

NORTHWEST

6th

POWER PLAN

The Sixth Northwest Electric Power and Conservation Plan

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Charlie Grist

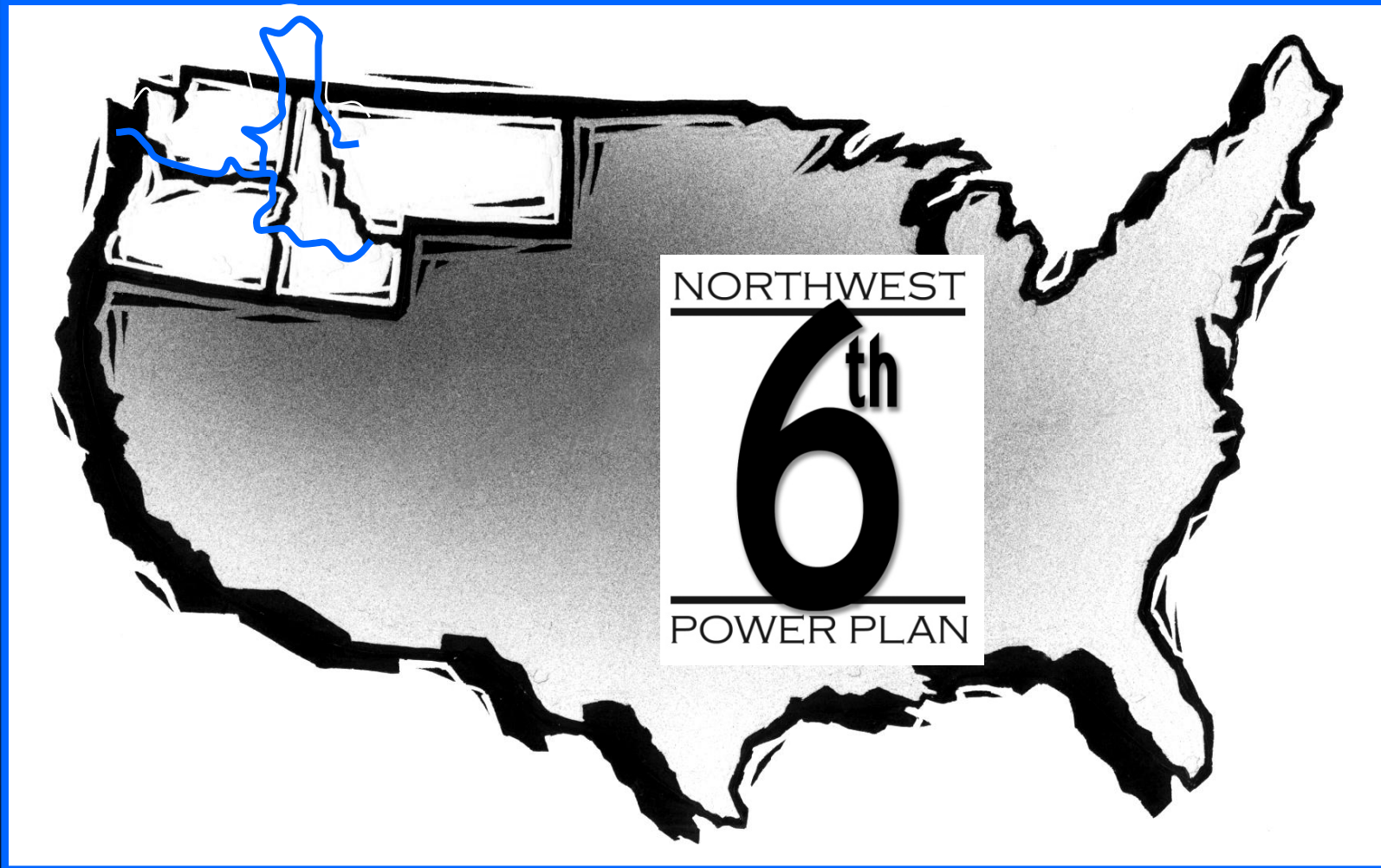
Northwest Power and
Conservation Council

Utility Energy Forum

May 7, 2009

Pacific Northwest Region

The 1980 Regional Power Act



Northwest Power and Conservation Planning Act of 1980 (PL96-501)

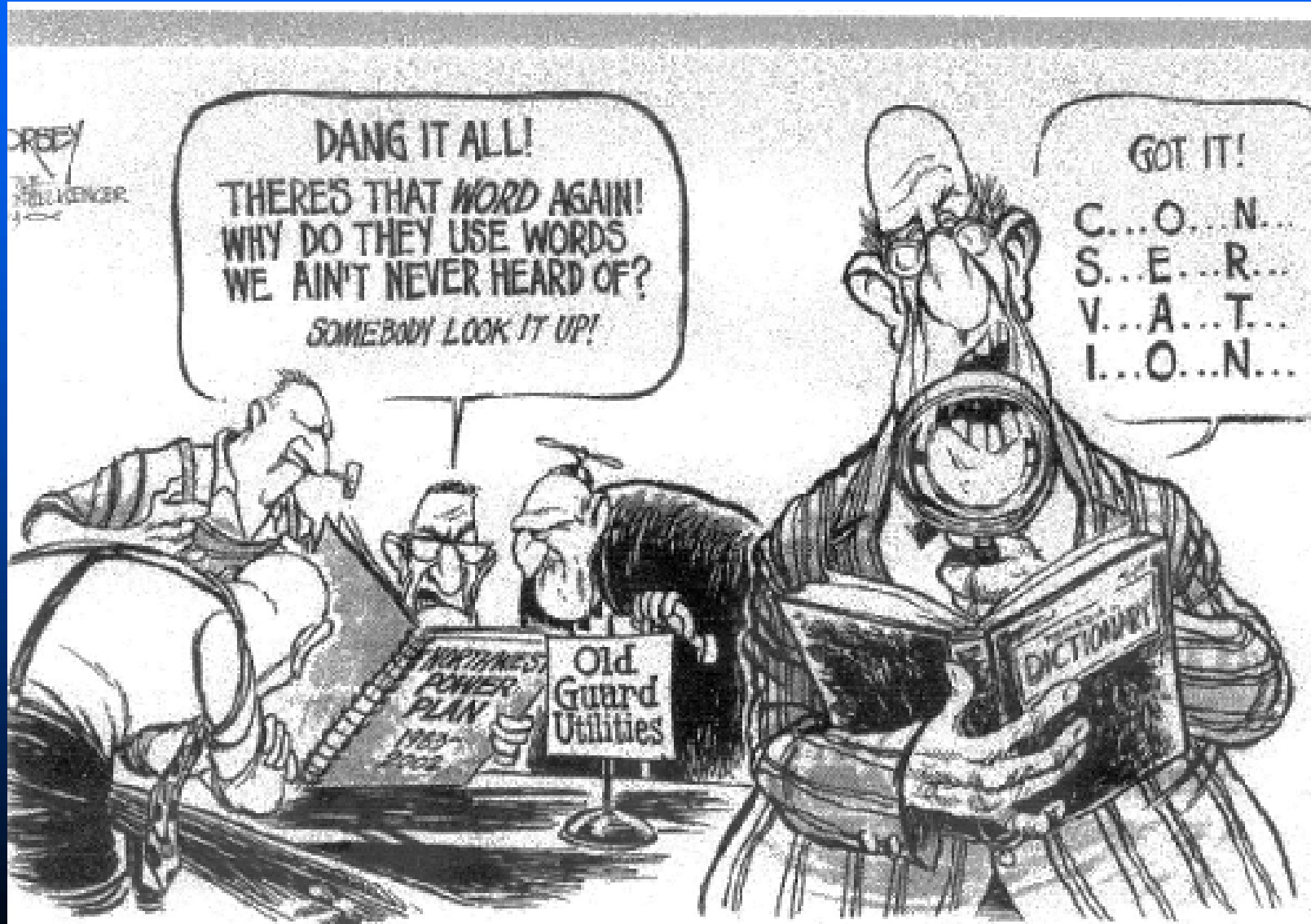
- Authorized States of ID, OR, MT and WA to form an “interstate compact” (aka, “The Council”)
- Directed the Council to develop 20-year load forecast and resource plan (“The Plan”) and update it every 5 – years
 - “The Plan” shall call for the development of the least cost mix of resources
 - “The Plan” shall consider conservation (energy efficiency) its highest priority resource equivalent to generation with a 10% cost advantage over power generating resources
- Mandated public involvement in Council’s planning process.

Planning Approach

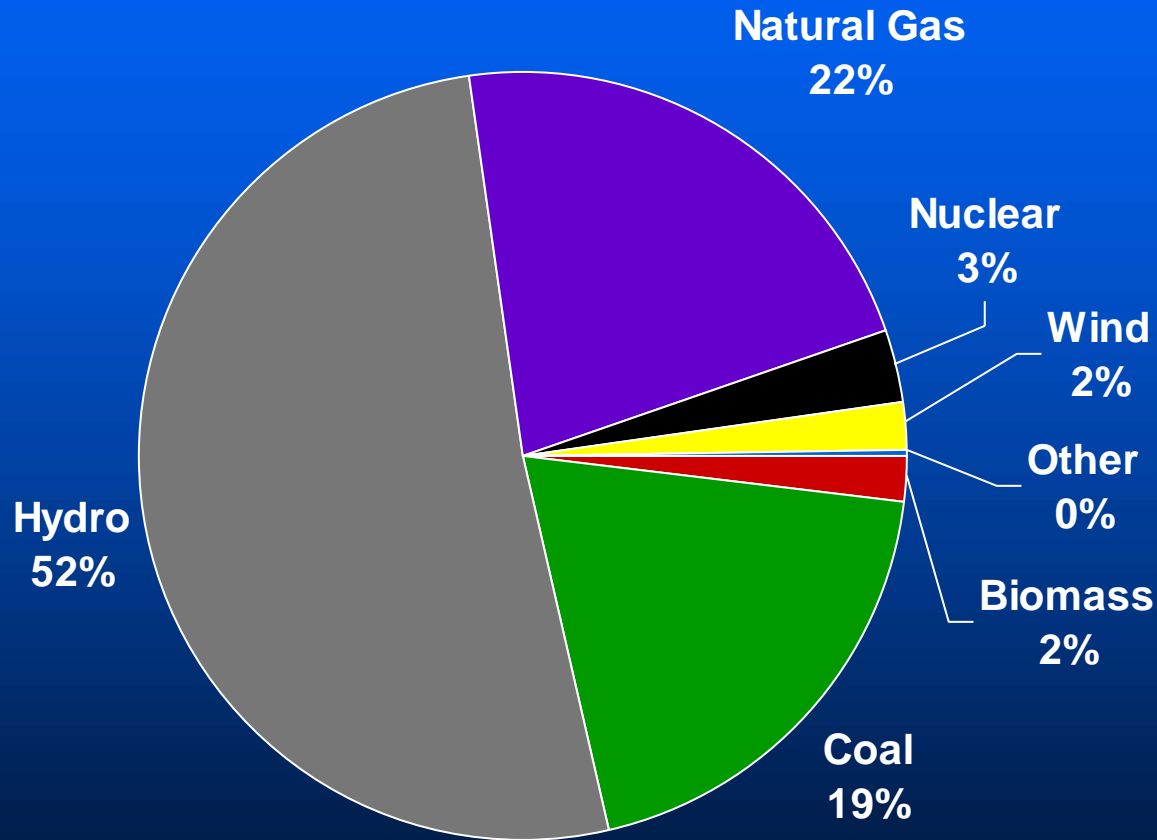
- Recognize that the future is uncertain and develop a resource strategy that mitigates the risk of unpredictable future changes
 - Uncertainties include economic growth and need for electricity, fuel prices, hydro conditions, resource costs, and climate policy

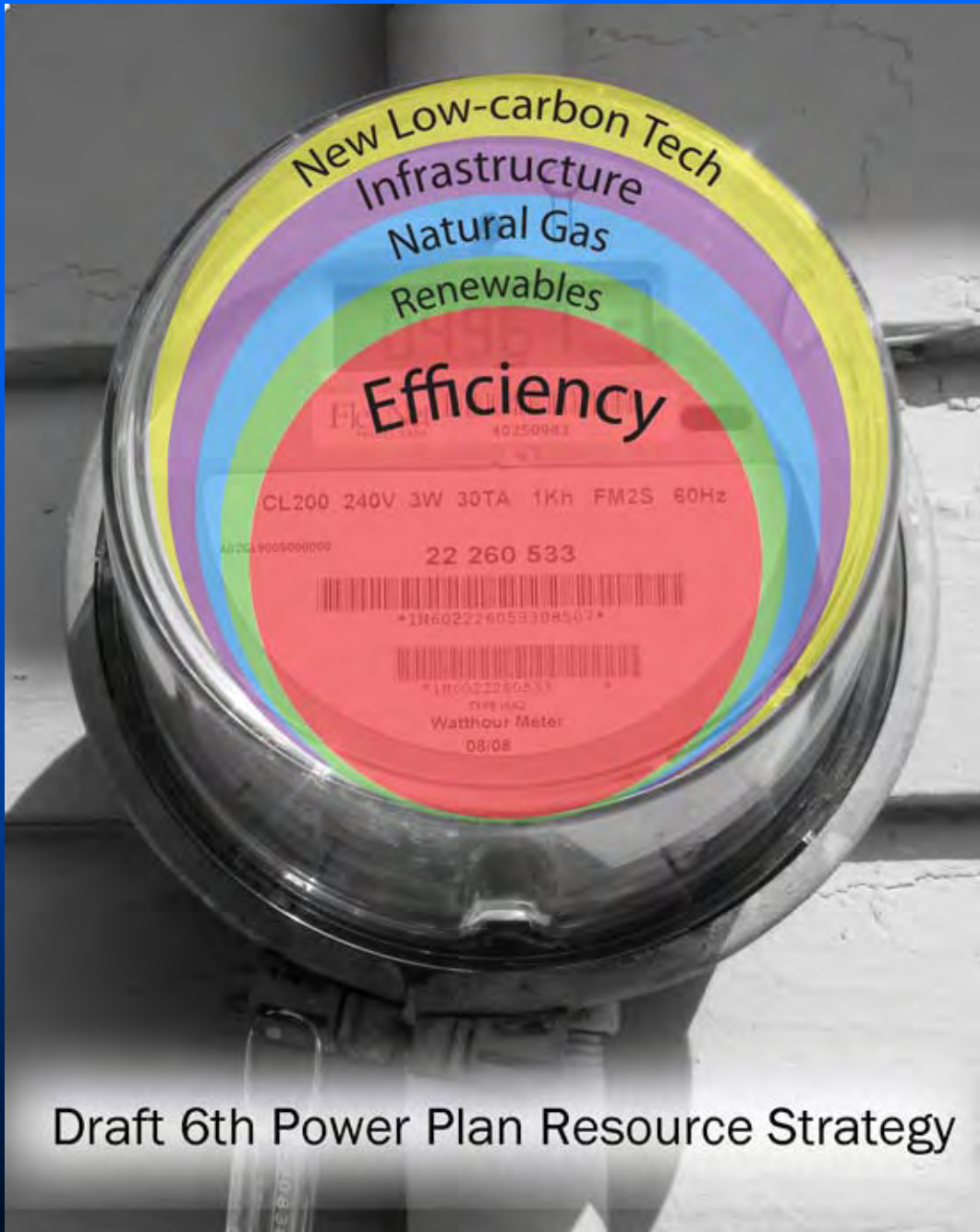


Utility Reaction to Council's First Plan Was "Mixed"



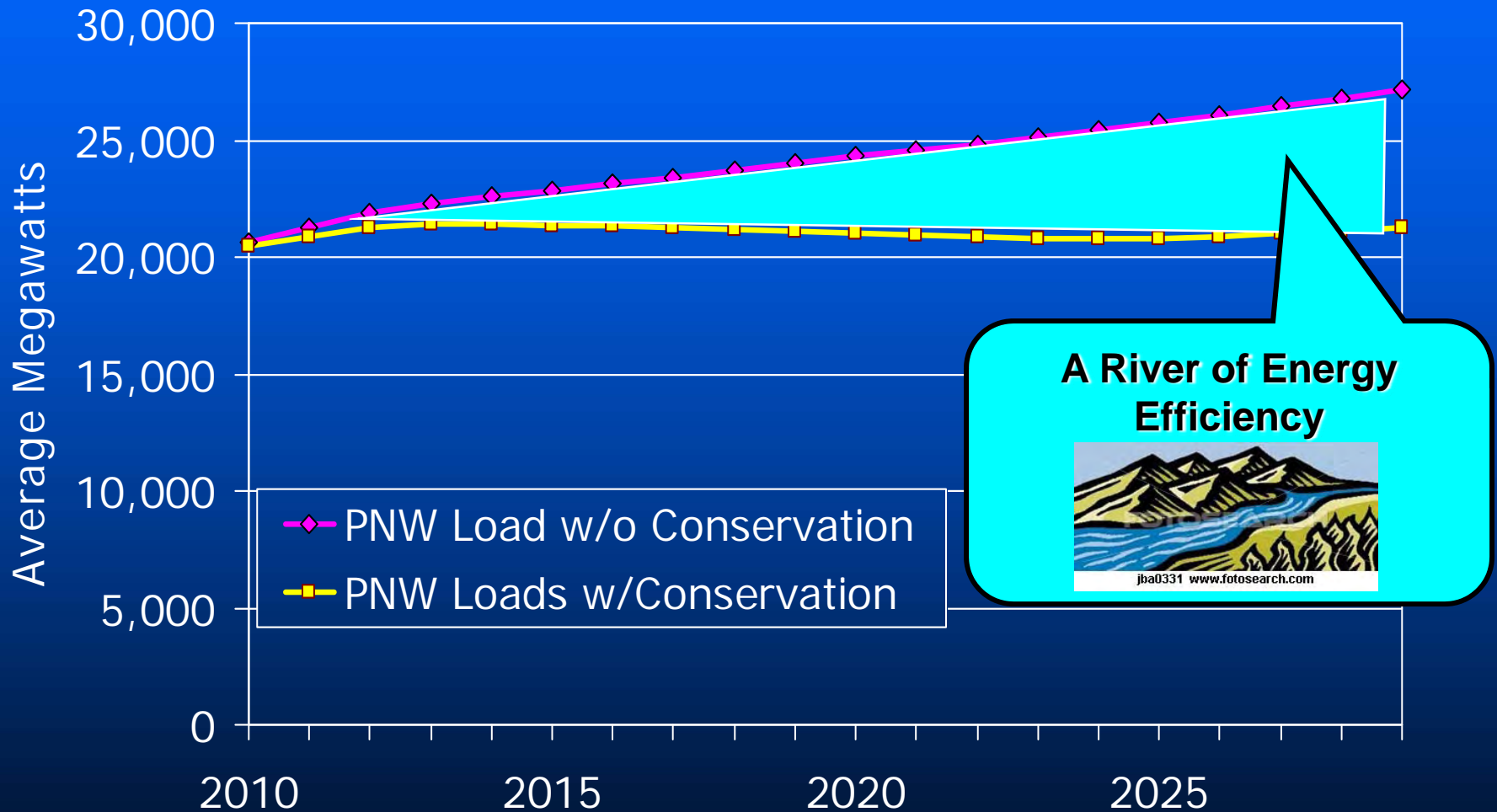
Fact: Coal Provides 19 Percent of Region's Energy





Draft 6th Power Plan Resource Strategy

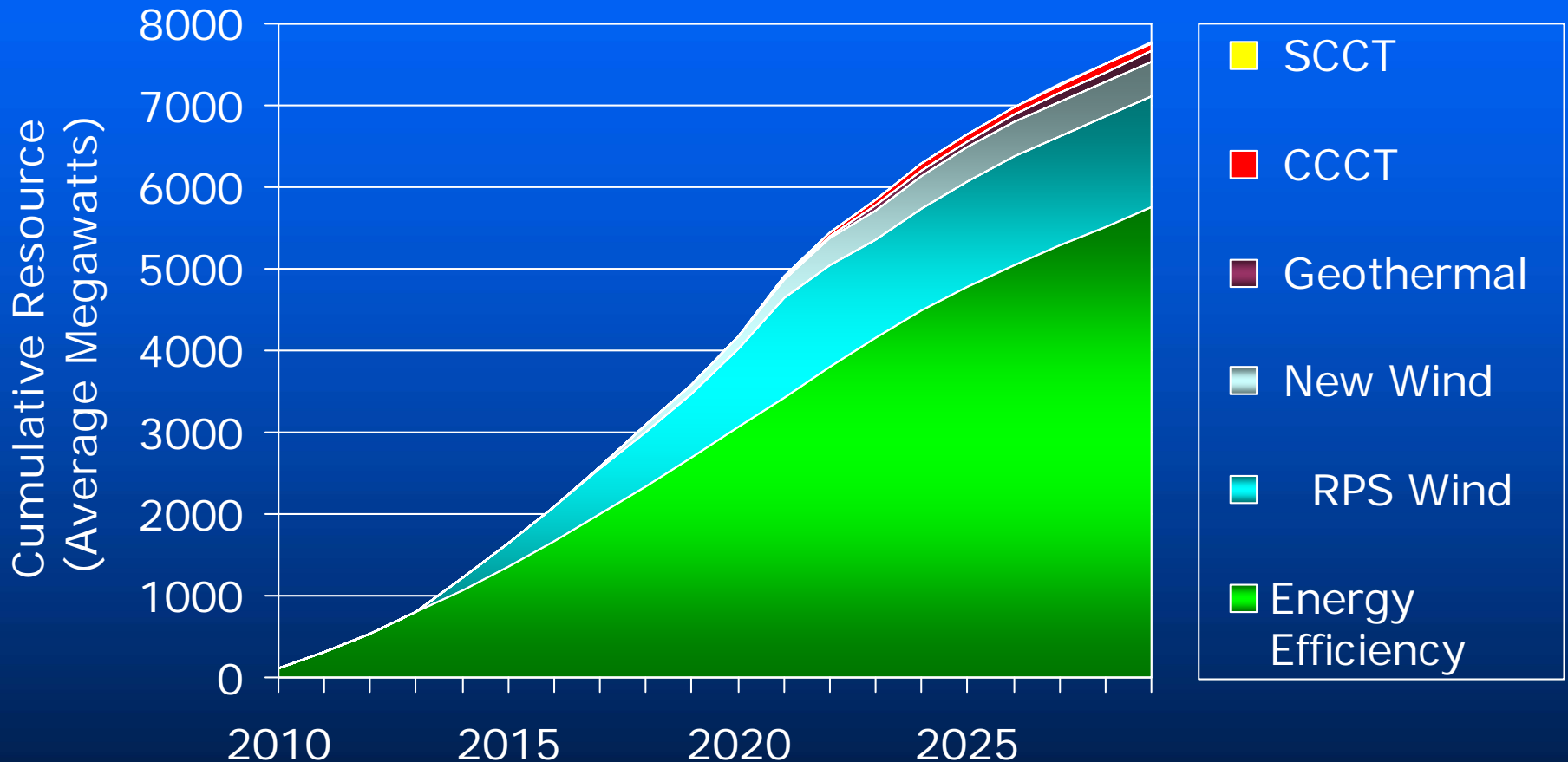
Goal: Meet Most of Region's Long-Term Load Growth with Conservation



Summary 5-Year Action Plan

- Develop 1,200 average megawatts of conservation by 2014
 - ~90% of the anticipated load growth.
 - ~500 aMW (40%) comes from Federal equipment standards.
 - HPWH and ductless heat pumps a significant technology for residential sector.
 - Evaluate midway through Action Plan
- Develop cost-effective new generation if needed for energy, firm capacity or flexibility
- Improve power system operation and capability to improve market access, provide ancillary services, and integrate wind generation
- Research and demonstrate promising new technologies for improved efficiency, demand response, and generation

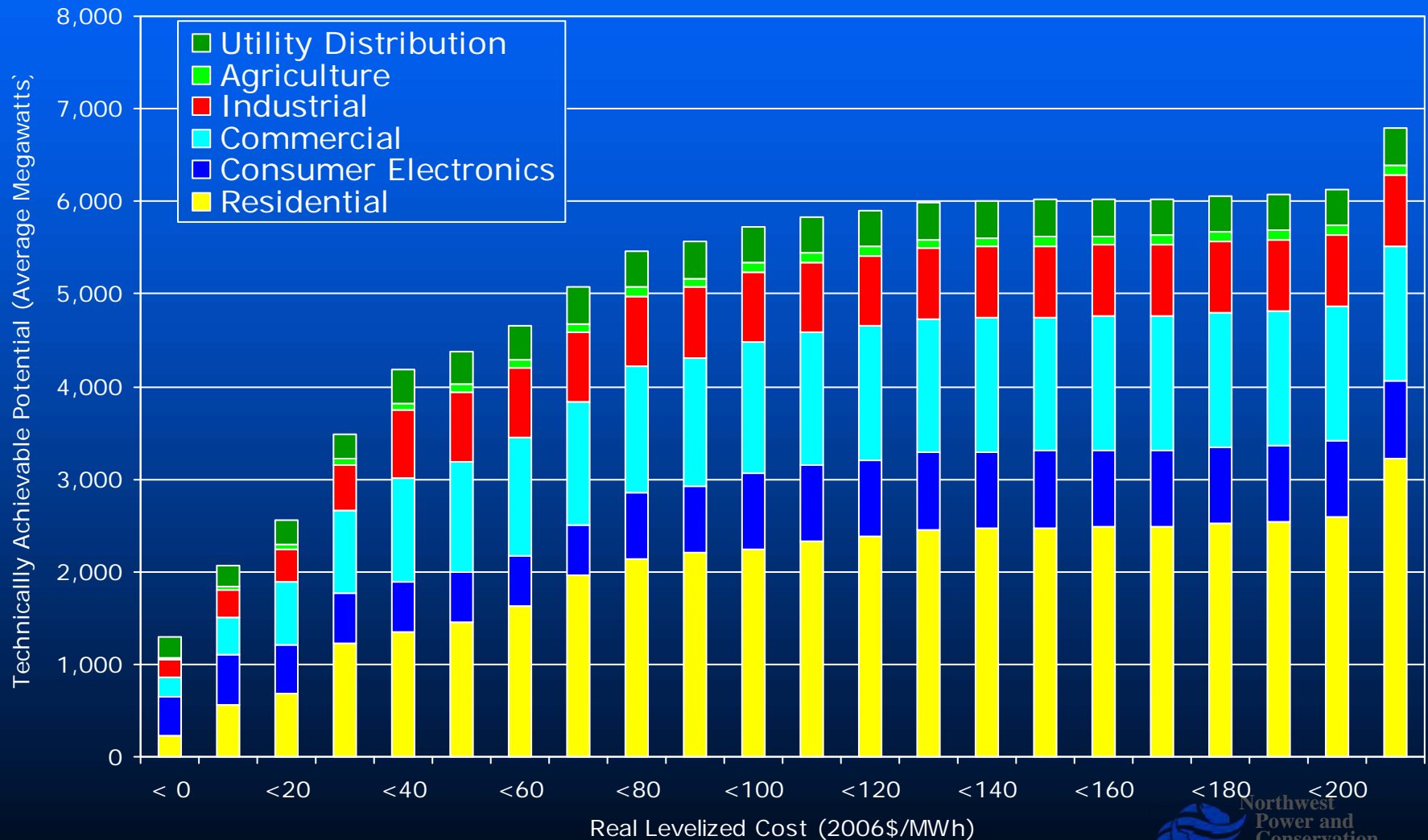
6th Plan Resource Portfolio*



*Expected value build out. Actual build out schedule depends on future conditions

There's Still "Mass Quantities"

6th Plan Technically Achievable Conservation Potential by Sector



Efficiency Plus What Else?

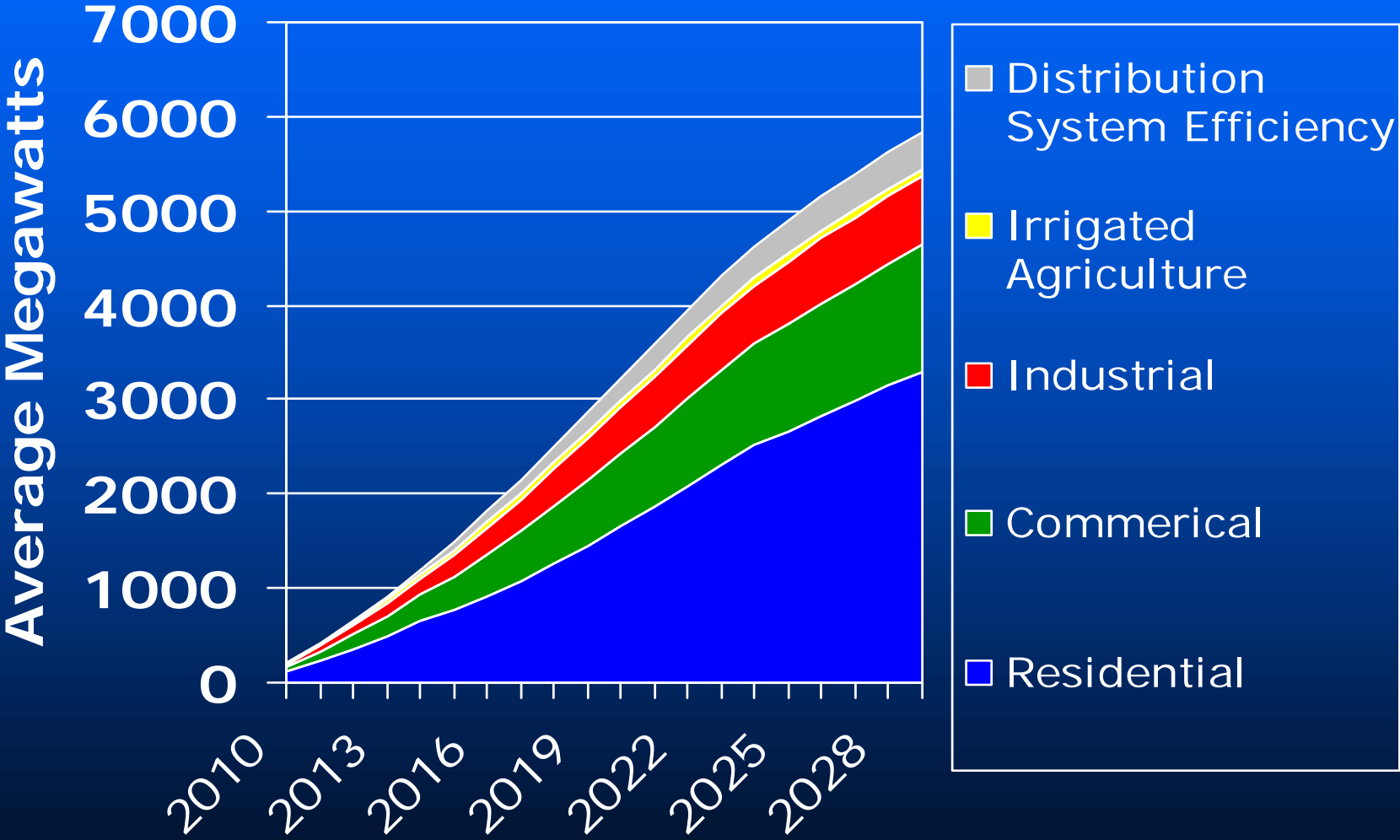
In the face of uncertainty about future carbon-control costs:

- **Wind** and cost-effective **smaller-scale renewables** including geothermal, biogas, woody residues, hydro and hydropower upgrades are prudent, with or without an RPS requirement
- New **gas-fired baseload or peaking plants** as needed by individual utilities to provide energy or reliability or flexibility (wind integration) reserves.
- Prepare to reduce reliance on **coal**.

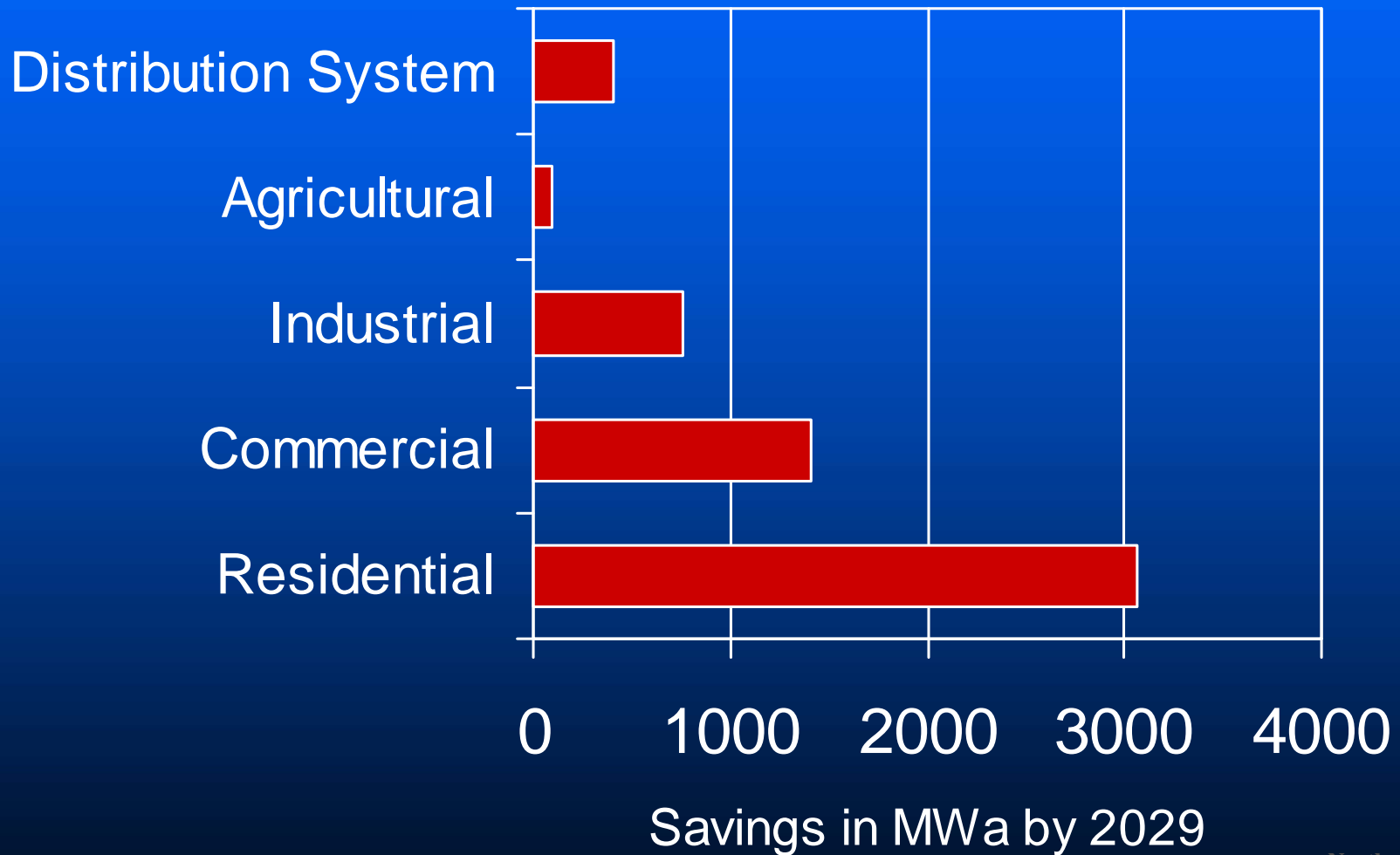
Why So Much Conservation?

- We found more.
 - New technology & applications + Federal standards are accelerating and expanding scope.
 - Over 300 measures evaluated.
- Half the costs of new generating resources.
 - \$30-\$40/ MWh vs. \$90-\$120/MWh+ for new generation
- Mitigates risks of volatile fuel prices & unknown carbon costs.
- Generates jobs.
- A key element in reducing carbon emissions.

Conservation Potential by Year



Conservation Detail (MWa by 2029)



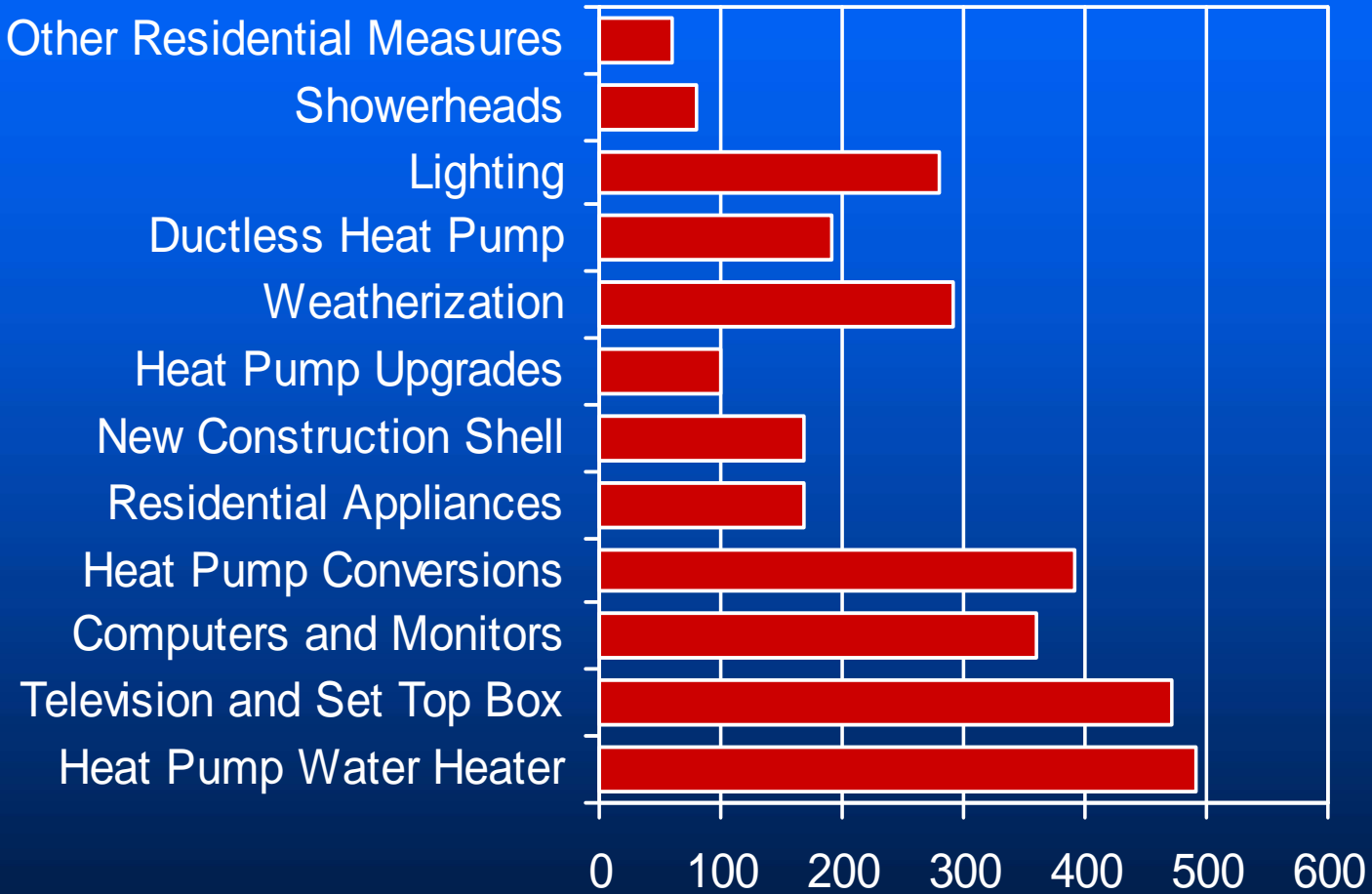
Select New Measures in 6th Plan Conservation Assessment



New Measure or Practice	MWa by 2029	\$/MWh*
Residential Heat Pump Water Heaters	500	\$26
TVs & Set-Top Boxes	470	\$(5)
Computers & Monitors	360	\$60
Distribution Efficiency & Voltage Optimization	400	\$9
Industrial System Optimization Measures	200	\$16
Residential Ductless Heat Pumps	200	\$70
LED Street, Area, Facade & Parking Lighting	140	\$40
Computer Server Rooms	130	\$(2)
Dairy	10	\$2

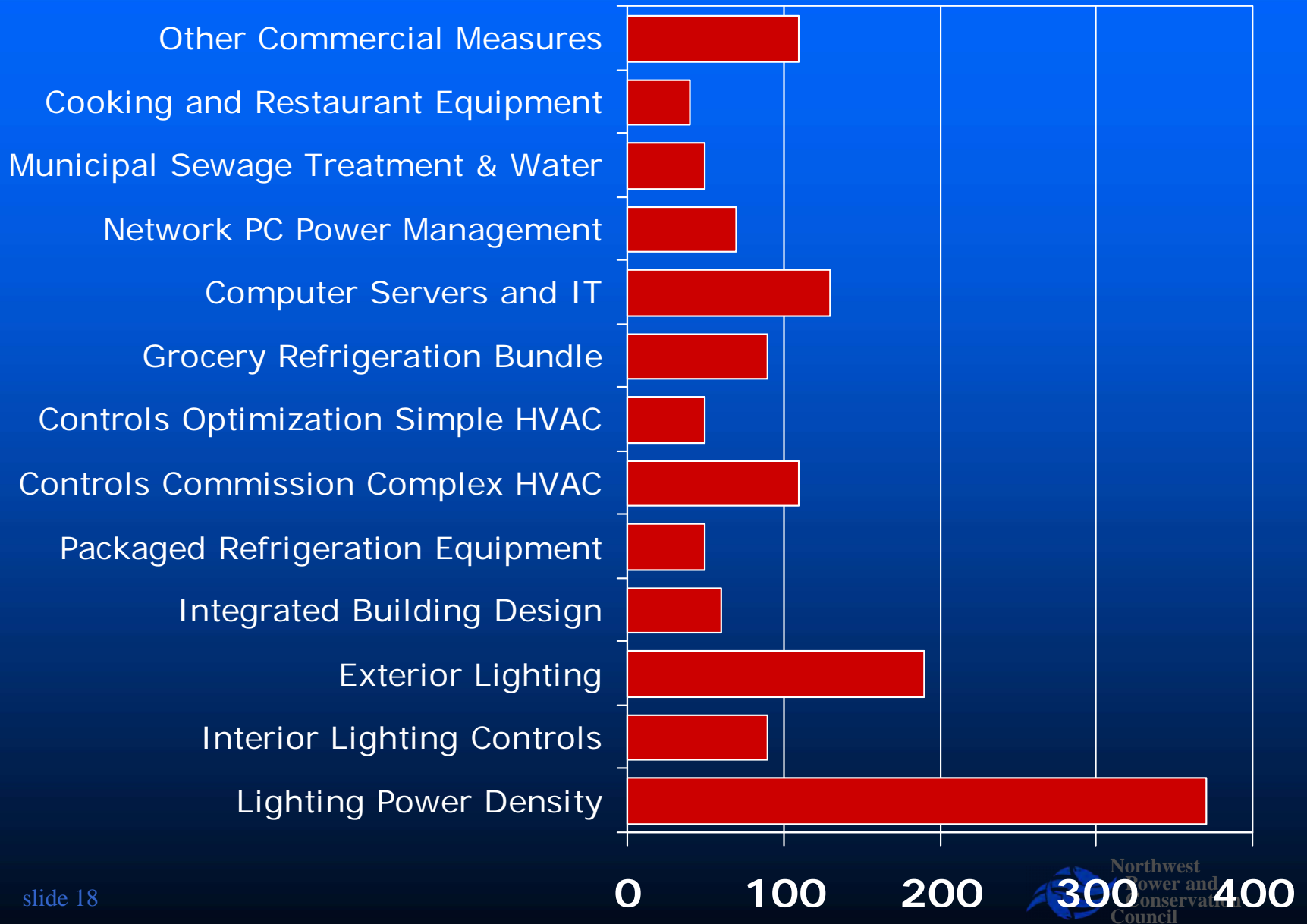
* Levelized Net Total Resource Cost in 2006\$ per MWh for Measures less than \$100/MWh

Residential Measure Detail

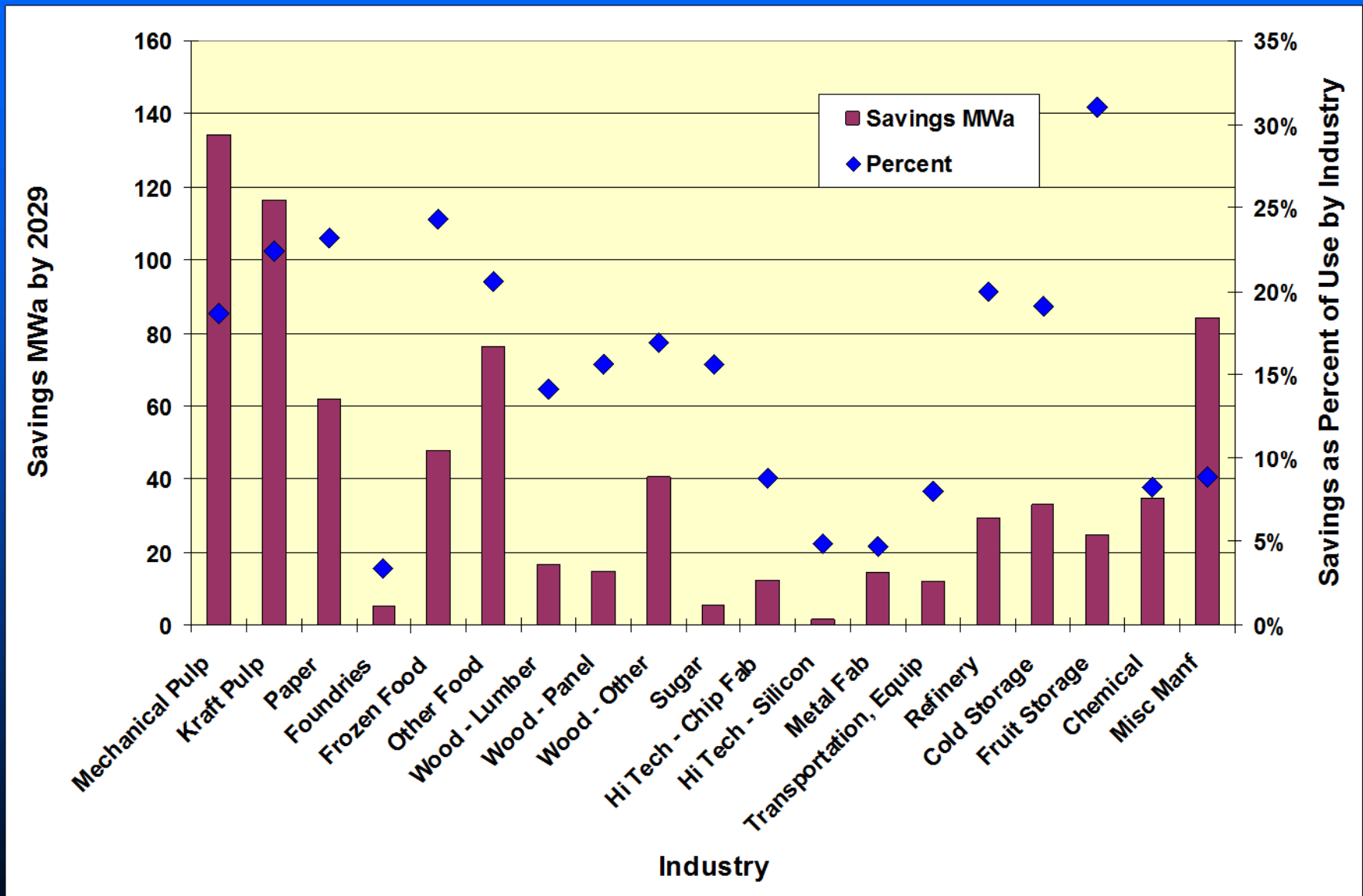


Savings in MWa by 2029

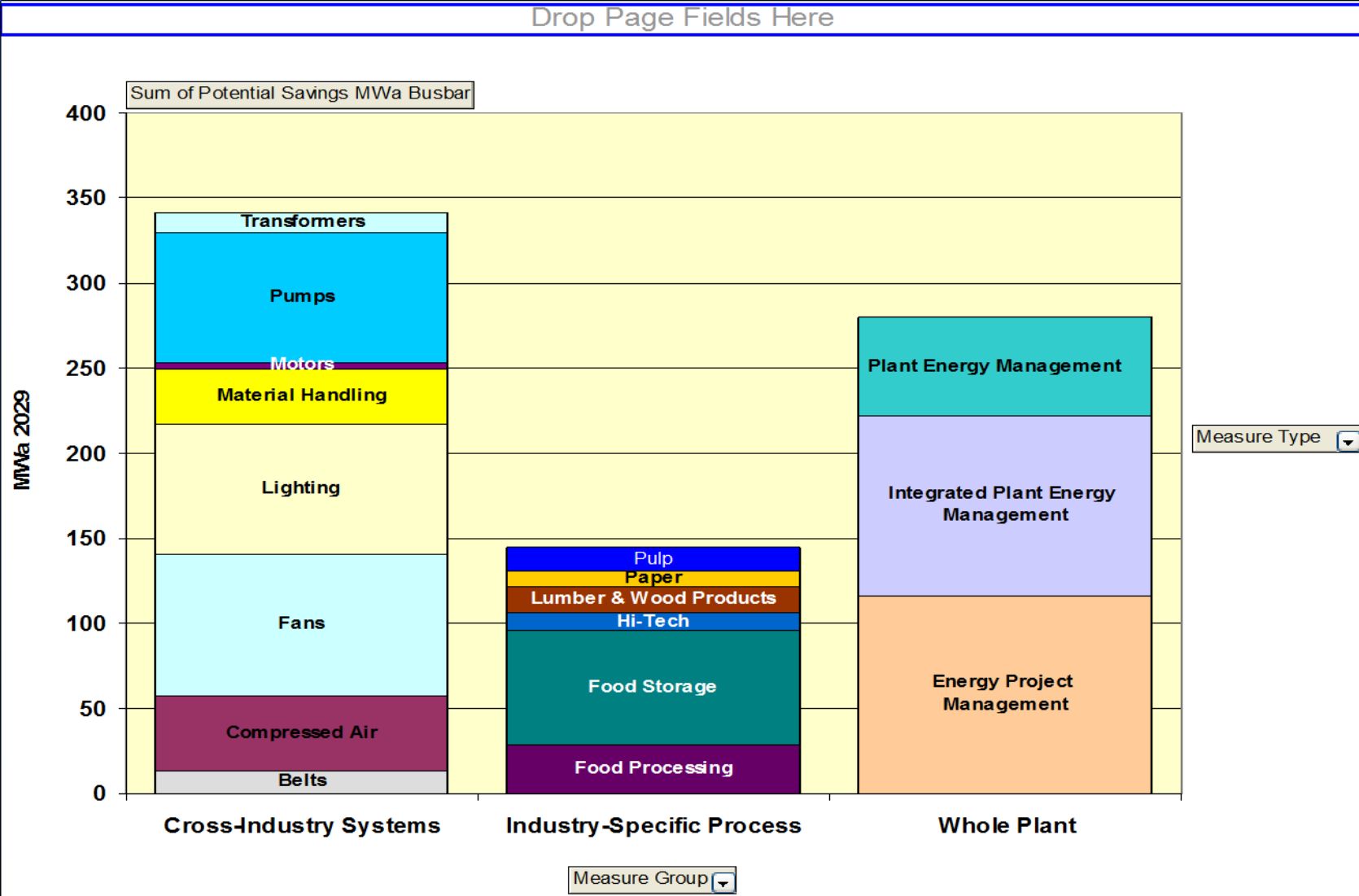
Commercial Measure Detail



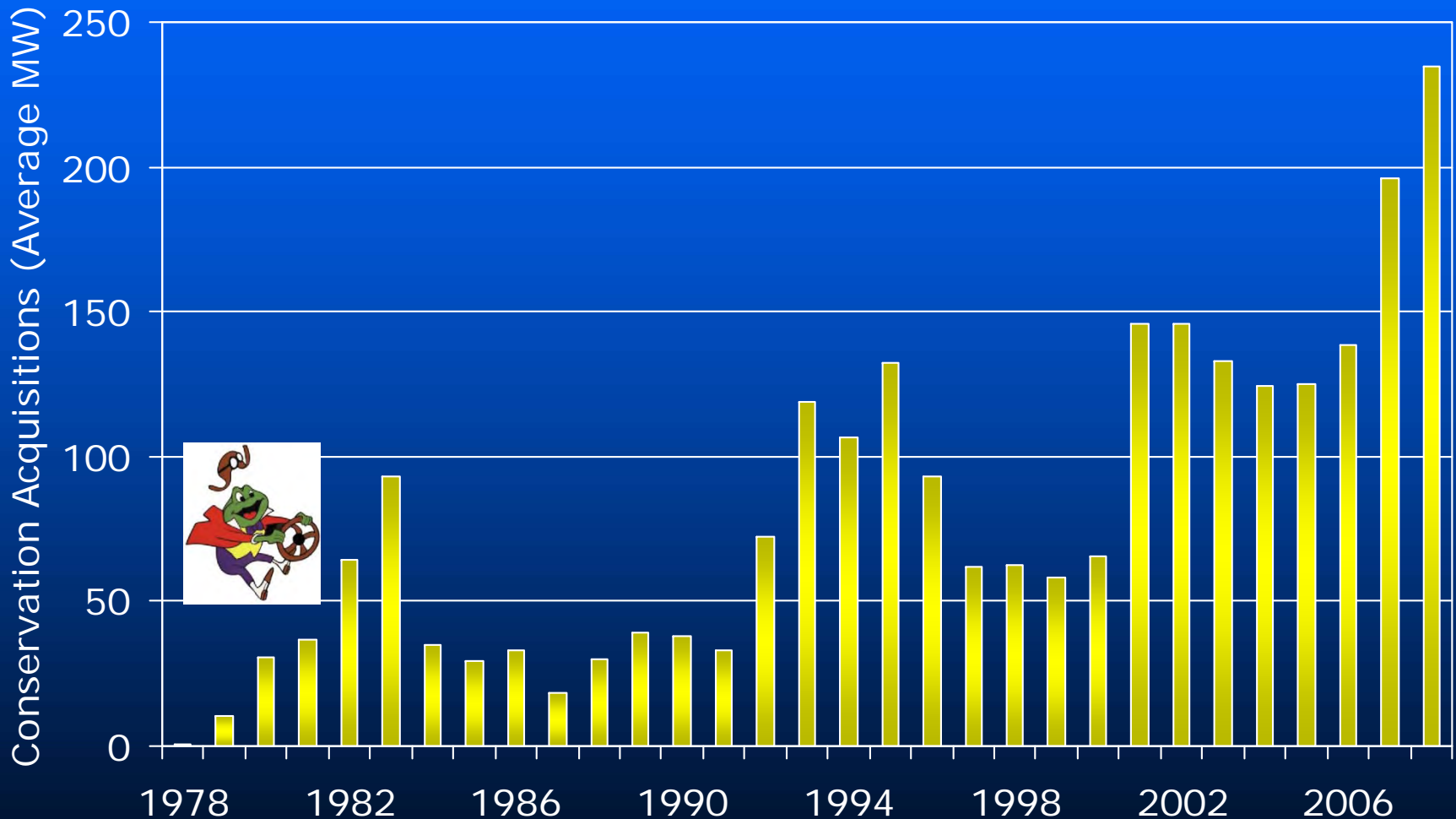
Industrial Conservation Potential



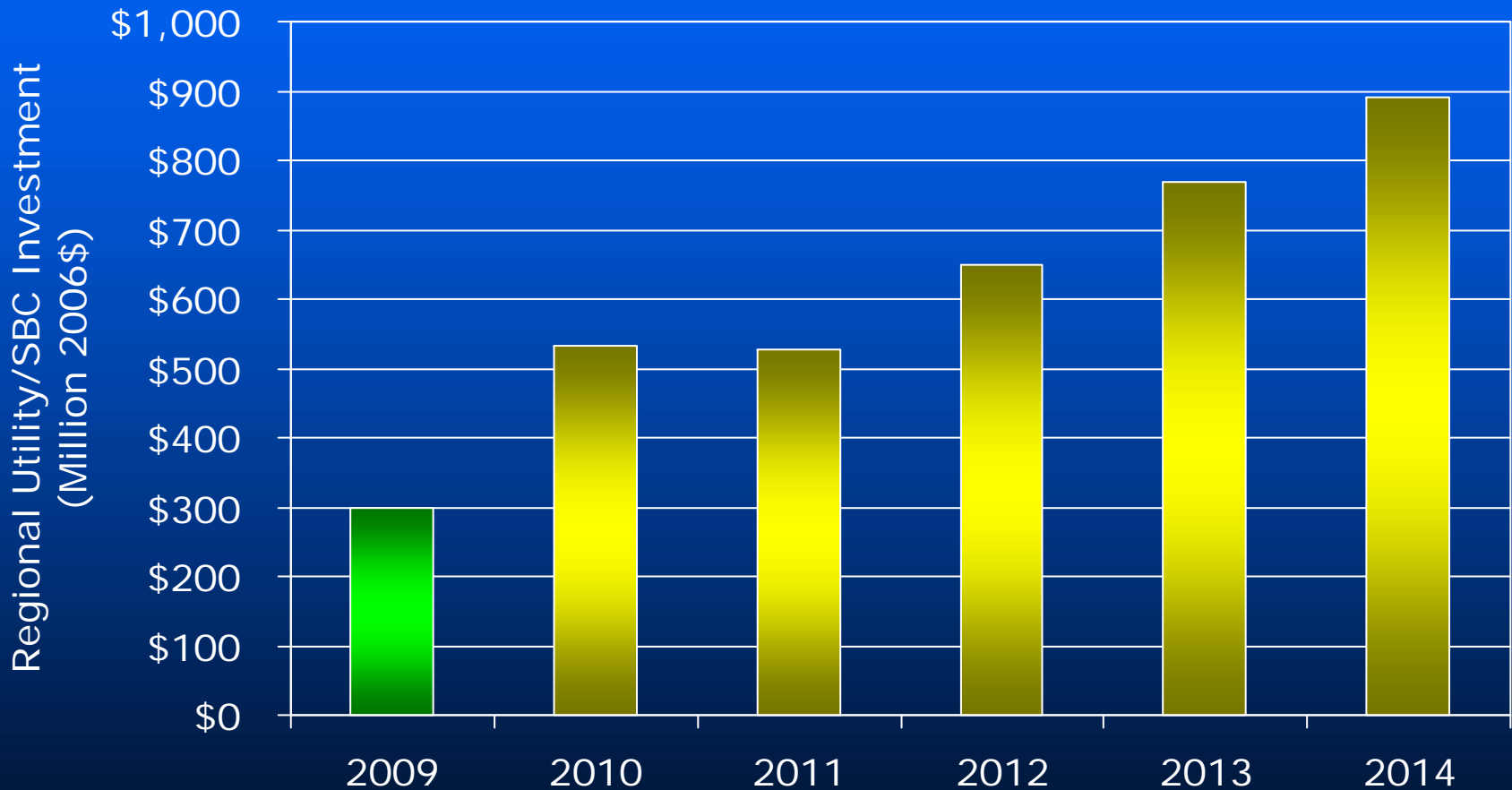
Industrial Savings Potential by Measure

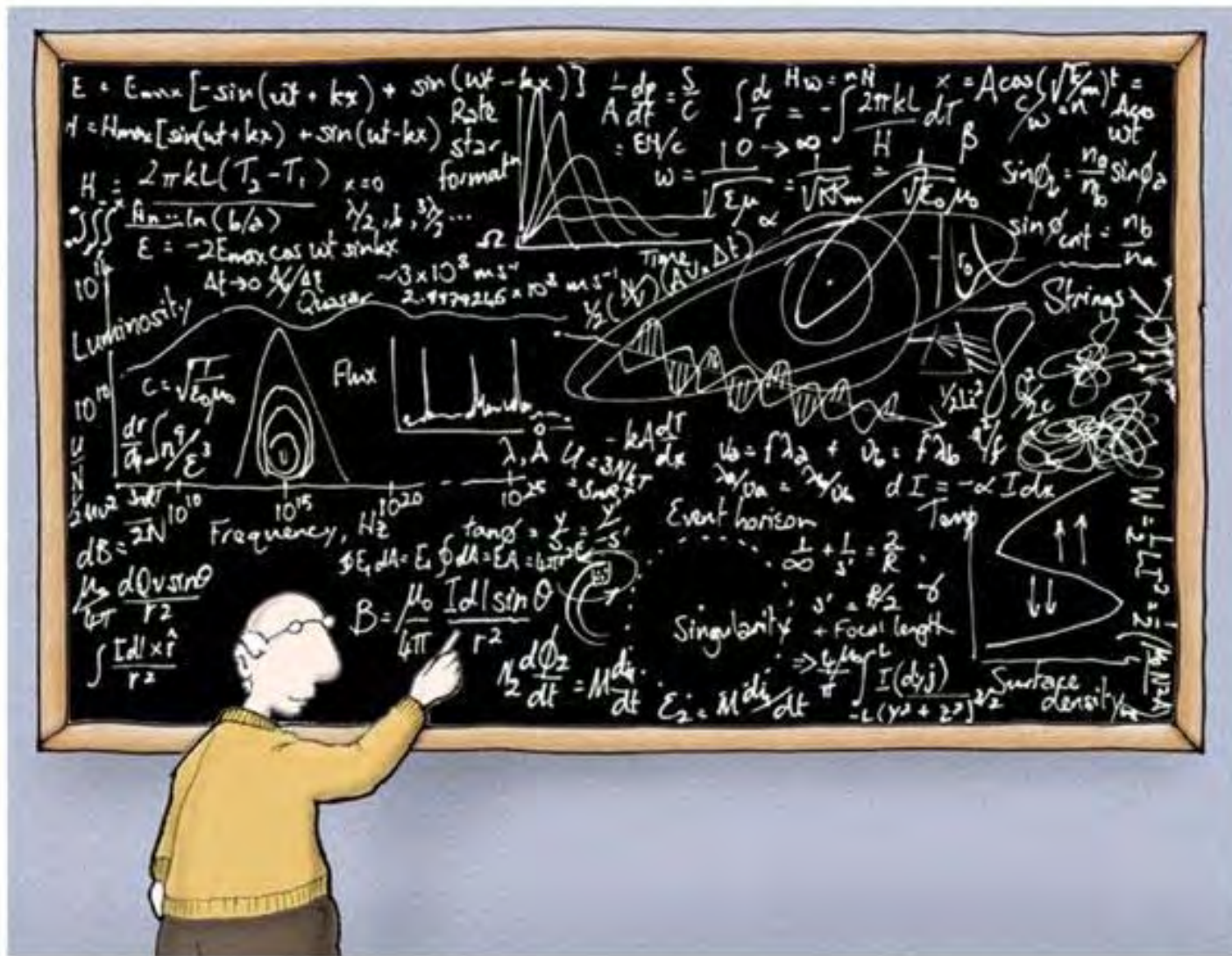


Mr. Toad* Is Riding The Longest Sustained Period of Utility Conservation Program Savings in Three Decades



But....Meeting 6th Plan Goal Will Require 2X – 3X Increase Investments in Energy Efficiency





It will be more difficult!