

Climate Change Costs and Opportunities

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Focus on State Actions

- Impacts – Testimonials, Transition DNR Team, and Fisheries
- Alaskan Attitudes on Climate Change
- Summarize Climate Change Activities of 29 States Engaged in Planning
- Opportunities Presented by Being Proactive
- Recommendations

Testimonial Evidence from Alaskans

- **Barrow** – beach erosion, ice receding, permafrost thawing deeper.
- **Bethel** – cannot rely on traditional knowledge for weather and landscape changes – need to use GPS now instead of local knowledge.
- **Anchorage** – weather affecting air travel a lot more
- **Brevig Mission** – ice goes out 1 month earlier; affects hunting
- **Bristol Bay** – different weather – marine mammals arriving one month early.
- **Kenai Peninsula** – Spruce Bark devastation, now seeing Sitka black-tail deer

Testimonials Continued

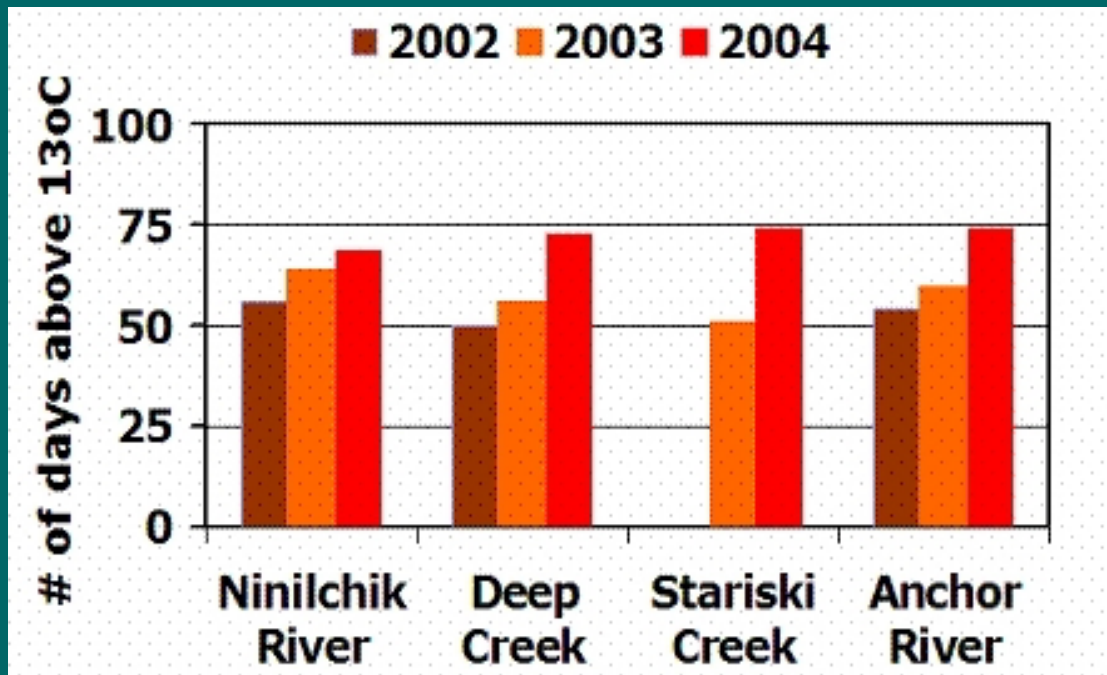
- **King Cove** – large number of new species including hummingbirds; thunder and lightening now.
- **Klawock** – smaller salmon
- **Koyokuk** – several floods with 100 year floodplain
- **Lake Iliamna** – lake doesn't freeze as early
- **Naknek** – graves are washing out
- **Juneau** – bears stay in town all winter
- **St. Paul, St. George** – commercial fishing is more difficult now
- **Yakutat** – great white sharks and tuna more common

Transition Report to Governor

“Changes in climatic patterns and rising temperatures in Alaska have caused a significant increase in wildland fire frequency and intensity, and an unprecedented increase in insect outbreaks that increase fuel loads. These trends are projected to increase. One projection suggests a threefold increase in the total area burned per decade. Alaska witnessed record setting fire seasons in 2004 and 2005, burning over 11 million acres (combined) and costing more than \$160 million to battle these fires.”

Kenai Salmon Streams Warming

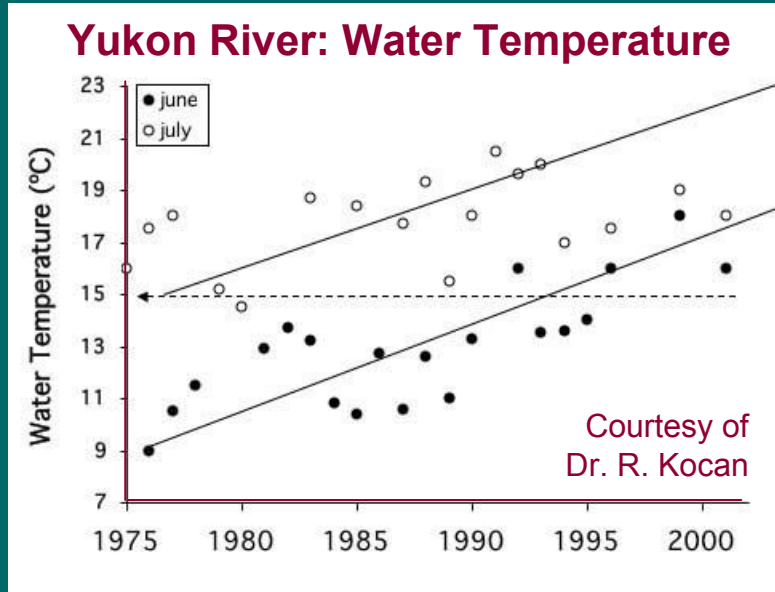
Kenai Streams: Days Above Temperature Standard



- Temperatures in Kenai Peninsula streams now consistently exceed Alaska's standard to protect salmon spawning areas (13°C/ 55° F).

Source Cook Inlet Keeper January 2006

Yukon Chinook Diseased



- Protozoan parasite *Ichthyophonus* never found in Yukon salmon before 1985.
- Today, up to 45% of the Yukon's Chinook salmon are infected. (Kocan et al. 2004)
- Infection is causing wastage, reduced returns to spawning grounds, and mortality.

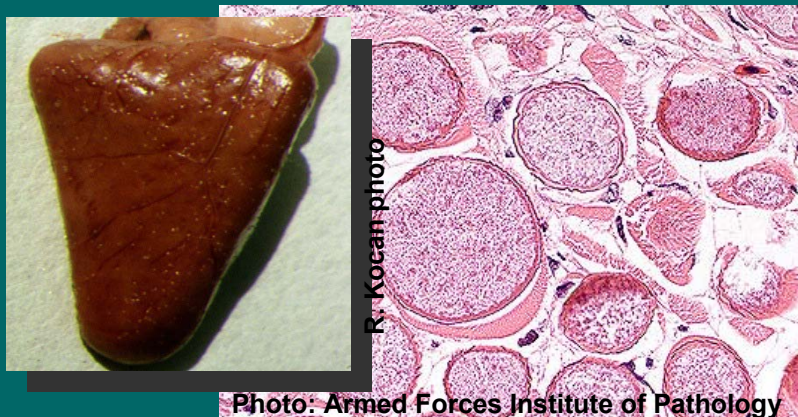


Photo: Armed Forces Institute of Pathology

Low Pink Salmon Harvests

- ADFG 2006 SE purse seine
 - Predicated: **52 million**
 - Actual: **11.6 million**
- Low number was due in “large part to the warmer temperatures of 2004, when the parent’s of this season’s mature fish would have been affected” (ADFG 2006).



BERING WATERS SEE PUZZLING SHIFT IN ECOSYSTEM



Deckhand Josh Stedman of Westport, Wash., displays a snow crab from Wayne Baker's boat Trailblazer in the Bering Sea. It's been a disappointing season, Baker says.

Sea *under* stress



Shawn Dahle of the National Oceanic and Atmospheric Administration's National Marine Mammal Lab in Seattle nets a ribbon seal, one of the species threatened by the decline in the Bering Sea ice cover.

Photos by STEVE RINGMAN / Seattle Times via McClatchy-Tribune

Frozen World to Thawing Bering Sea

- Frozen world favors bottom-feeding species like crab, flatfish and gray whales; also creates a deep pool of near freezing water that crab prefer and pollock avoid.
- In past 6 years snow crab harvests down 85 %.
- King Crab moving into Russian waters.
- Ice free favors species that live and feed in the water column like pollock, cod and orcas.
- “Slackening of summer storms in the past 25 years could lead to an overall drop in the Bering Sea’s productivity. Intense warming between 2000 and 2005 doesn’t fit any historic pattern.” Jim Overland, NOAA
- “If we have colder waters again for awhile, the animals that were there won’t necessarily come back. Once you change an ecosystem, it’s very difficult to put it back the way it was.” biologist studying Bering Sea

A Question of Adaptation

Table 2: The Sensitivity and Adaptability of Human Activities and Nature ⁴

	Low Sensitivity	Sensitive, but Adaptation at Some Cost	Sensitive, Adaptation Problematic
Industry and Energy	X		
Health	X		
Farming		X	
Managed forests and grasslands		X	
Water resources		X	
Tourism and recreation		X	
Settlements and coastal structures		X	
Human migration		X	
Political Tranquility		X	
Natural landscapes			X
Marine ecosystems			X

Alaskans and Climate Change

August 2006 Poll Results from Decision Research

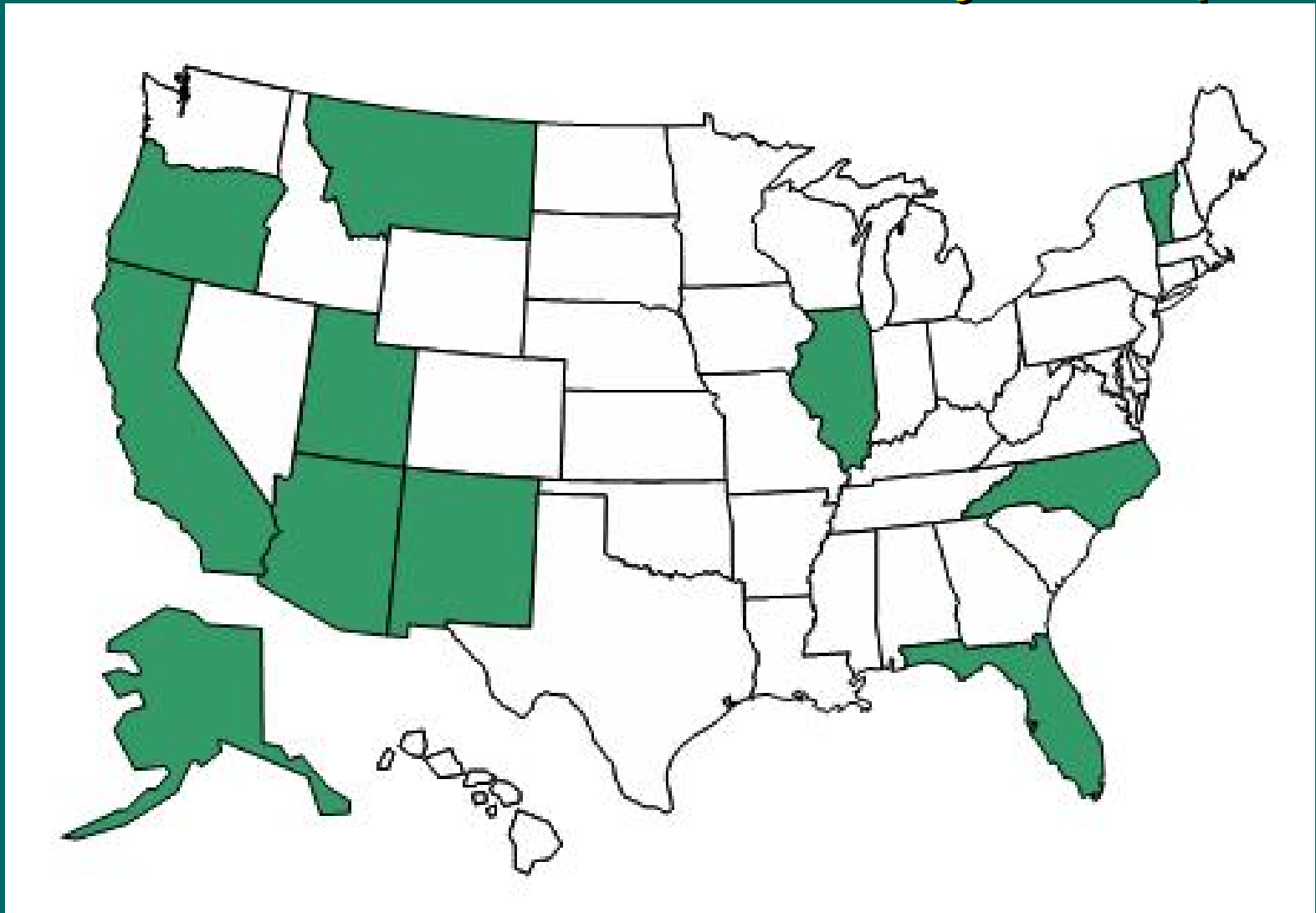
- Over 81% of Alaskans are convinced that global warming is happening and a majority (55%) believe it is caused primarily by human activities.
- Majorities of Alaskans believe that global warming is a serious threat to themselves and their family (55%), to their community (59%), Alaska as whole (71%) and to plants and animals (76%).
- Alaskans trust family and friends (86%), scientists (82%) and environmental organizations (63%) to tell the truth about global warming. Only 29% trust Alaskan politicians on this issue.
- Most (48%) Alaskans think global warming requires immediate government action; 45% see it as longer term problem.
- Over 81% of Alaskans favor (54% strongly favor) regulating greenhouse gas emissions from power plants

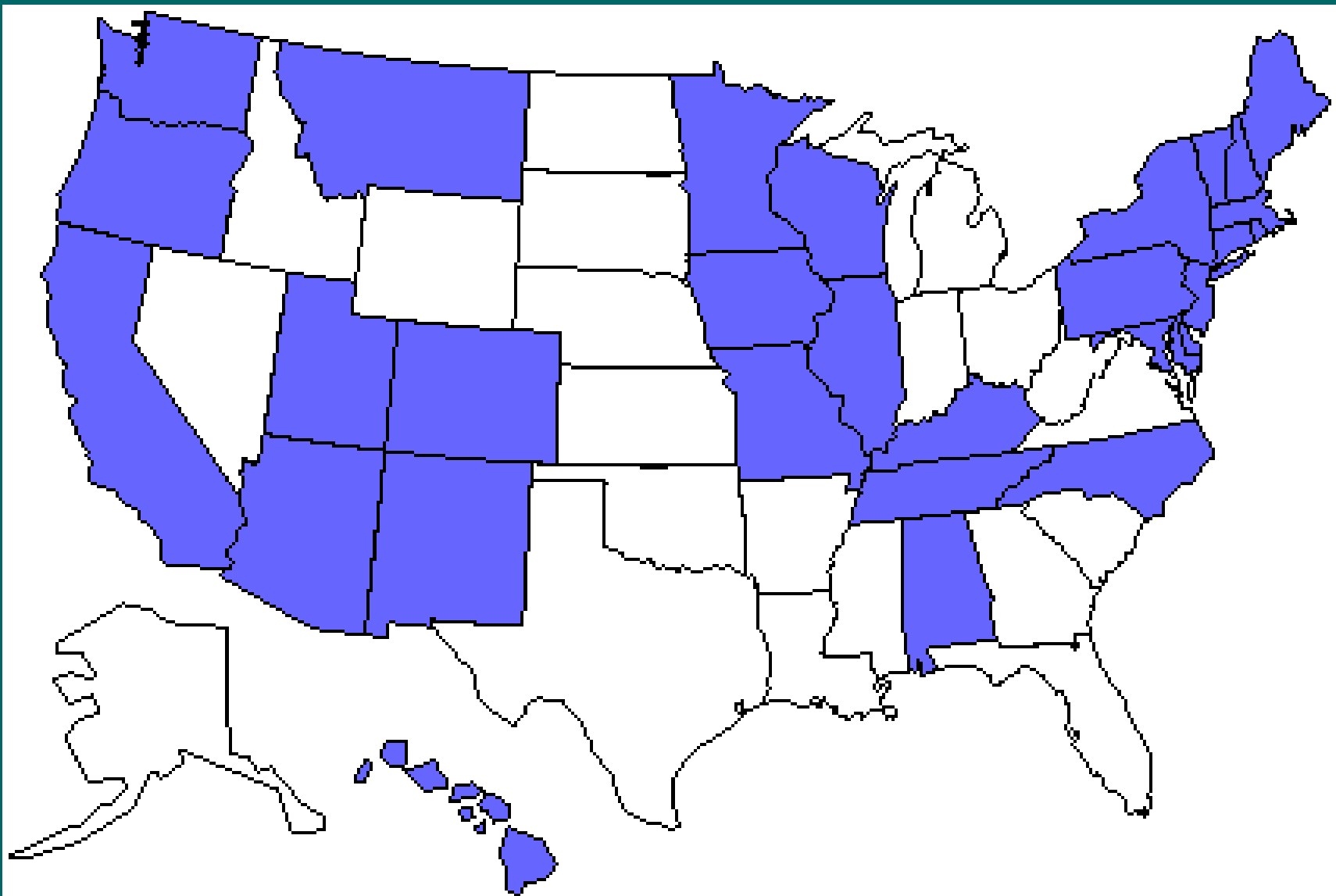
Alaskans and Climate Change

July 2006 Poll Results - The Nature Conservancy

- Alaska voters rate global warming as a serious concern, ranking it on par with issues like the cost of housing and loss of jobs in the fishing industry.
- The percentage of Alaskans rating global climate as at least a “very serious” problem has increased by 23 % since 2001.
- 79% of Alaska voters consider themselves to be a conservationist. 37% of survey respondents labeled themselves as “strong” conservationist, while an additional 42% classified themselves as a “moderate” conservationist

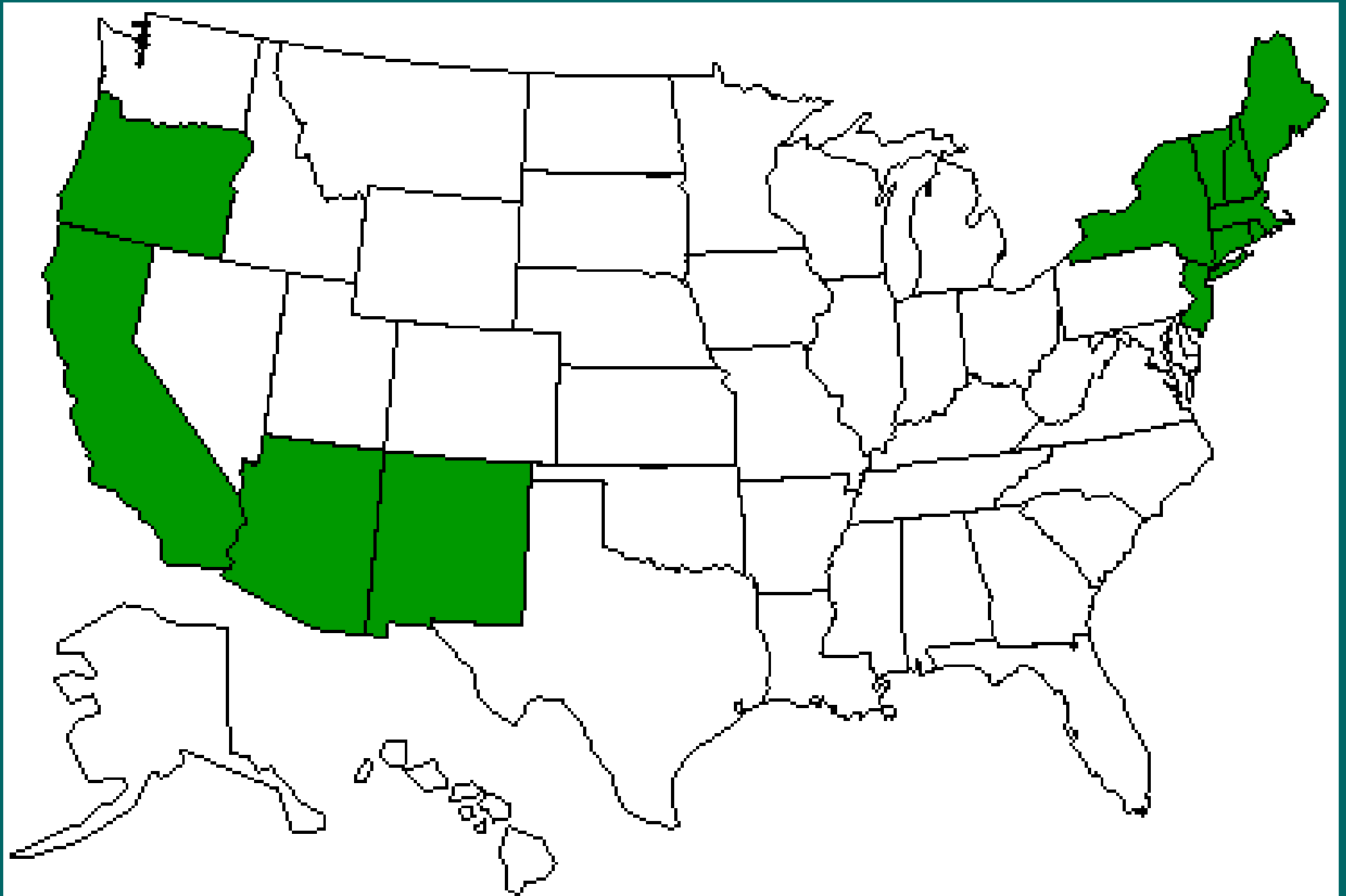
States with Leg. Commissions and/or Executive Branch Advisory Groups



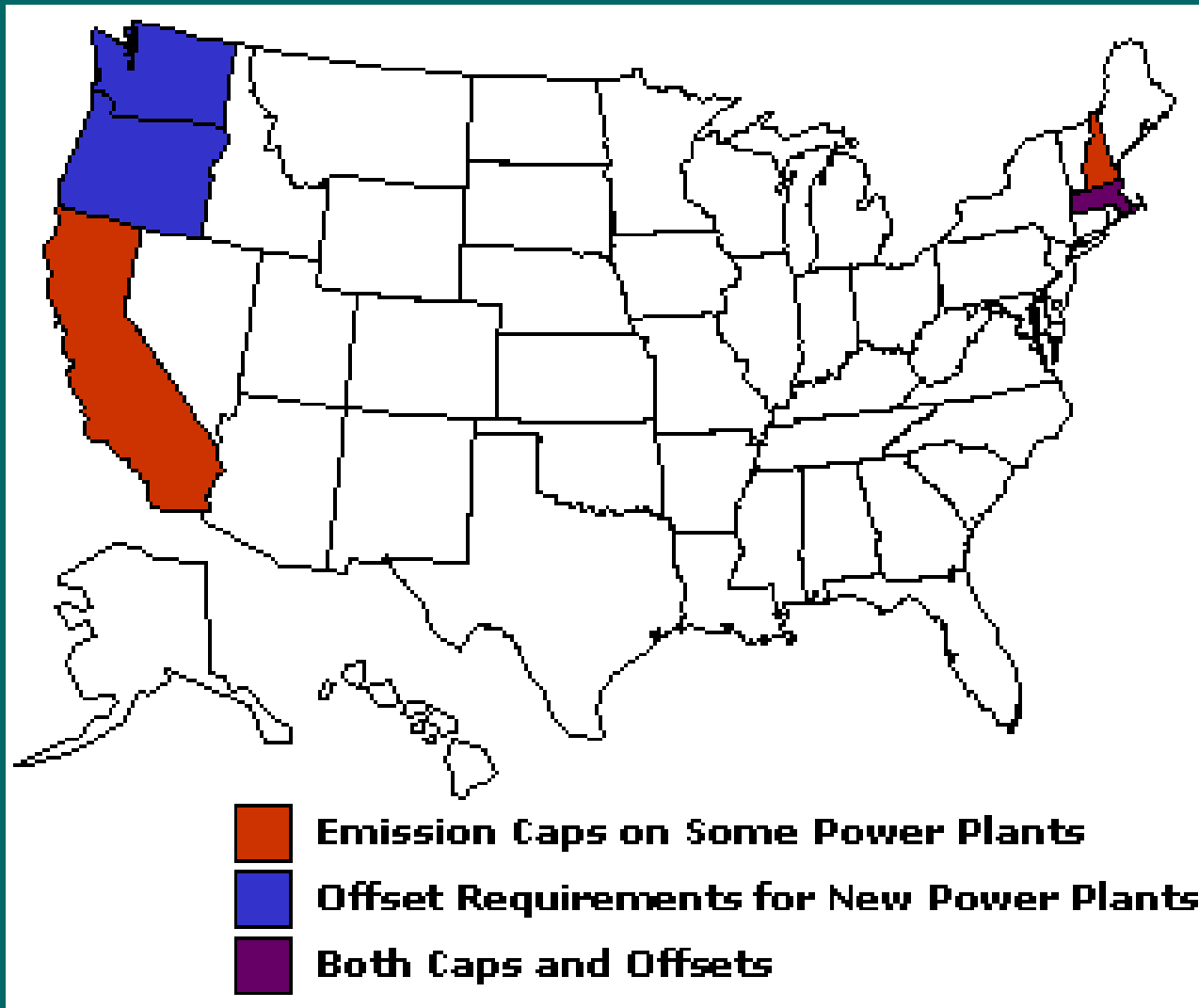


Completed Climate Action Plans

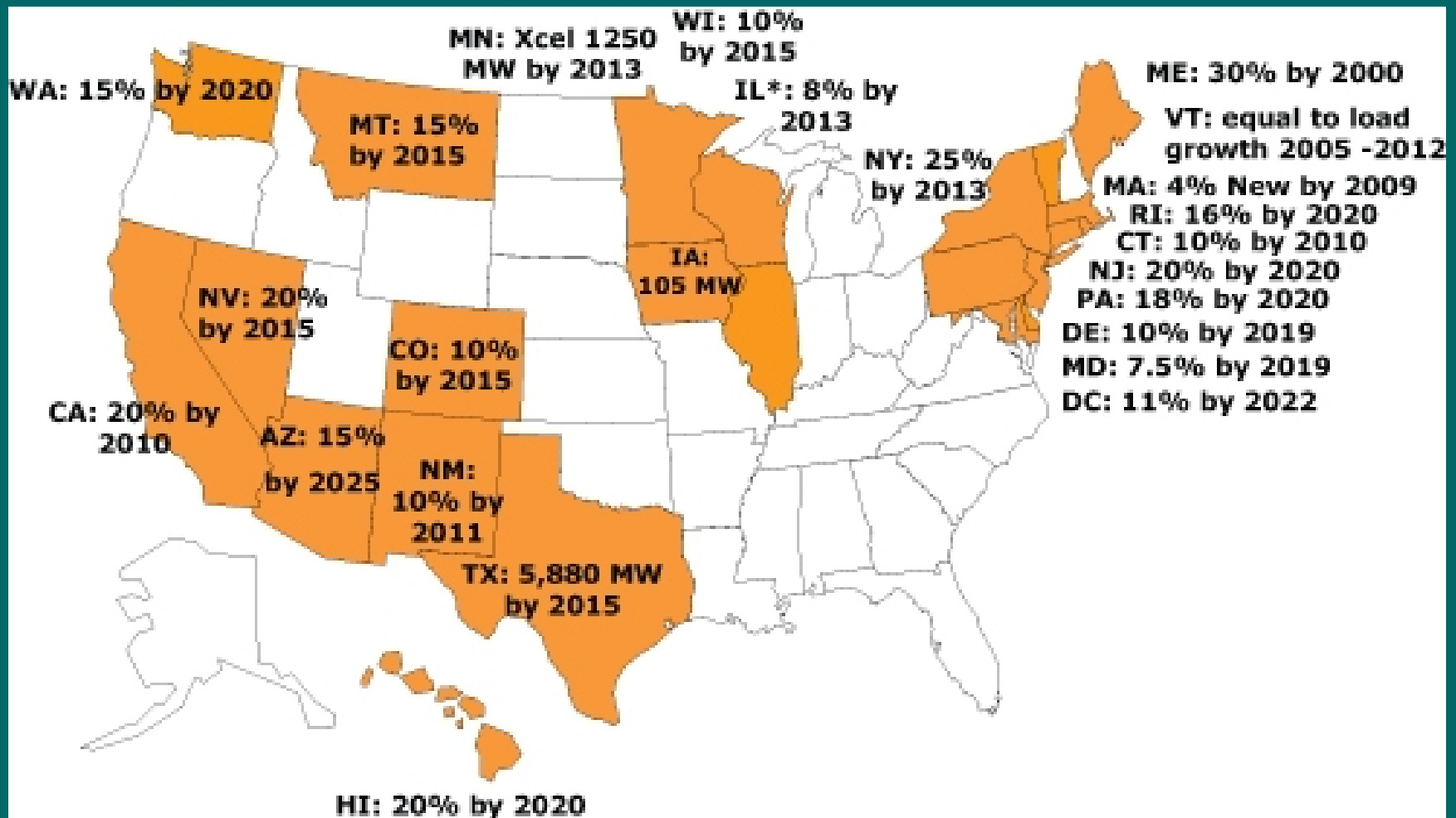
States with Greenhouse Gas Emissions Targets



States with a Carbon Cap or Offset Requirement for Power Plants

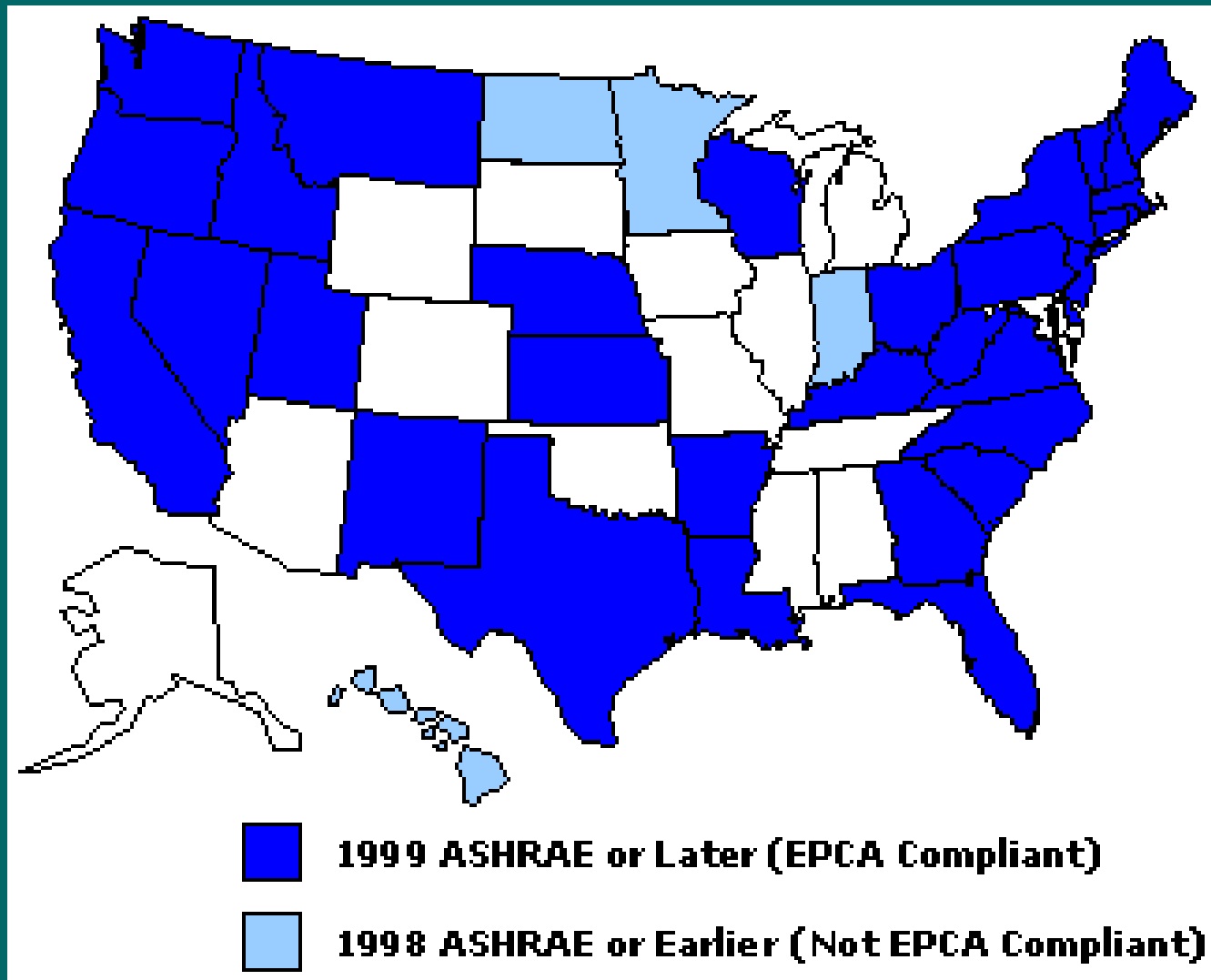


States with Renewable Portfolio Standards

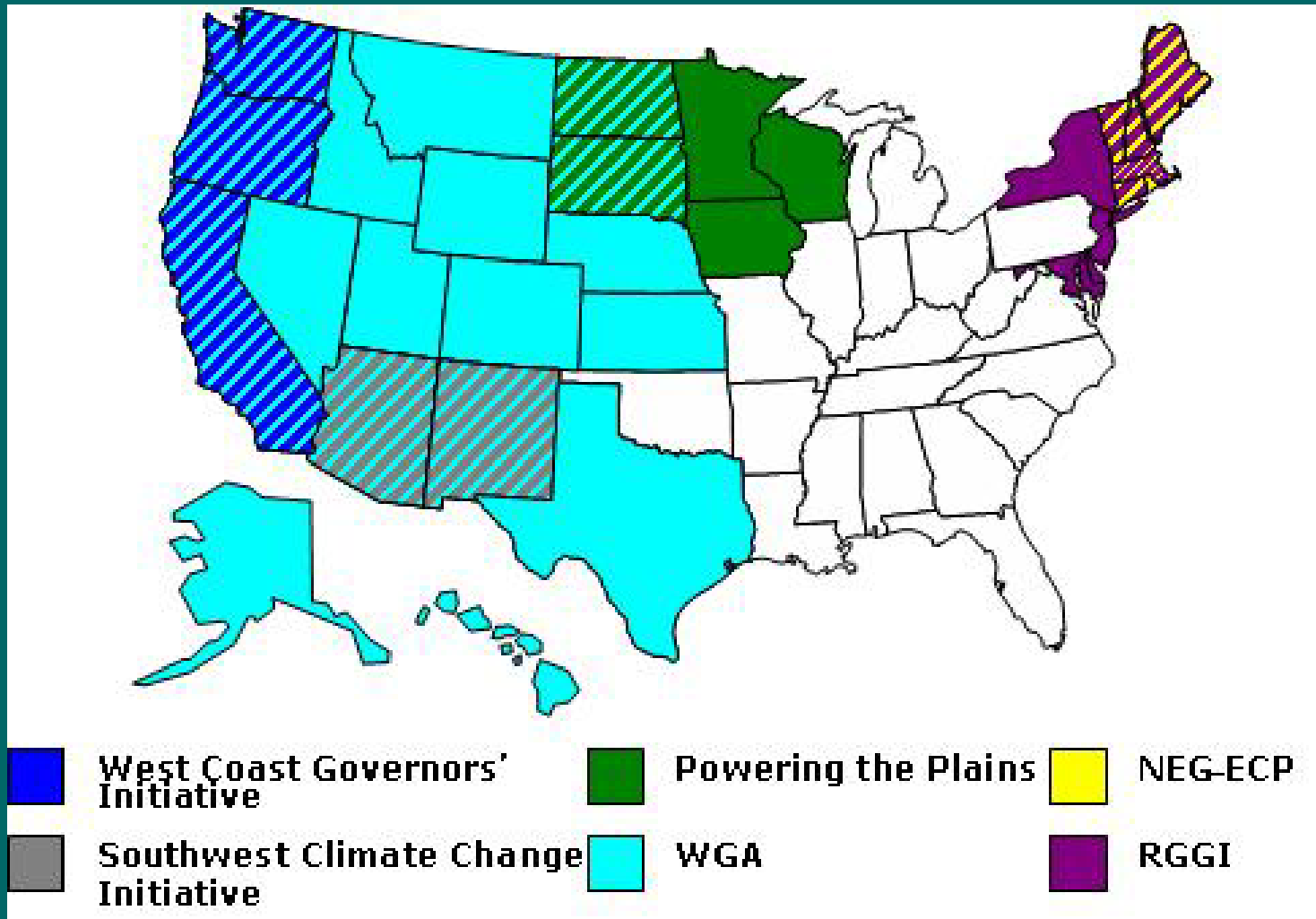


* IL implements its RPS through voluntary utility commitments

States with Commercial Energy Codes



Regional Initiatives



Lessons Emerging

- **All states are engaged in mitigation strategies in addition to adaptation strategies. No state is looking at assessing impacts only.**
- **Both types of responses are likely to be necessary to effectively manage climate change risks.**
- **Strategy Recommendations Commonly Fell into 8 Areas:**
 - 1. Integrating Actions**
 - 2. Energy Efficiency**
 - 3. Electric Generation and Supply.**
 - 4. Transportation**
 - 5. Carbon Sequestration**
 - 6. Materials Use, Recovery and Waste Disposal.**
 - 7. State Government Operations**
 - 8. Specific Resource Based Economies – Forestry, Agriculture etc.**

Lessons Emerging

- Most states relied on large stakeholder and/or technical advisory groups to complete plans.
- Many states used Center for Climate Strategies to assist them in plan development.
<http://www.climatestrategies.us/>
- Many states found that policies that address climate change were not a burden on commerce but rather also presented economic opportunities.
- Some states (OR) are using action on climate change to position themselves in new markets related to climate action: producing and selling alternative fuels, attracting high-tech business and selling carbon reduction credits.

Opportunities of Climate Change – Renewable Energy !!

BP seeks profits from climate change

■ **MAYORS CONFERENCE:**
Global warming called chance to test fossil-fuel alternatives.

By **DAN JOLING**
The Associated Press

Skeptics doubt that the nation should respond to global warming, but don't count petroleum giant BP among them.

A company official told a mayors conference in Girdwood that BP is reacting the old-fashioned way — by looking to make money.

"We think this is a huge business opportunity," said Charles A. Christopher, carbon dioxide program manager for BP in Houston.

More than 30 U.S. mayors from 17 states Monday wrapped up the three-day conference "Strengthening Our Cities: Mayors Responding to Global Climate Change," sponsored by the U.S. Conference of Mayors, the International Council for Local Environmental Initiatives and the municipality of Anchorage.

A continuing conference theme has been that cities can save money by cutting their greenhouse gas emissions. BP intends to take that a step further during the transition from a fossil-fuel-driven system to alternatives.

Energy can be provided in a way that's economically responsible and secure during the transition away from fossil fuels, Christopher said.

"The transition will provide many business opportunities," he said. "A lot of people are going to make a lot of money during this transition, and it won't be the same people that you're familiar with."

The burning of carbon-based fuels adds to naturally occurring greenhouse gases that retain Earth's heat. Accelerated warming has been most apparent near the Earth's poles, including Alaska, in shrinking glaciers, thawing sea ice and other changes in natural systems.

BP believes the risks from climate change are real and the science valid.

See Page B-2, WARMING



Anchorage Mayor Mark Begich, left, talks with Mayor Royce Pollard of Vancouver, Wash., while visiting the Anchorage landfill Monday during a tour of Anchorage. A group of more than 30 mayors from across the country attended a three-day conference on global warming. The gathering ended Monday.

Protect Gas Pipeline Viability

- Special Recognition/Role for Alaska Natural Gas Pipeline. “Because of the timing and cost of this pipeline project, how it might be treated under a carbon trading could affect pipeline project viability.”
- The pipeline project would have no historical emissions as a basis for a carbon trading allocation. Therefore special considerations, exemptions or grandfathering would be necessary in federal legislation.
- National Commission on Energy Policy: Establish mandatory carbon trading program to limit GHG emissions. Adopt public incentives for the construction of an Alaska natural gas pipeline.

Recommendations

- **Adaptation** . . While a certain amount of climate change is now inevitable, the impact of these changes will be disproportionately bad for areas that have had the least to do with adding GHG to the atmosphere. This is Alaska's situation. The need for adaptation is clearly articulated in HCR 30.
- **Mitigation** . . Interpret "shall offer recommendations and provide possible solutions and preventative measures that can be implemented by Alaska communities and by the state and federal governments" to include mitigation strategies embraced by other states.
- **Call to Action** . . Use the 'poster state' image to justify and rally a national call to action; use this as a calling card to play at the regional and national level.

Adaptation

- Ensure adequate fire fighting budget.
- Educate homeowners about risks, responsibilities and defensive landscaping.
- Direct review of salmon escapement indices to ensure accountability for climate change. Provide budget for more in-stream monitoring. Support research.
- Continue conservative mgmt. of North Pacific Fisheries. Support research.
- Direct that state plans and state directed projects be reviewed through the lens of climate change.

Mitigation

- Conduct a special session on carbon sequestration as it applies to oil, gas, coal and forest credits.
- Appoint technical advisory group to inventory GHG emissions and develop options for realistic reduction goals for Alaska.
- Develop a long term energy plan that blends and promotes increased natural gas and renewable energy.
- Accelerate development of renewable energy; particularly in rural Alaska.
- Appoint technical advisory group to investigate energy efficiency codes for commercial and public buildings.

Poster State = Call to Action

- **Develop public education campaigns to promote individual actions.**
- **With cooperation and direction from tourism industry develop public education campaign to promote individual actions back home.**
- **Request Governor to appoint or designate persons to serve as climate change advisor(s) – coordinate adaptation, monitor mitigation strategies, engage in WGA initiatives and growing national discourse on solutions; protect pipeline viability.**

Closing thought

Climate change is not just an environmental issue. It's not an issue, period. It is one of the greatest challenges facing society. Fortunately, Americans are at their best with grand challenges as noted by our response to WWII and putting a man on the moon. Given our path to statehood, oil pipeline, native rights, 200 mile limit etc. the same can be said about Alaska. Climate change is that next grand challenge calling for the best of Alaskans. As the poster state Alaska can play a leadership role in addressing the climate choice challenge.