

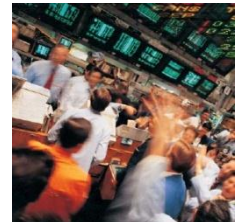
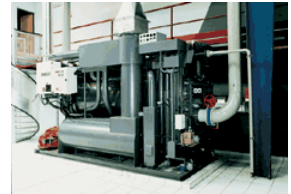
# STATE CLIMATE POLICY OPTIONS

Meeting of the Illinois Climate Change Advisory Group  
Michael A. Bilandic Building, 160 N. LaSalle St., Room C500  
Chicago, IL  
February 14, 2007

# Suggested priorities:

- Multi-Sector:

- *Carbon offset requirements for existing and/or new large stationary combustion sources*
- *Establish residential and commercial energy efficiency construction codes beyond international standards*
- *Incentives for CHP and boiler construction and upgrades*
- *Incentives for water conservation appliances and equipment*
- *State-level cap-and-trade (including options to join RGGI or other systems)*



# Suggested priorities:

- Electric Power:

- *Carbon performance standards for electricity generation and/or procurement*
- *De-couple electric and natural gas utility revenues from sales*
- *Distributed generation regulatory reform (real-time pricing, net metering, interconnection, standby rates)*
- *Energy efficiency standards for appliances and equipment*
- *IGCC with carbon capture & storage portfolio standard*
- *Require utilities to factor CO<sub>2</sub> into procurement and planning*



# Suggested priorities:

- Transport:

- *Develop and finance "smart growth" initiatives and expand/improve alternative modes of transport*
- *GHG emission standards for automobiles*
- *Incentives for fuel efficient vehicles*
- *Renewable fuels standard (RFS) and/or low-carbon fuels standard*



# Suggested priorities:

- Agriculture:

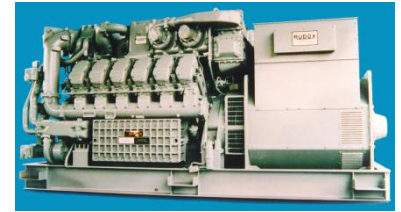
- *Incentives to reduce nitrogen application in crop fertilization*
- *Programs to encourage forest management, reforestation, tree- and grass-planting*



# Suggested priorities:

- Commercial / Industrial:

- *Encourage or require reductions in emissions of high GWP gases ( $N_2O$ , HFCs, PFCs,  $SF_6$ )*
- *Energy efficiency standards for commercial and industrial generators*



- Fugitive / Waste:

- *Encourage or require capture of methane from landfills, wastewater treatment plants, and/or coal mines*



# Barriers to State Climate Action

1. Political will
2. Budget constraints
3. Upfront technology costs
4. For climate policy, impacts are dispersed across economy

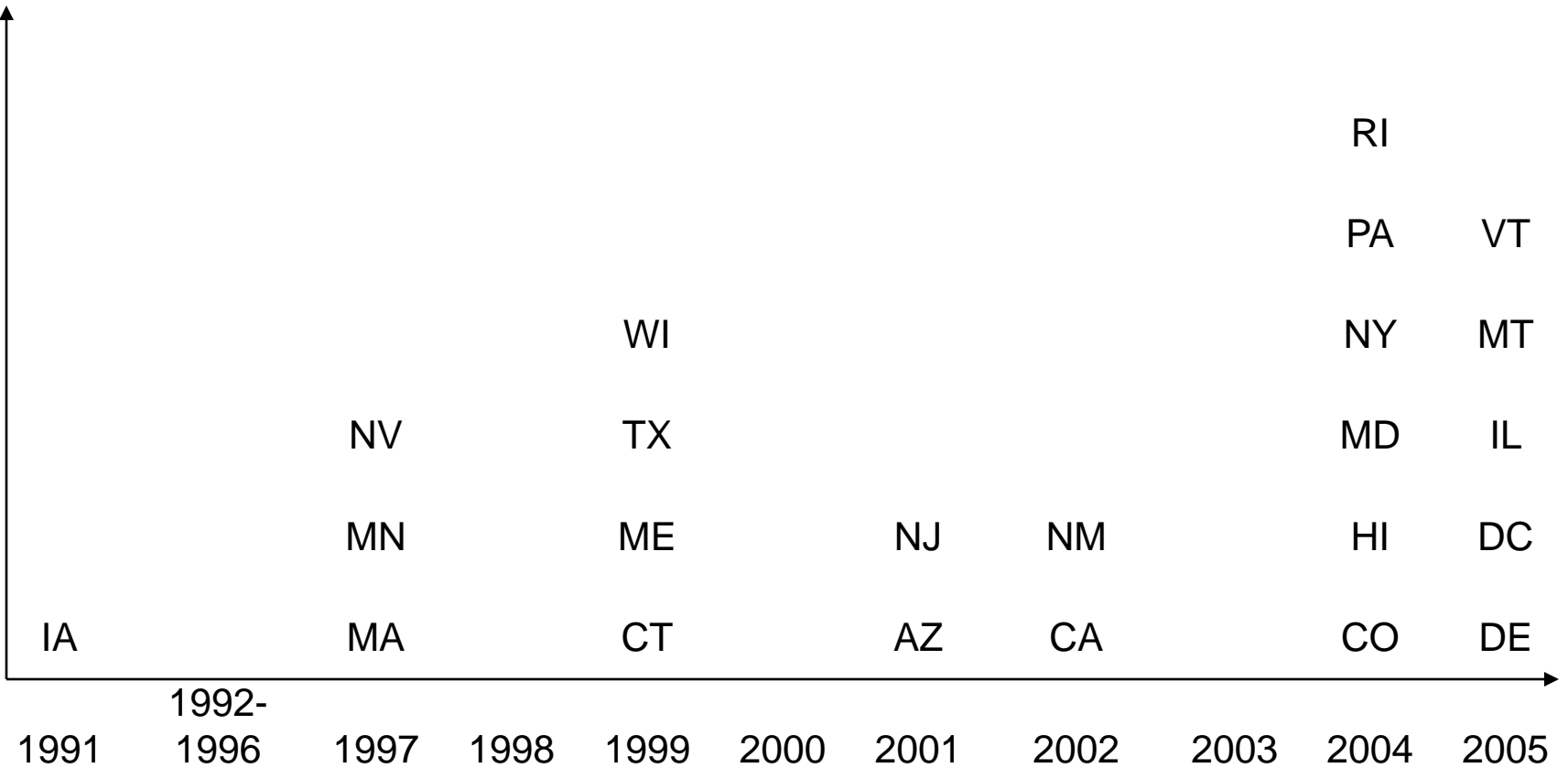
# Major Co-Benefits of Climate Policy

- *Smart Growth* = reduced fuel and infrastructure costs + improved AQ + urban revitalization + open space protection
- *Energy Efficiency* = reduced fuel costs + improved AQ + economic benefits from new techs + energy security
- *Renewable Energy* = jobs and other economic benefits + energy security + improved AQ
- *Fuel Switching* = Improved AQ + economic benefits
- *Tax Shifting* = Clear market signals + economic and fiscal benefits + improved AQ

# Approaches to Co-Benefits

1. Allocating State Money - Directing financial outlays toward climate-friendly investment
2. Moving Markets - Using state financial leverage to move new product markets
3. Regulations or Incentives - Choosing optimal type of policy

# The Adoption of RPS:1991-2005



# Allocating State Money (1)

- States have limited financial resources
- Targeted allocation strategies and rules can help achieve co-benefits
  - E.g., requiring transportation funds to satisfy smart growth criteria can provide economic, air quality, and climate benefits

# Allocating State Money (2)

- *Maryland: **Priority Funding Areas*** – limits infrastructure spending to targeted development zones in established communities
- *New York: **State Energy Plan*** - redirects State funding toward energy-efficient transportation alternatives
- *New Jersey: **Executive Order 4*** - requires that state funding be consistent with smart growth principles

# Moving Markets (1)

- State spending can spur markets through targeted procurement
- New technologies hampered by higher incremental costs
- Purchases of climate-friendly products can help realize economies-of-scale
  - E.g., state purchases of renewable electricity and alternative fuel or hybrid vehicles

# Moving Markets (2)

- *New York*: **Executive Order 111** – new vehicles purchased by state agencies must use alternative fuels, and 20% of state energy must be from “green power”, by 2010
- *Maryland*: **Energy Efficient Product Procurement** – state-purchased energy-using products must be Energy Star or in top 25% of energy efficiency for product type
- *Massachusetts*: **High-efficiency Vehicle Procurement** – replacement of non-essential state fleet SUVs with efficient vehicles, and prevention of future SUV purchases

# Regulation or Incentives (1)

- Regulation examples – technology standards, emission caps, portfolio standards
- Incentive examples – tax credits, production credits, emissions trading
- Tradeoff between policy based regulation or market incentive
  - Regulation = less politically popular, less impact on state budget, broader participation, more enforcement
  - Incentives = more politically popular, more impact on state budget, voluntary participation, less enforcement

# Regulation vs. Incentives (2)

- Regulation:
  - *California: Renewable Portfolio Standard (RPS)* - 20% by 2017 - equates to between 3,000 and 8,000 MW of additional RE
  - *Massachusetts: System Benefit Charge* - over \$150 million per year to finance RE
- Incentive:
  - *Michigan: NextEnergy Program* – 20-year state and local tax exemption for alternative energy producers and system designers
  - *Minnesota: Renewable Energy Production Incentive* - generation incentive payments of \$0.015 per kilowatt-hour (kWh) for qualifying renewable energy technologies

# Conclusions

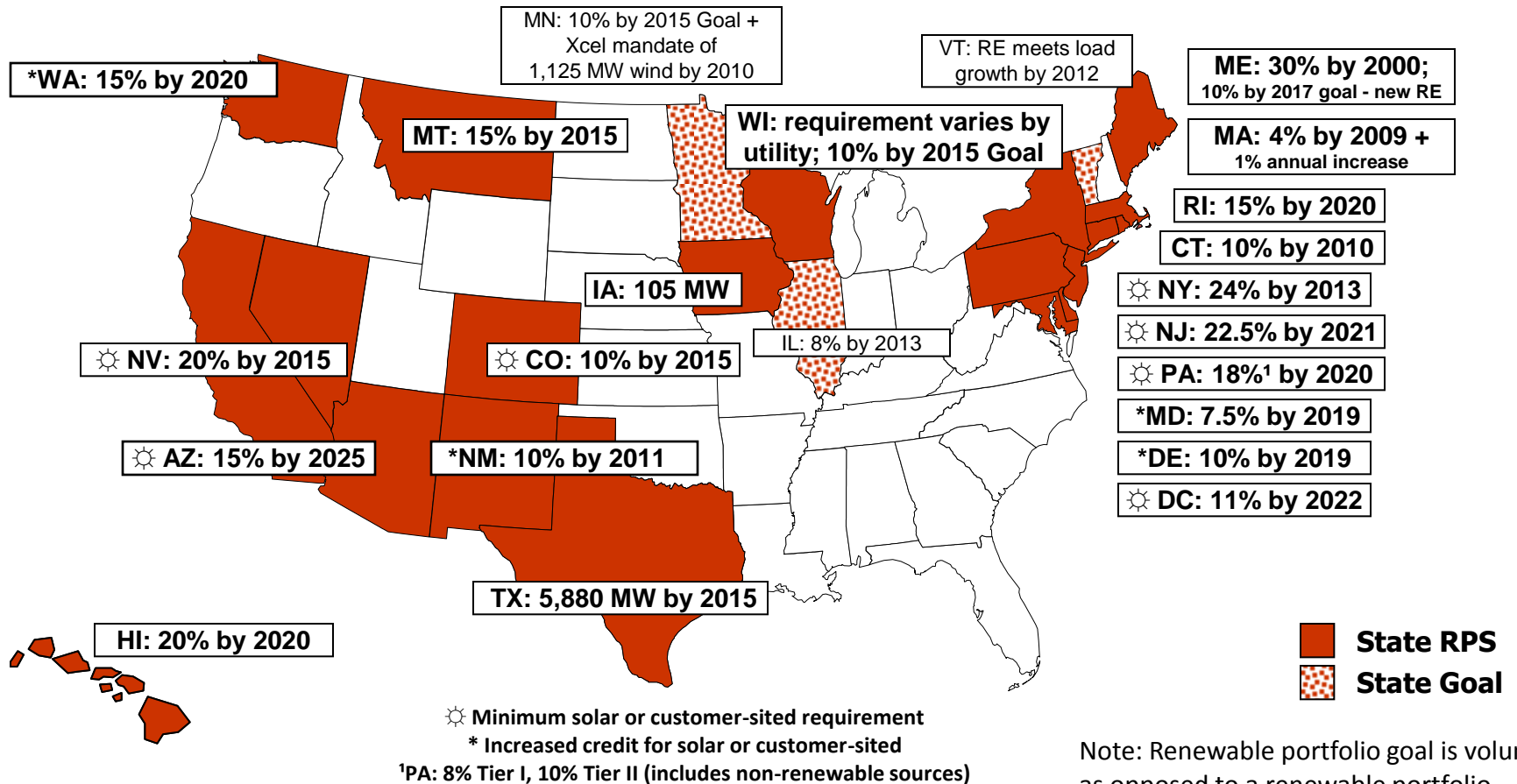
- Range of cost-effective opportunities for climate policy
- Many have range of economic and environmental co-benefits
- State policymakers have several policy options available
- Policies often overlap
  - Emphasis on complementary approaches

# “Laboratories of Democracy”

- Many environmental laws enacted by states have charted the way for later passage of major national legislation
- State early action, in 1980's, to address acid rain had major impact on passage of national legislation
  - Acid rain laws initially introduced in a number of states
- California's air quality laws laid groundwork for national air quality law passed in early 1970

# The Adoption of RPS

As of 2005, 22 states and DC have adopted RPS.



Note: Renewable portfolio goal is voluntary, as opposed to a renewable portfolio standard, which is generally enforced by an appropriate state regulatory agency.

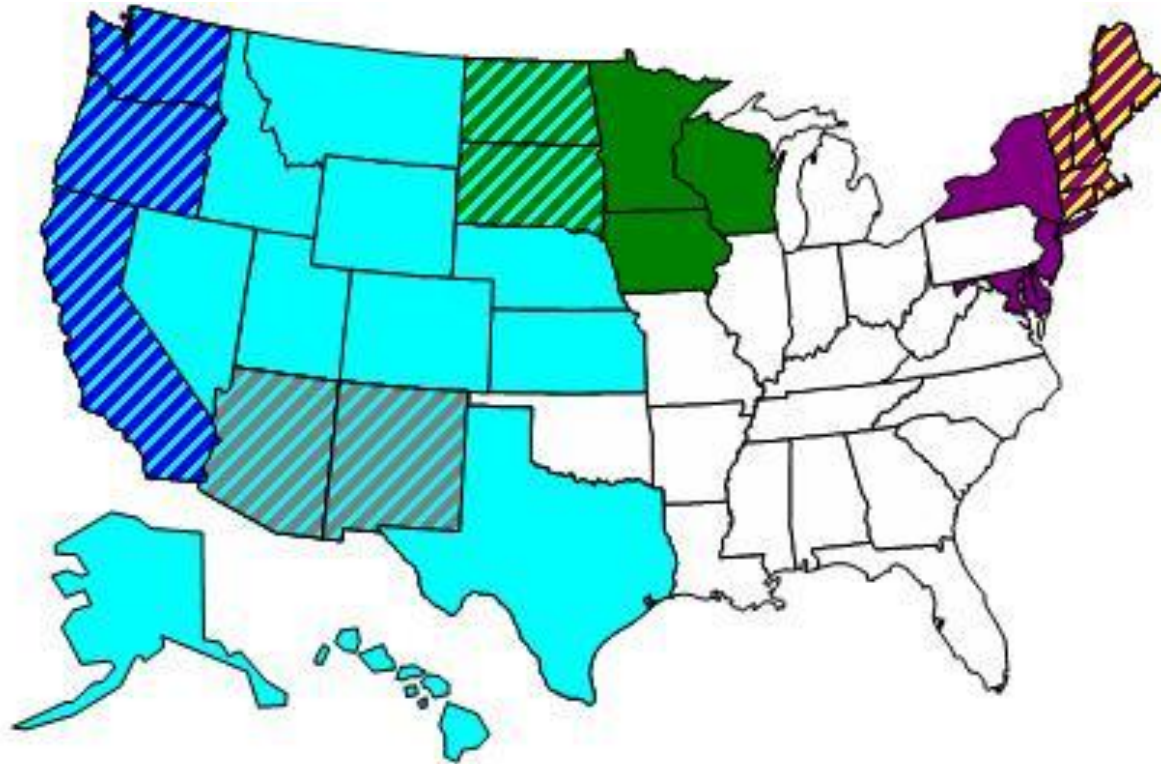


# *Statehouse and Greenhouse*

Rabe (2006)

- Case studies on five states: Texas, Massachusetts, Nevada, Pennsylvania, and Colorado
- Driving Forces:
  - *Transcending Partisan Boundary*: “Regardless of partisan composition of state government, these policies (RPSs) have consistently drawn a rather broad coalition of support.”
  - *Renewable Energy Developers*: “Renewable energy developers are far more visible and influential in RPS deliberations than conventional environmental advocacy groups”
  - *Economic Benefits*: “perhaps one of the biggest factors...has been a commonly held perception that promotion of renewable energy through an RPS is in the economic interest of an individual state.” Especially, “...this labor benefit has fostered discussion in many state capitals about an anticipated ‘job multiplier’ effect of renewable as opposed to conventional sources.”

# The DNA Already Exists in Many States/Regions...



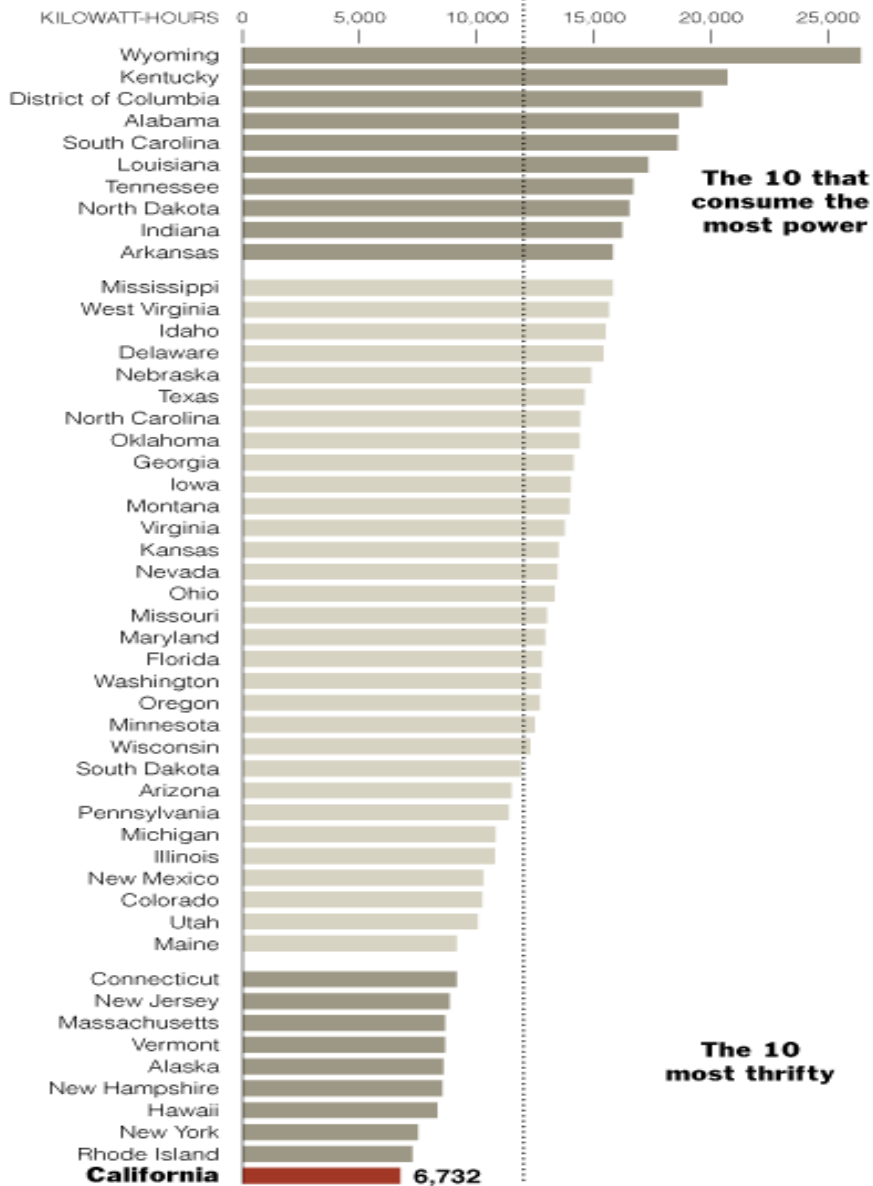
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|  <b>West Coast Governors' Initiative</b>    |  <b>Powering the Plains</b> |  <b>NEG-ECP</b> |
|  <b>Southwest Climate Change Initiative</b> |  <b>WGA</b>                 |  <b>RGGI</b>    |

# An Energy-Thrifty State

Californians use less electricity per person than those in all other states. Their gasoline use is among the lowest.

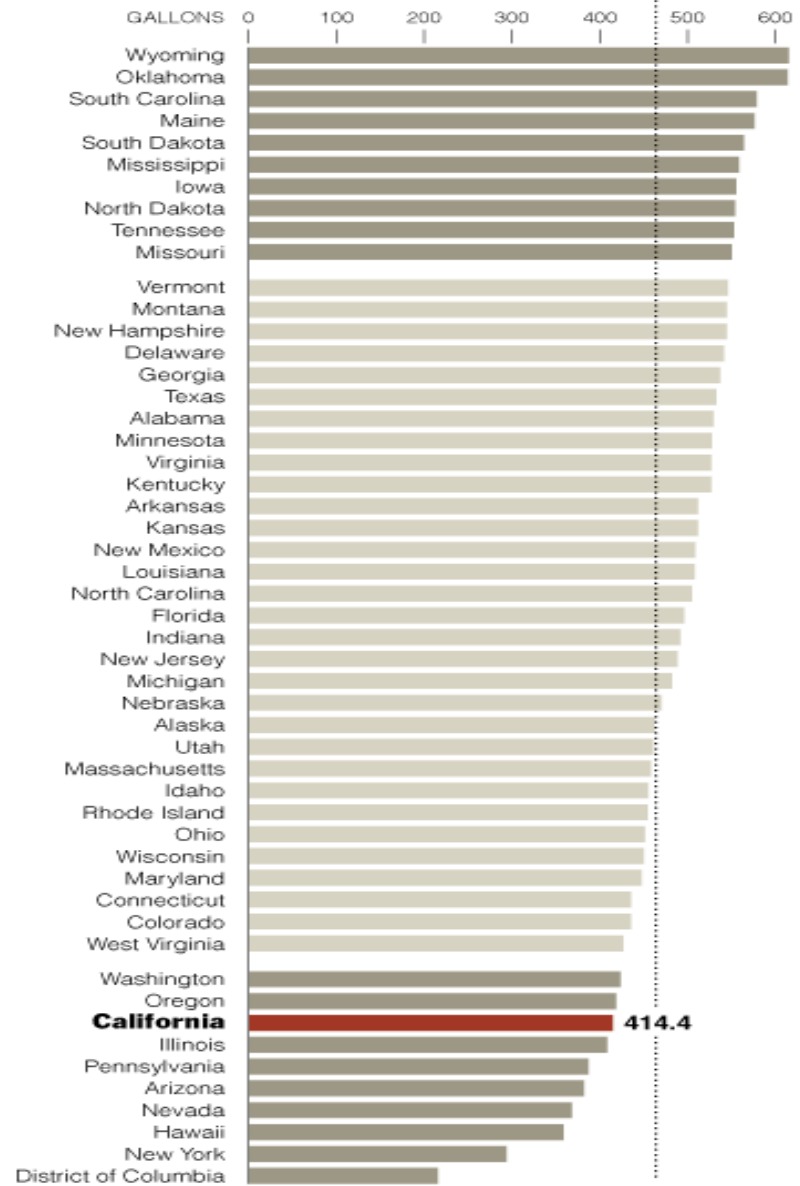
Statewide electricity use in 2003, per capita

U.S. AVERAGE: 11,997



Gasoline use in 2004, per capita

U.S. AVERAGE: 464



# Which Alaska in 2050?

(Scientific American, Sept. 2006)

