Accelerating Energy Efficiency To Reduce the PNW Power System's Carbon Footprint

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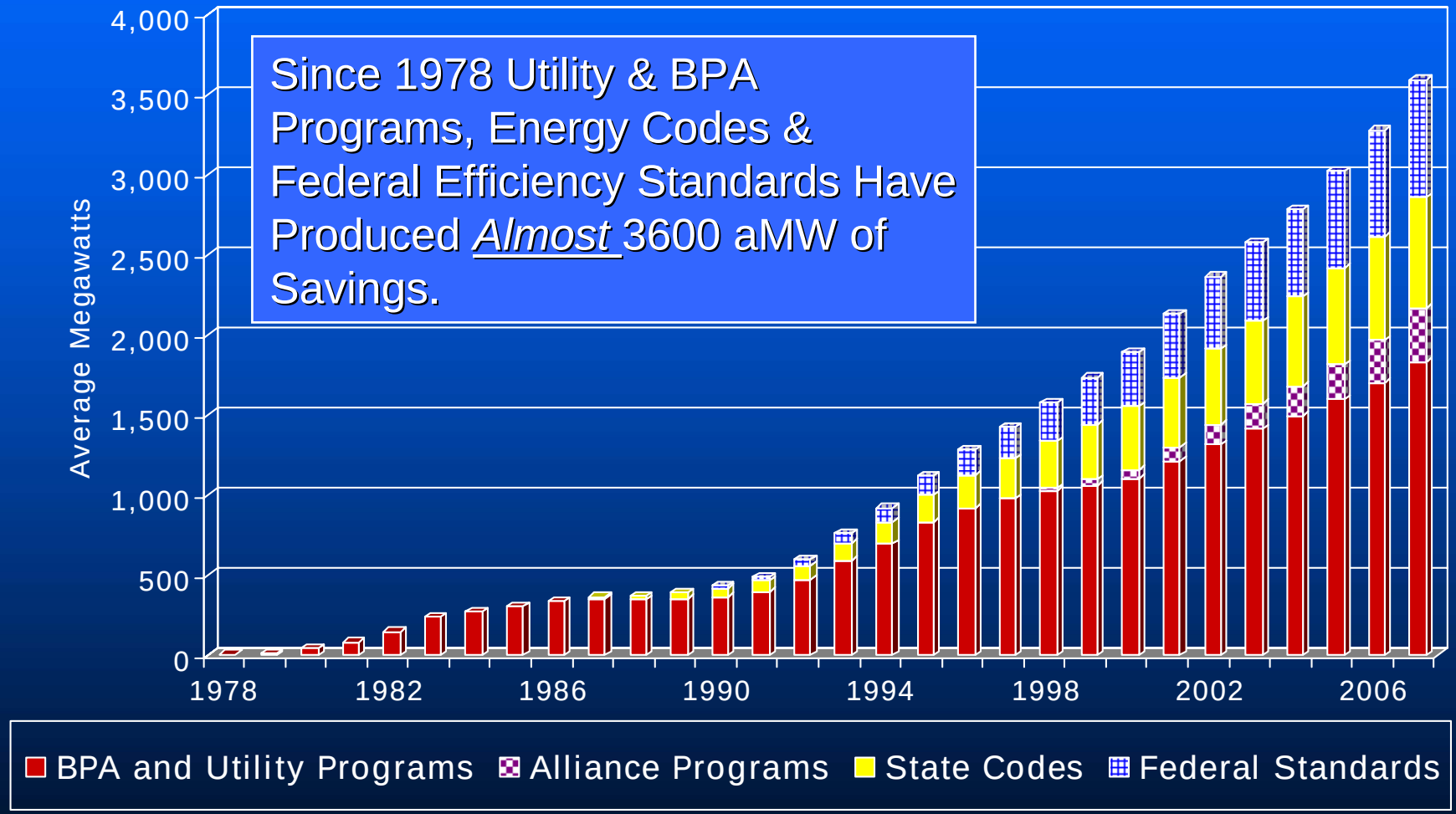
Tonight's Topics

- Energy Efficiency's Role Reducing the Size of the PNW Power System's Carbon Footprint
  - Historical Impacts
  - Projected Impacts of Future Energy Efficiency and Renewable Resource Development
- Can More Be Done?
  - Initial Estimates for the 6th Plan's Assessment of Remaining Energy Efficiency Potential

PNW Energy Efficiency Achievements 1978 – 2007



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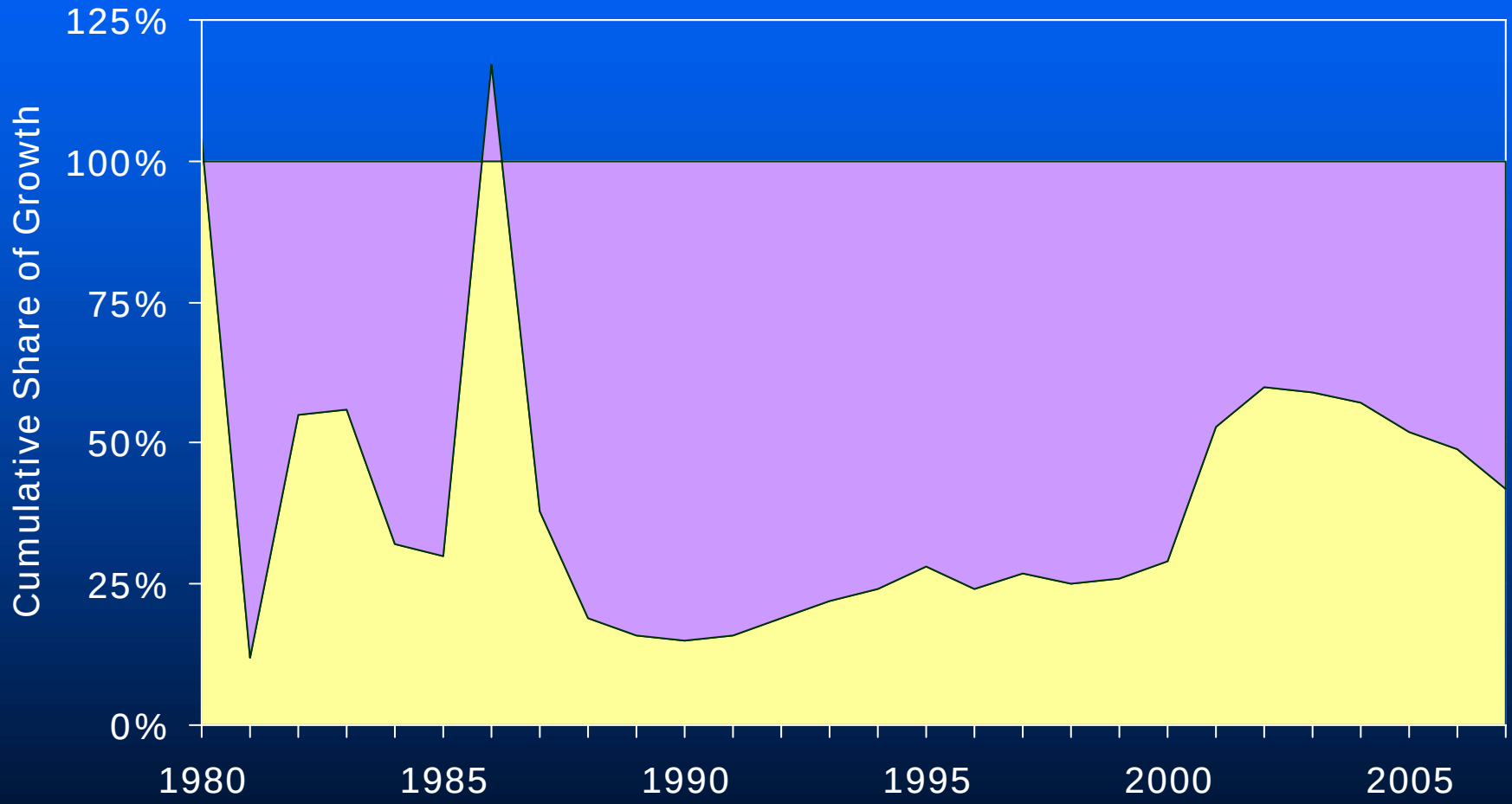
So What's 3600 aMW?

- It's enough electricity to serve more than the ***entire state of Idaho*** and ***all of Western Montana***
- It saved the region's consumers nearly than ***$1.6 billion*** in 2007
- It lowered 2007 PNW carbon emissions by an estimated ***14.1 million*** tons.

Since 1980 Energy Efficiency Resources Met About Half of PNW Load Growth



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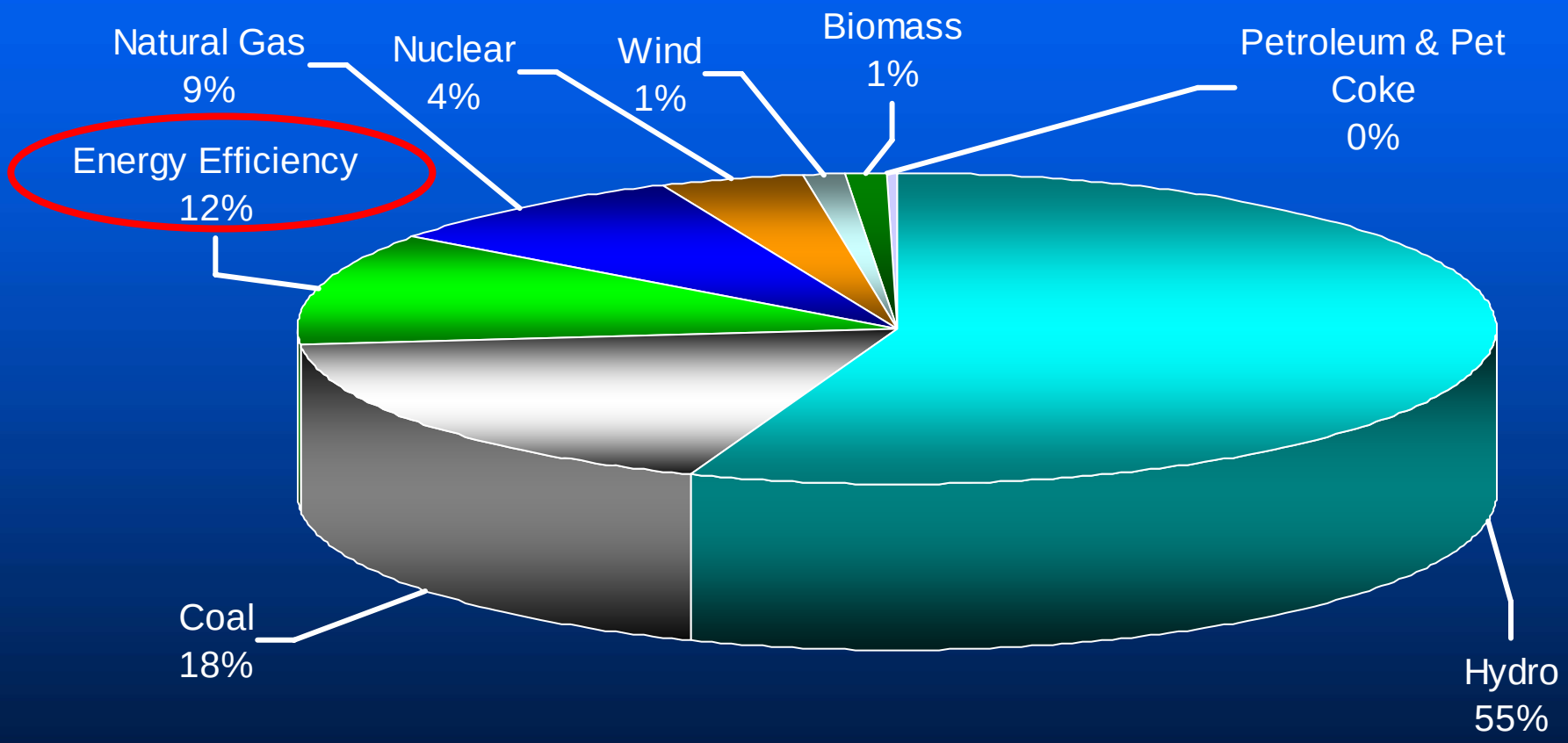
Energy Efficiency Is The Region's Third Largest Resource



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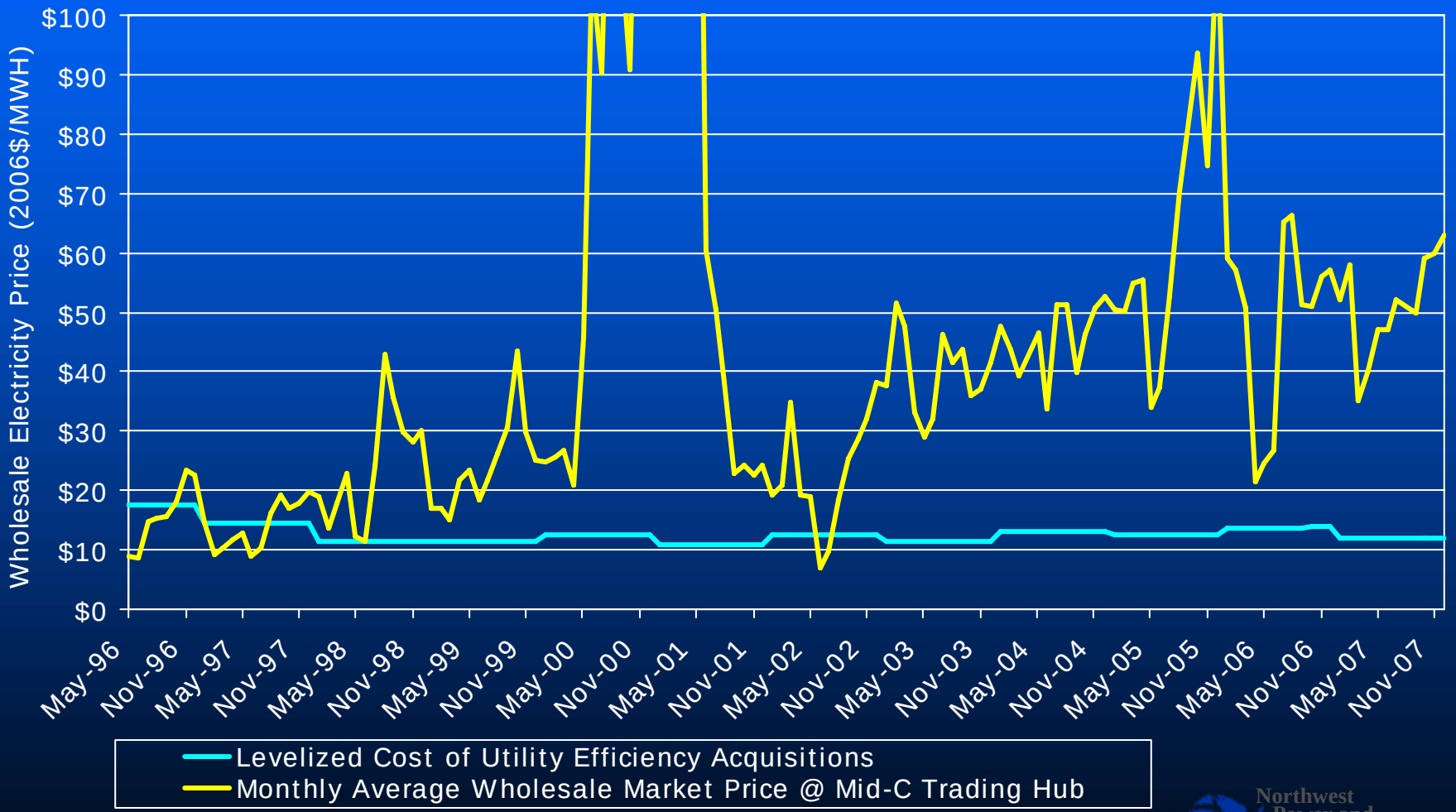
Utility Acquired Energy Efficiency Has Been A ***BARGAIN!***



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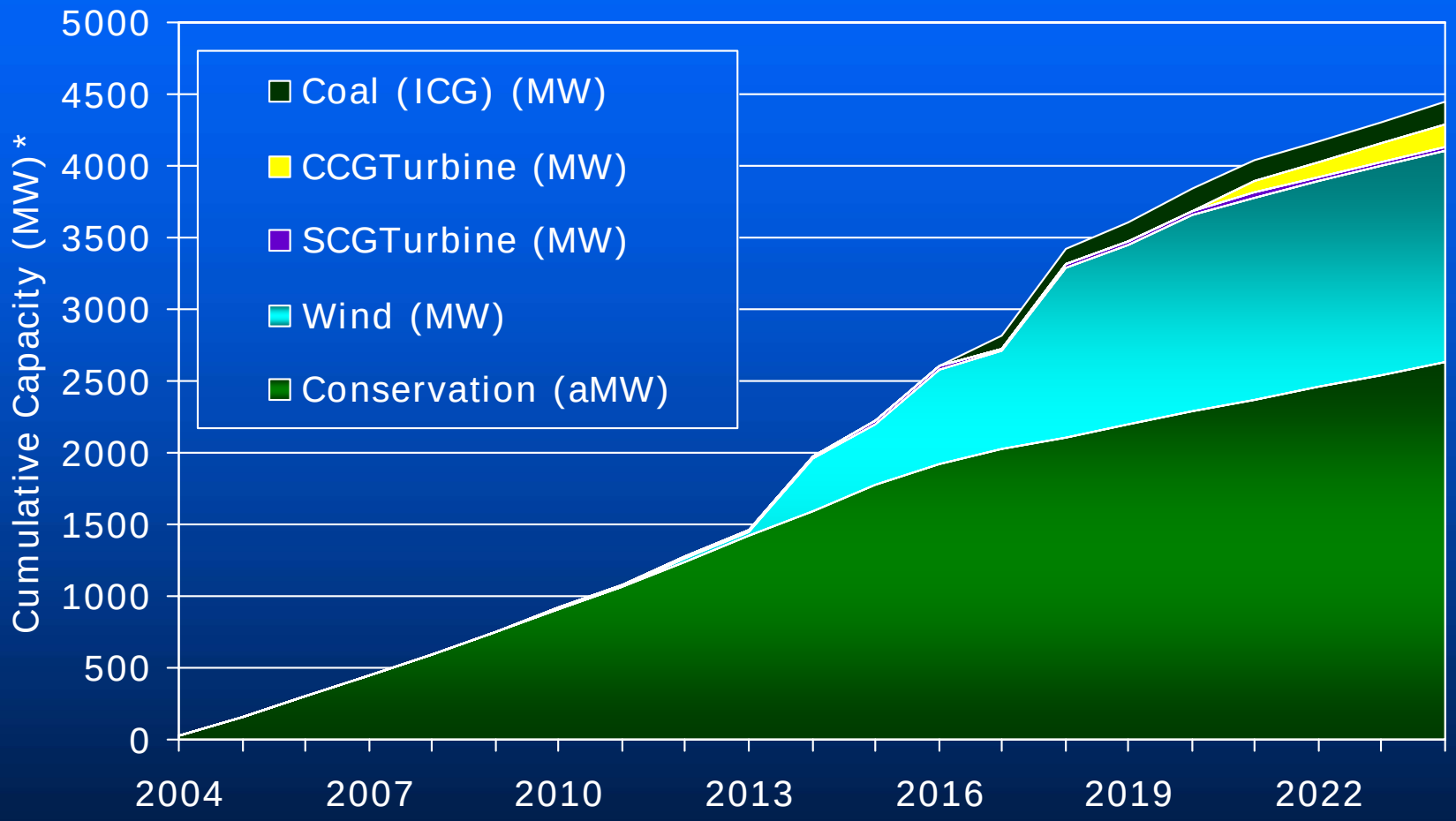
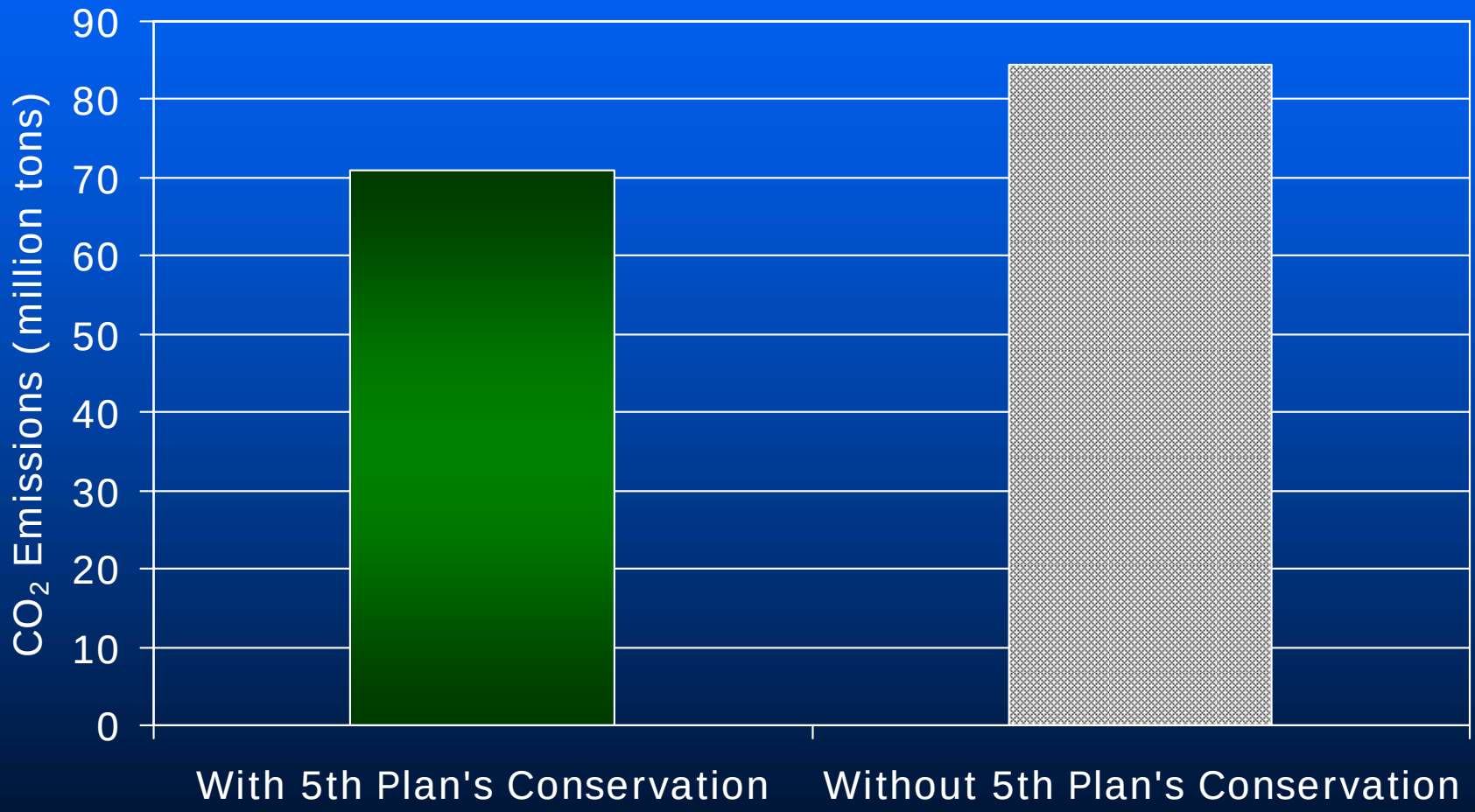
5th Plan Relied on Conservation and Renewable Resources to Meet Nearly All Load Growth



*Actual future conditions (gas prices, CO2 control, conservation accomplishments) will change resource development schedule and amounts.

Meeting 5th Plan's Conservation Targets Reduces Forecast PNW Power System CO_2 Emissions in 2024 by Nearly 20%



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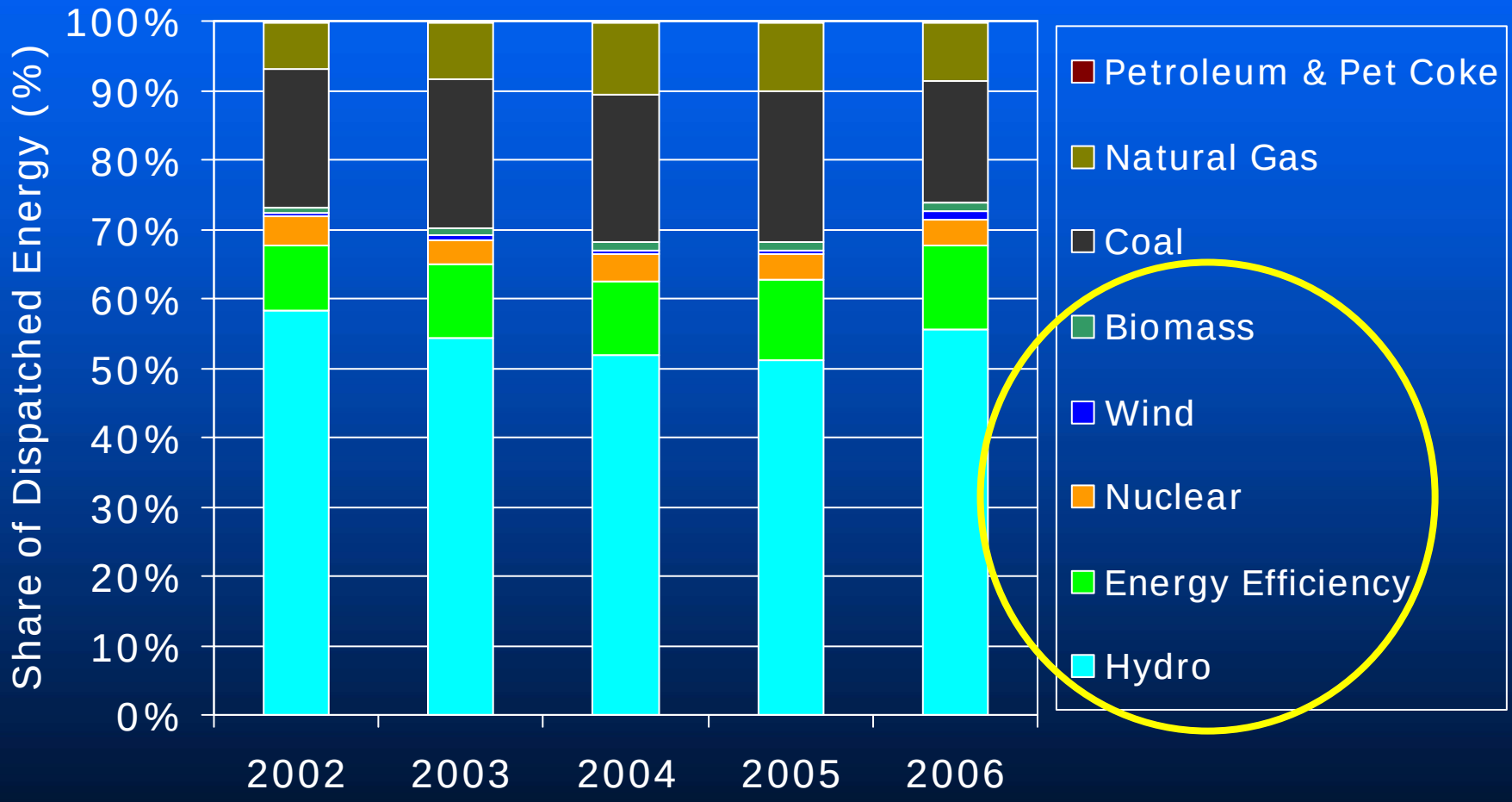
Why Worry?

Existing Power System Resources Are Dominated by Non-CO_2 Emitting Resources



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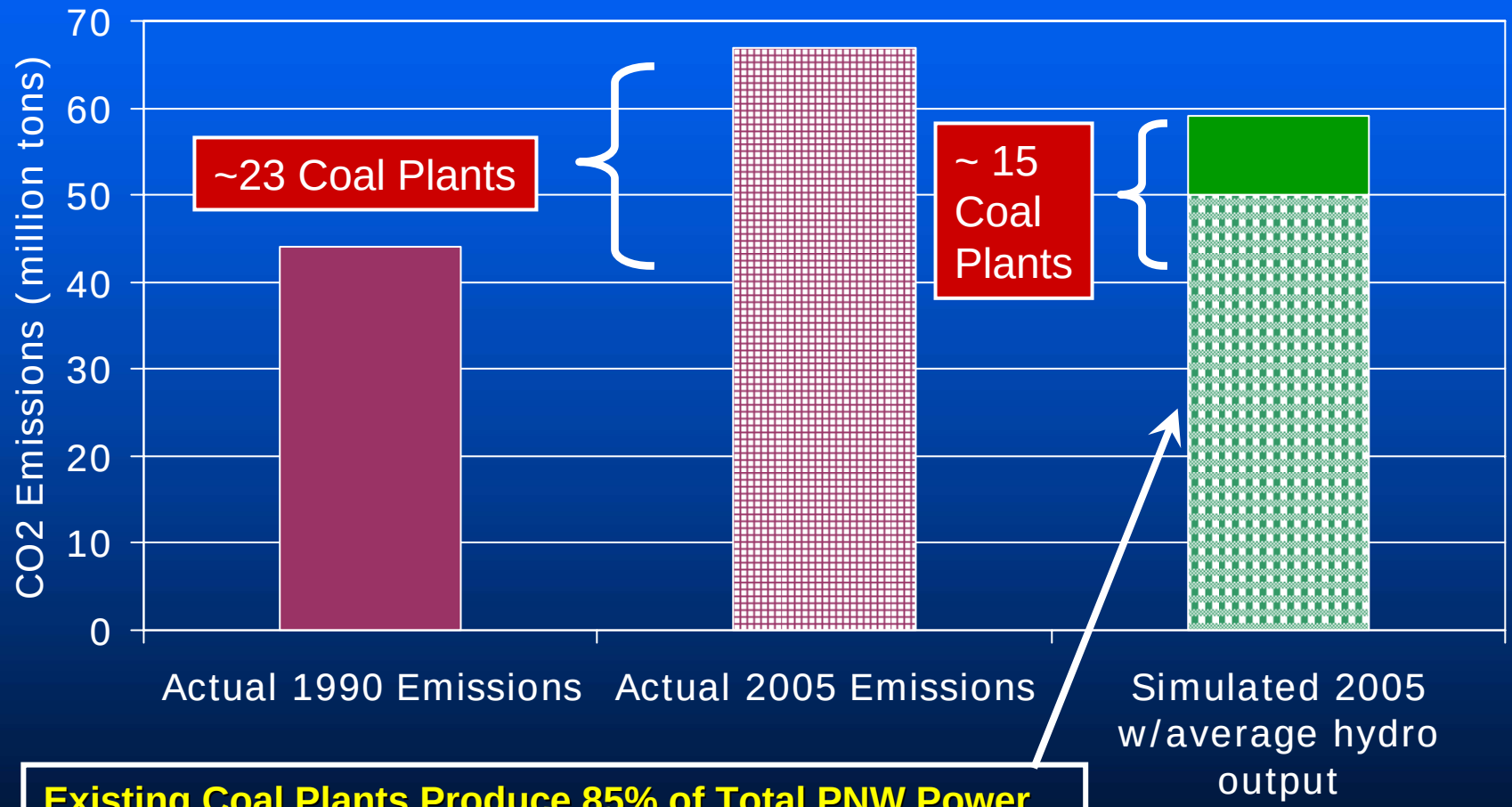
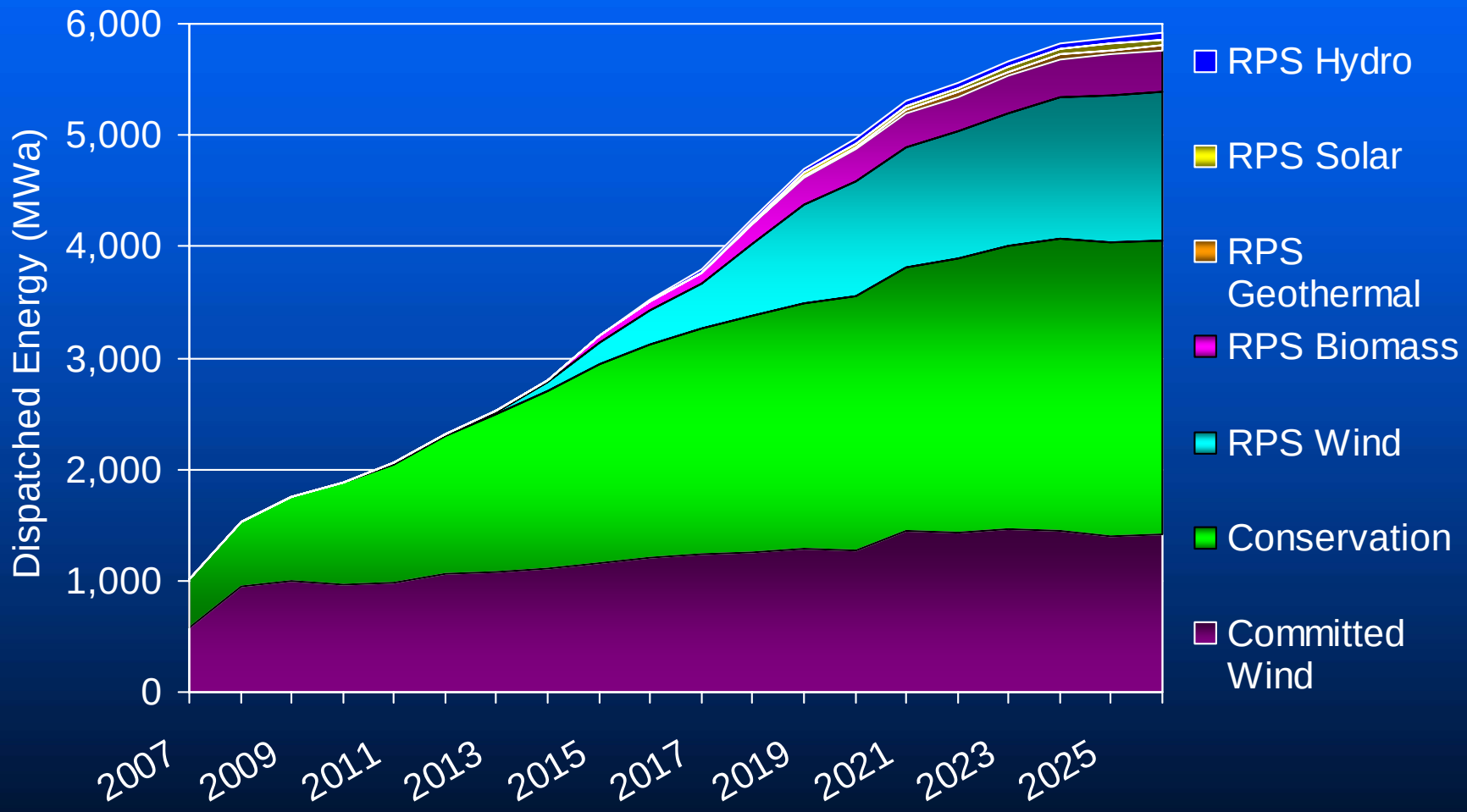
Total PNW Power System Carbon Emissions Have Grown Significantly Since 1990



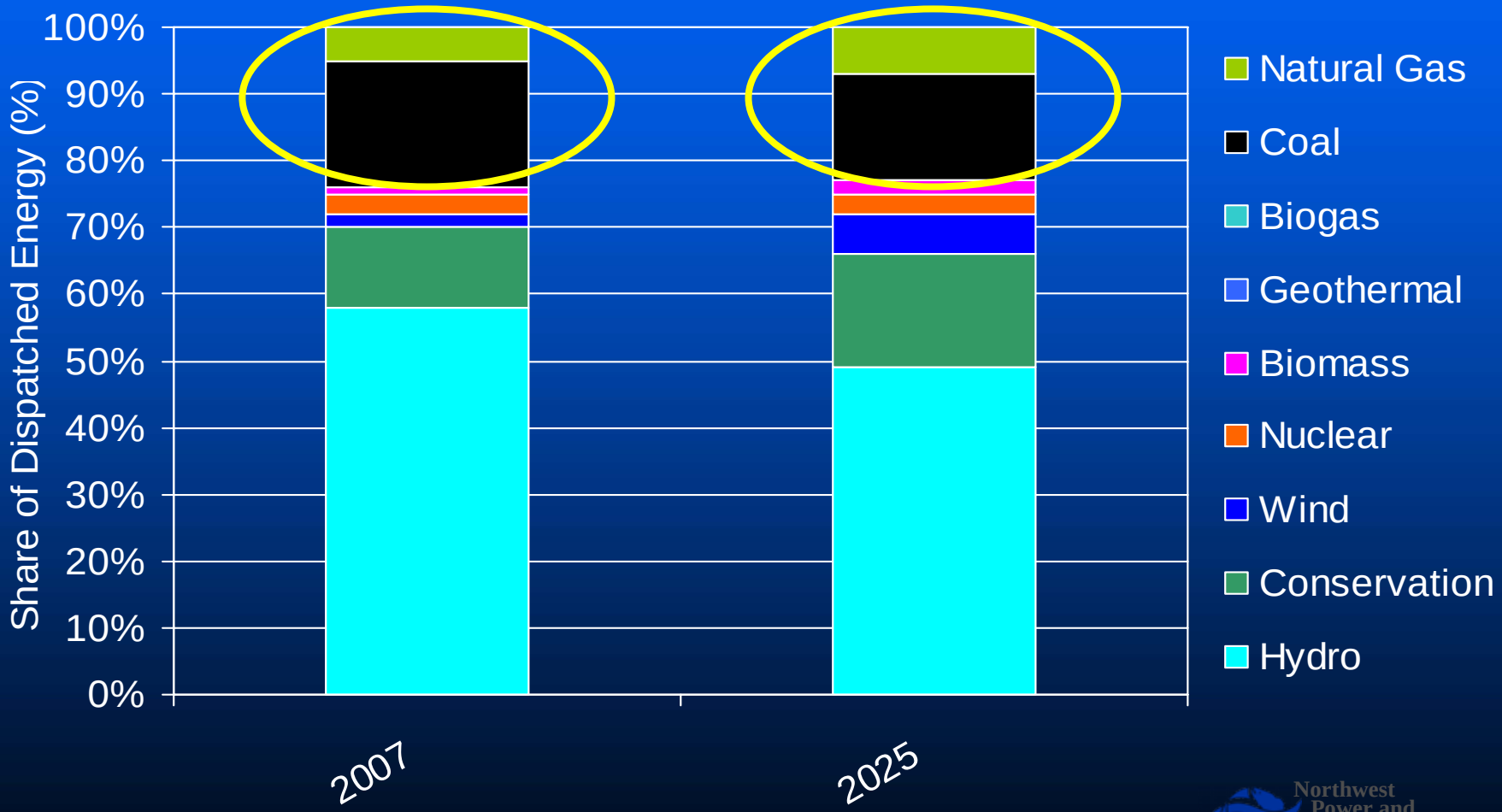
Existing Coal Plants Produce 85% of Total PNW Power System CO_2 and Provide 20% of the Region's Power

The PNW Now Plans To Meet Nearly All Future Load Growth With Conservation and Renewable Resources

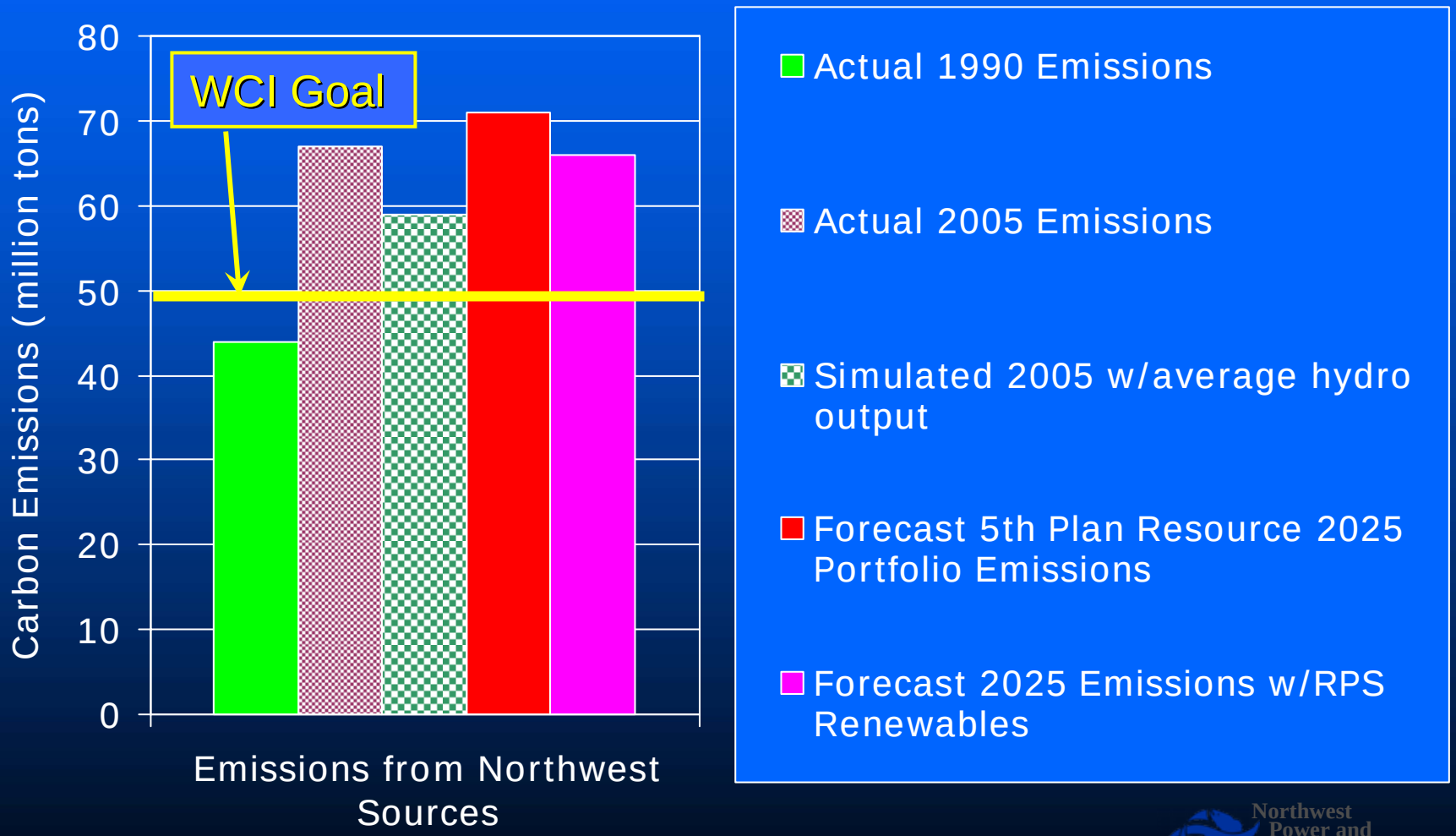


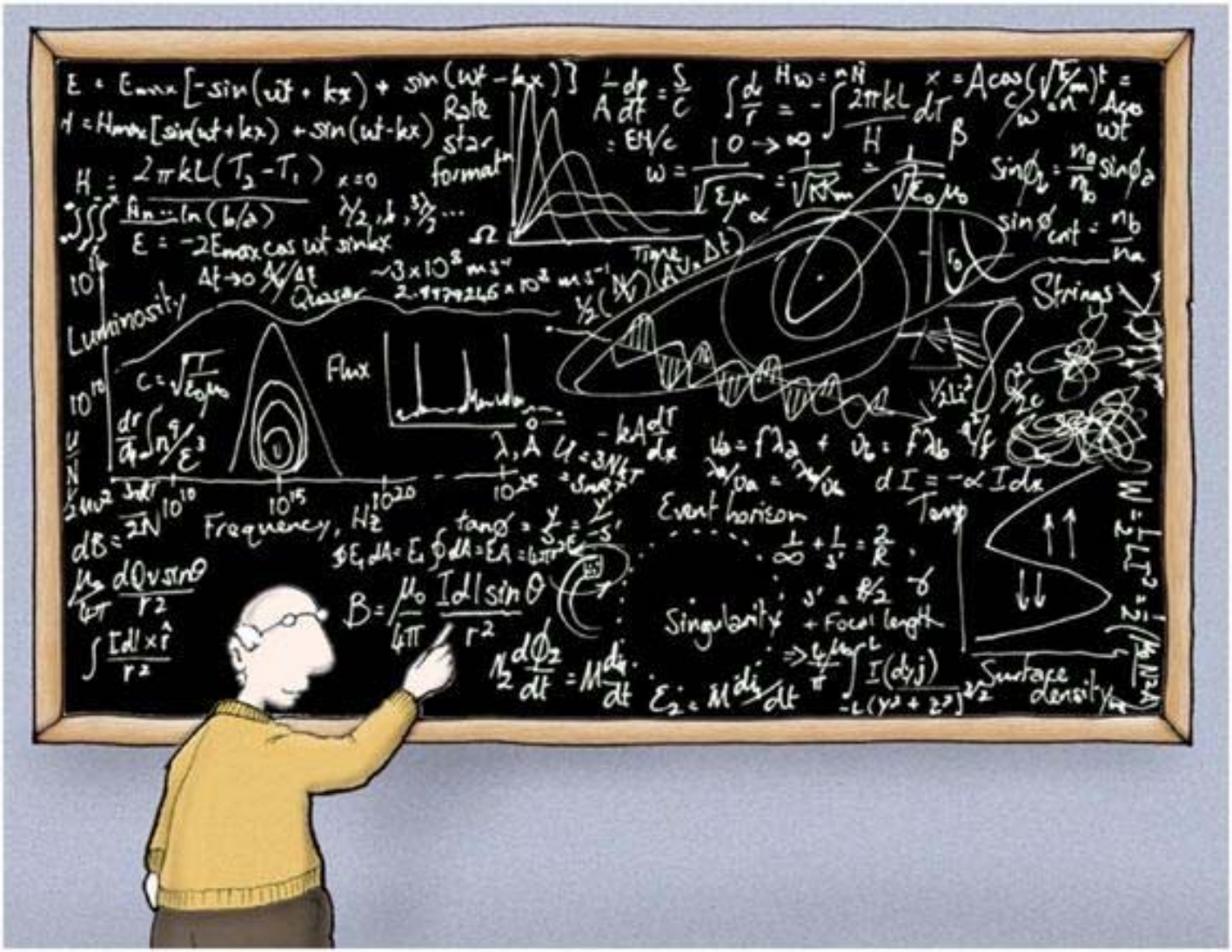
How Will This Impact the Power System's Carbon Footprint?

Even If We Meet All Load Growth With Energy Efficiency and Renewable Resources CO_2 Emissions from Existing Fossil Fueled Plants Remain Unchanged



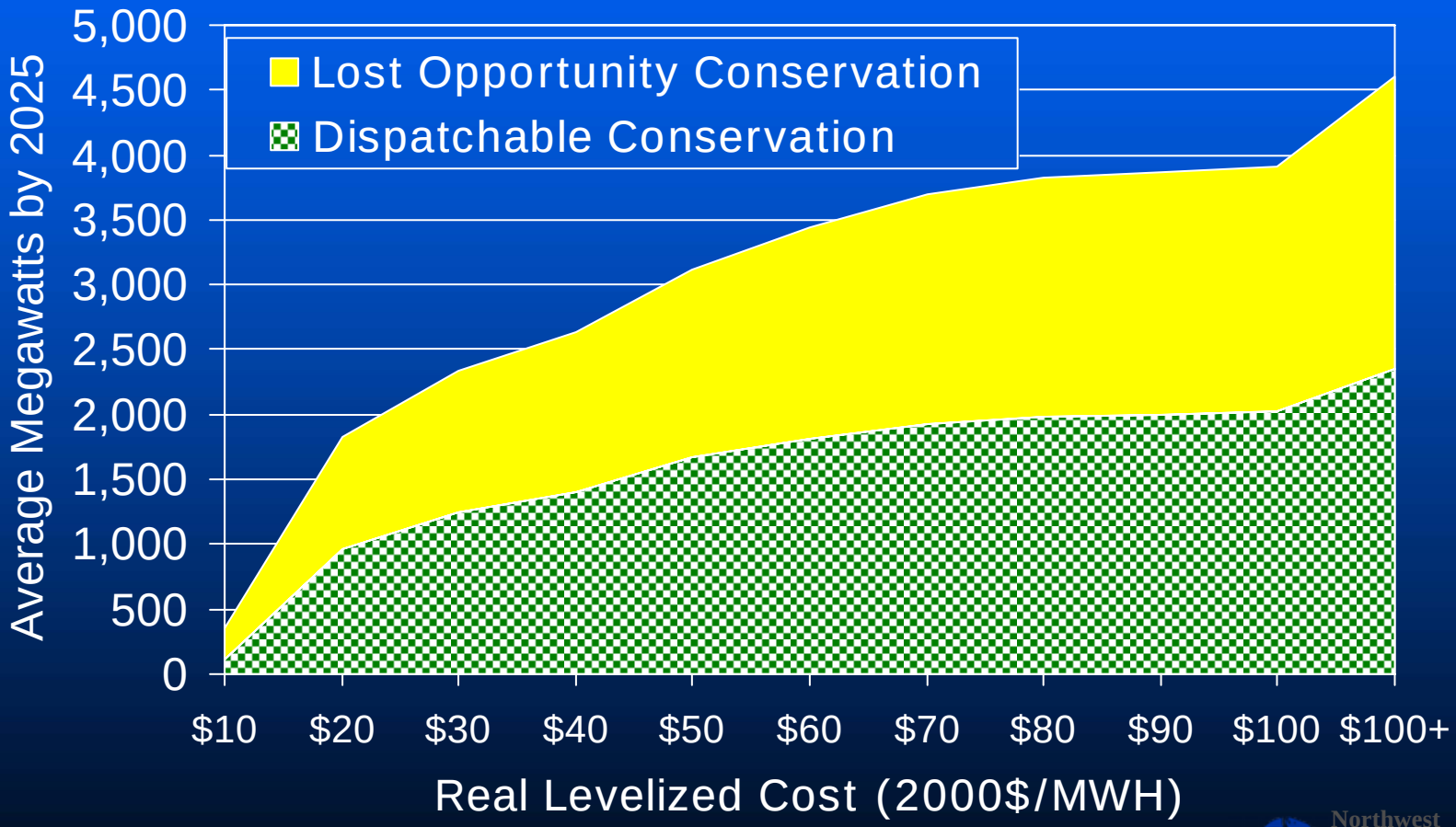
Meeting the 5th Plan's Conservation Goals AND State Renewable Portfolio Standards Will Not Meet WCI CO_2 Emissions Targets





OK, So What's The Answer?

5th Plan Identified Nearly 4,600 MWa of "Technically Available" Conservation Potential



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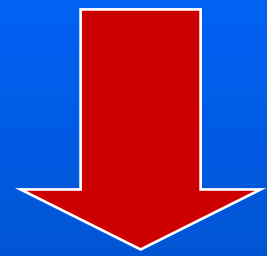
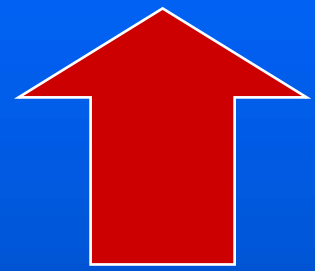
Adjustments to 5th Plan's Conservation Resource Potential

- Reductions in Available Potential
  - Program Accomplishments
  - Changes in Law
    - » Federal Standards for general service lighting
    - » State Building Codes
  - Changes in Markets
    - » Improved "Current Practice" due to Energy Star, LEED, Programs, Market Transformation
    - » Other Changes to Federal Standards (10 adopted, 21 under revision, and 12 with effective dates by 2014)
  - Changes in Forecast
    - » Less new commercial floor area
    - » Lower industrial forecast

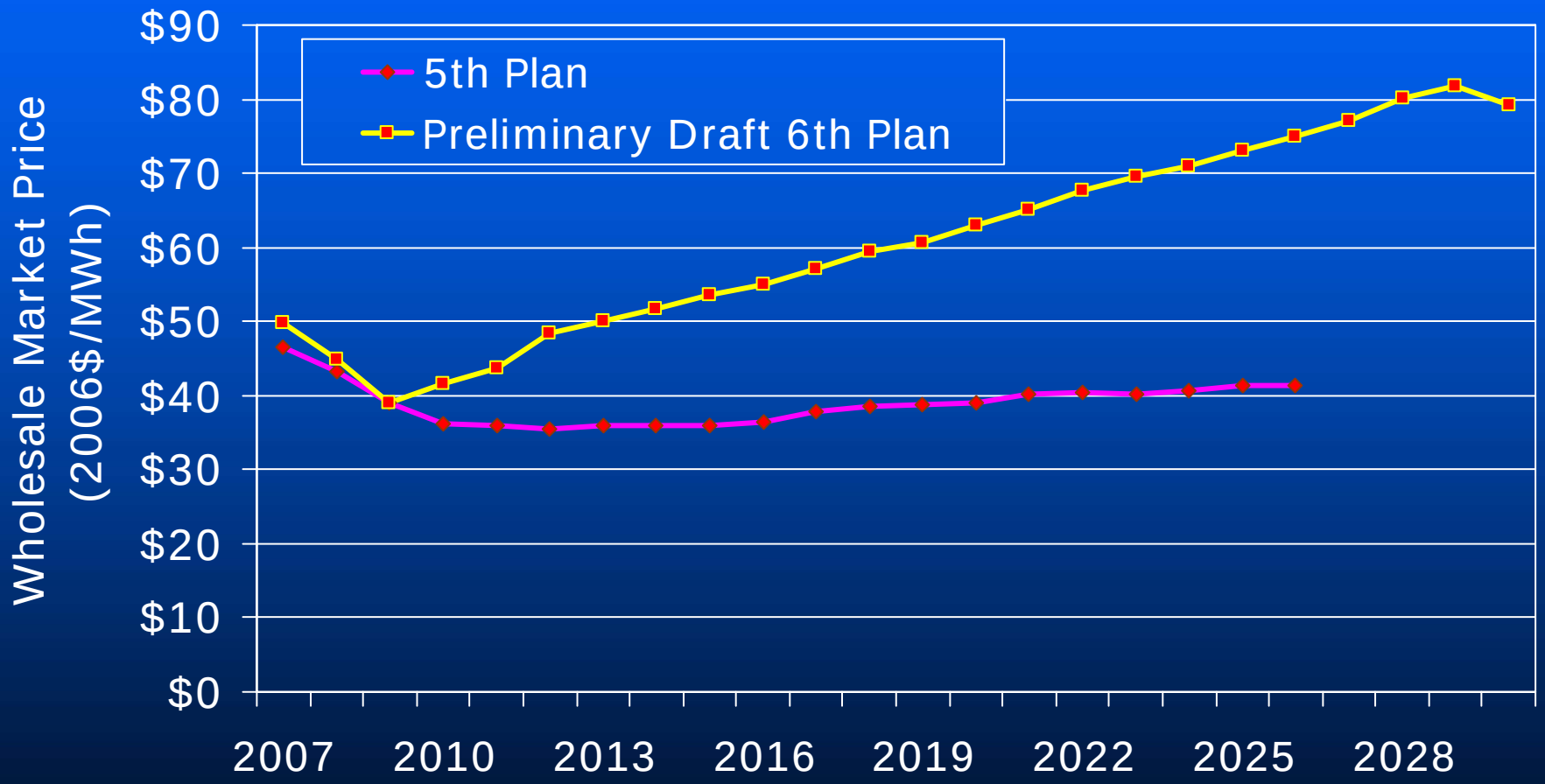


Adjustments to 5th Plan's Conservation Resource Potential

- Increases in Available Potential
  - Changes in Scope
    - » Distribution System Efficiency Improvements
    - » Consumer electronics (TV's, set top boxes)
    - » Irrigation Water Management and Dairy Farm
  - Changes in Data and Technology
    - » Detailed Industrial Sector Potential
    - » New Measures (e.g. ductless heat pumps, solid state lighting)



Avoided Costs Are Forecast to Be Significantly Higher



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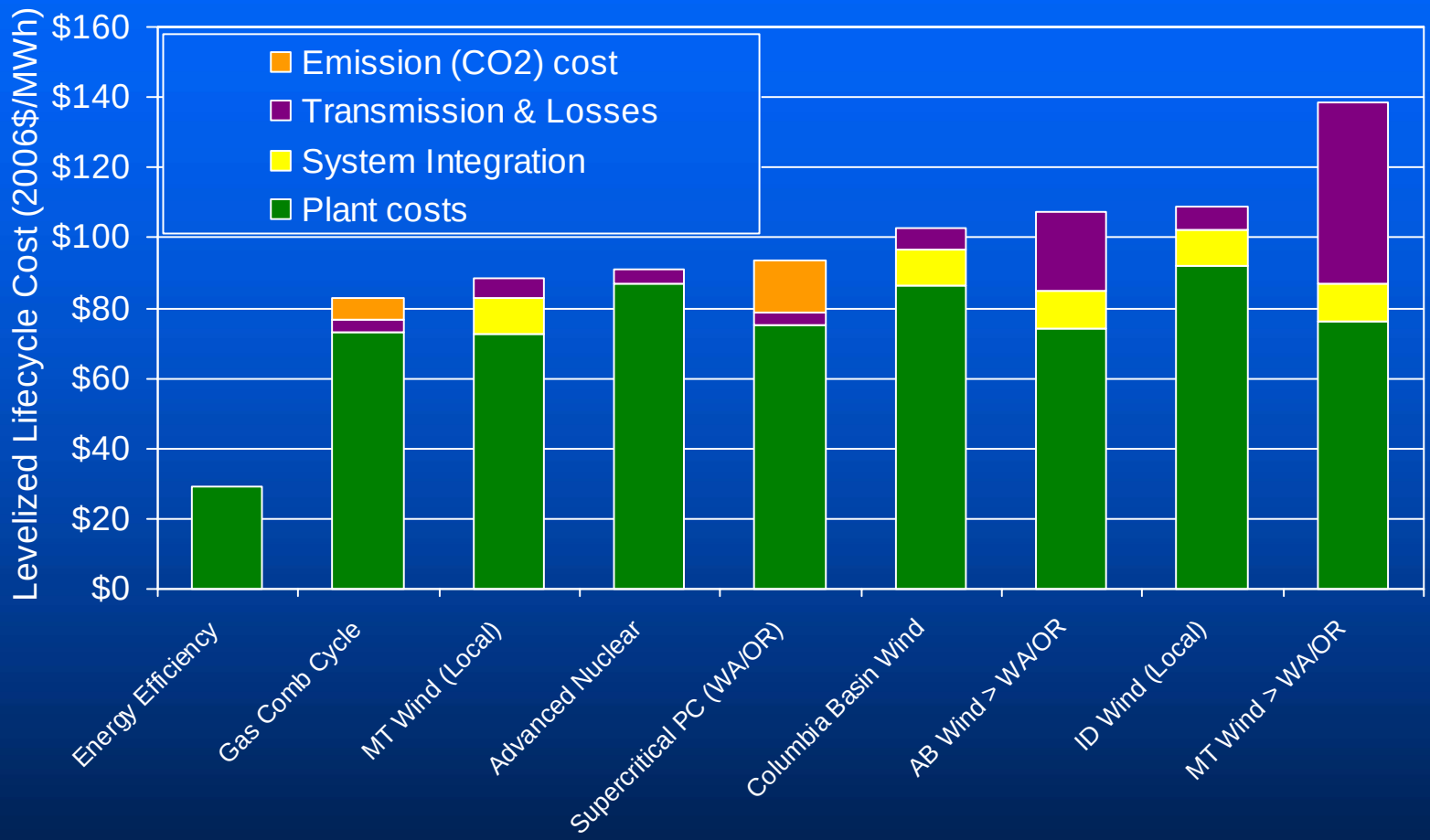
Energy Efficiency is Still the Cheapest Option



Assumptions :

Efficiency Cost = Average Cost of All Conservation Targeted in 5th Power Plan

Transmission cost & losses to point of LSE wholesale delivery

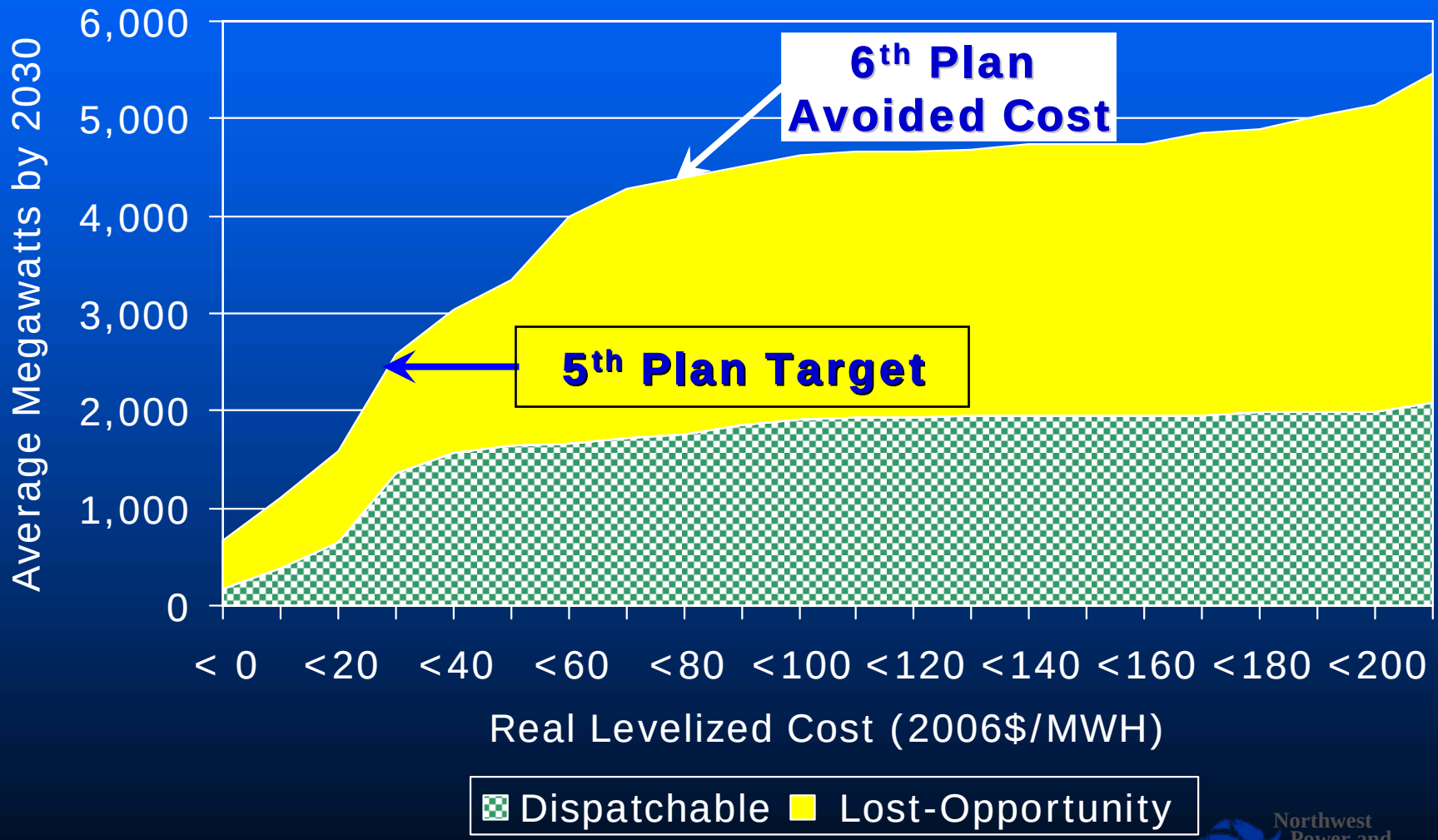
No federal investment or production tax credits

Baseload operation (CC - 85%CF, Nuclear 87.5% CF, SCPC 85%, Wind 32% CF)

Medium NG and coal price forecast (Proposed 6th Plan)

Bingaman/Specter safety valve CO2 cost

So Even After All Adjustments – We've Have More To Do



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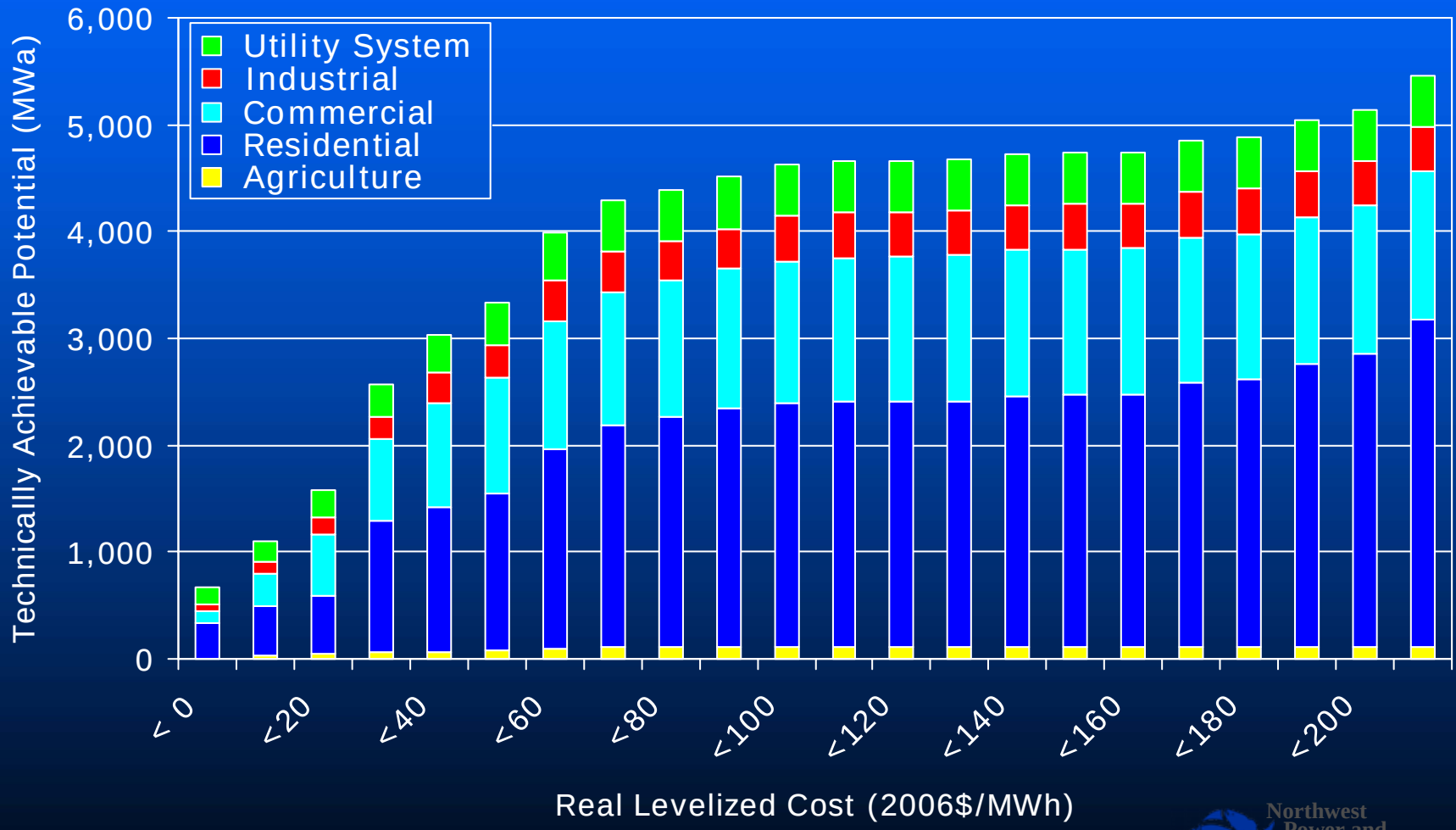
Draft 6th MWa of "Technically Available" Conservation Potential by Sector



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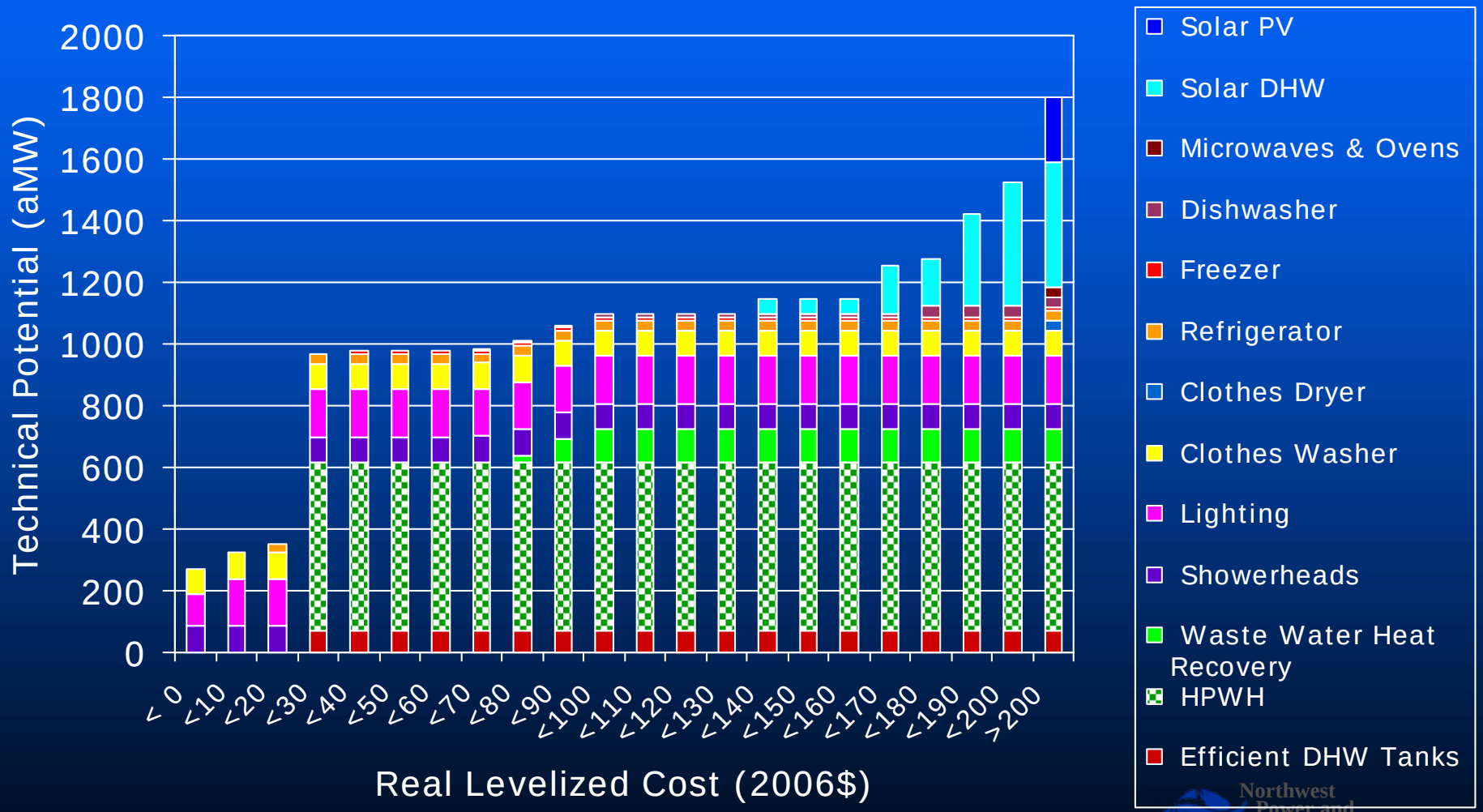
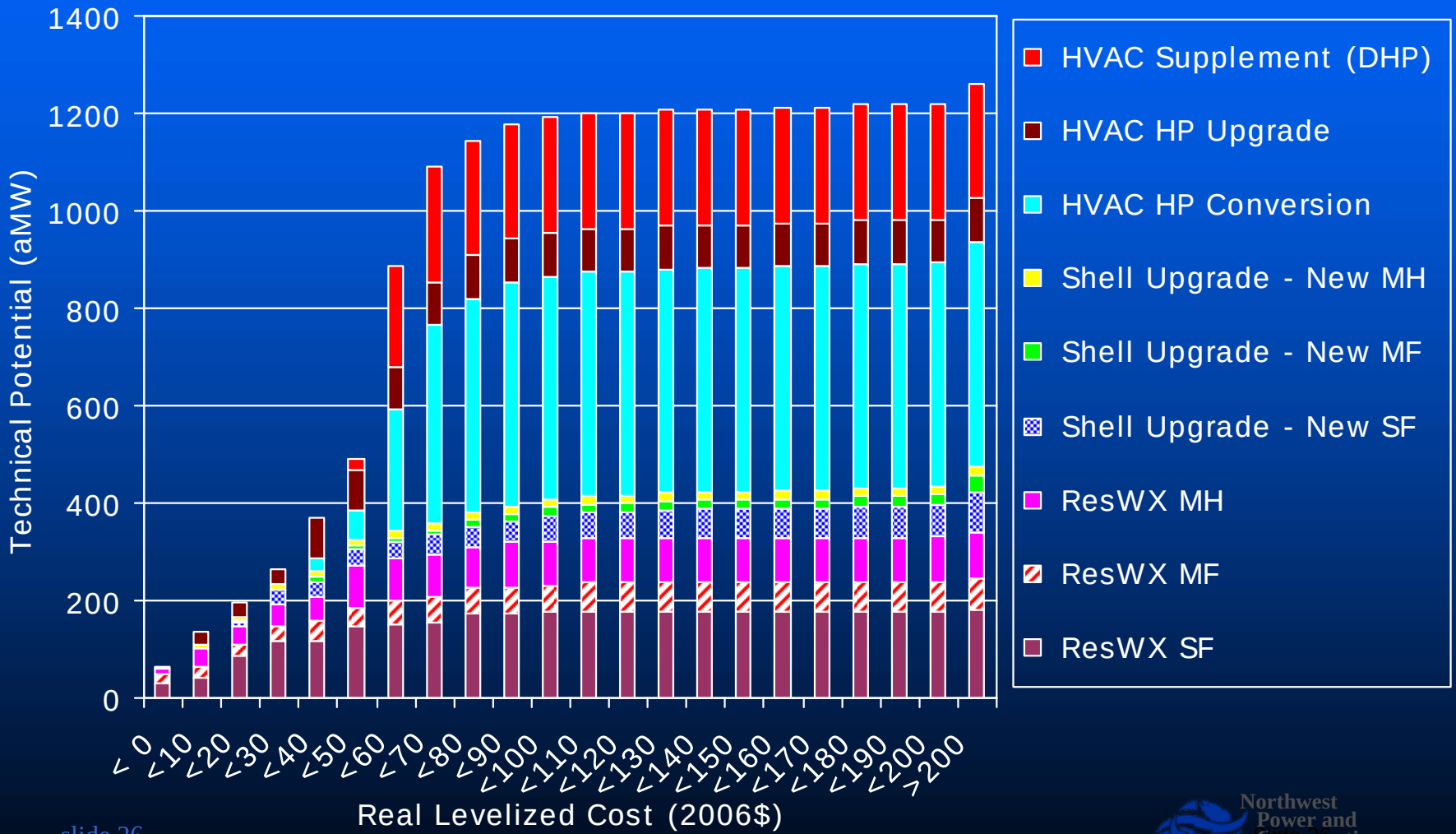
Preliminary Draft 6th Plan Residential Water Heating, Lighting and Appliance Supply Curve



Preliminary Draft 6th Plan Residential Space Conditioning Supply Curve



Preliminary Draft 6th Plan Residential Supply Curve for Lost-Opportunity and Non-Lost Opportunity Conservation

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Take This With You

- Meeting ALL Regional Load Growth With Conservation AND Renewable Resources Will Not Meet WCI CO_2 Emissions Targets
- Technically Achievable Conservation Potential Could Reduce Projected 2030 Loads By 3000 – 4000 MWa
- It Will Require A Much Larger (2x-3x) Investment In Currently Cost-Effective Energy Efficiency and New Technology To Reduce Our Carbon Footprint To 1990 Levels

Any Questions?