

# Conservation Accomplishments & Outlook

**Conservation Resource Advisory  
Committee**

**November 19, 2012**

# 6<sup>th</sup> Plan Called for A Doubling of Annual Energy Efficiency Savings Over Next Decade

## The Sunday Oregonian

SUNRISE EDITION ★★★ ++H

\$2.00

BREAKING NEWS AT [OREGONLIVE.COM](http://OREGONLIVE.COM)

WINNER OF SEVEN PULITZER PRIZES

SEPTEMBER 13, 2009

### Embassy contractor has record of troubles

**Afghanistan** | Drunken parties bring attention to ArmorGroup, but U.S. officials knew of wider problems

By **GINGER THOMPSON** and **MARK LANDLER**  
NEW YORK TIMES NEWS SERVICE

WASHINGTON — When a security guard at the U.S. Embassy in Kabul was leaving

With a goal of doubling the region's energy saving in the next 20 years, Northwest businesses and homeowners are urged to find ...

## The power in CONSERVATION

### Energy efficiency is cheapest source of energy

New energy sources	Monthly investment cost on the average homeowner's utility bill
Energy efficiency*	\$32
Natural gas plant w/o carbon charge	66
Advanced coal w/o carbon charge	66
Geothermal	69
Columbia Basin wind	89

By **TED SICKINGER** and **SCOTT LEARN**  
THE OREGONIAN

The big white house near Reed College was screaming for an energy upgrade: almost 100 years old, scanty insulation, nearly triple the drafts of a modern home.

Last month, it got one — with the help of two energy audits, federal

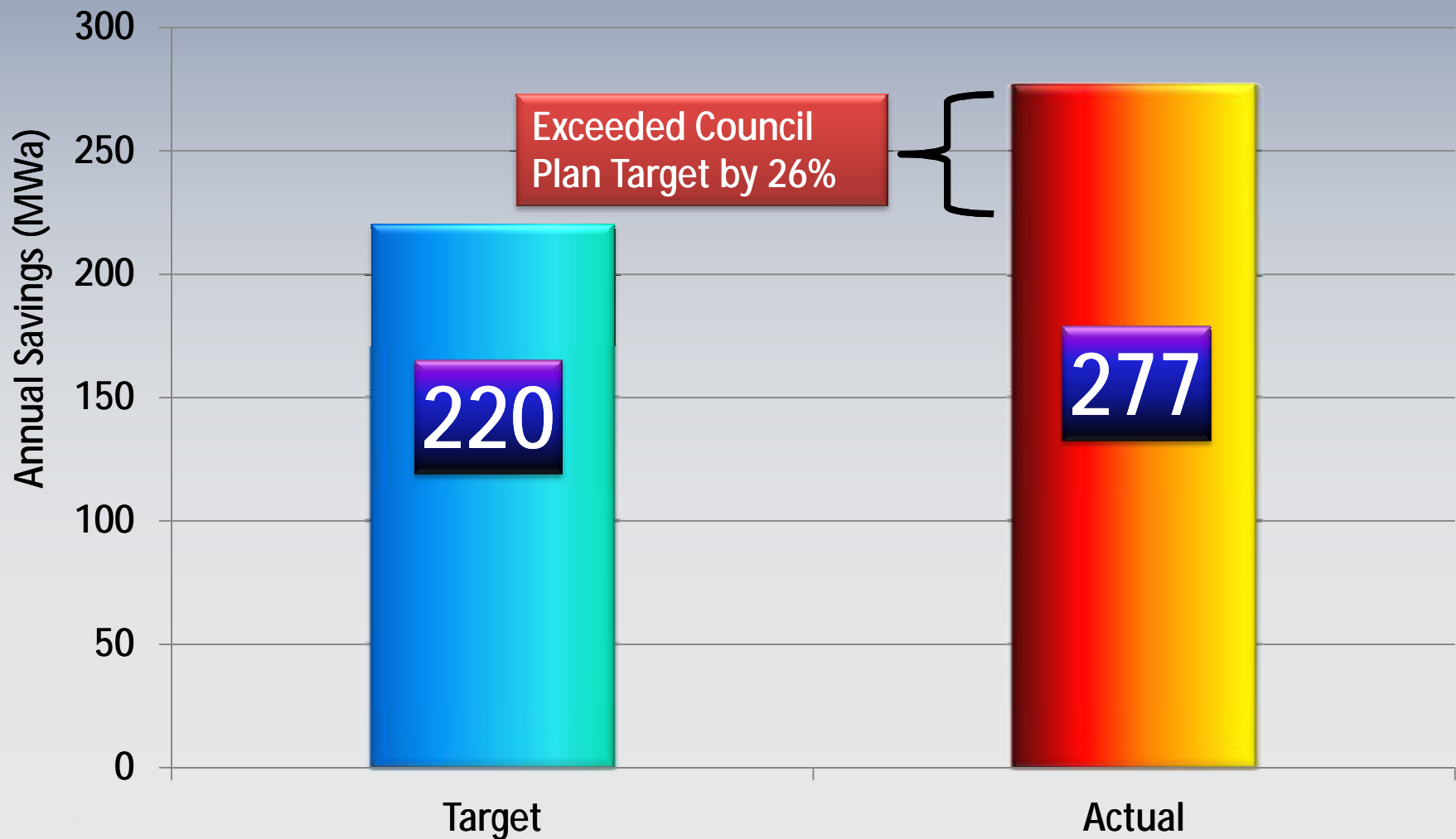
# Sixth Plan Conservation

- § Accelerated Acquisition of Cost-Effective Conservation Reduces System Cost & Risk
- § Plan & Budget for 1200 MWa (Next 5 Years)
  - Expect 1100 to 1400 MWa – Depending
- § Nearly 6000 MWa (Over 20 Years)

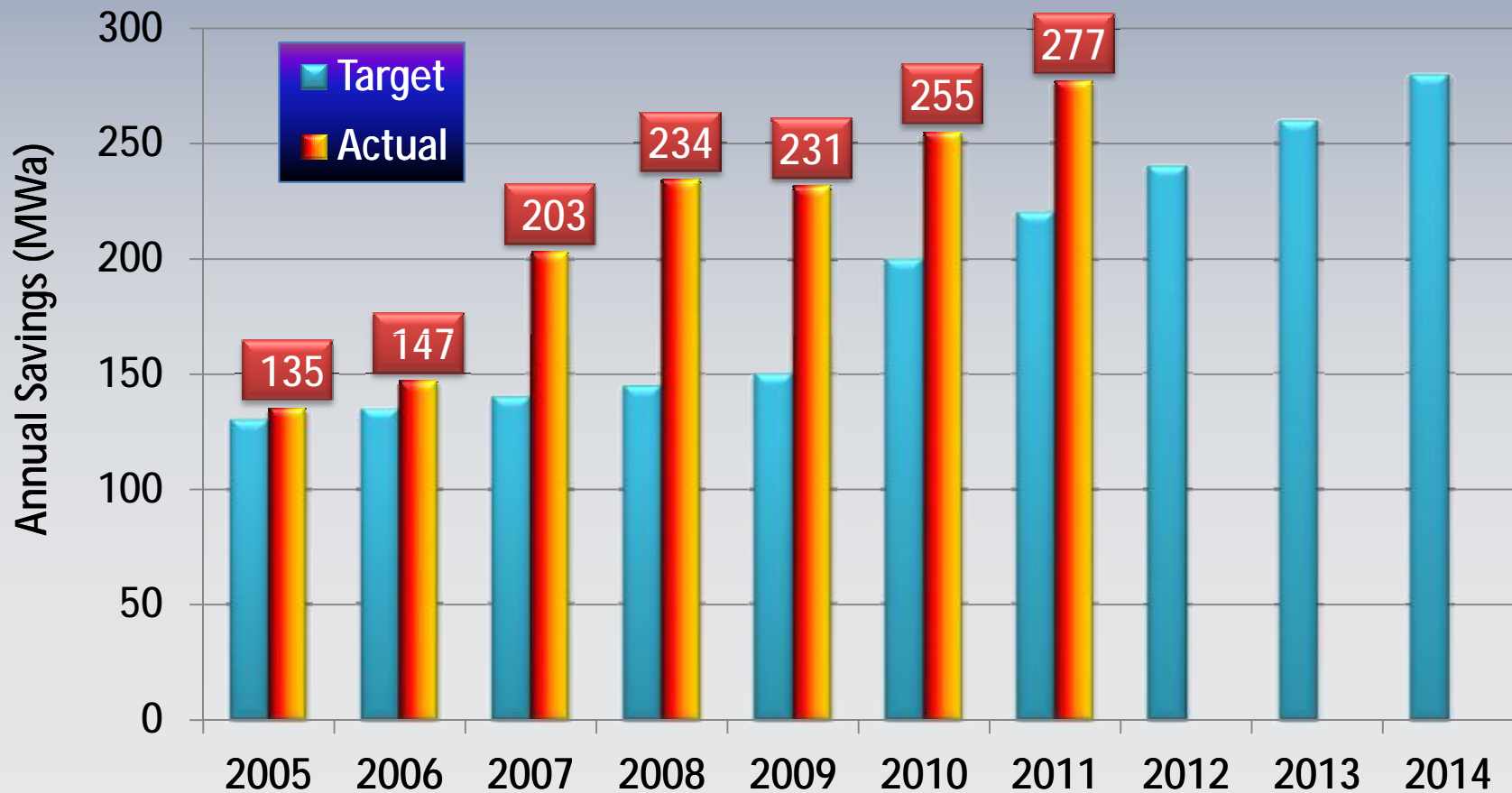
# Results: So Far, So Good



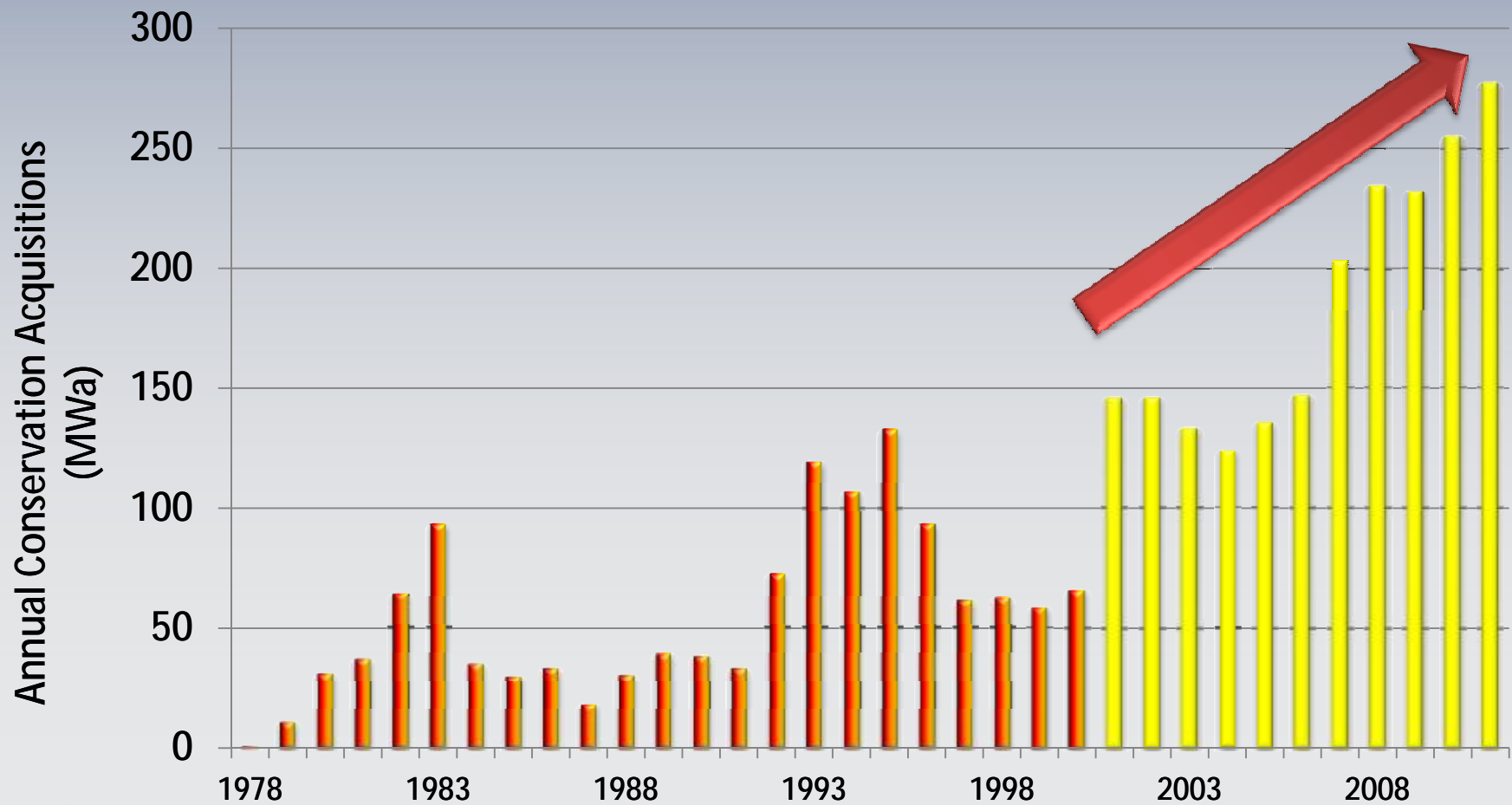
# 2011 Regional Accomplishments



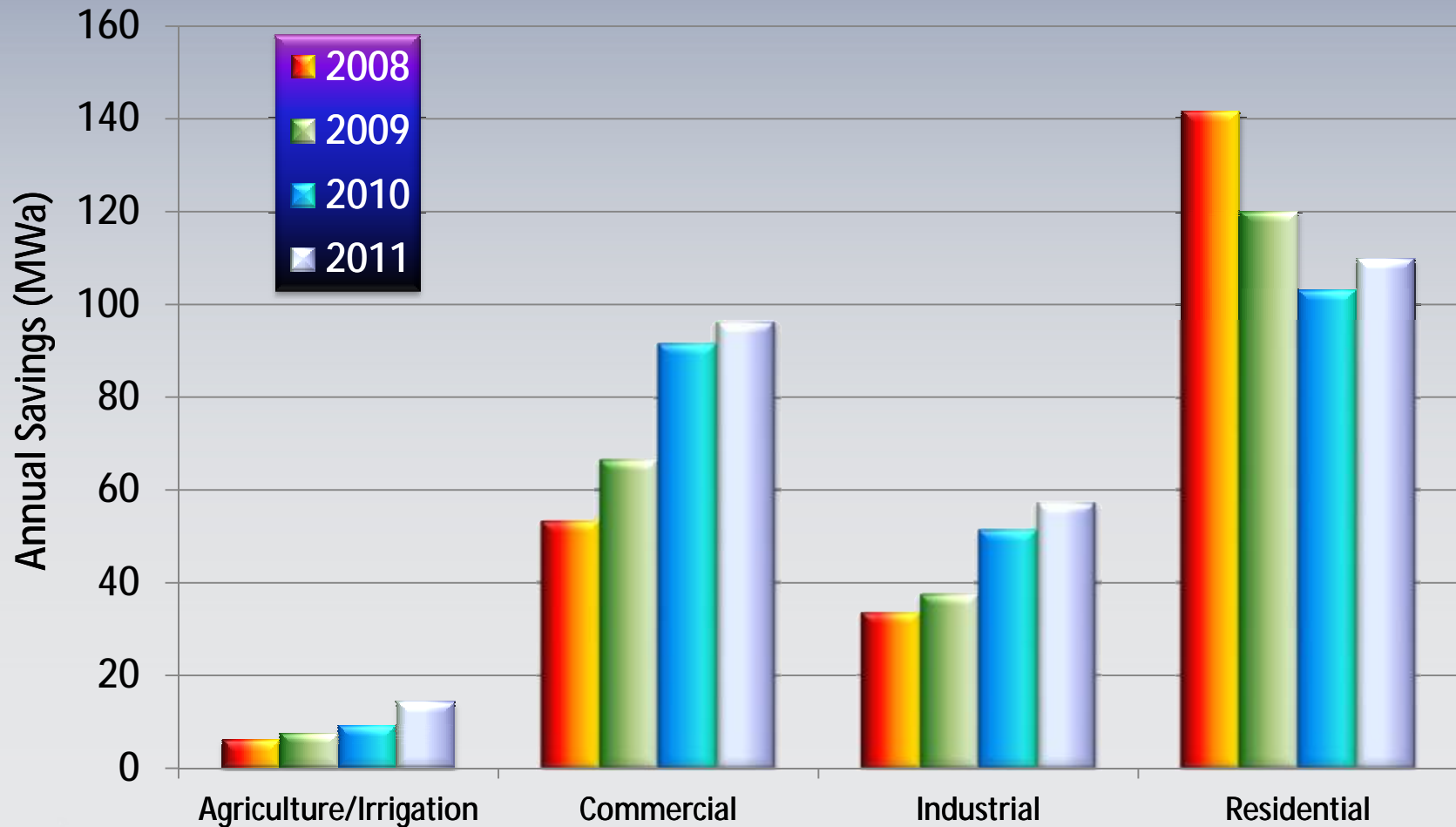
# Accomplishments Have Exceeded Plan Targets Every Year Since 2005



# 2001-2011 Longest Sustained Period of PNW Utility Energy Efficiency Acquisitions in 30 Years

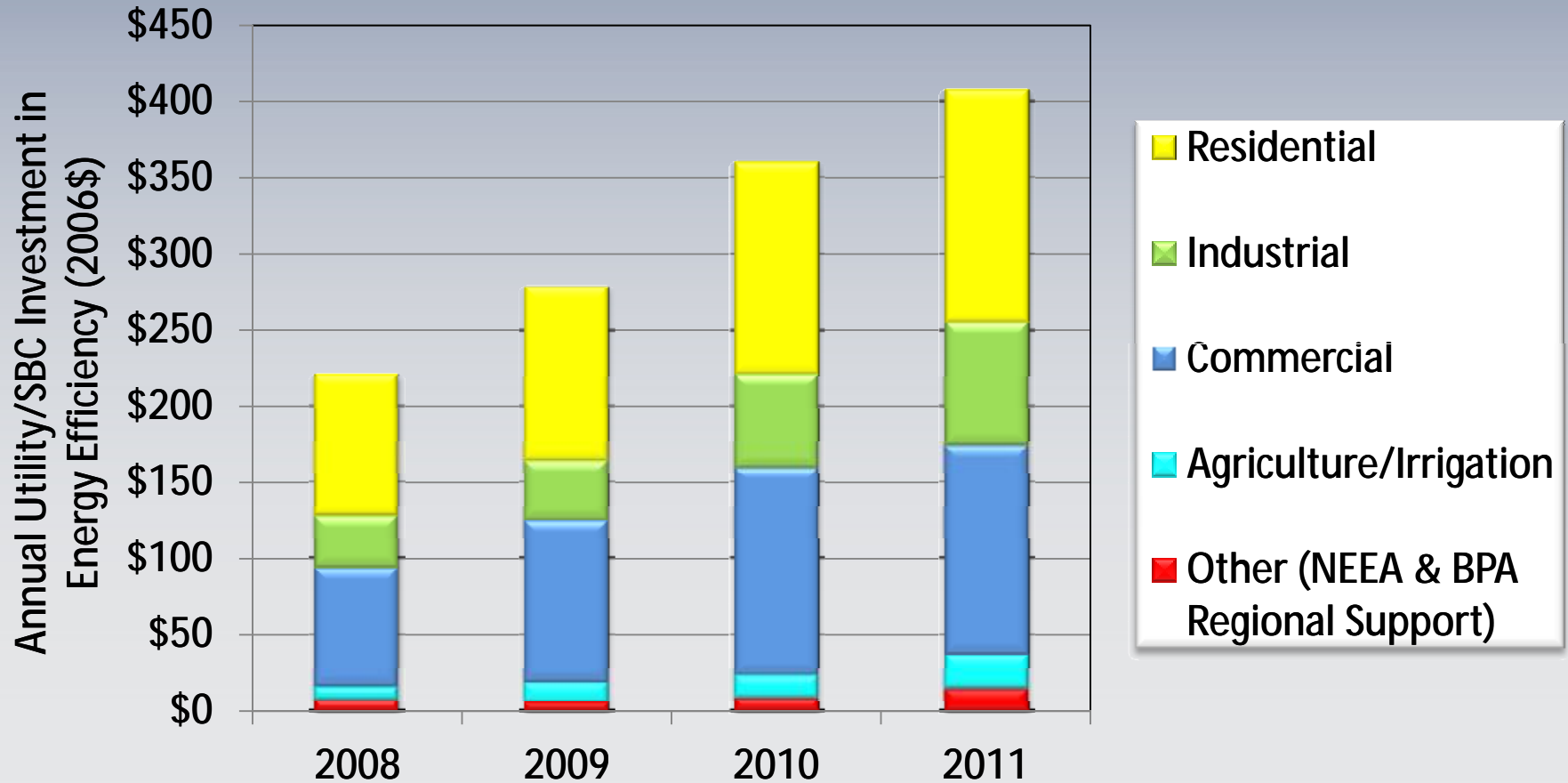


# Commercial and Industrial Savings Continued to Grow the Most



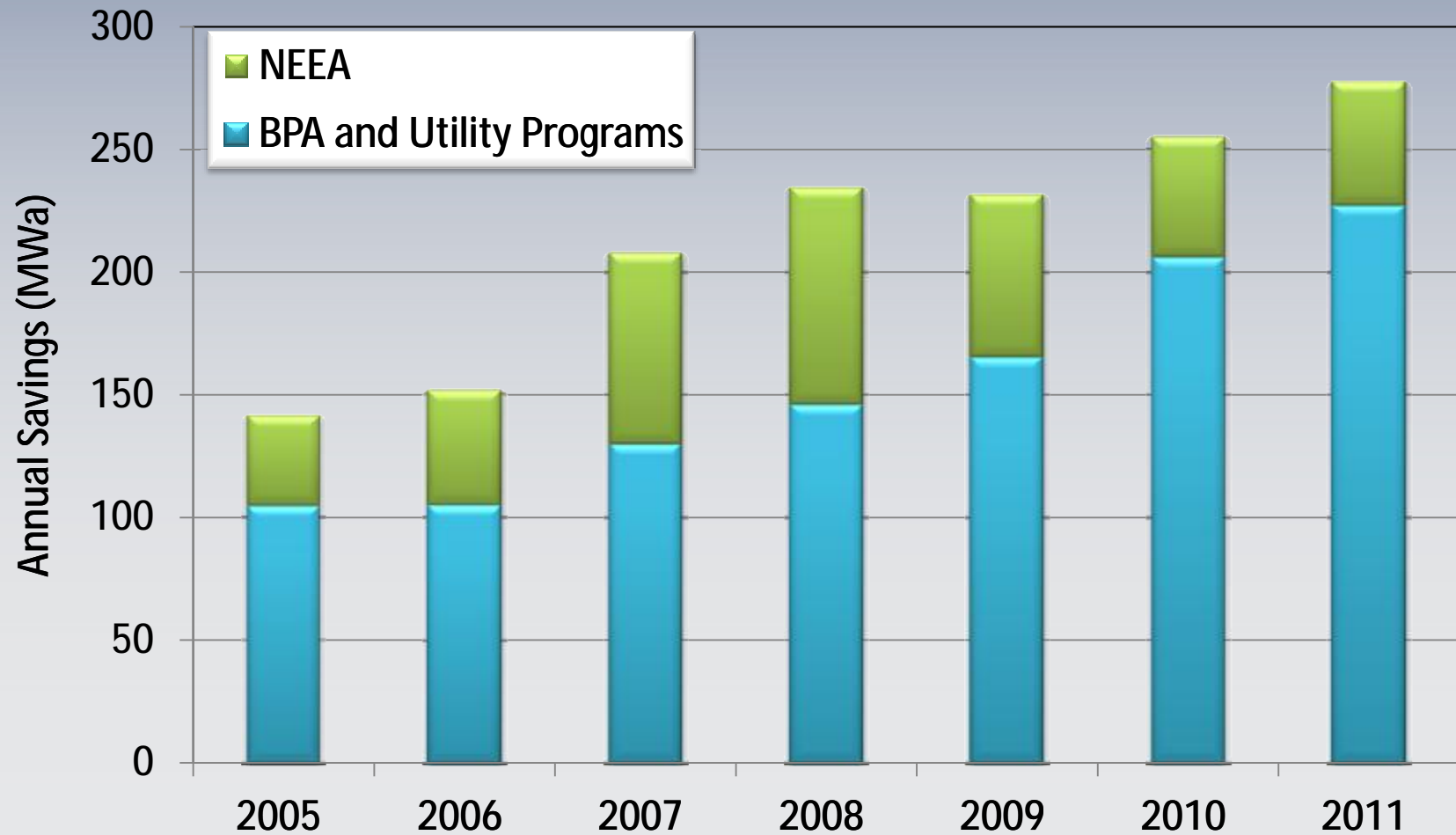


# 2011 Total Utility/SBC Investments in Energy Efficiency in Exceeded \$408 million (2006\$)

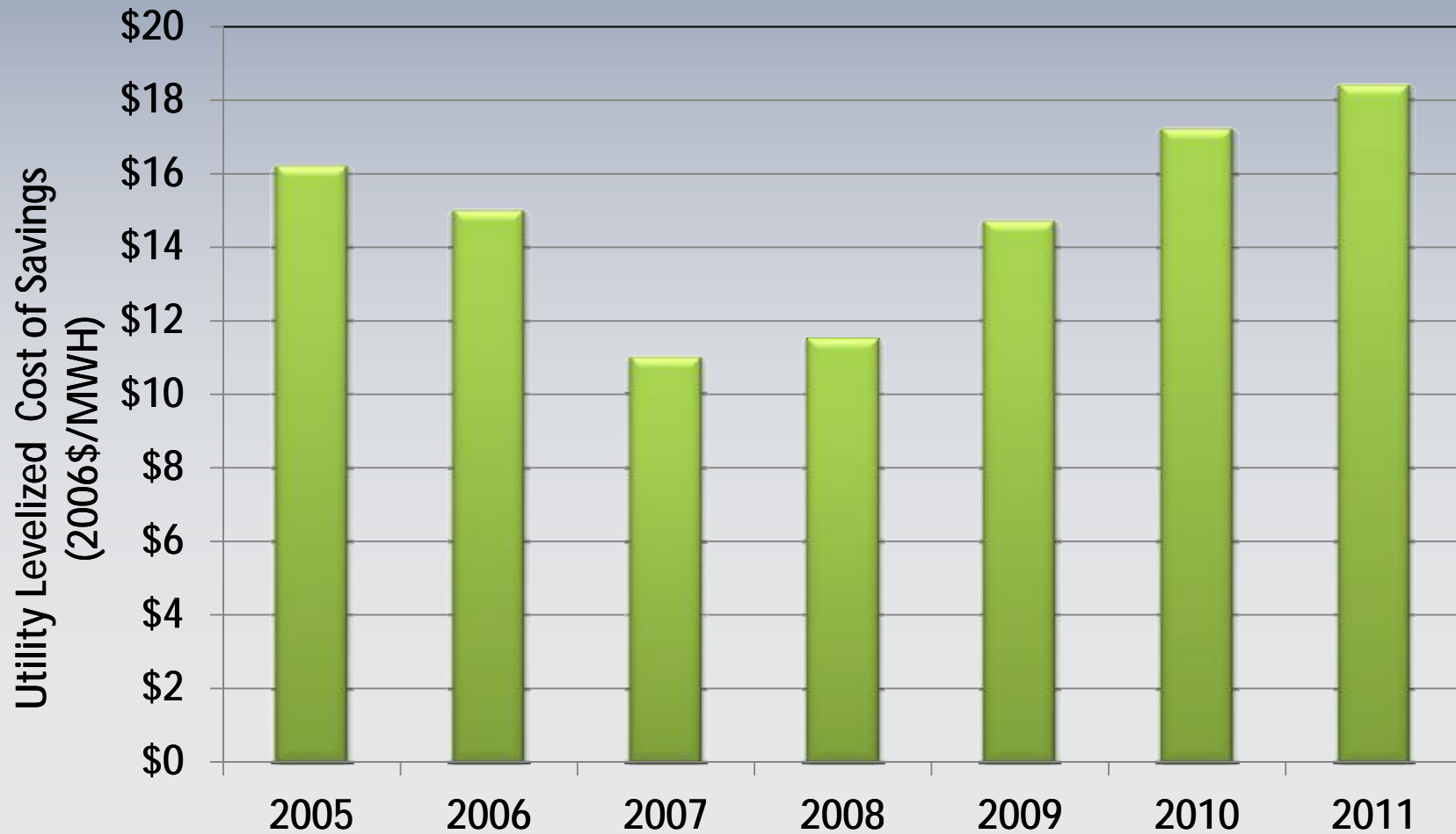


U.S. utility investment in efficiency in 2011 was just over \$5.23 billion (2006\$). Northwest investments represent about 8% of the total, but just under 5% of the U.S. population.

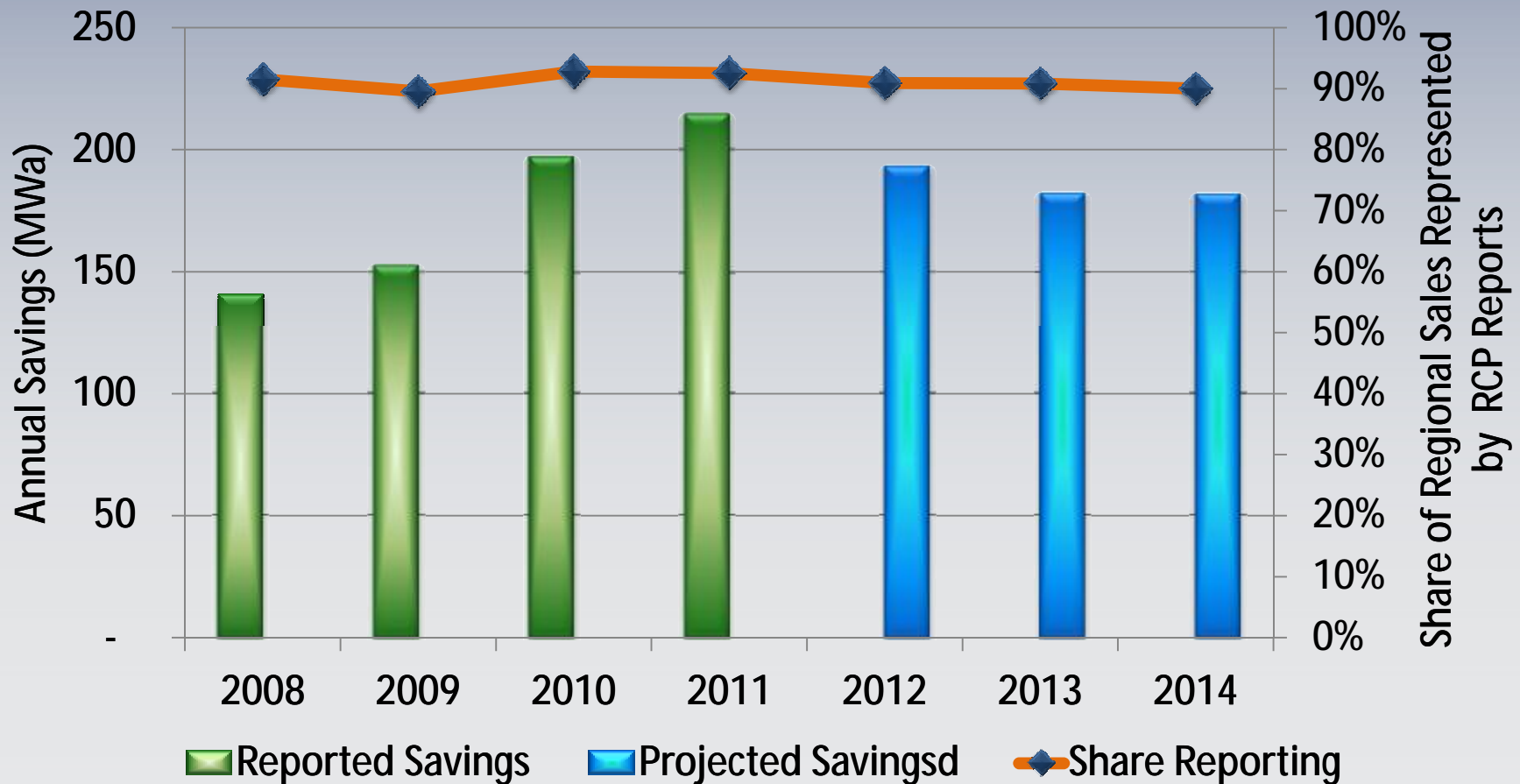
# NEEA Continues to Contribute Significant Savings



# Average Utility Cost of Conservation, While Increasing Remains Low

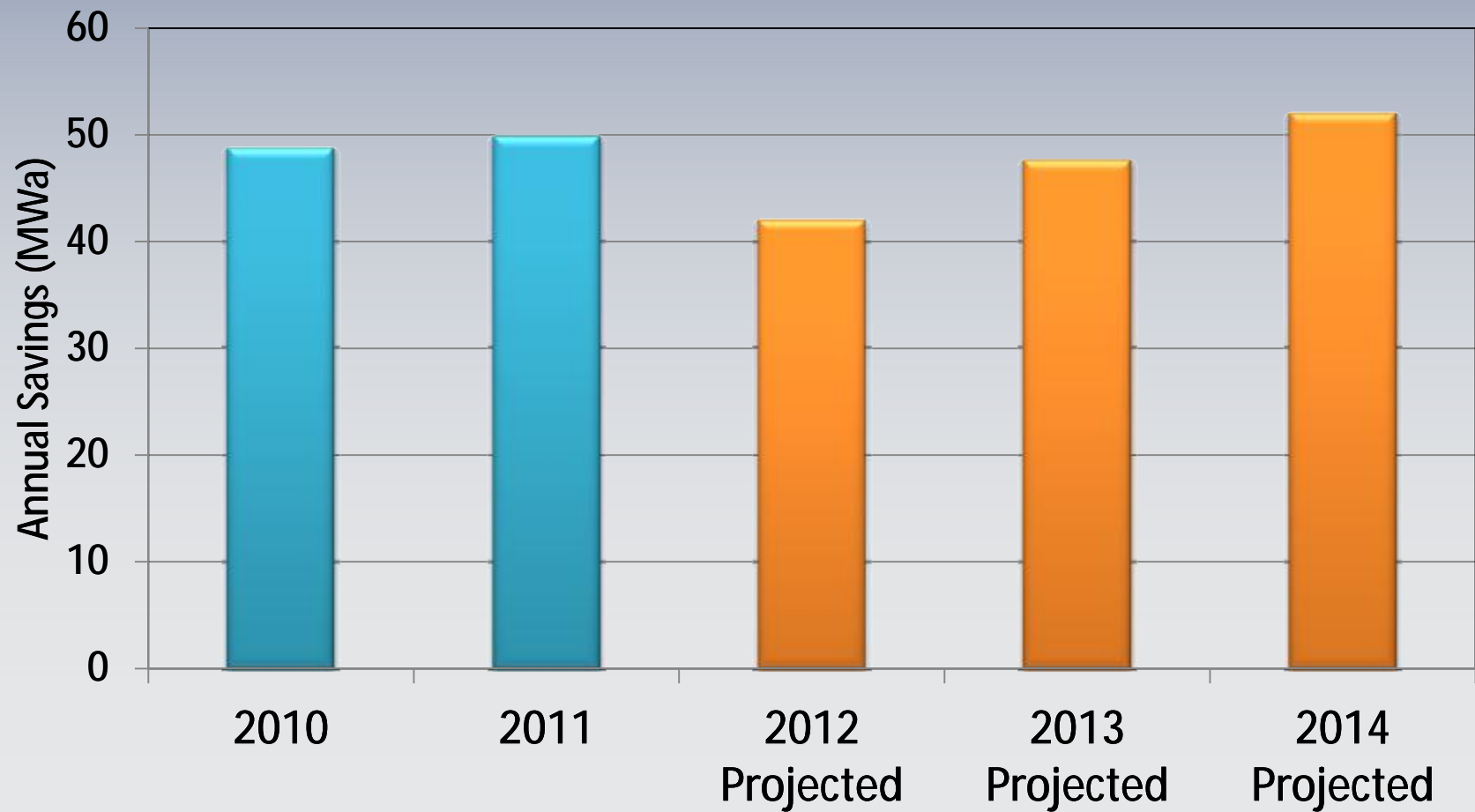


# Projections for 2012 – 2014 Savings by RCP Reporting Utilities\*

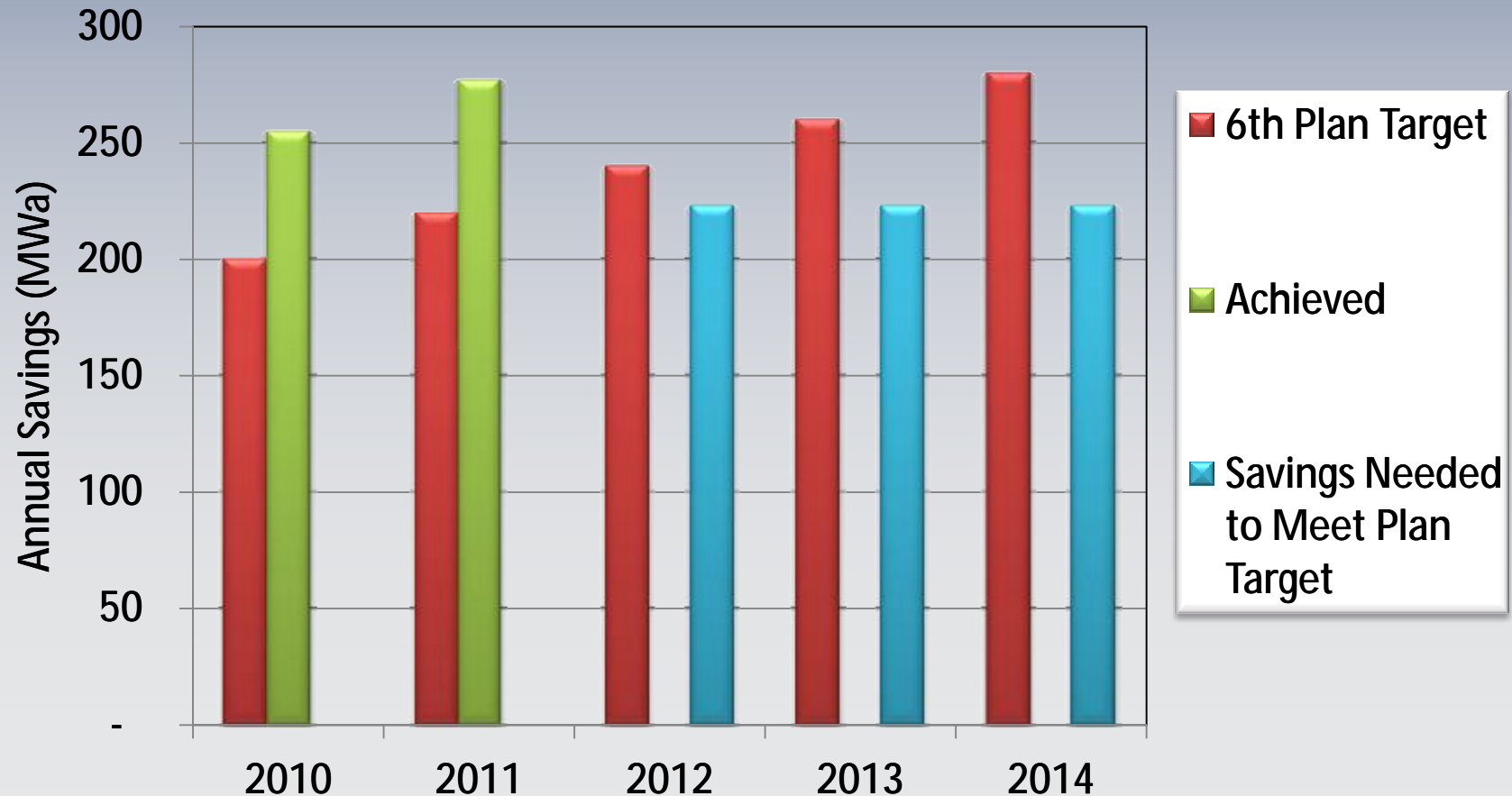


\*Excludes savings from NEEA, BPA direct acquisitions and utilities not filing RCP Reports.

# NEEA Savings Projections



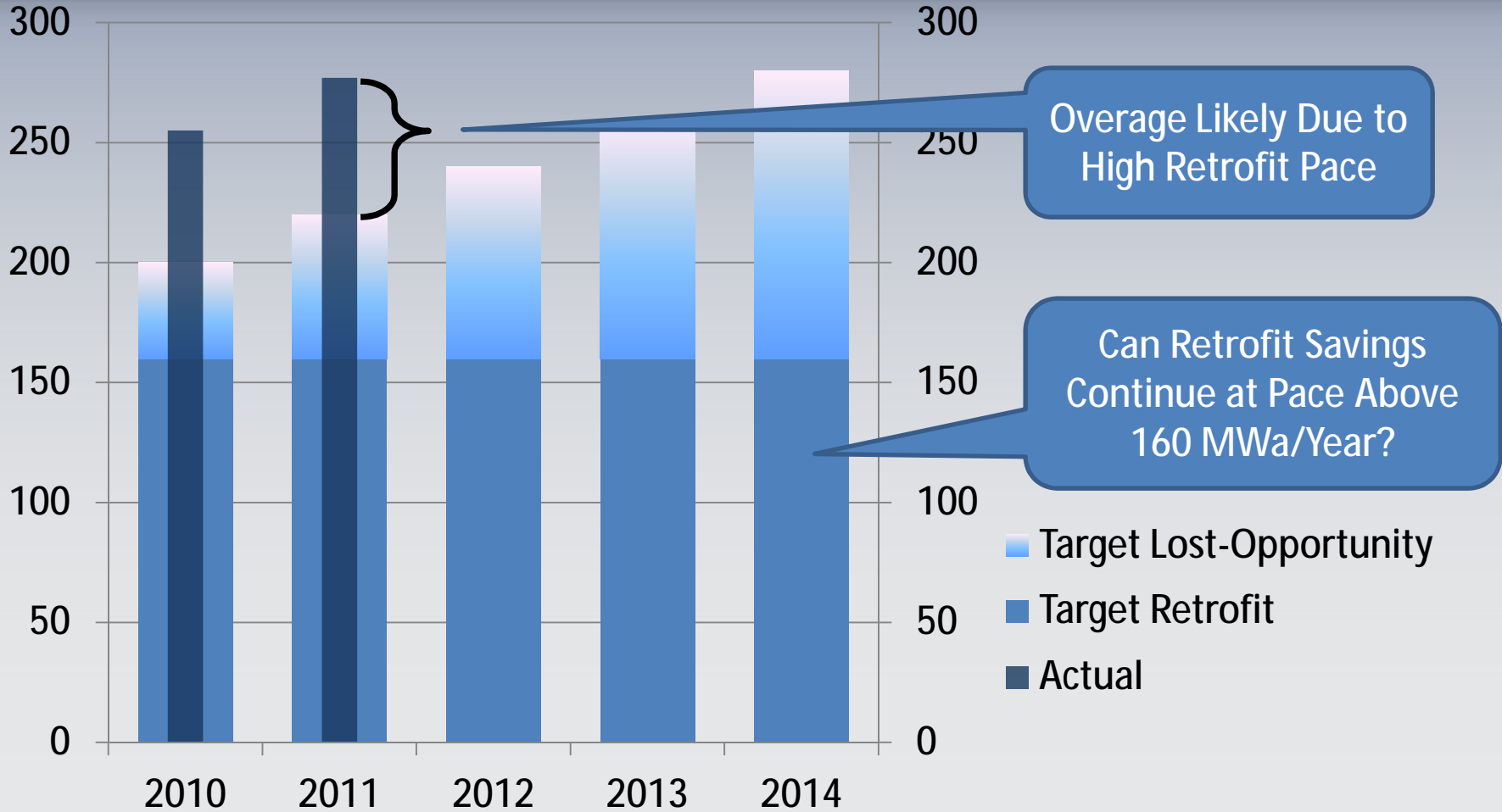
# 6<sup>th</sup> Plan's Target of 1200 MWa Within Reach If 2012-2014 Savings Average 225 MWa/yr\*



\*This is roughly 85% of the Plan's Annual Targets for 2012 -2014

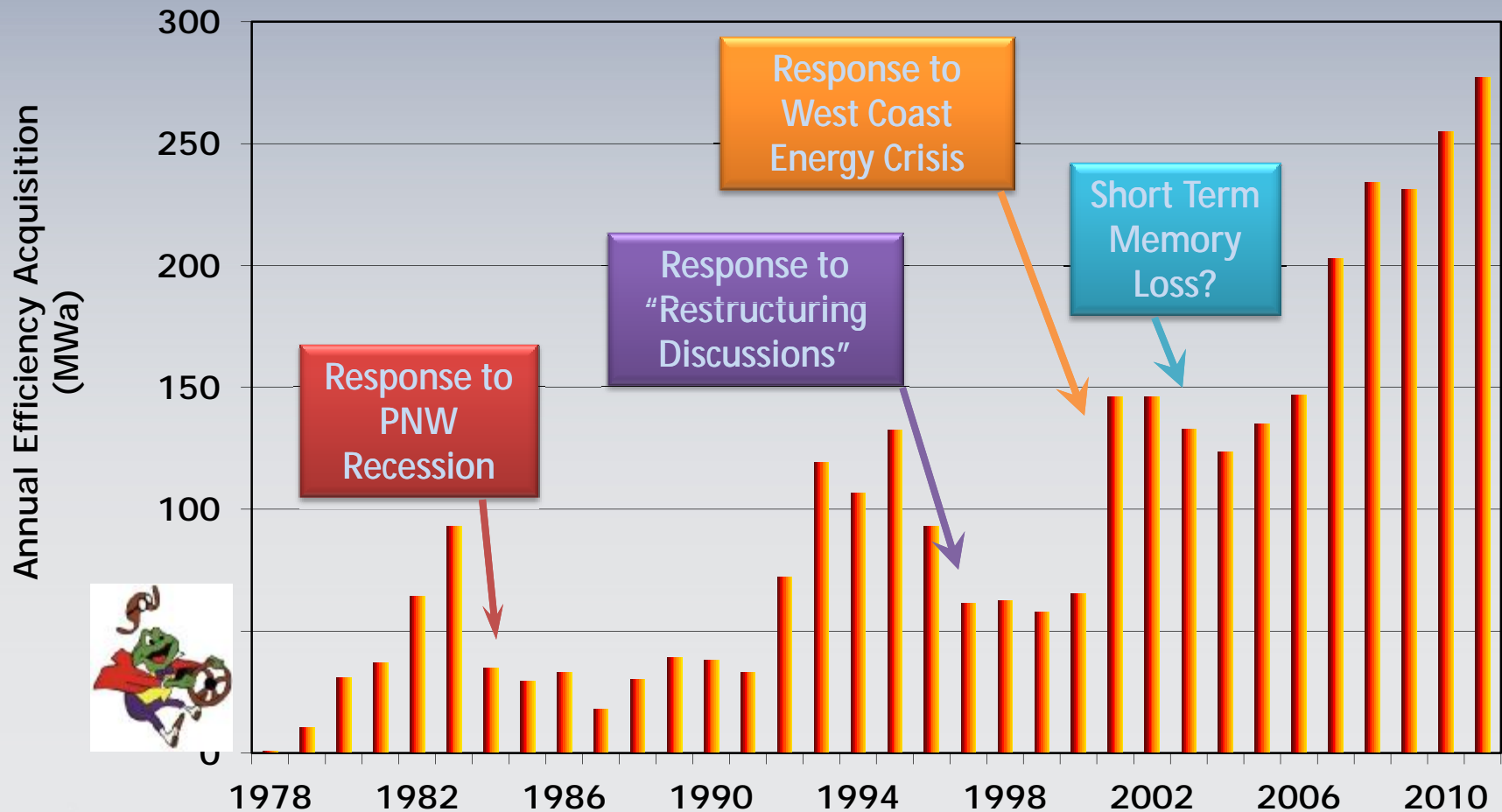
# Apparent High Retrofit Savings

## Recession Limited Lost-Opportunity Savings



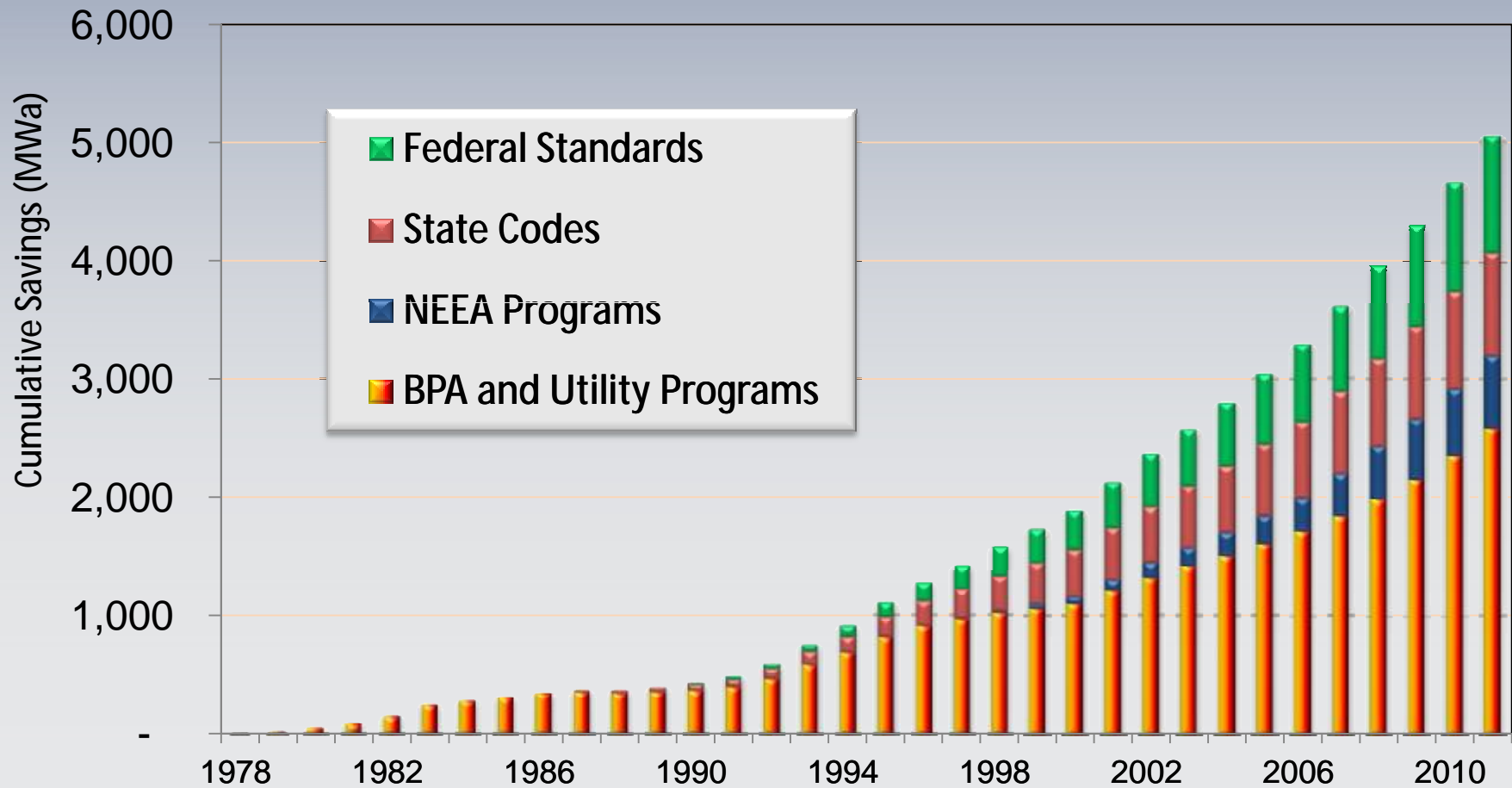
# Over Three Decades We Made Significant (If Uneven) Progress

*(Giving the Region's EE Industry Mr. Toad's Wild Ride!)*





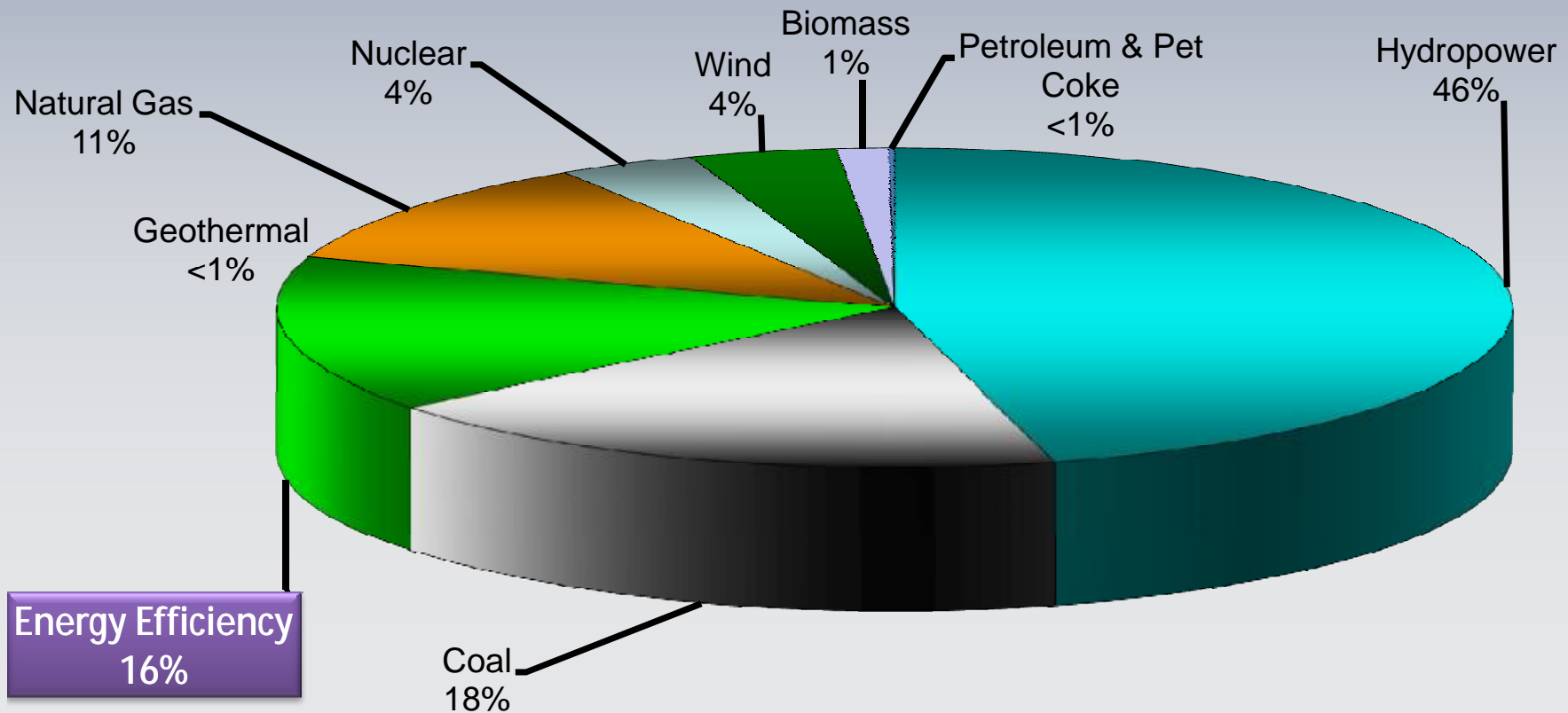
# Since 1978 Utility & BPA Programs, Energy Codes & Federal Efficiency Standards Have Produced Over 5000 MWa of Savings



# So What's 5000 MWa?

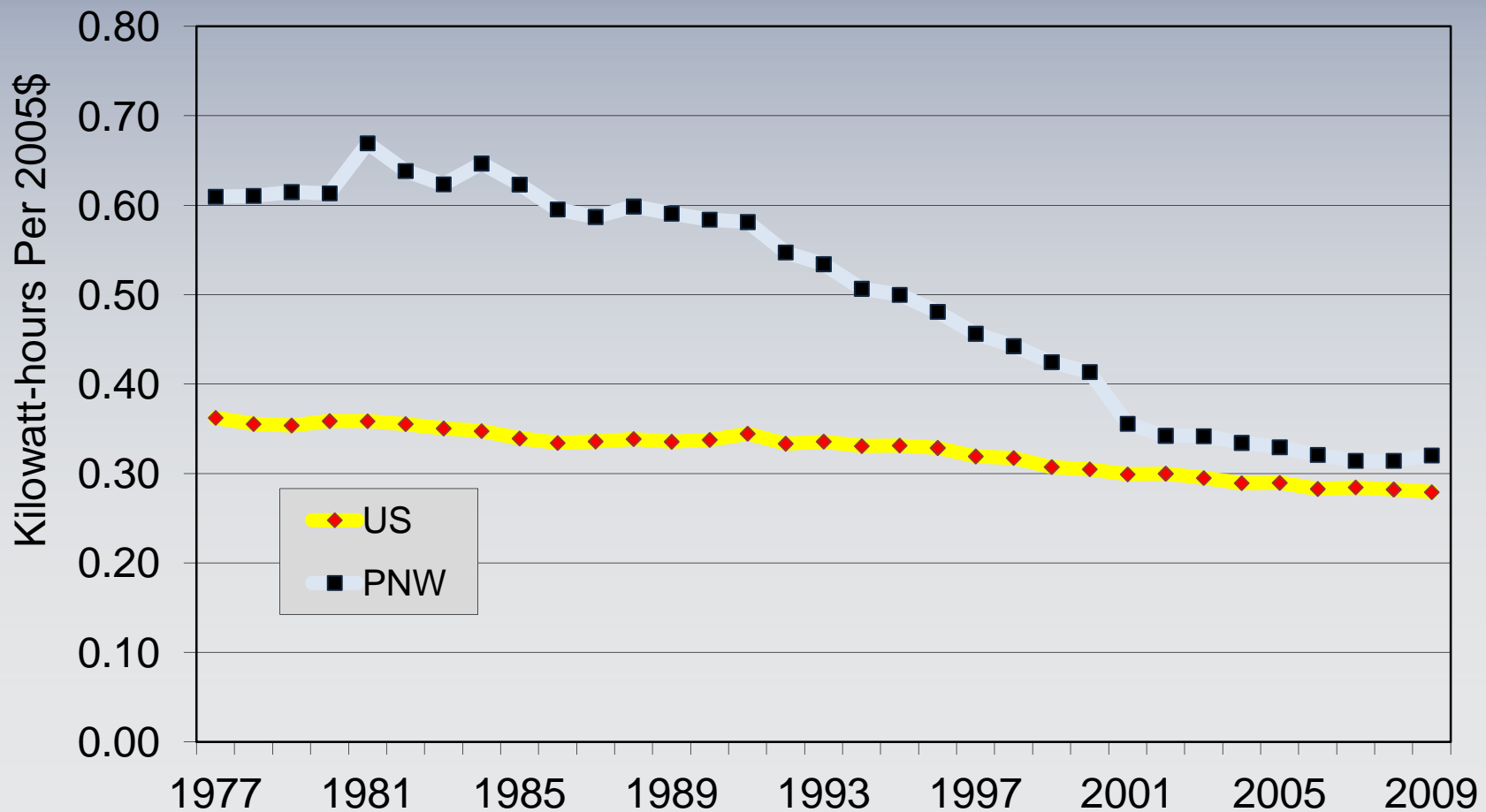
- § It's enough electricity to serve the nearly entire state of Oregon
- § It saved the region's consumers nearly \$3.1 billion in 2011
- § It lowered 2011 PNW carbon emissions by an estimated 19.8 million MTE.

# Energy Efficiency is Now the Region's Third-Largest Resource

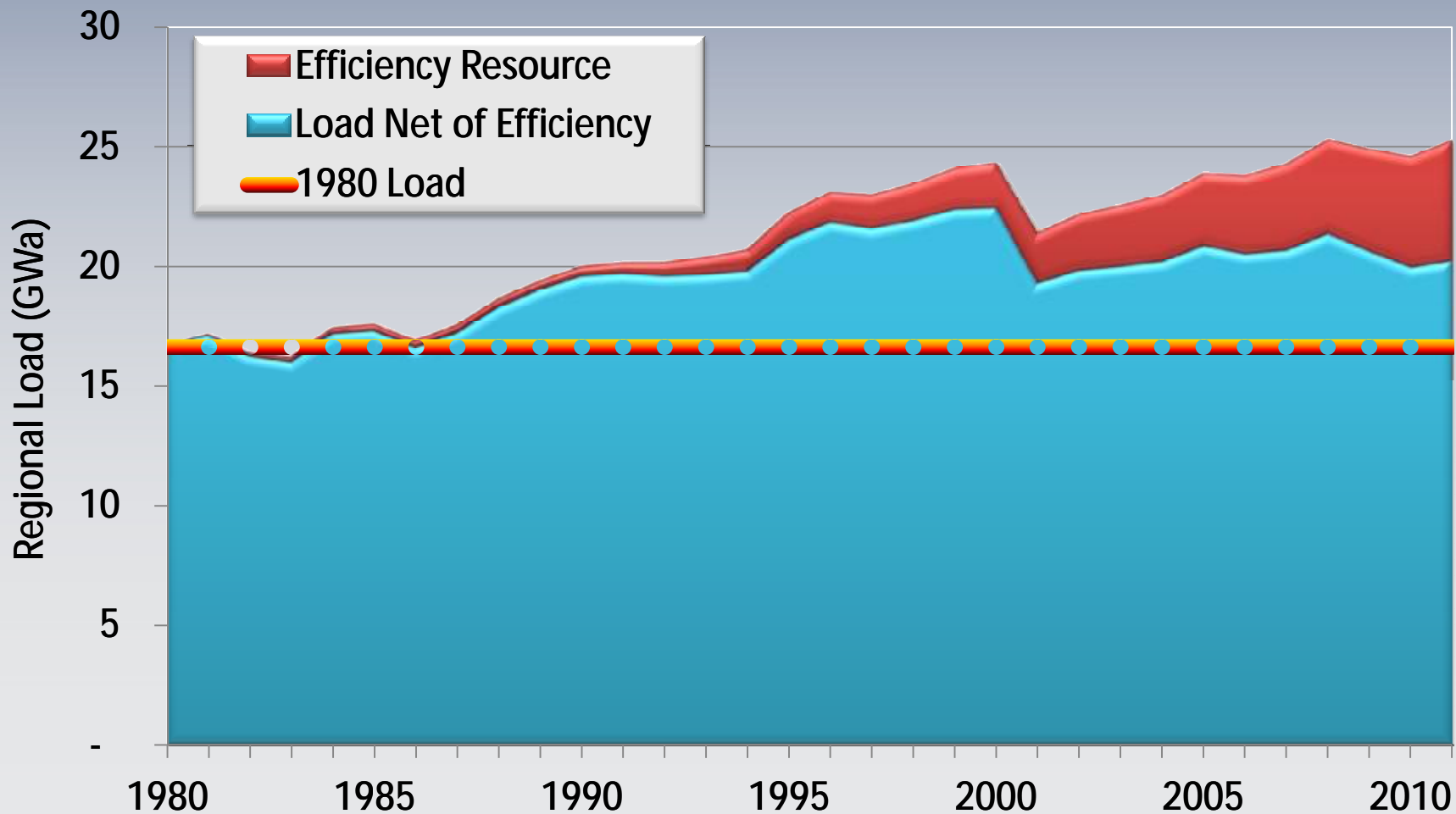


Based on Estimate of 2010 Actual Resource Dispatch/Contribution

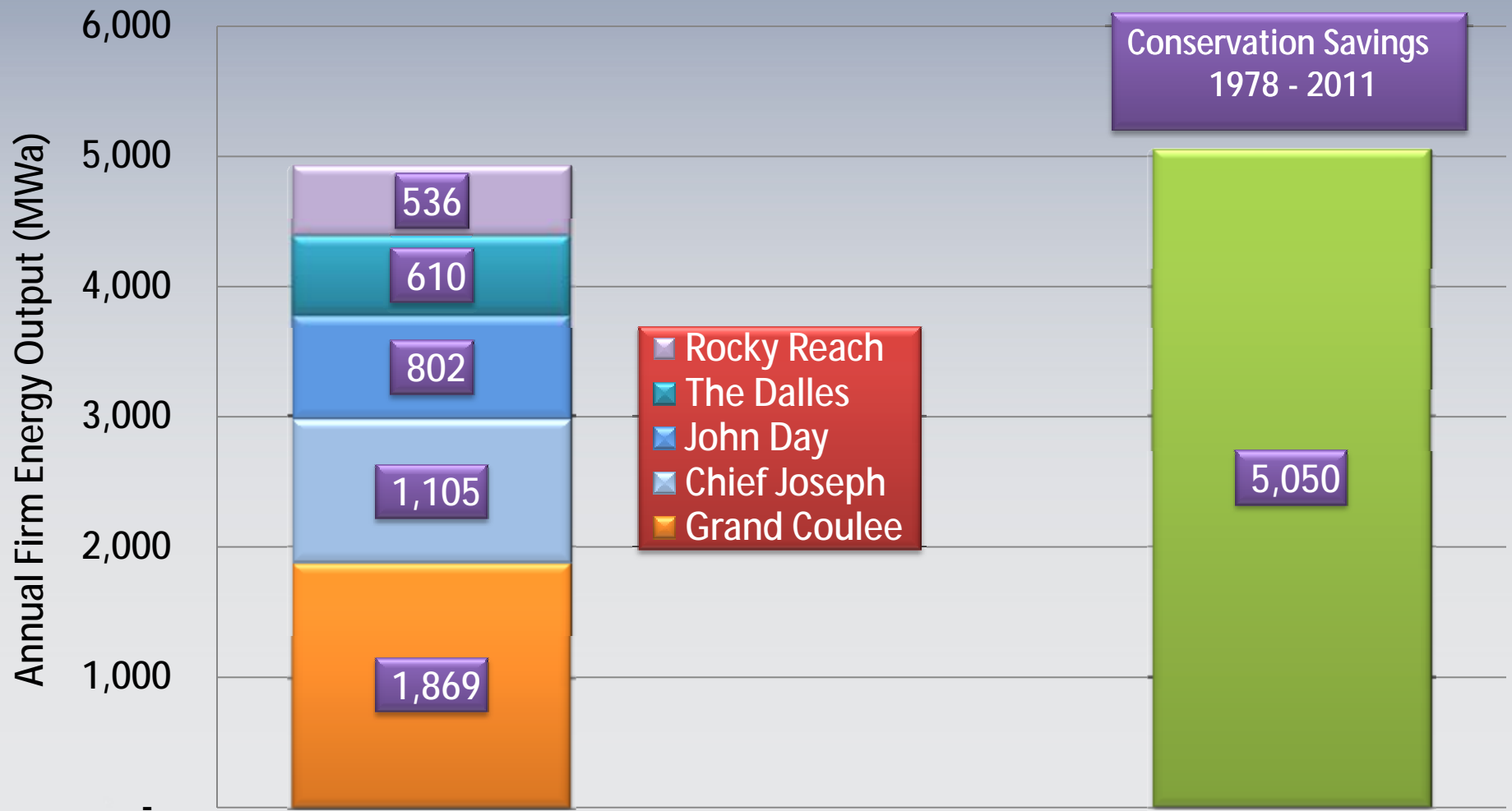
# PNW Electricity Use Per Dollar Gross Domestic Product (GDP) Has Declined Substantially Faster Than the National Average



# Efficiency Has Met Over 50% of PNW Load Growth Since 1980



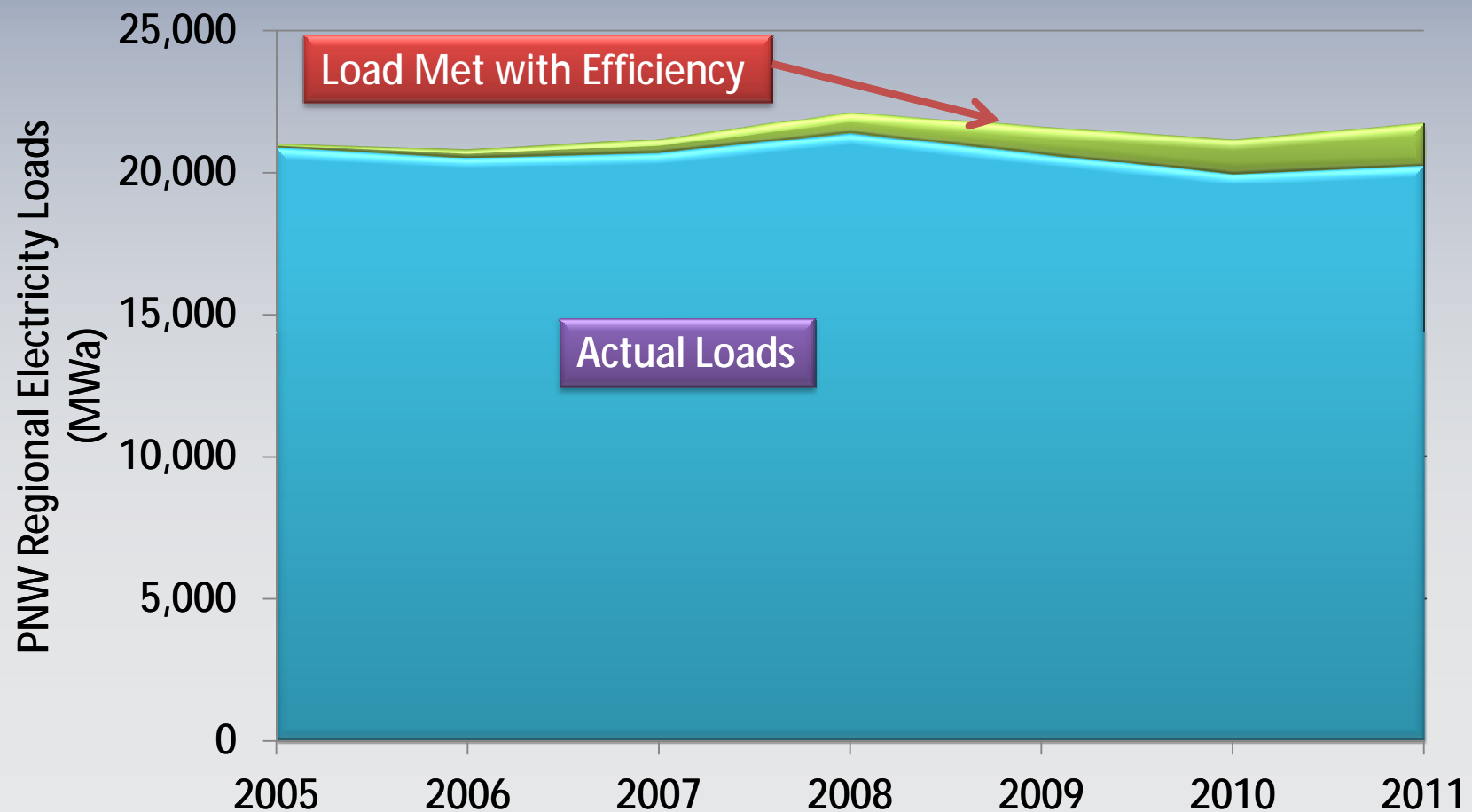
# Energy Efficiency Savings from 1978 – 2011 Exceed the Annual Firm Energy Output of the Five Largest Hydro Projects in the Region





# The Task Ahead

# Can We Cost-Effectively Meet Most or All Load Growth?

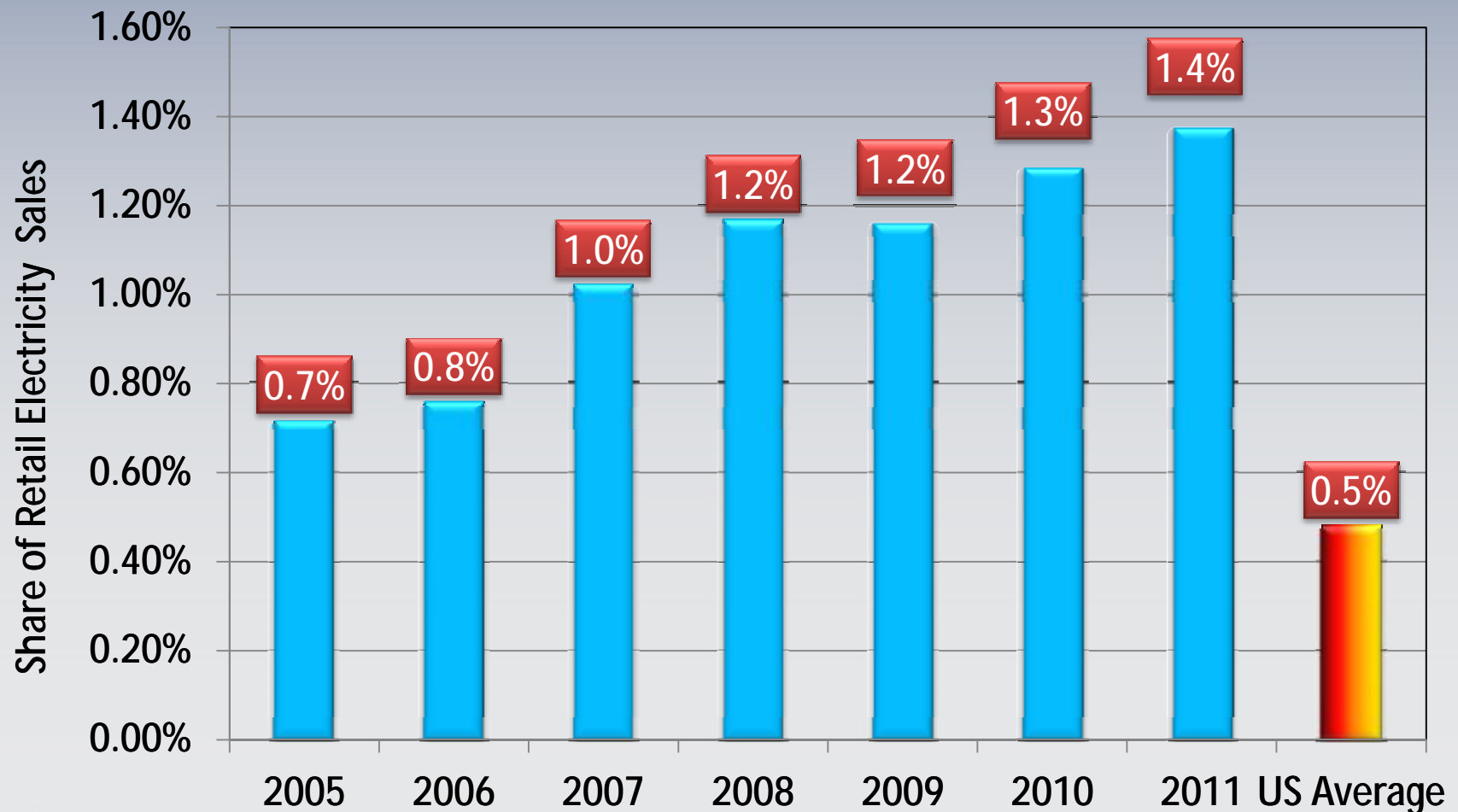


Caveat: Approximate impact only, since PNW Actual Loads are not weather adjusted.

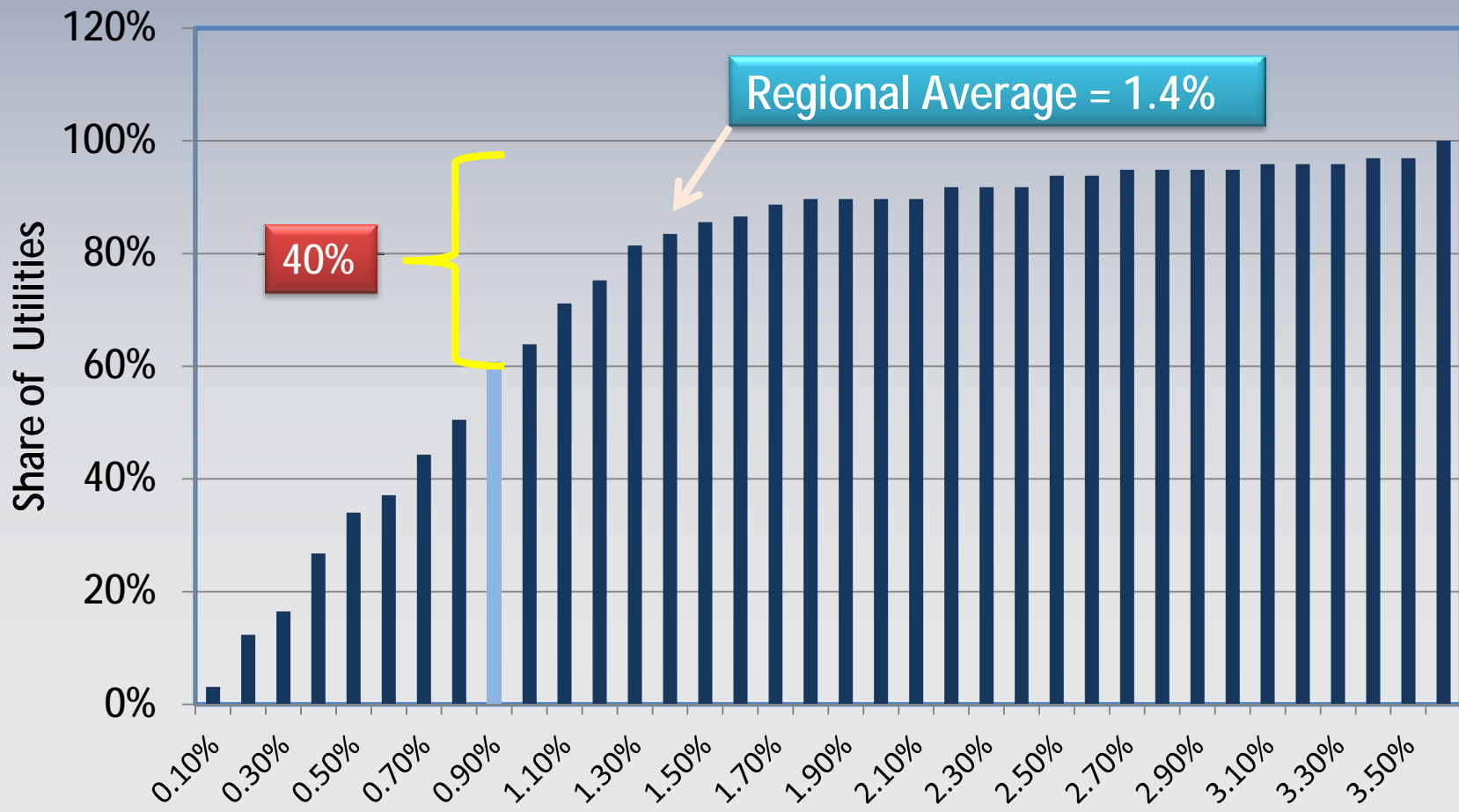


# Regional Savings Equaled Just Under 1.4% of Regional Electricity Sales in 2011

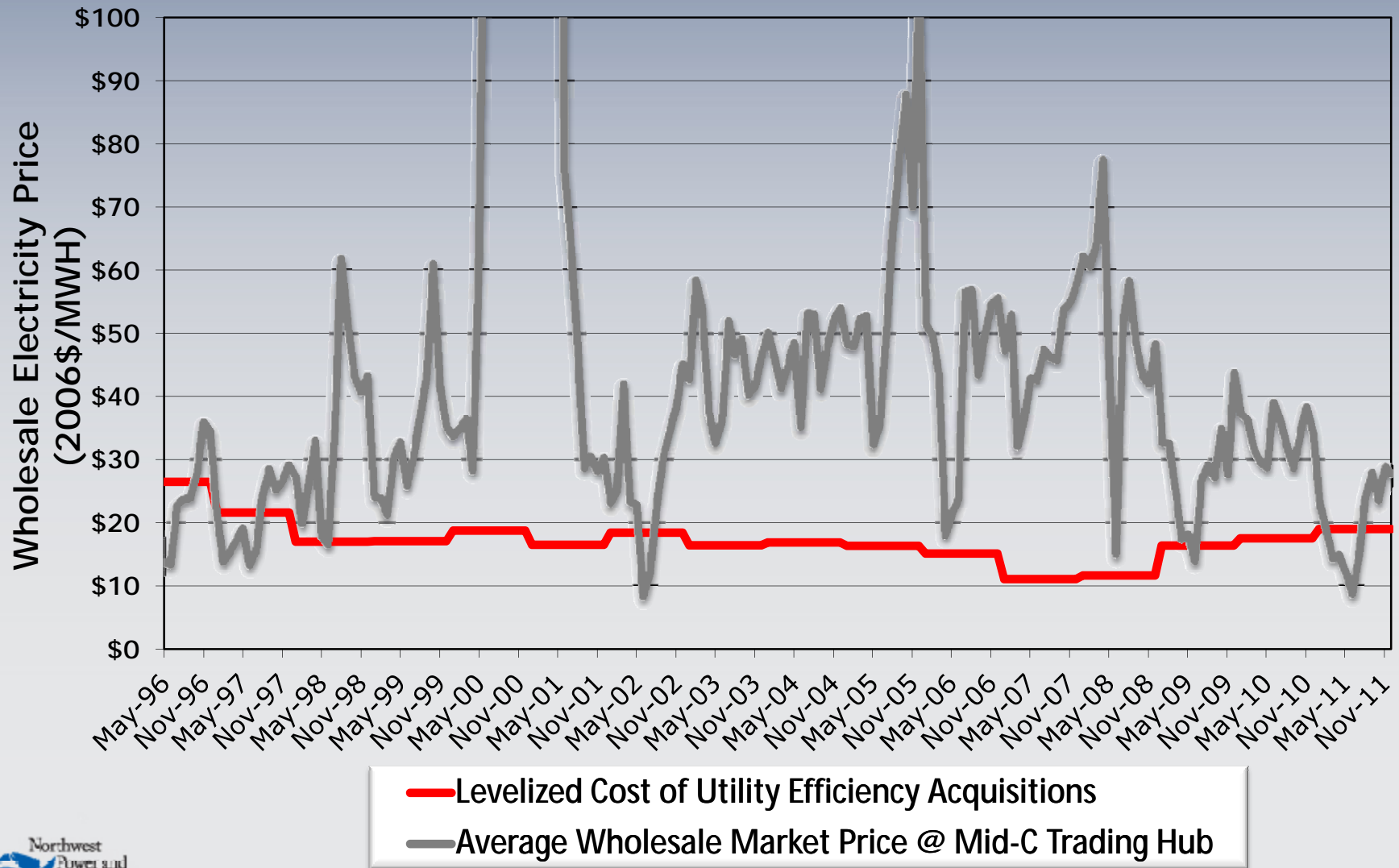
## Almost *Three Times* the National Average



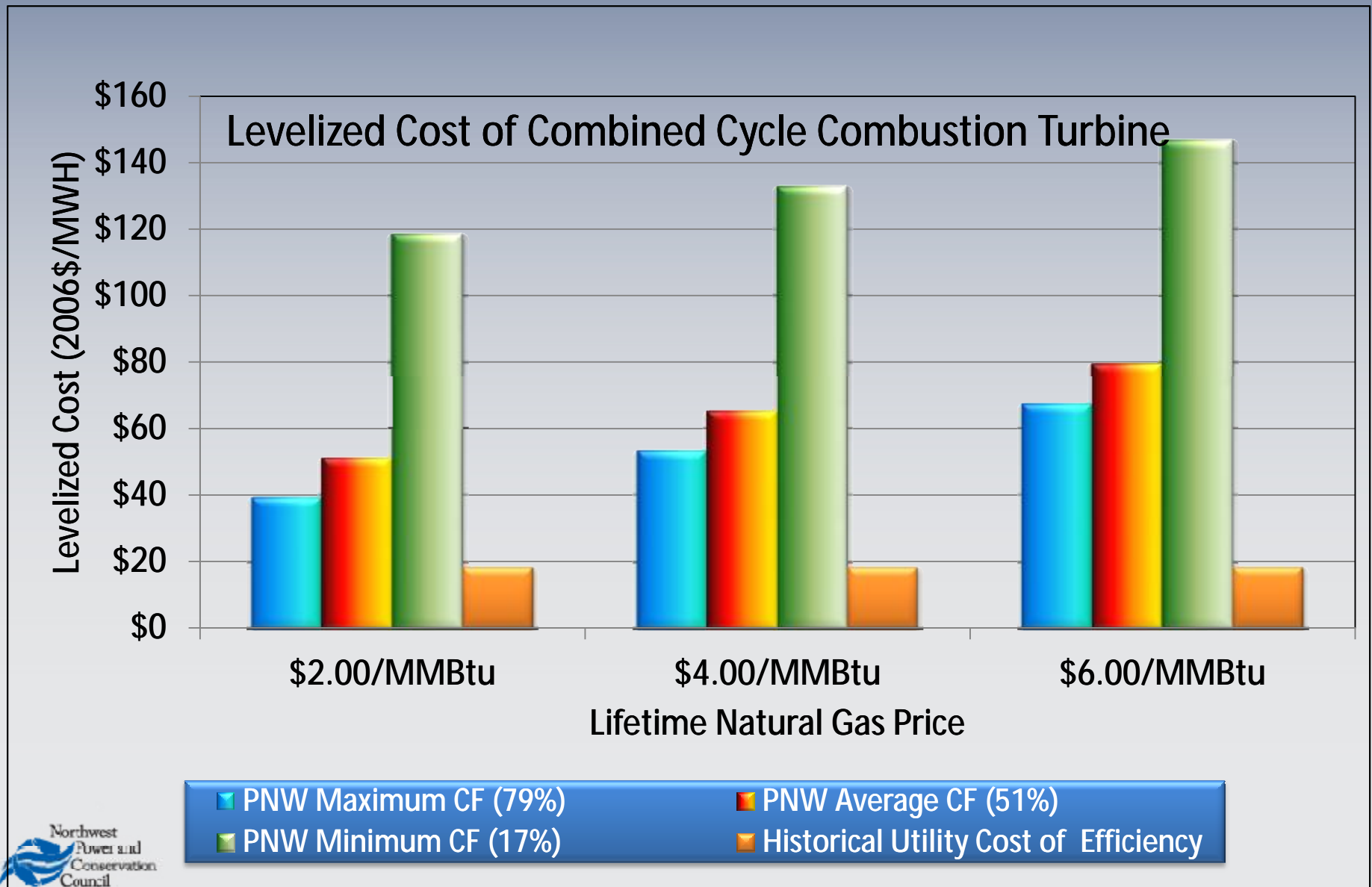
# 40% of the Region's Utilities Reported 2011 Efficiency Savings Equivalent to At Least 1% of Their Retail Sales



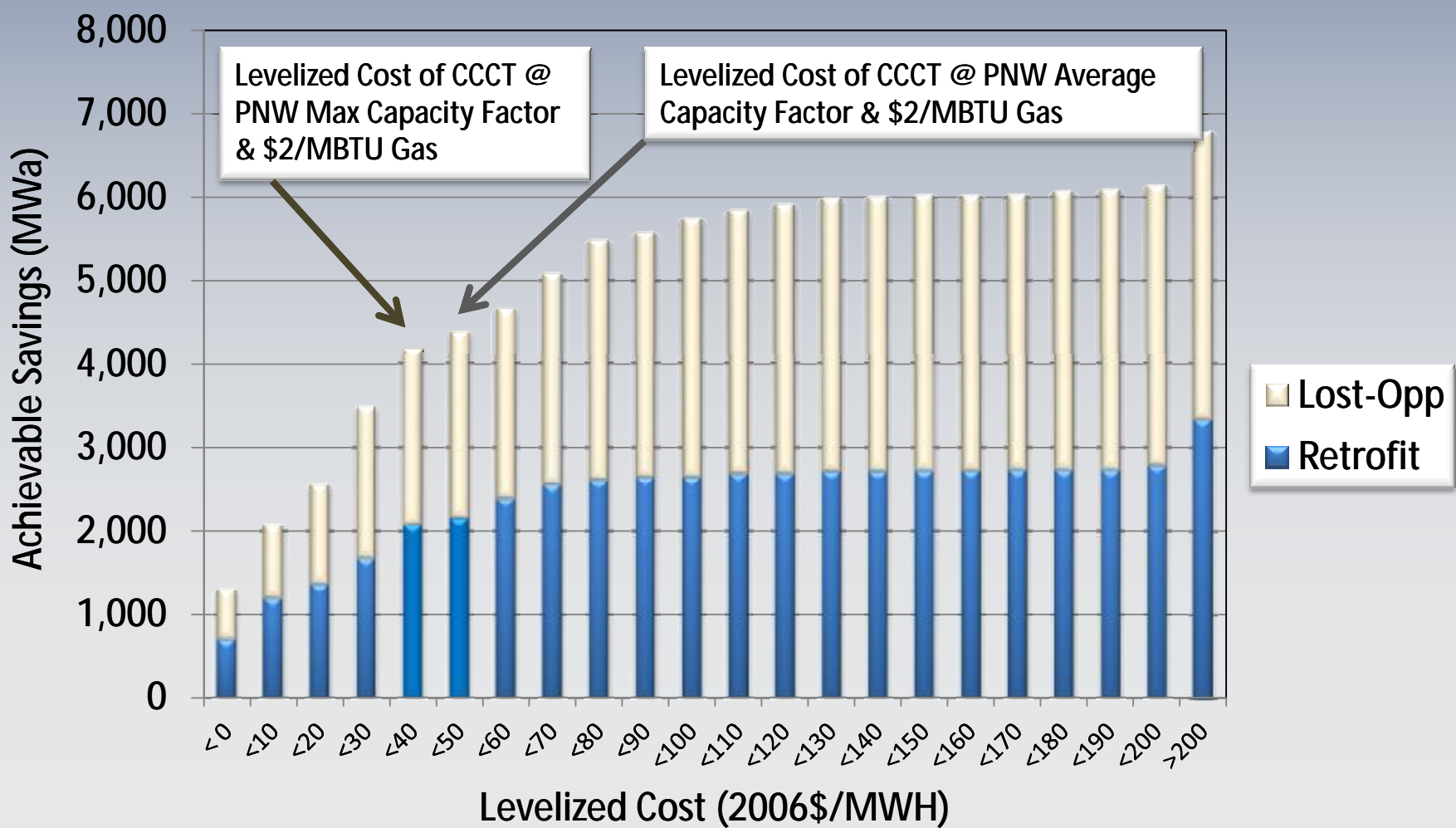
# Average Cost of Utility Acquired Savings Continues to Be Lower and Less Volatile Than Wholesale Market Electricity Prices



# Will Reduced Avoided Cost Limit Cost-Effective Potential?



# Over 4000 MWa of Achievable Potential\* Exists at Cost Below <\$40 MWH

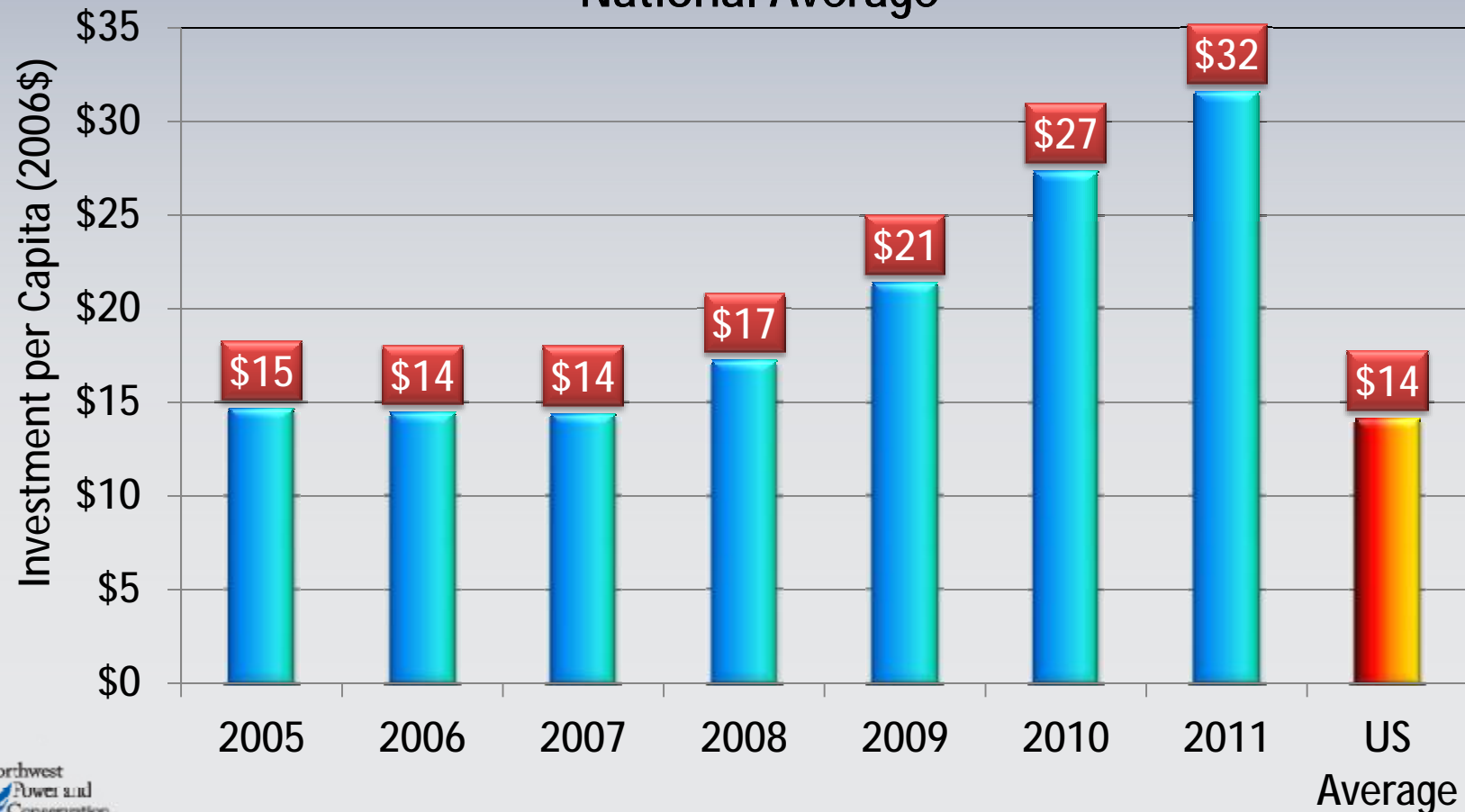


\*Lost-Opportunity Potential is Cumulative Amount Available Potential by 2030

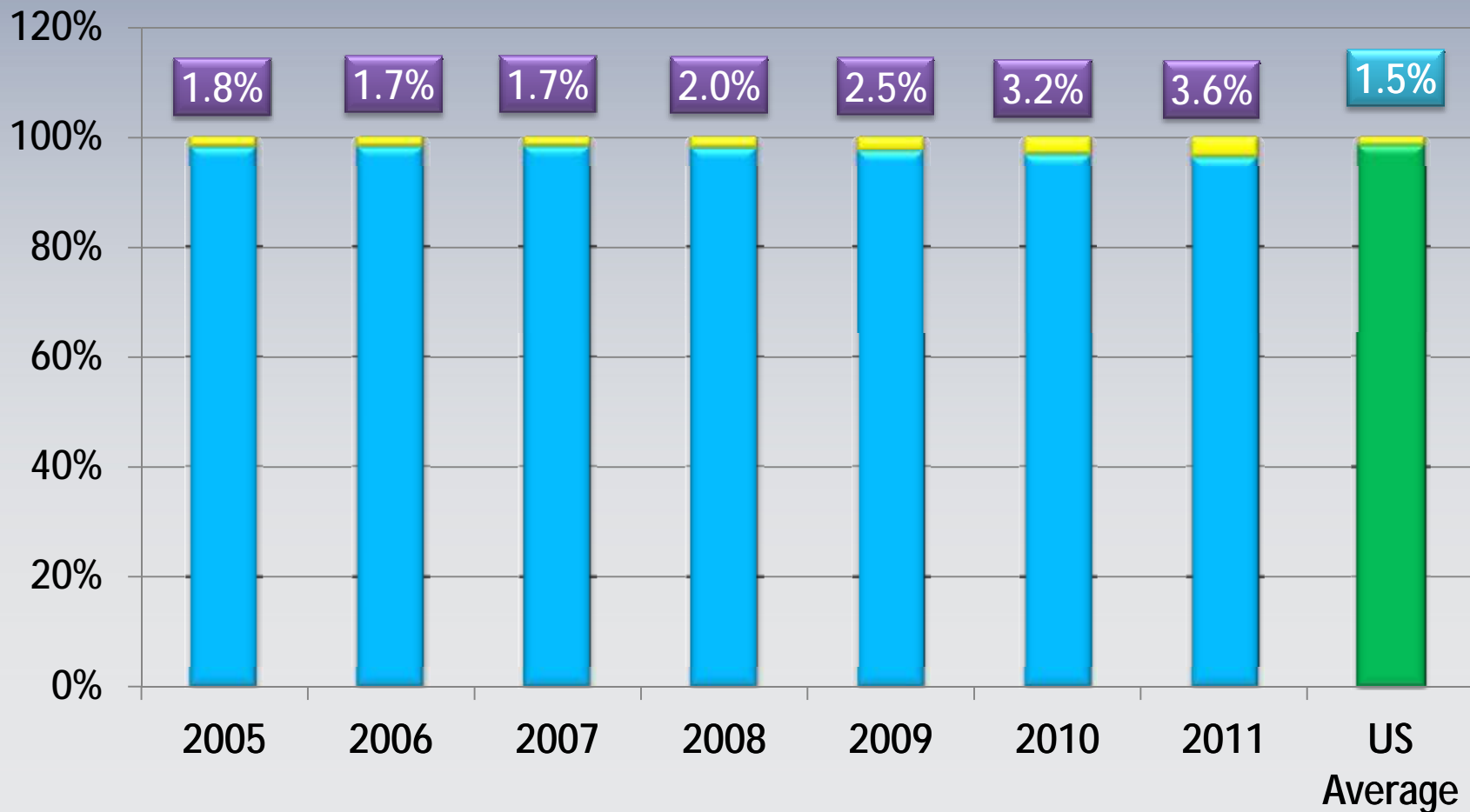


# Will We Be Able to Sustain Regional Energy Efficiency Investments?

NW Efficiency Investments Per Person Are *Double* the National Average



While We Invest 2 ½ Times the National Average  
(As A Share of Total Revenues) It's Less Than 4% of  
the Total



# Implementation Details

## § 2010 & 2011 Exceed Expectations

- Accelerated Retrofit Savings (++++)
- New Construction Savings Recession (-)

## § Federal Standards & State Codes (++)

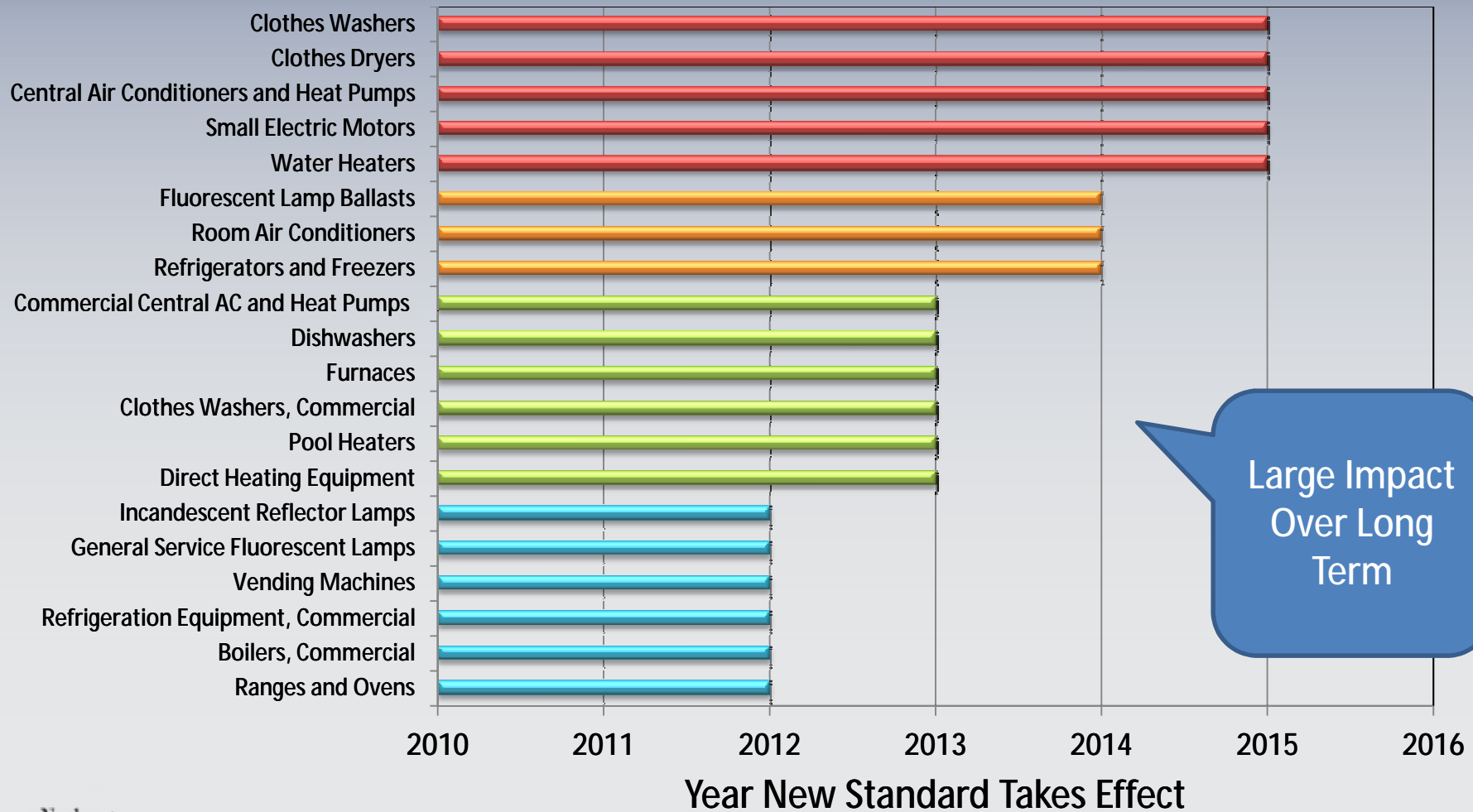
- Large Savings Long Term, Smaller Near Term

## § Progress on New EE Initiatives from 6P (+)

- New Measures Require New Methods
- New Initiatives approx. 250 of 1200 MWa Target
- Progress Mixed Bag -Mostly Good

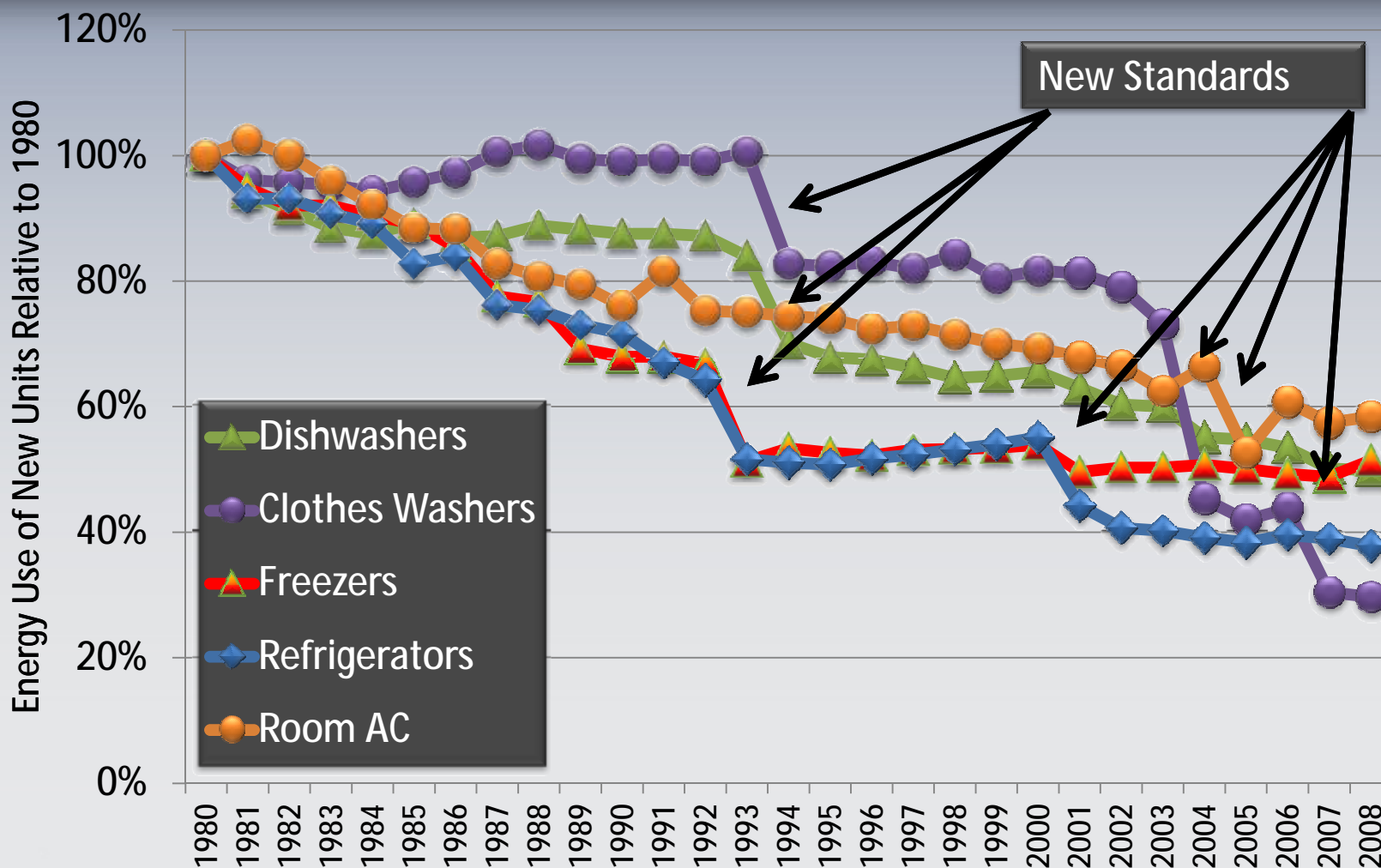


# 20 New Federal Standards In Effect by 2015



# Efficiency Standards Have a *Transformative* Effects

## Sales Weighted Relative Use of Appliances 1980 - 2008



# State Building Codes

- § **All Four States Updated Energy Codes**
  - Residential & Commercial
- § **Significant Improvements New & Remodel**
- § **Limited Near-Term Impact: Recession**
- § **Significant Impact Long-Term**
  - Growing New and Remodel Building Stock

# New Initiative Progress

(Approx 250 of 1200 MWa 2010-2014)

§ HP Water Heaters	(++)
§ Consumer Electronics (TVs)	(+++)
§ Ductless Heat Pumps	(++)
§ Commercial Lighting Systems	(+)
§ Outdoor Lighting	(+)
§ Distribution System Efficiency	(?)
§ Industrial	(+++)

# Heat Pump Water Heaters

- § Lab & Field Testing
- § New Products Available
- § Specs for Cold Climate
- § Unit Savings Lower than 6P
- § Costs Falling
- § Federal Standard 2015



# Televisions

- § NEEA & Utilities
- § Major Retailers
- § Media Campaign
- § EE TVs 45% of Market
- § +2x Plan Targets
- § 24 MWa in 2011



# Commercial Lighting Design

- § **Federal Standard Lamps & Ballasts**
  - Efficiency Equipment Mandated 2012-2014
  - Forces Retrofit Program Changes
- § **Pilot Test Methods & Design Approaches**
- § **25-30% Savings Over Typical Retrofit**
- § **Training & Infrastructure Needs**
- § **Federal Standards Delayed 2 Years**
  - Rare Earth Phosphor Shortage

# Industrial

## § Acceleration of Savings

- 50% Increase Over 2009 Savings

## § Strategic Energy Management

- New Measure 6<sup>th</sup> Plan
- Significant Uptake 2011 – BPA, ETO & NEEA
- Coordinated Regional Rollout
- Expect Significant Growth



# 50 Years to Develop the PNW Hydro-System Energy Efficiency Can Extend That Legacy

