

Sustaining and Accelerating Energy Efficiency Through Market Transformation

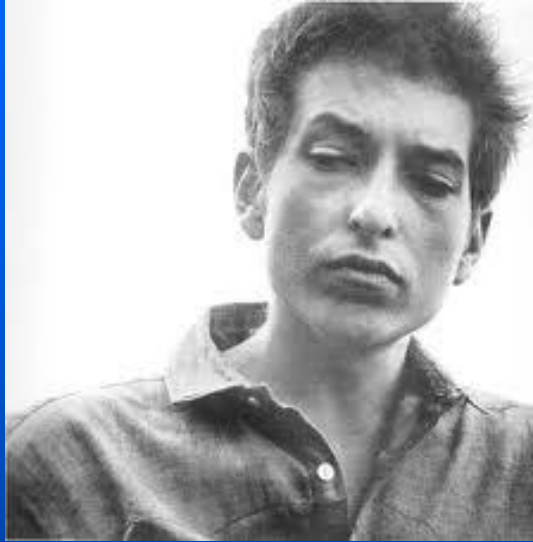
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Northwest Power and Conservation Council

Presented at
2013 National Symposium on
Market Transformation
March 25, 2013

Tom's Topics

- Assessment of the Current Environment
 - What's Changed?
 - Do These Changes Matter?
- Evolution of Efficiency Deployment Strategies
 - What needn't change
 - What must change

The Times They Are A- Changin'

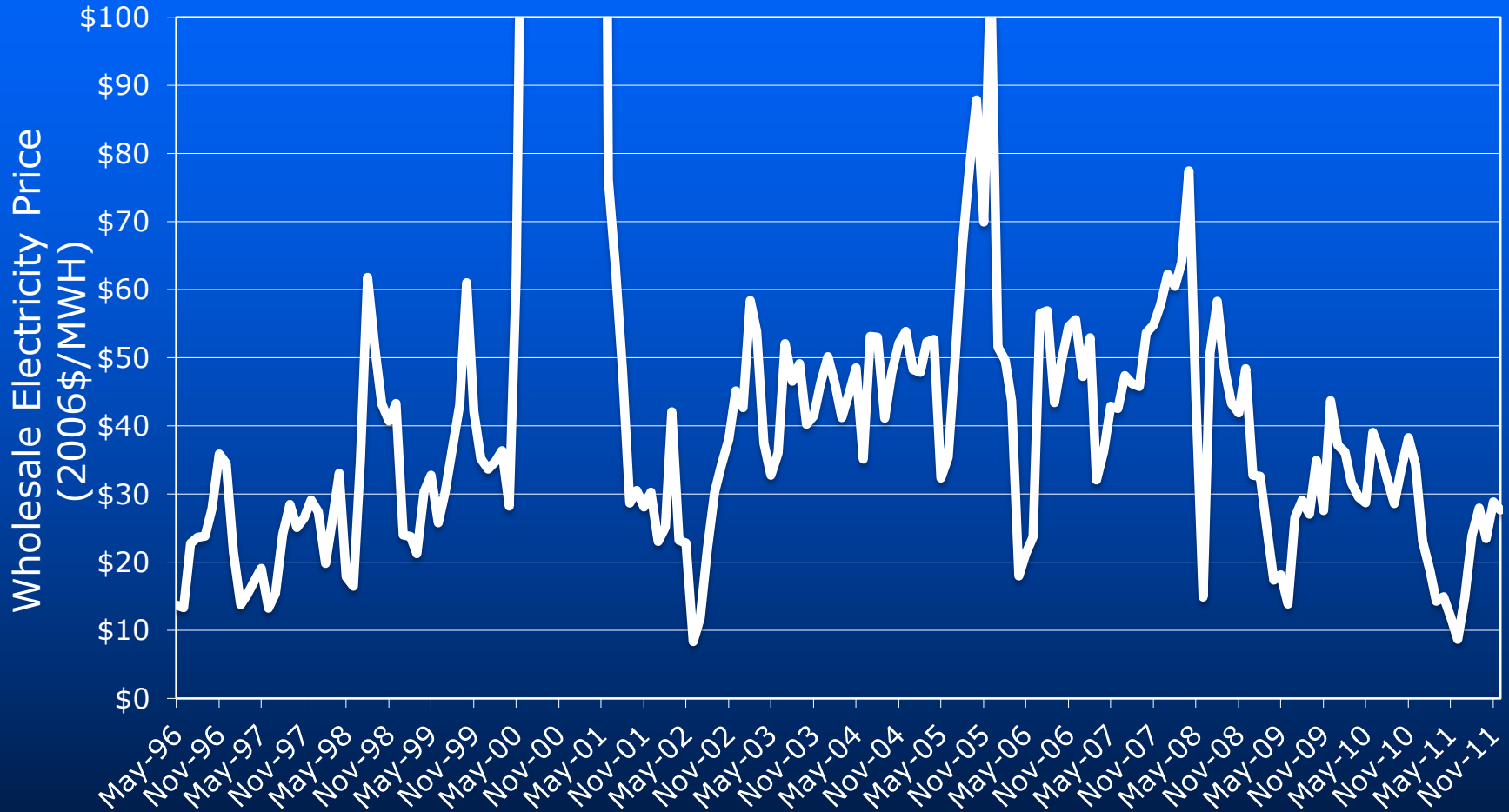


- Forecast for the avoided cost of both gas and electricity are trending lower
- Prolonged recession has reduced load growth, reducing need to new resources
- State codes and federal standards are “bringin’ up the baseline”

City Gate Natural Gas Prices Are Indeed Down From Recent Highs

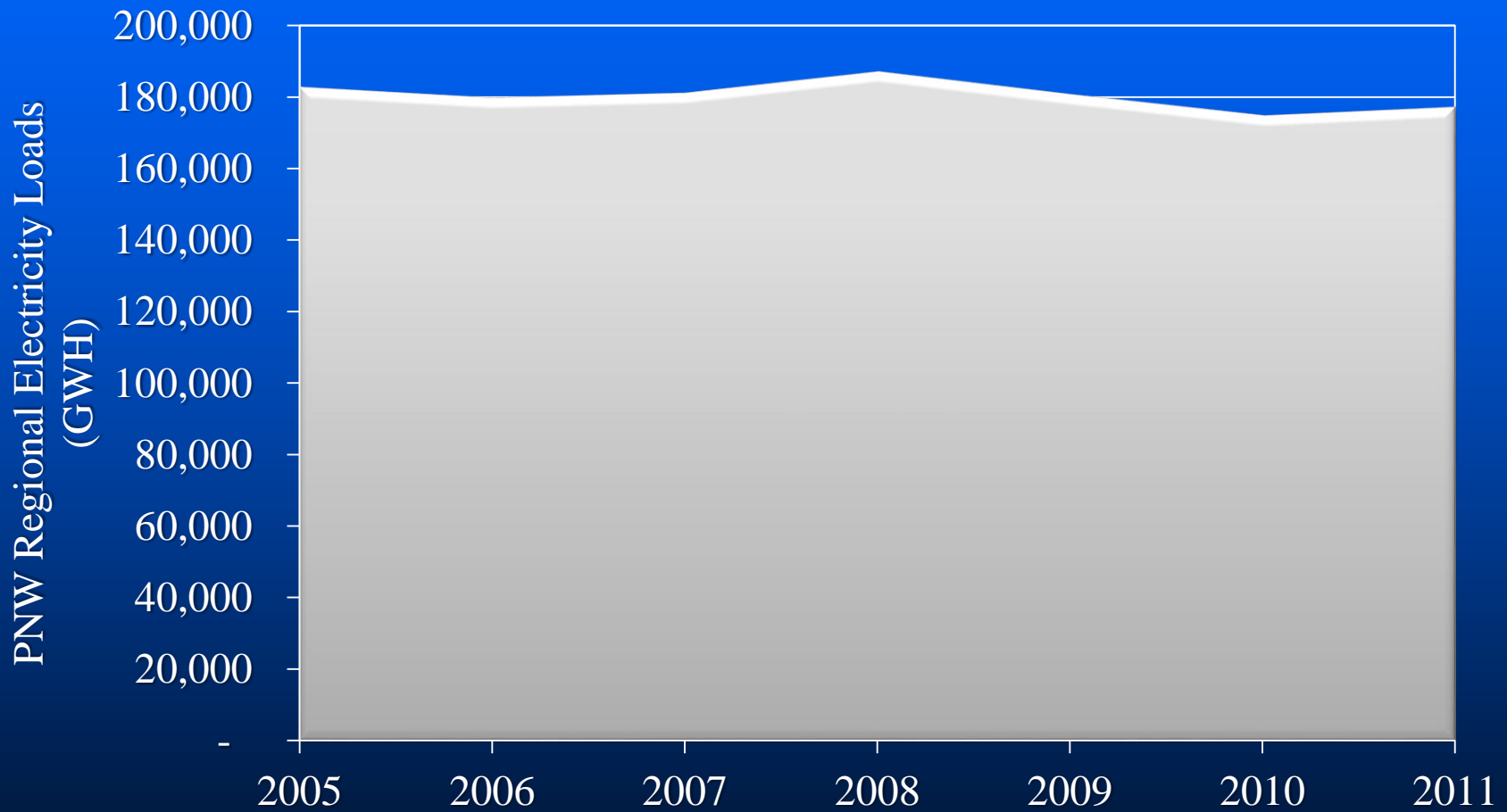


Wholesale Market Electricity Prices Have Also Moderated



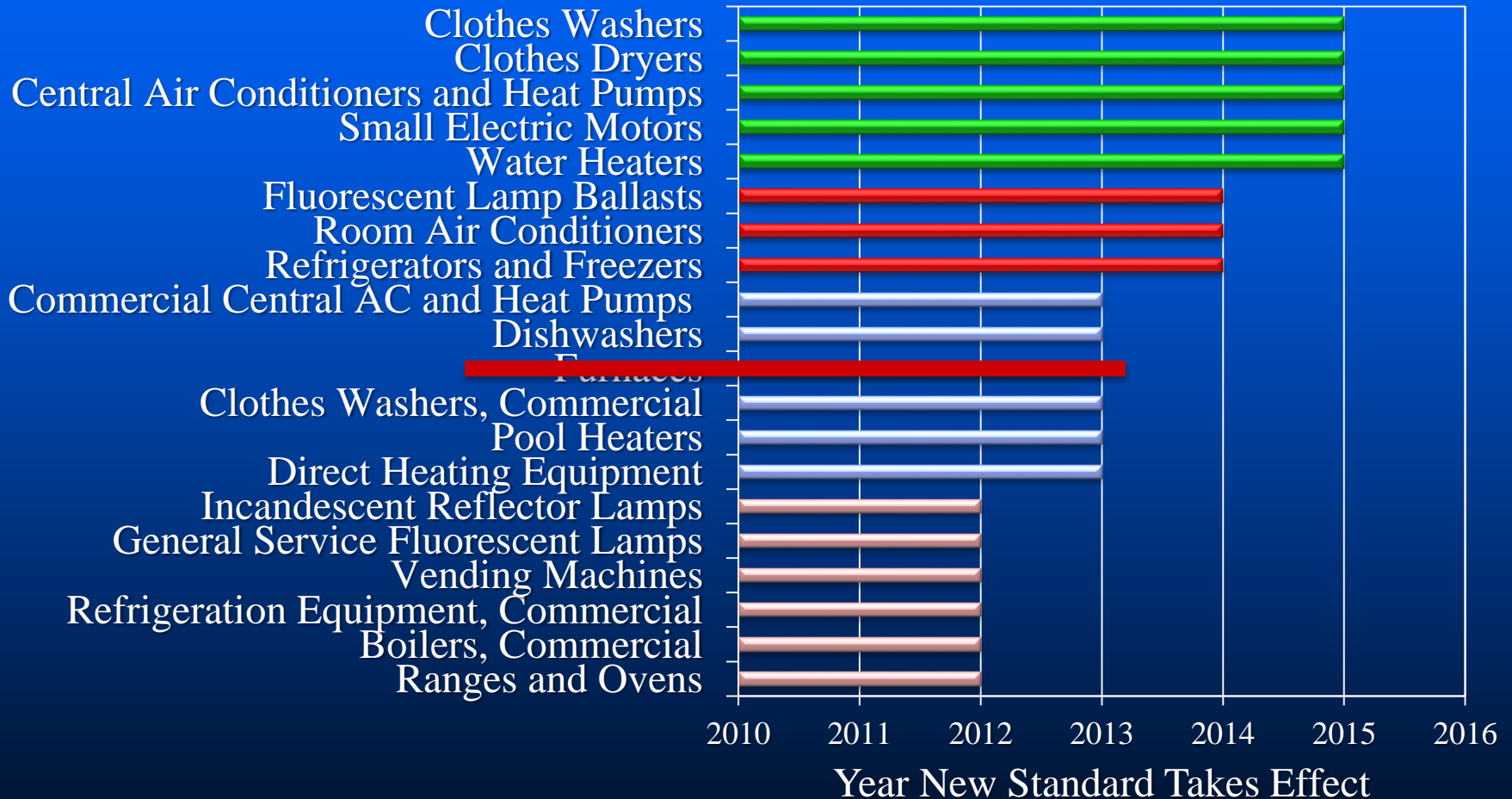
NYMEX Mid-Columbia Trading HUB Monthly Average Wholesale Spot Market Prices

Northwest Regional Electric Loads Have Been Virtually Unchanged for Seven Years

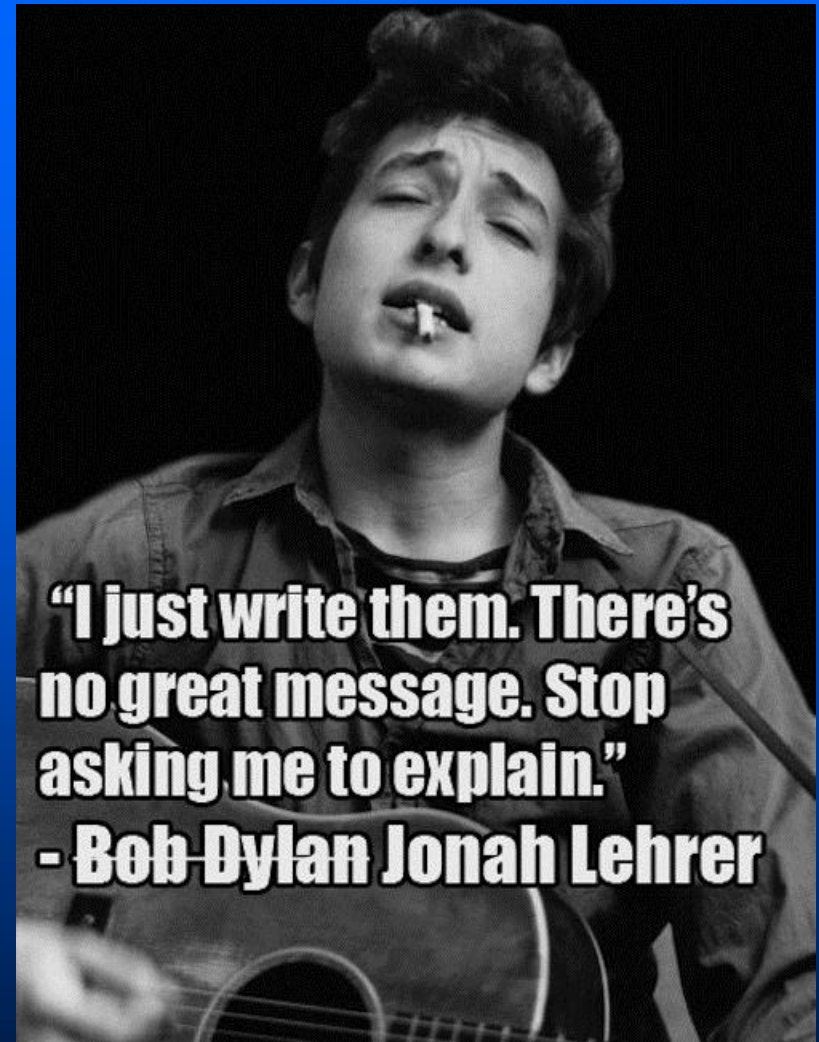




19 New Federal Efficiency Standards Take Effect by 2015

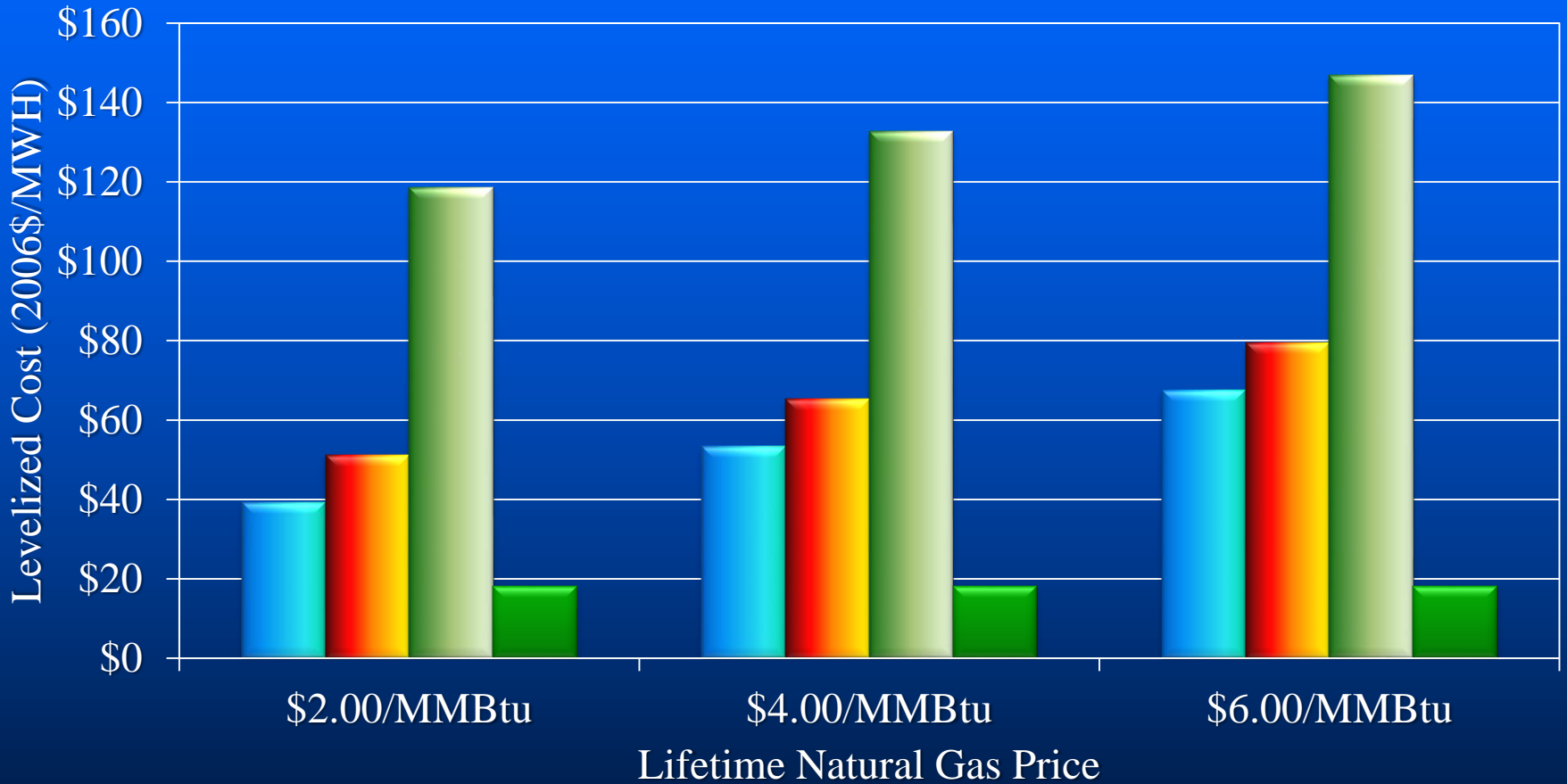


Do These
Changes
Matter for
Energy
Efficiency
Program?



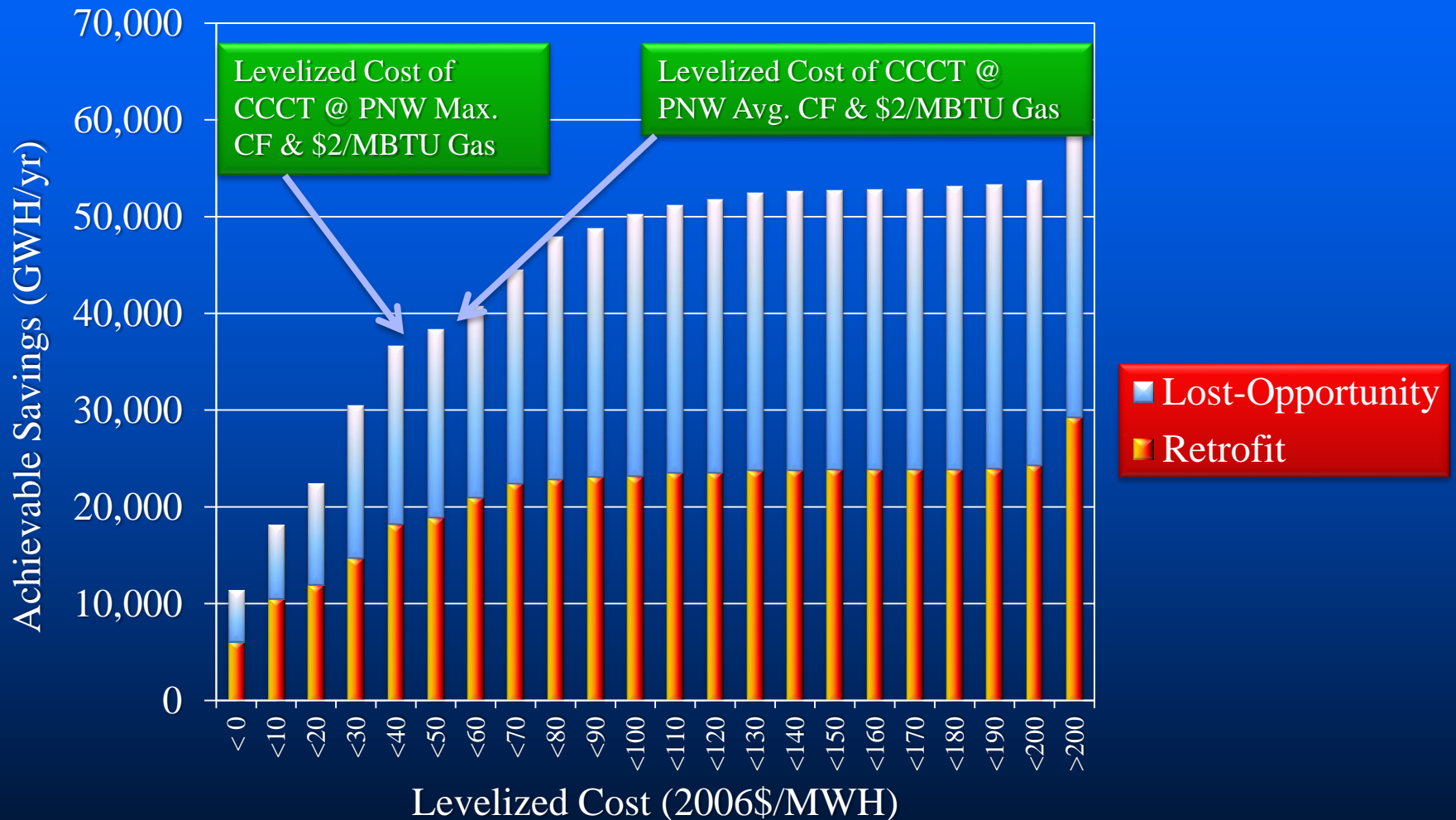
Lower Avoided Cost Shouldn't Limit Cost-Effective Potential for Electric Measures

Levelized Cost of Combined Cycle Combustion Turbine



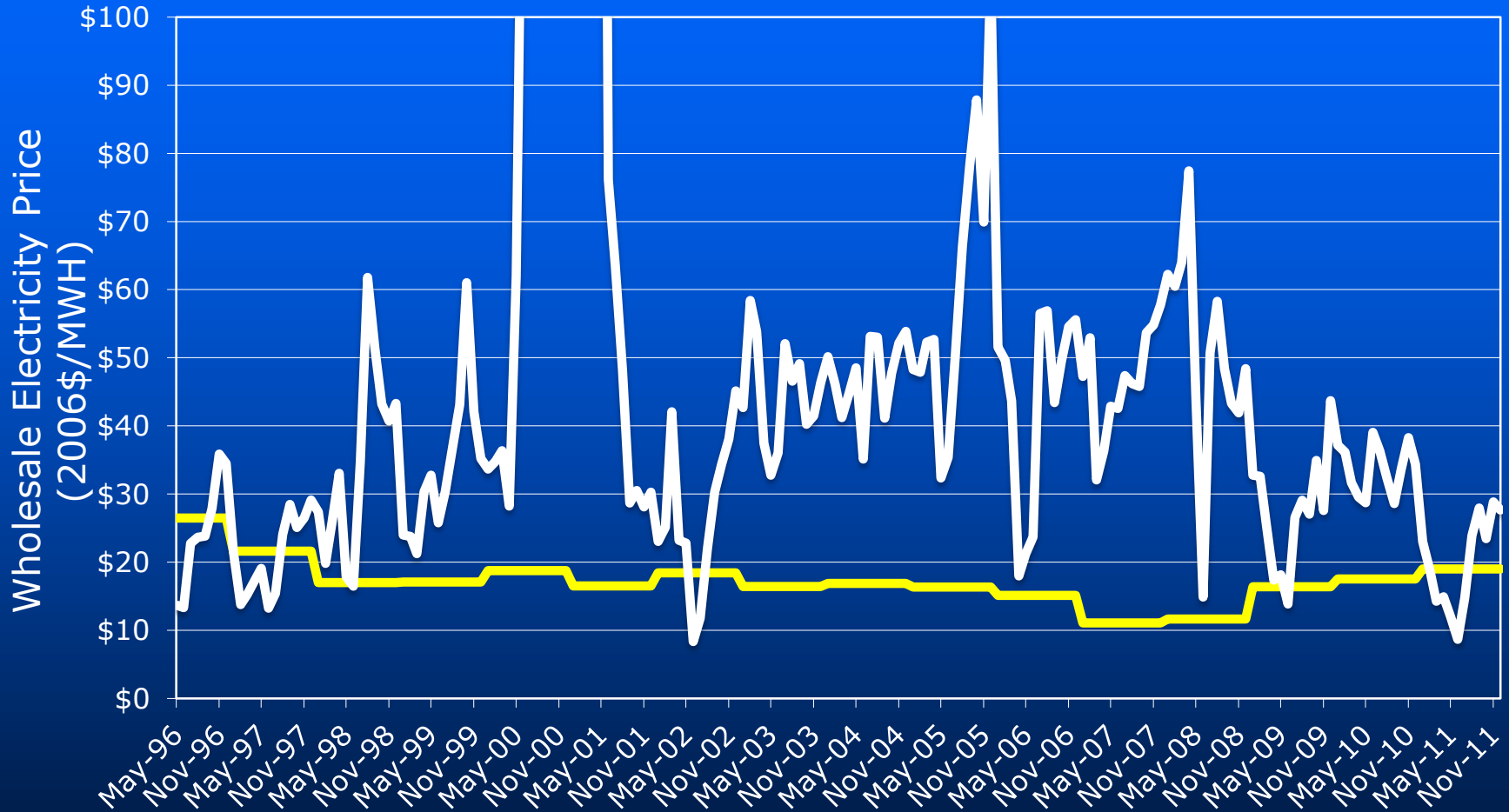
- PNW Maximum CF (79%)
- PNW Average CF (51%)
- PNW Minimum CF (17%)
- Historical Utility Cost of Efficiency

In the NW Over 36,000 GWH/yr of Achievable Potential* Exists at Cost Below <\$40 MWH (That's Two-Thirds of Our Cost-Effective Potential)



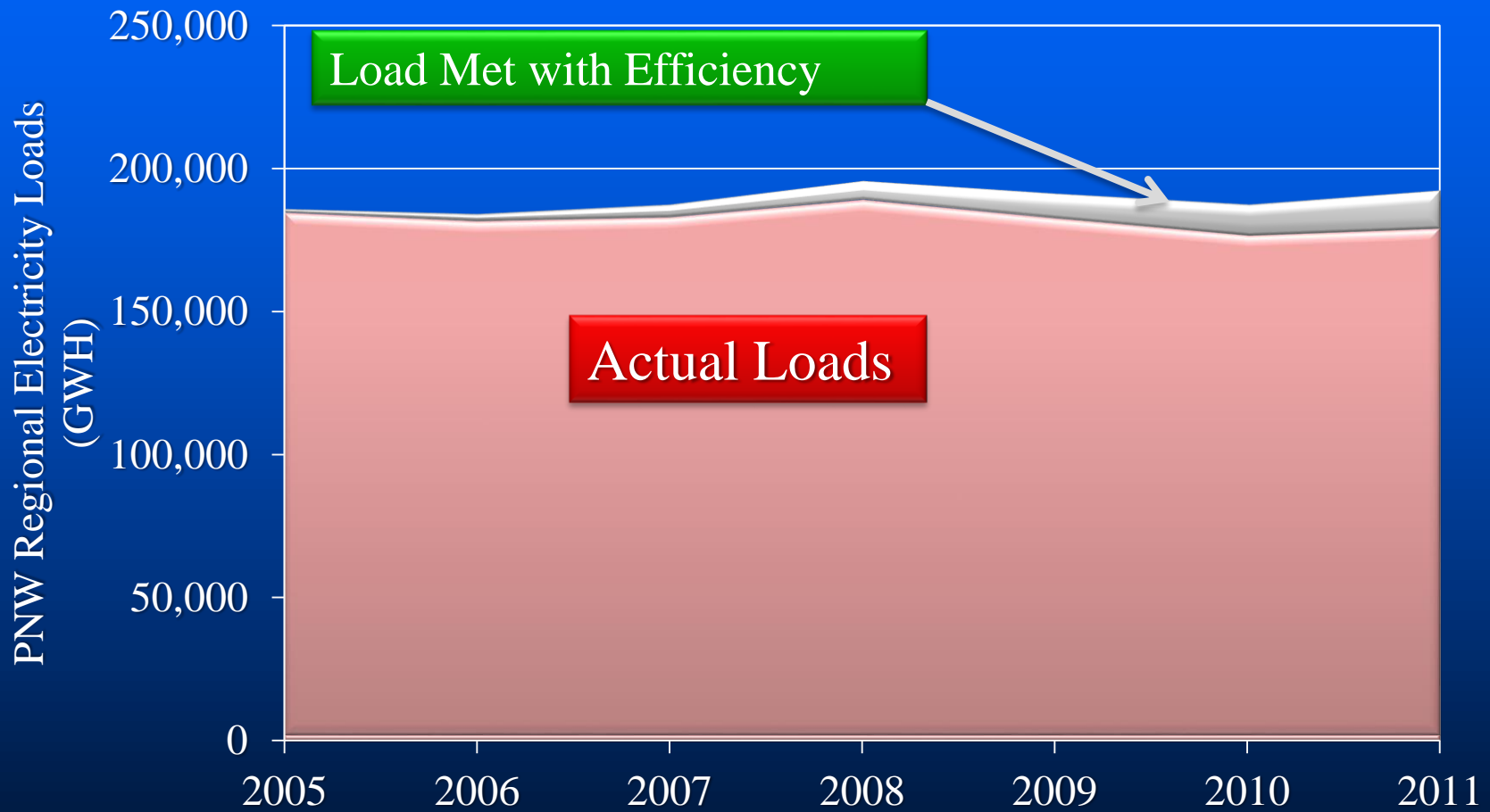
*Lost-Opportunity Potential is Cumulative Amount Available Potential by 2030

Average Cost of Utility Acquired Savings Continues to Be Lower and Less Volatile Than Wholesale Market Electricity Prices



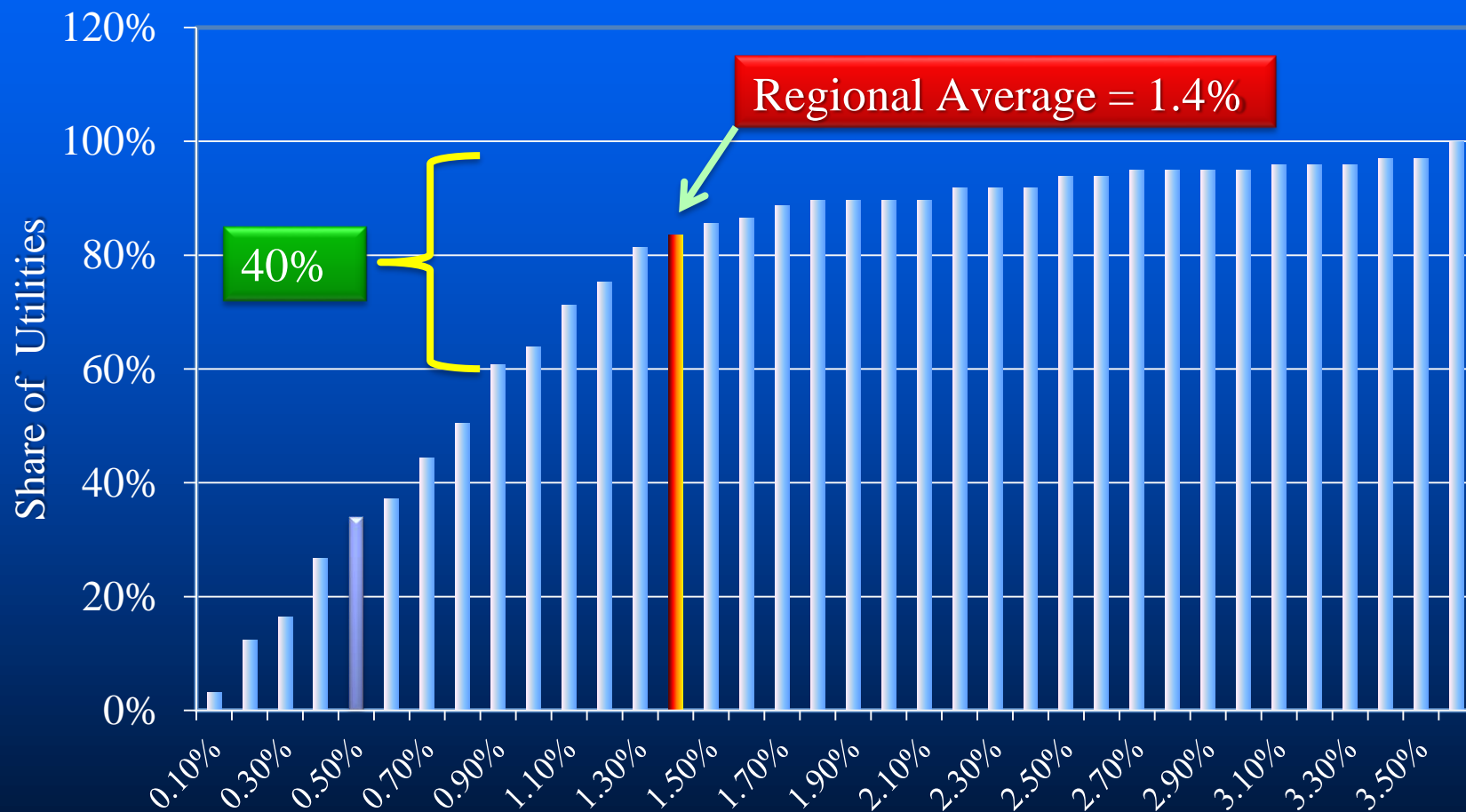
— Levelized Cost of Utility Efficiency Acquisitions
— Average Wholesale Market Price @ Mid-C Trading Hub

No Load Growth for Seven Years - Efficiency Accomplishments Are A Partial Explanation



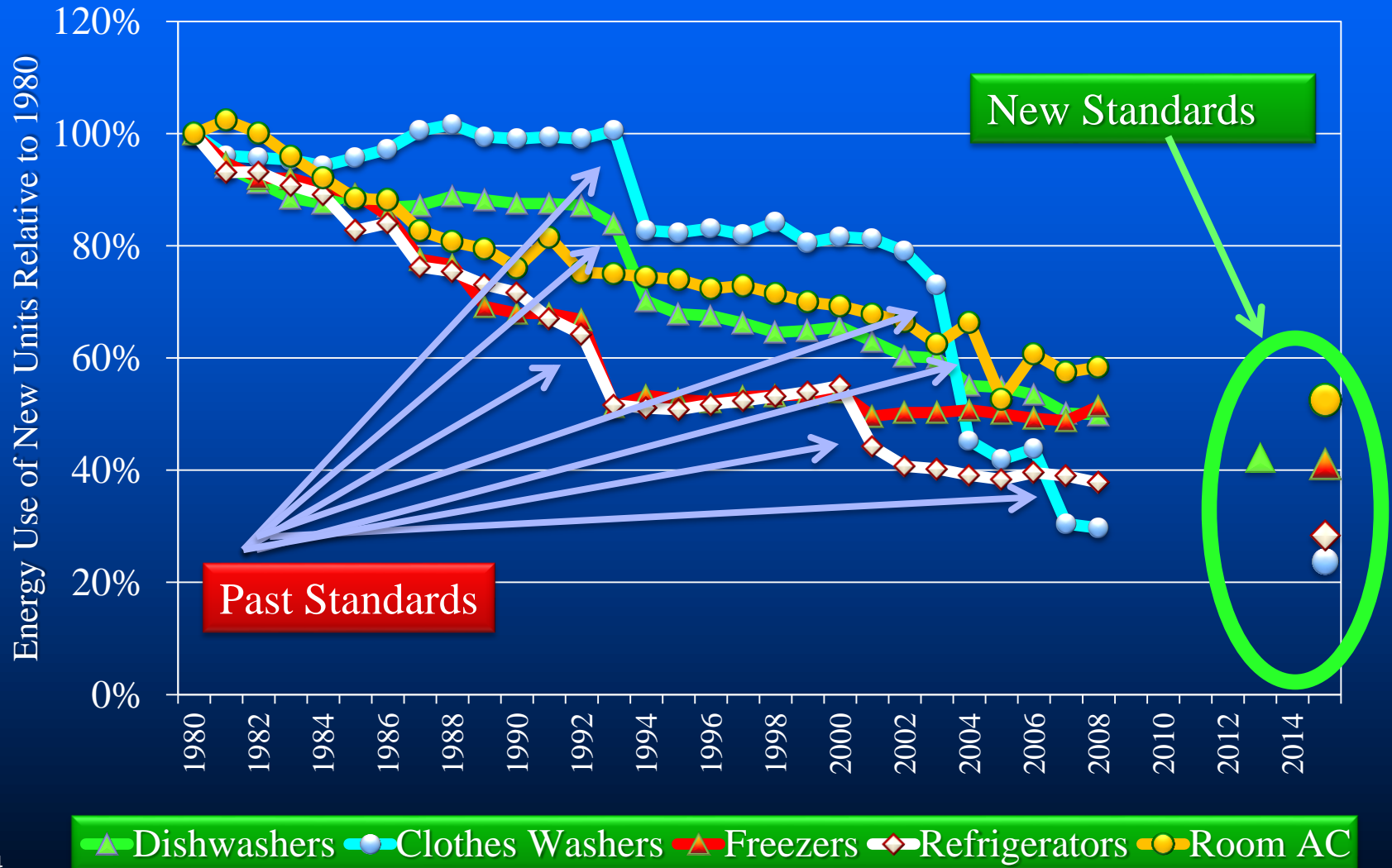
Caveat: Approximate impact only, since PNW Actual Loads are not weather adjusted.

40% of the Region's Utilities Reported 2011 Efficiency Savings Equivalent to At Least 1% of Their Prior Years Retail Sales



Efficiency Standards Have a **Transformative** Effects

Sales Weighted Relative Use of Appliances 1980 – 2008 and 2013-2015 Standards





The Task Ahead

What Needs To Change

- Program Design Constraint: *Lower Avoided Cost combined with improved codes and standards mean smaller incremental savings to support administrative cost & retail rebates*
- Solution: Intervene “higher in the food chain”
 - Examples: NEEA Retail Initiative and West Coast/NE Television Collaboration

What Needs to Change

- Program Design Constraint: *Revised Commercial Lighting and Ballast Standards Significantly Reduce the Value of “one-for-one” ballast and lamp replacements*
- Solution: Increase trade ally lighting design capabilities through training and eliminate “fixture” level rebates (if you pay them per fixture they will replace, not re-space)
 - Example: NEEA’s Commercial Lighting Initiative

What Needs to Expand

- Program Design Opportunity: *Reduced (not eliminated) emphasis on residential lighting should permit expanded focus on new and emerging technologies*
 - Ductless Heat Pumps
 - Heat Pump Water Heaters

Trade Ally Training Is Needed So That Emerging Technologies Are Properly Deployed

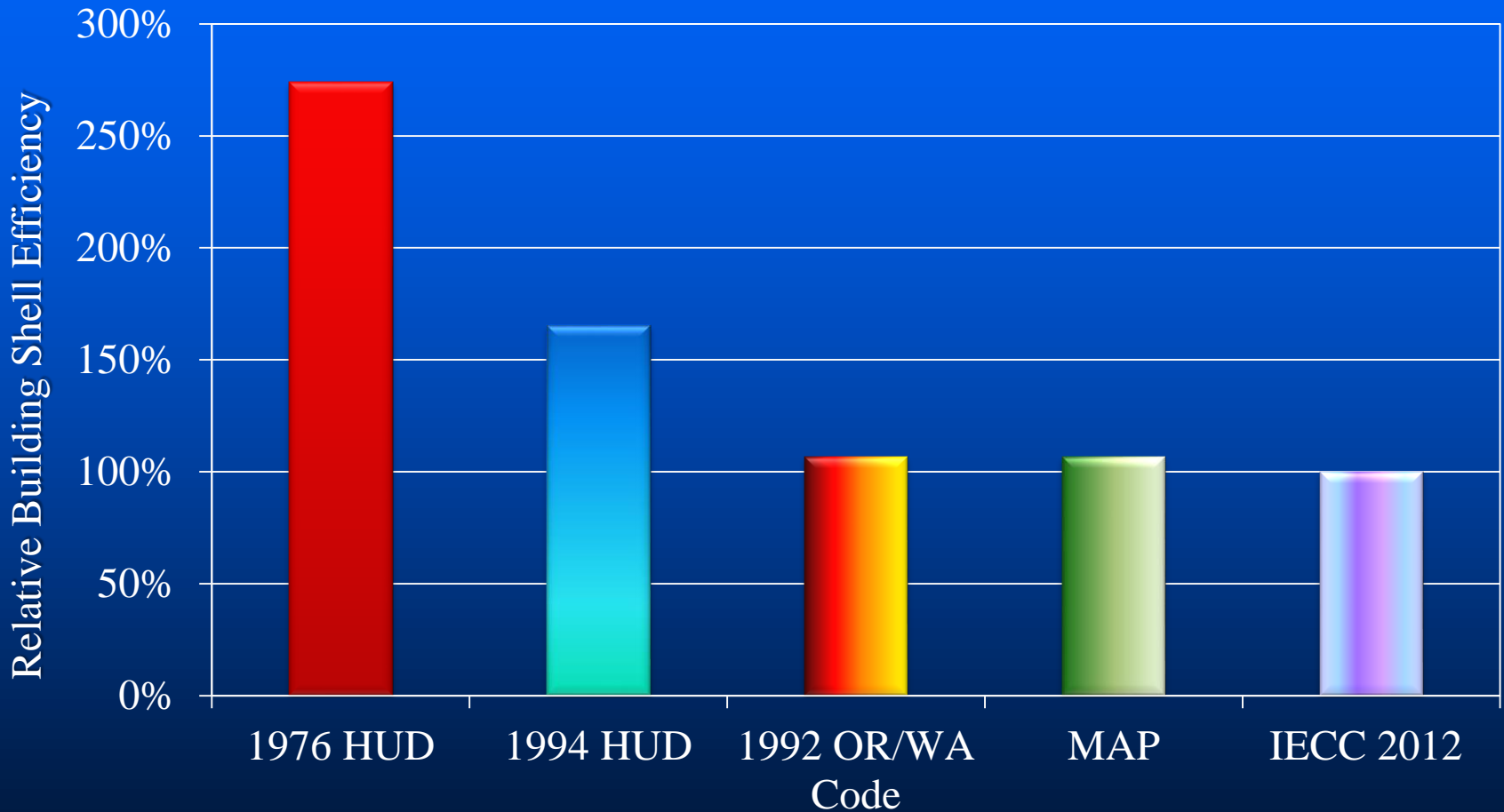


Example:
Ductless Heat
Pump Contractor
Training

What Need to Expand

- Program Design Opportunity: Market Scalability
- Market Transformation Initiatives are most successful when they “match the scale of their target market”
- Example: Northwest Manufactured Housing Acquisition Program (MAP)

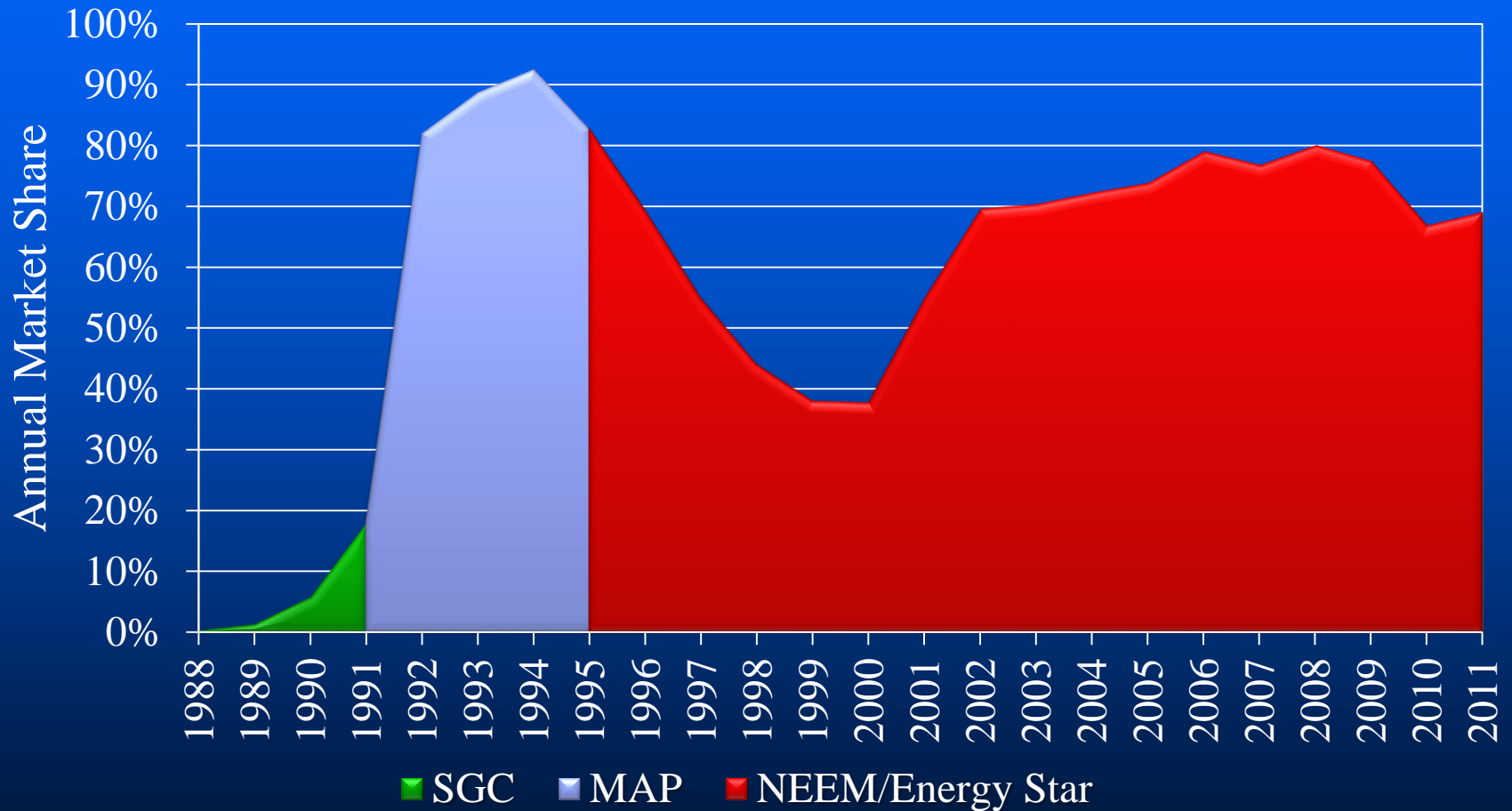
Problem: HUD Energy Efficiency Requirements Lagged Far Behind State Energy Codes



Solution: Contract to Buy “The Entire Market”

- Regional utilities collaborated to form a single “buyer”
- Negotiated fixed price (“acquisition payment”) for energy efficiency upgrades installed in new electrically heated manufactured homes
- All 18 manufactured home plants in NW signed contracts requiring 100% of their electrically heated homes be built with upgrade
- MAP ran for only about 30 months, but the transformation has lasted 20 years

The Result: Utility Programs Significantly Altered the Efficiency of New Manufactured Homes



Since 1990 Two-Thirds of New Manufactured Homes Produced in the NW Have Been Built to Utility Efficiency Specifications



Note to Conservation
Potential Studies Consultants:
*67% of 20-year Economic
Potential Was Captured
Without a Code or Standard !*

So What Will It Be?



Failure.

OR

