Building a new Regulatory Framework for Energy Efficiency as the First Fuel in a Balanced Energy Future

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Overview

A New framework for energy efficiency policy in the utility sector

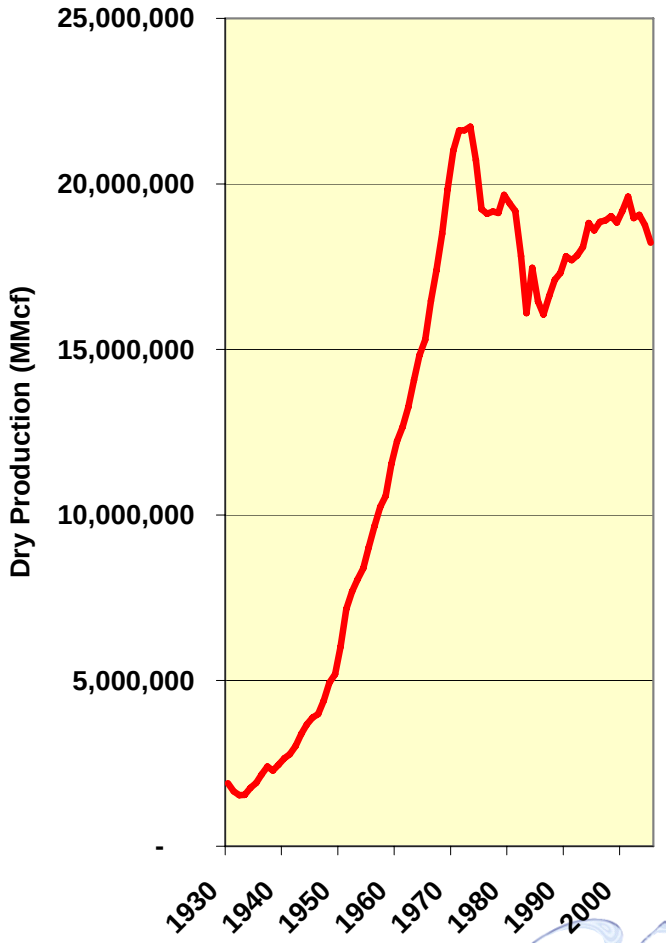
- Energy prices are rising and not predicted to return to historical lows
- States making adjustments to restructuring policies
- Efficiency is a “first-fuel” option for balancing electricity resource portfolios
- States need a new regulatory framework to make efficiency attractive for ratepayers and utility shareholders

Efficiency Can Unlock our Energy *Straitjacket*

- We have entered a new era in energy markets
- Surging demand for all energy sources has outstripped markets' ability to deliver
- Intractable demand-supply imbalances creating economic problems
  - High and volatile prices
  - Threat of inflation
  - Industry disappearing
- No fundamental relief in sight

The Natural Gas Straitjacket

- U.S. production peaked in 1973
- Limited new domestic resources
- New wells deplete in 18 months; "drilling in place
- Increasingly dependent on imports—mostly LNG
- Low emissions and equipment cost make gas attractive
- Demand driven by electric power generation – over 140,000 MW installed in last 10 years

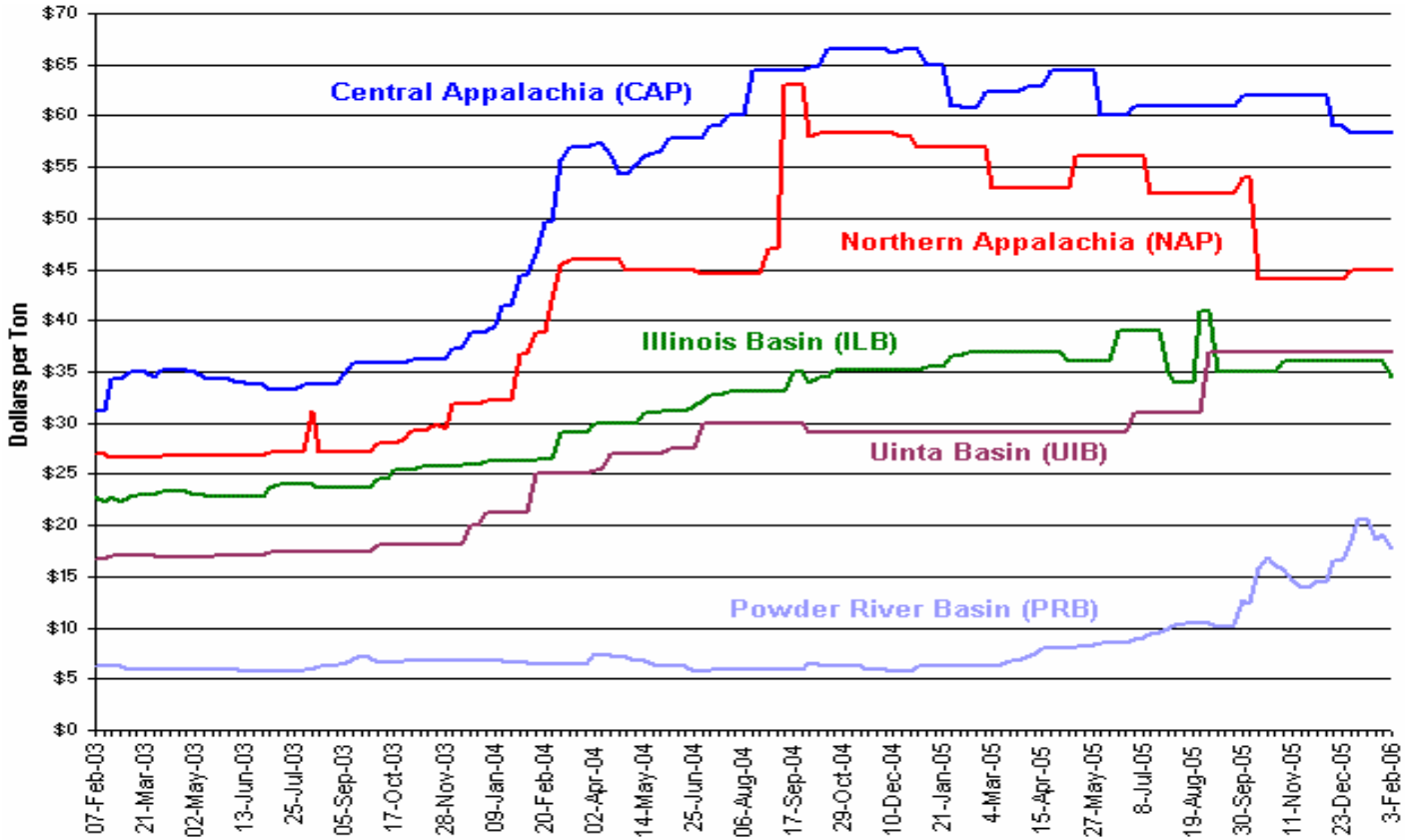


Source: EIA 2006

The Coal (*yes, Coal!*) Straitjacket

- Coal largely used to generate electricity
- High natural gas prices drove coal demand up
- Mining mergers reduced spare production capacity
- Shortage of mining equipment globally
- Rail capacity limited – shortage of rail cars, plus rail line congestion
- Inventories down – will take years to rebuild to “normal” levels

Even Coal Prices Can Go Up



Key to Coal Commodities by Region[1]

Central Appalachia:	Big Sandy/Kanawha 12,500 Btu, 1.2 lbSO2/mmBtu	Powder River Basin:	8,800 Btu, 0.8 lb SO2/mmBtu
Northern Appalachia:	Pittsburgh Seam 13,000 Btu, <3.0 lbSO2/mmBtu	Uinta Basin in Colo.:	11,700 Btu, 0.8 lb SO2/mmBtu
Illinois Basin:	11,800 Btu, 5.0 lb SO2/mmBtu		

Source: Platts Coal Outlook 2005

The Electricity Straitjacket: The Sum of all Fuels

- Natural Gas prices driving electric prices
- Fuel switching links gas and oil CT fuel markets
- Coal markets tightening, limiting potential to back off gas generation
- Electricity prices driven up by the sum total of these forces, plus capacity, transmission, and regulatory issues

The Electric System Capacity Straitjacket

- Utilities worried about coal supplies
- Heat wave strained systems across the U.S. this summer
- NERC reliability report shows capacity margins falling below critical levels in next 5-10 years
- Not clear who will build new capacity

APPA — National Rural Electric Cooperative Association — Edison Electric Institute

May 1, 2006

Hon. Joseph Kelliher
Chairman
FERC
888 First Street, N.E
Suite 11-A
Washington, DC 20426

Hon. Nora Mead Brownell
Commissioner
FERC
888 First Street, NE
Washington, DC 20426

Hon. Suedeen G. Kelly
Commissioner
FERC
888 First Street, NE
Washington, DC 20426

Dear Chairman Kelliher, Commissioner Brownell and Commissioner Kelly:

We are writing to call to your attention, and seek your help in addressing, a problem that we believe poses a serious challenge to the overall reliability of the interstate power grid in regions of the country heavily dependent on coal-fired generation.

Each of us has received reports from our respective members with coal-fired generation regarding significant, sustained railroad coal-delivery problems. Specifically, for some coal-fired generators, rail coal delivery has not been keeping pace with coal use. Some existing on-site coal stockpiles are seriously depleted. Moreover, the problems have existed for a long time, with little, if any, improvement. We are concerned about the cost and reliability risks of operating under this reduced coal-delivery situation. A minor railroad mishap or equipment failure at a coal mine—events that would not cause any disruption in power generation when stockpiles are more robust—could have serious consequences today.

The reduced deliveries of coal are already pushing some coal-fired generators to the point of curtailing generation. The cost consequences of curtailments are obvious. If generation is curtailed, the owners of these power plants will be forced into the market in order to meet customer demand. Power purchased in the wholesale market may be more expensive than power from these coal-fired plants, pushing up rates for consumers; and power from the wholesale market is likely to be generated, at least in part, from natural gas.

In addition to increased costs for consumers and added pressures on natural gas prices and availability, we also are concerned about the adverse effect that generation curtailments could have on grid reliability. Large, base-load coal-fired power plants help support the overall reliability of the electric grid; and it is, therefore, important that these plants remain on line. As you know, grid reliability is critically important to our industry and the nation's economy.

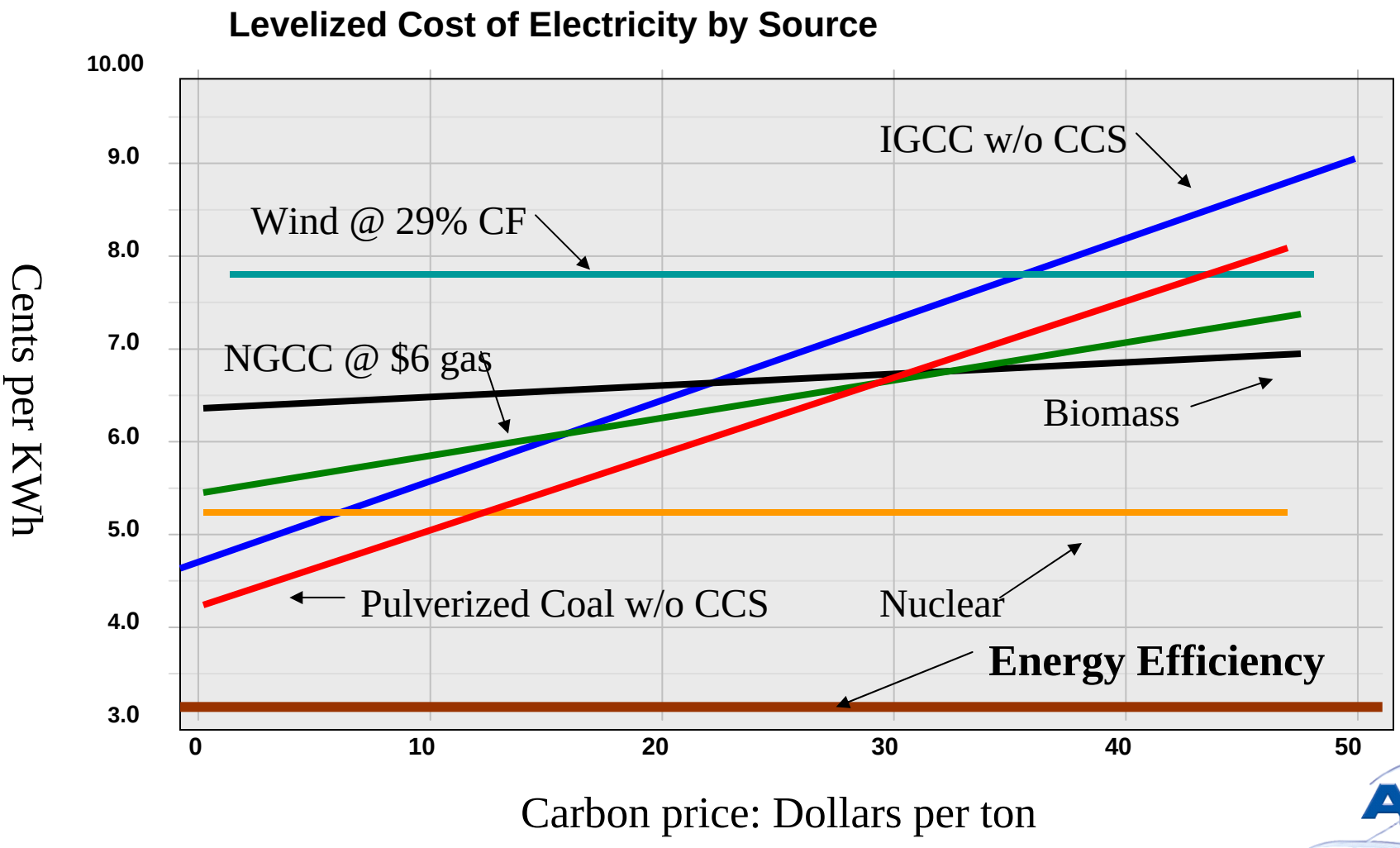
We would appreciate the opportunity to meet with you to discuss these important matters. In particular, we would like to discuss the possibility of FERC holding a public workshop to focus on these railroad coal-delivery challenges and the impact of continued coal-delivery disruptions on electric reliability.

ACE3 25 Years

Efficiency: the First Fuel for balancing electricity markets

- Efficiency is typically the least-cost resource option
- Efficiency is the fastest to deploy
- Efficiency potential is subtantial:
  - Potential studies show ~25% of electricity demand can be avoided through efficiency
  - This can cut demand growth by half or more
- Efficiency potential stays high as new technologies and cost drops keep “refilling the well”

The Cheapest kWh is the one you don't have to generate



Why are States Leading with Efficiency?

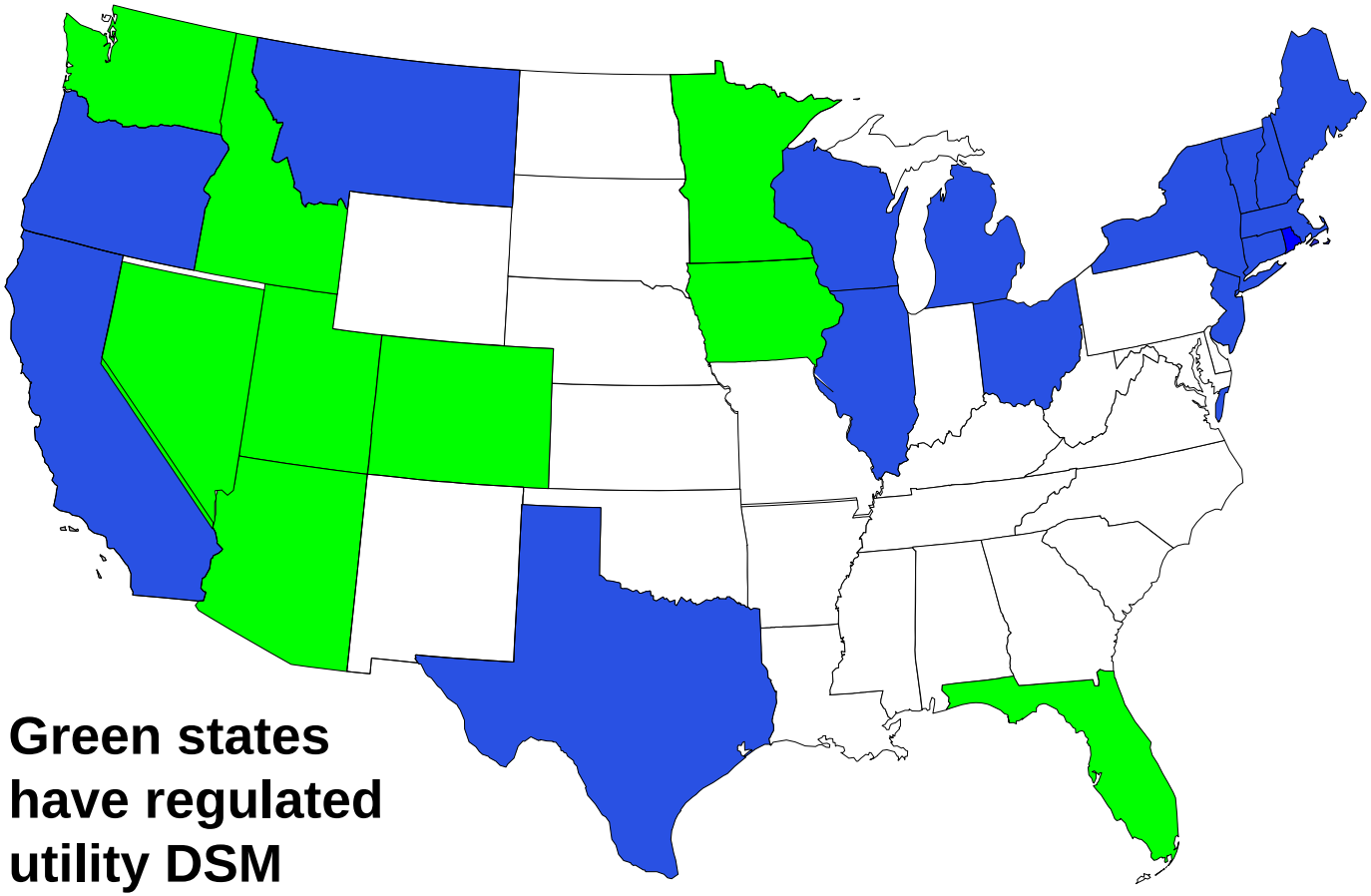
- It's the only resource available in *EVERY STATE*
- Most conventional energy dollars go out of state—more of the efficiency dollar STAYS HOME
- It's something you can do *NOW*
- It makes state leaders good **"portfolio managers"** (even in coal states)

But: Efficiency is Hard to Harvest

- Markets alone won't reap enough
  - Income elasticity and cross-elasticity block price elasticity
  - Principal-agent barriers—builder-buyer, landlord-tenant
  - Information-cost barriers—consumers don't have time/$ to study each purchase
- IEA study: over half of building energy usage is affected by barriers

….so policy action is needed

States with utility sector energy efficiency programs



Blue states have EE public benefit funds

Green states have regulated utility DSM

ENERGY EFFICIENCY ON A "POWER PLANT" SCALE

- Leading state examples
  - ❖ Minnesota has saved over 2,300 MW since 1990
  - ❖ The Pacific Northwest has saved over 1,600 MW over a similar timeframe
  - ❖ California has saved over 1,500 MW in the last 5 years
- Ten states have EE programs on a scale large enough to displace power plants (i.e., save 0.4% to 1.0% of load each year)
  - CA, CT, IA, MA, MN, NY, OR, RI, VT, WI

Leading State Programs' Cost-effectiveness

State	Benefit/Cost All programs	C/I programs B/C	Res. Programs B/C	Cost of saved kWh($)
California	2.0 – 2.4			0.03
Connecticut	NA	2.4 to 2.6	1.5 to 1.7	0.023
Maine	1.3 – 7.0			
Mass.	2.1	2.4 to 2.7	1.3 to 2.1	0.04
New Jersey				0.03
New York				0.044
Rhode Island	2.5	3.3	1.5	
Vermont	2.5	2.9	1.8	0.03
Wisconsin	3.0	2.0	4.3	
Median	**2.1 to 2.5**	**2.5 to 2.6**	**1.6 to 1.7**	**0.03**

The Three Key Regulatory Issues

- **Allowing cost recovery** for direct costs of EE programs
- **Removing the disincentives** of “lost revenues” resulting from energy efficiency programs
- **Creating earnings potential** from energy efficiency program investments

Cost Recovery

- Essential to encourage utilities to proceed with energy efficiency programs
- Many mechanisms to accomplish this
  - Costs embedded in rates
  - Special tariff riders
  - Deferred accounts
  - Specific surcharges (including public benefits charges)

Decoupling/Lost Revenue

- Less common practice, but “decoupling” is growing
- Necessary but not sufficient
- Some means of addressing utility disincentive from lost sales is essential to aligning utility shareholder and public interests

Shareholder Incentives

- Common, but not universal
- Essential to achieving best efforts for program effectiveness
- Many mechanisms available to accomplish this
  - Cash award for meeting goals
  - Earn a rate of return on EE expenditures (tied to performance)
  - Earn a share of “net benefits” from the programs
  - Bonus rate of return for the company (tied to performance)

Summary of ACEEE Regulatory Study Findings

Based on ACEEE's recent report:

- **Cost Recovery** – All 25 states operating utility EE programs have an approved cost-recovery mechanism
- **Shareholder Incentives –** 7 states have incentive mechanisms in place, 3 more are developing them

  [9 of the 25 states don't have utilities administer EE programs, so such incentives aren't as key.]
- **Decoupling/lost revenues –** At least 5 states have decoupling mechanisms approved, and at least another 5 states are actively considering it. [No states still provide direct lost revenue recovery]

ACEEE Report

- ***Aligning Utility Interests with Energy Efficiency Objectives: A Review of Recent Efforts at Decoupling and Performance Incentives***

  --M. Kushler, D. York & P. Witte
  ACEEE, October 2006

  http://aceee.org/pubs/u061.htm

Sources for Efficiency Program Designs

- ***America's Best: Profiles of America's Leading Energy Efficiency Programs***

  York & Kushler, ACEEE, 2003

  http://www.aceee.org/pubs/u032.htm

- ***Energy Efficiency and Electric System Reliability: A Look at Reliability-Focused Energy Efficiency Programs Used to Help Address the Electricity Crisis of 2001***

  Kushler, Vine and York, ACEEE, 2002.

  http://aceee.org/pubs/u021full.pdf

Conclusions

Efficiency is the "First Fuel" in the race for clean energy:

- Efficiency is cheaper, faster, and cleaner than other resource choices
- Efficiency can have a large impact on demand growth, energy prices, and emissions
- Barriers to efficiency require policy action
- States need a new regulatory framework

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