PHMSA
9	Waivers of the FMCSA Safety Regulations
9	Waivers of Environmental Fuel Specifications
9	Petroleum Priorities for Essential Services Programs
9	Waivers for State Weight Limits for Petroleum Tanker Trucks
8	Emergency Generators and Transfer Switches for Retail Gas Stations
7	Contractual provisions for emergency fuel supplies
7	Use of Alternative Fuel Vehicles Programs
6	State Petroleum Set-Aside Programs for Bulk Purchases
6	Request IRS Dyed Diesel Fuel Excise Tax Waiver
6	Minimum Purchase and/or Odd-Even Purchase Programs
6	Request Waivers Jones Act
5	Request a FERC orders directing priority fuel pipeline shipments
5	Establish Retail Gas Station Priorities for Essential Services
5	Request Emergency Fuel from the Defense Logistics Agency
4	Expand State Fuel Storage and/or establish Strategic Reserves
3	Request to draw from Federal Petroleum Product Reserves

****There were three states that did not want to add 8 out of the 18 suggested programs or measures***



Benefits of Improved Planning

- Plans which can be implemented more rapidly and effectively
- State and private sector coordination is enhanced
- Multi-state coordination and consistency of response actions function better when disasters cross multiple state lines
- Improves the effectiveness of the response by making it easier for petroleum suppliers to implement programs and measures and allow supply to more quickly return to normal when disruptions occur across state lines
- Helps assure essential services to the public
- Contributes to petroleum sector resiliency



Key Points to Remember



- Know your state's critical energy infrastructure and its capacity and throughput.
- Know the energy infrastructure in other regions that are important to your state's energy supply.
- Understand and coordinate state agency roles and responsibilities for critical energy infrastructure.
- Update state and industry points of contacts annually.
- Update plans every 2 to 3 years or when major organizational changes occur.
- Conduct regular training and exercises.
- Work with private sector on state energy plans that promote resiliency and contribute to a more diverse, reliable and resilient energy infrastructure.