Northwest **Power** and **Conservation** Council

April 28, 2015

MEMORANDUM

TO: Council Members

FROM: Massoud Jourabchi

SUBJECT: NW Utility Sales, Revenues and Price Trends- 2007-2014

BACKGROUND:

Presenter: Massoud Jourabchi

Summary: The Council monitors regional economic and energy conditions. This presentation will summarize recent regional trends in employment, economic output and weather and their impacts on electricity sales for 2007-2014. Data from the US Bureau of Economic Analysis, NOAA, and utility filings with Department of Energy serve as the basis this analysis.

Overall, since 2007 regional retail sales of electricity have been stable, while the regional economy and employment have grown. In 2013 retail sales of electricity in the residential and commercial sectors increased while electricity use in the industrial sector declined. Total regional electricity utility revenues increased. However, the average revenue per kilowatt-hour for IOUs increased while the Public Utilities' average revenue per kilowatt-hour remained basically unchanged.

Relevance: Historic sales impact future load forecast.

Workplan: 1.B. Update load forecast

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Review of Electric Sales, Revenues and Prices 2007-2014*

May 2015

Massoud Jourabchi

In Today‘s Informational Presentation

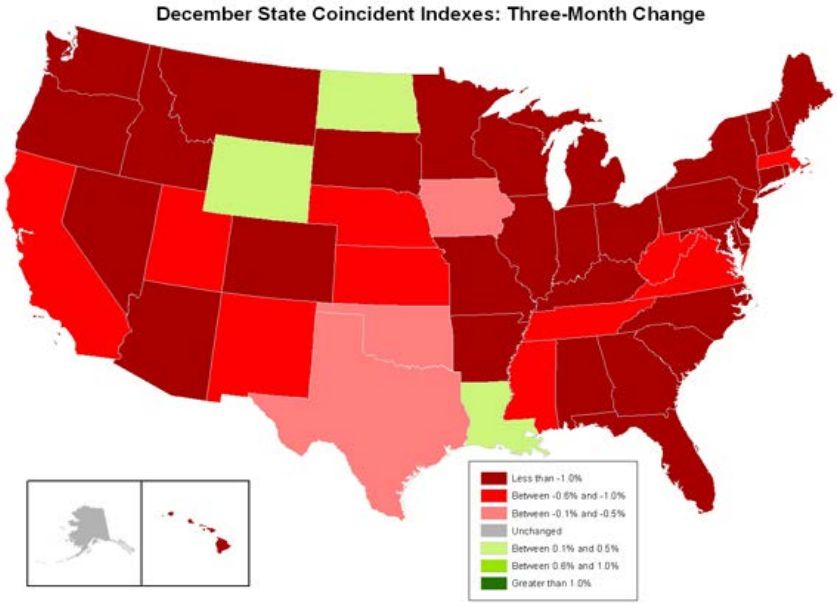
- State of Economy in 2007-2014
- Impact of weather
- Electric Sales, Revenue and prices
- Doing more and doing it more efficiently

Review of 2007-2014

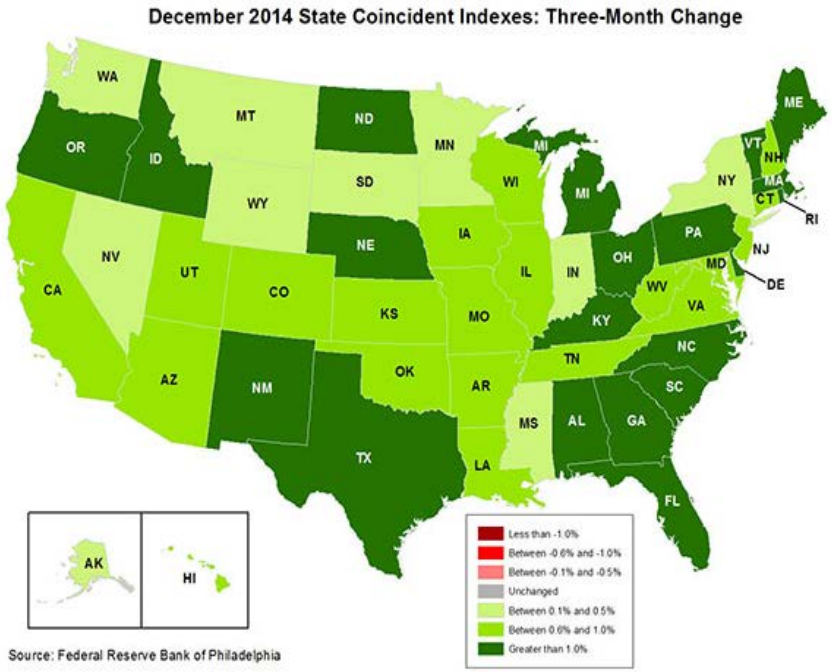
- Using individual utility reported data to US DOE (EIA 861 & 826) we can say this about electric utility industry in the region:
  - Sales are growing
  - Revenues are up
  - Average revenue per MWH of sales is up
  - Electricity bills per household are modest and slowly growing.

State of Economy: Regional Economy is Improving

Dec 2008



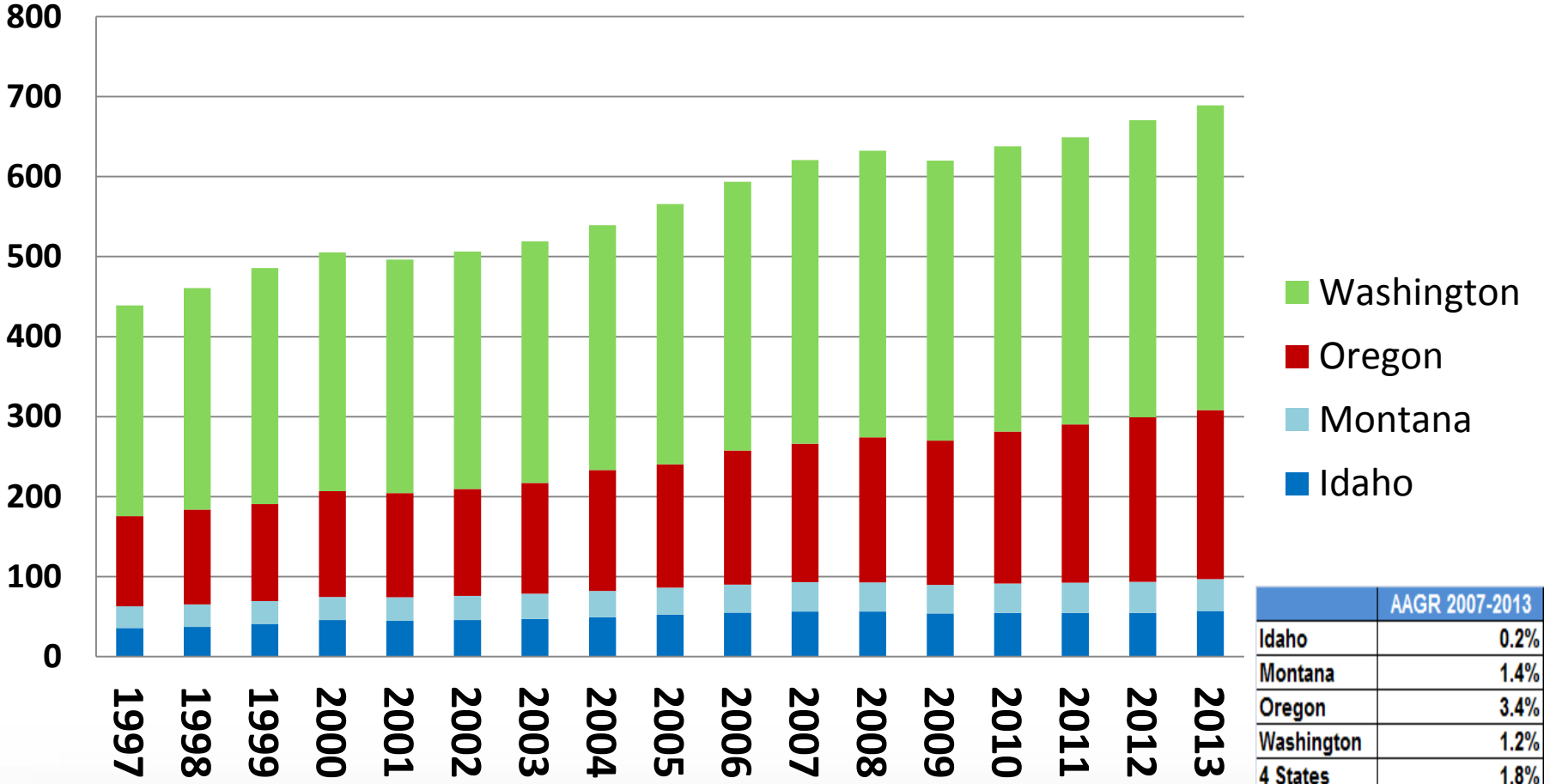
December 2014



Source: Federal Reserve Bank of Philadelphia

State Coincident Index 2008, 2014

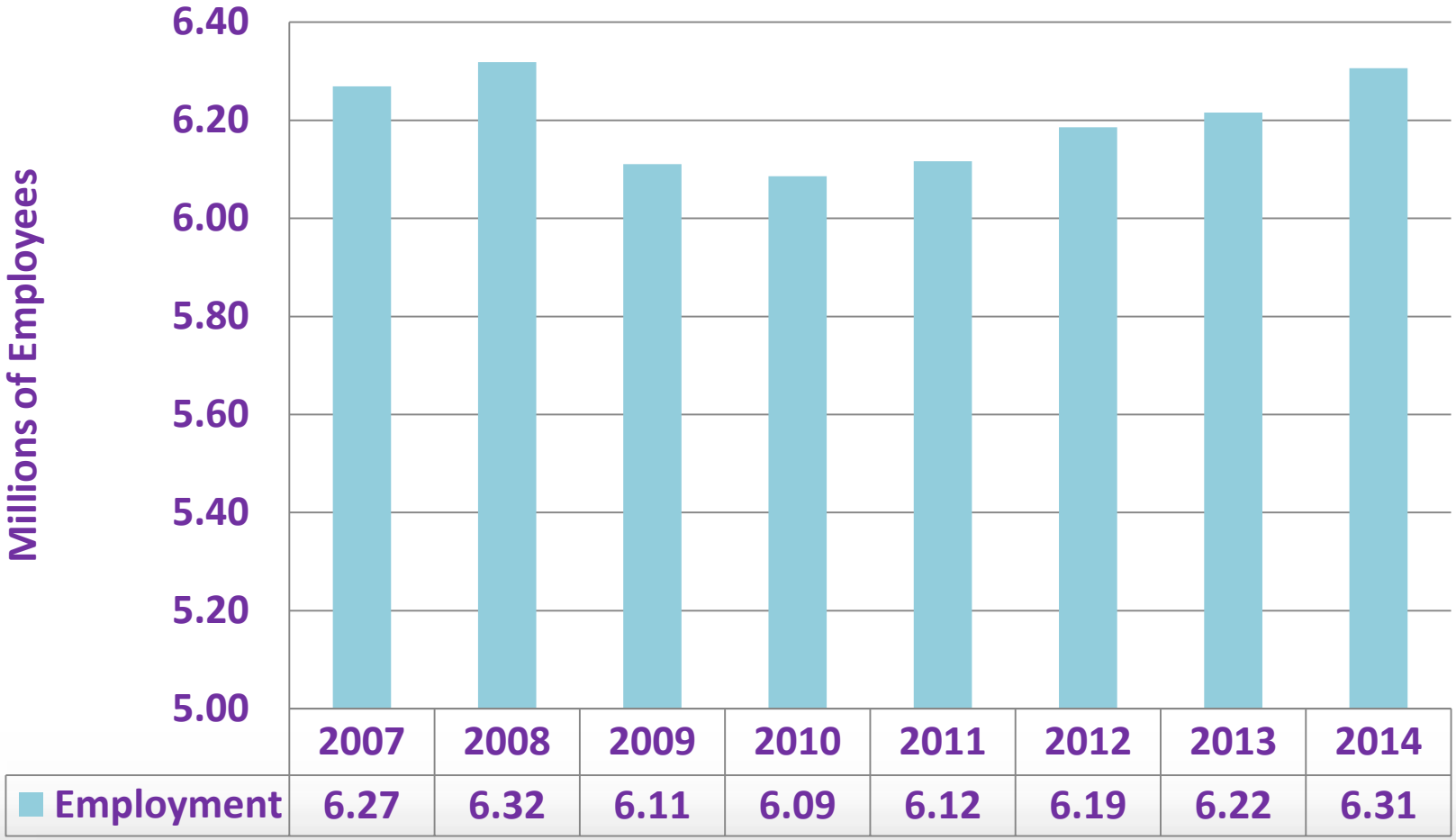
Regional Economy is growing
Gross State Product (billions 2009$)
in 2013 regional economy grow by about 3%



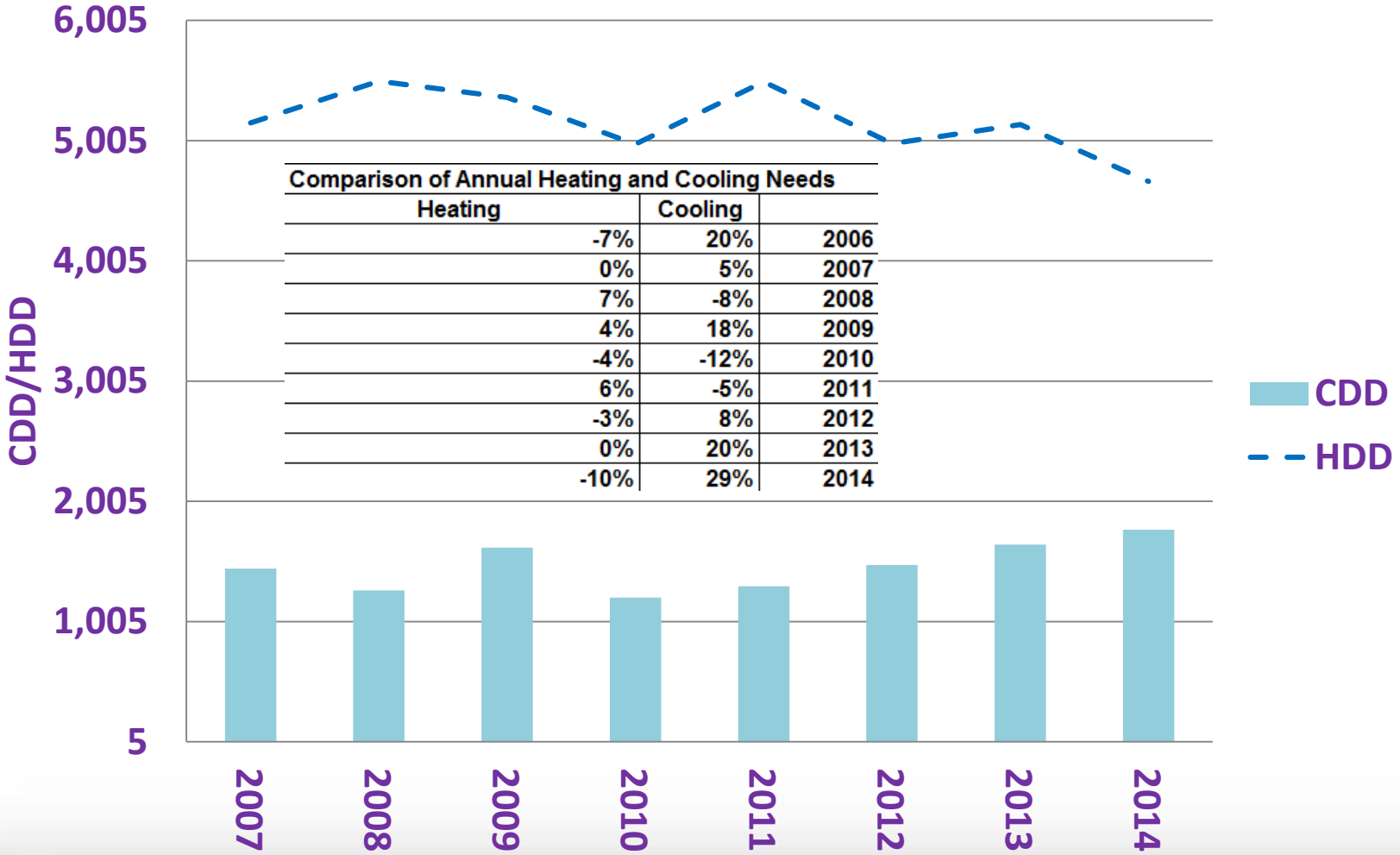
	AAGR 2007-2013
Idaho	0.2%
Montana	1.4%
Oregon	3.4%
Washington	1.2%
4 States	1.8%

Gross Domestic Product from : BEA
2013 data is subject to change

Region is adding Jobs about 100,000 jobs in 2014 reaching pre-recession levels



Cooling Requirement for Summer of 2014 was 29% above Historic Average While Winter Heating was 10% Lower Than Average



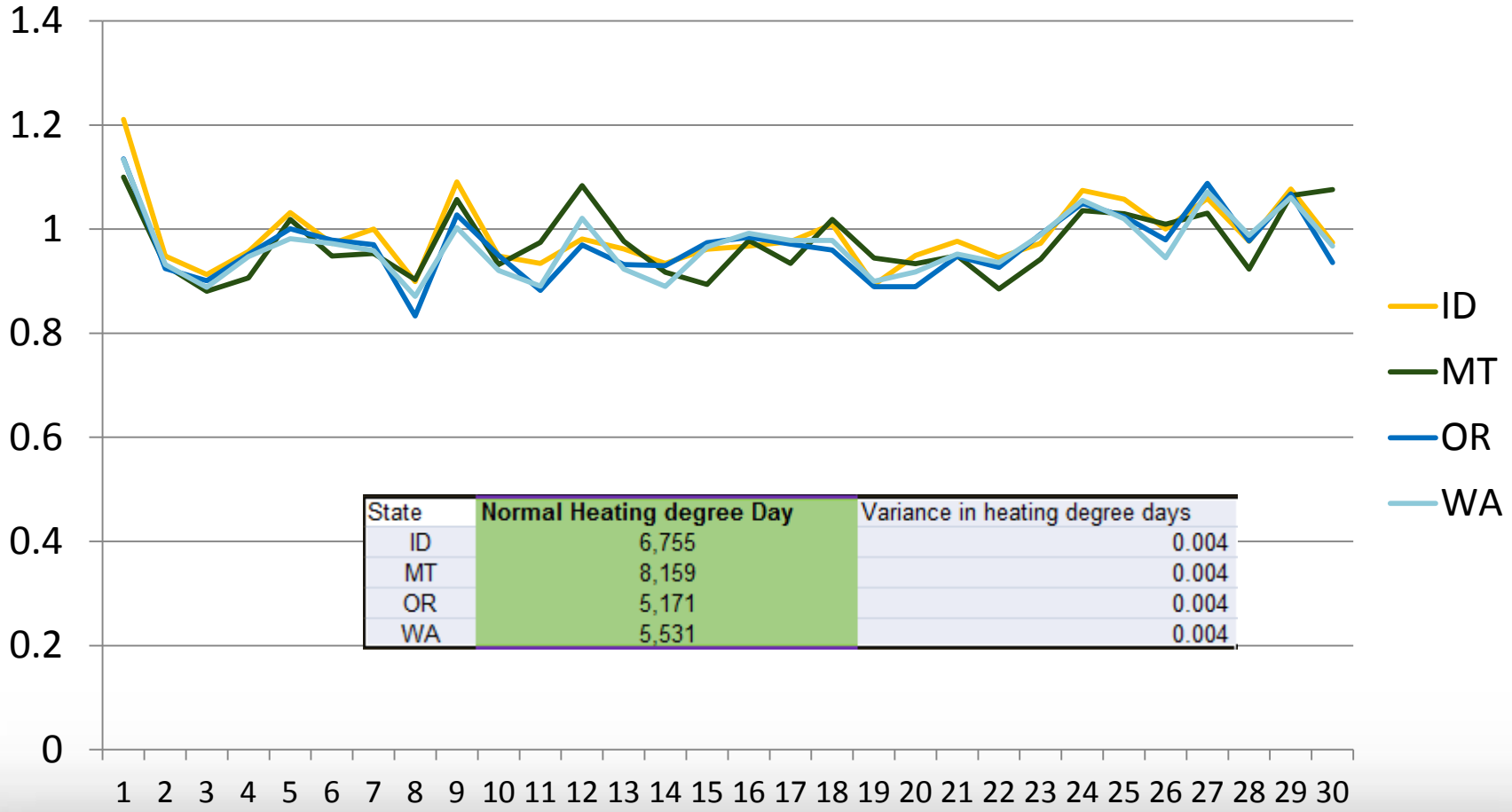
Comparison of Annual Heating and Cooling Needs

Heating	Cooling	
-7%	20%	2006
0%	5%	2007
7%	-8%	2008
4%	18%	2009
-4%	-12%	2010
6%	-5%	2011
-3%	8%	2012
0%	20%	2013
-10%	29%	2014

CDD: Cooling Degree Days
HDD: Heating Degree Days

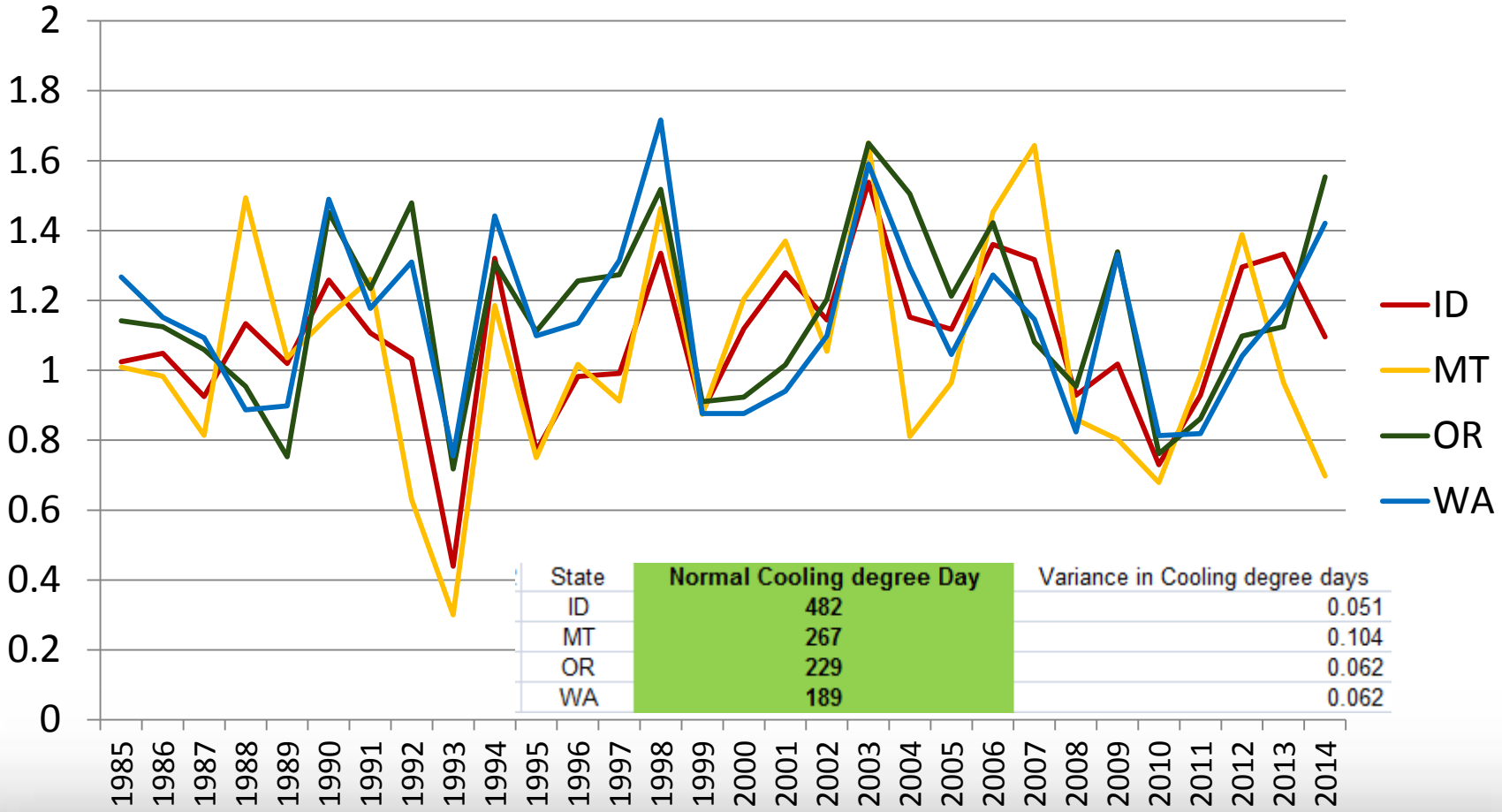
Variation in Winter Temperatures indexed to Historic Normal

Less Variations than Summer



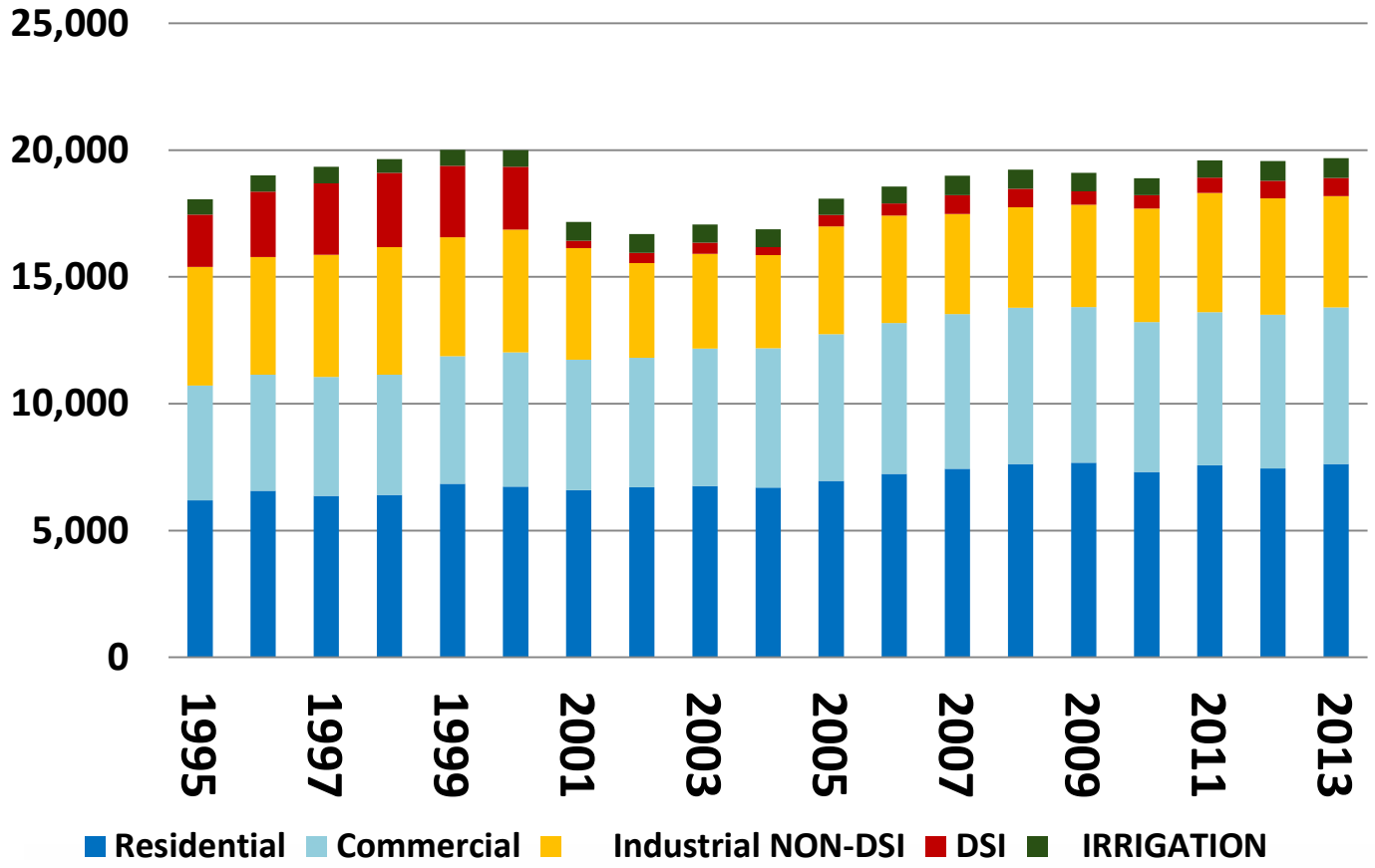
State	Normal Heating degree Day	Variance in heating degree days
ID	6,755	0.004
MT	8,159	0.004
OR	5,171	0.004
WA	5,531	0.004

Variation in Summer Temperatures indexed to Historic Normal



State	Normal Cooling degree Day	Variance in Cooling degree days
ID	482	0.051
MT	267	0.104
OR	229	0.062
WA	189	0.062

Overall Sector Level Sales have been flat for past few years (MWA)

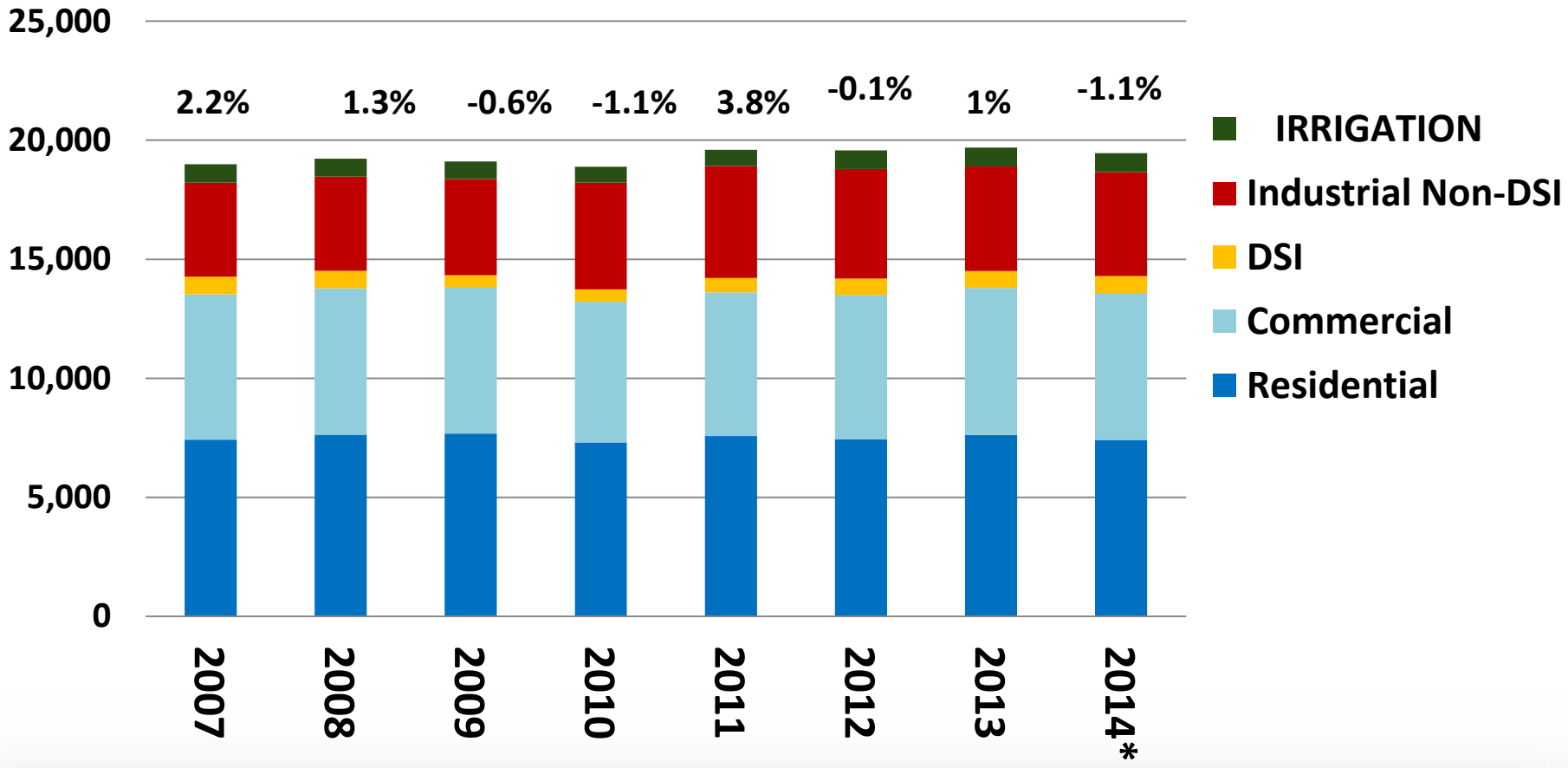


Change in Sales during 2013	
Commercial	114
Residential	174
Industrial – Non DSI	(208)
DSI	27
Irrigation	13
Total Sales	120
Total Non-DSI sales	93

Regional Sales (Average MW)

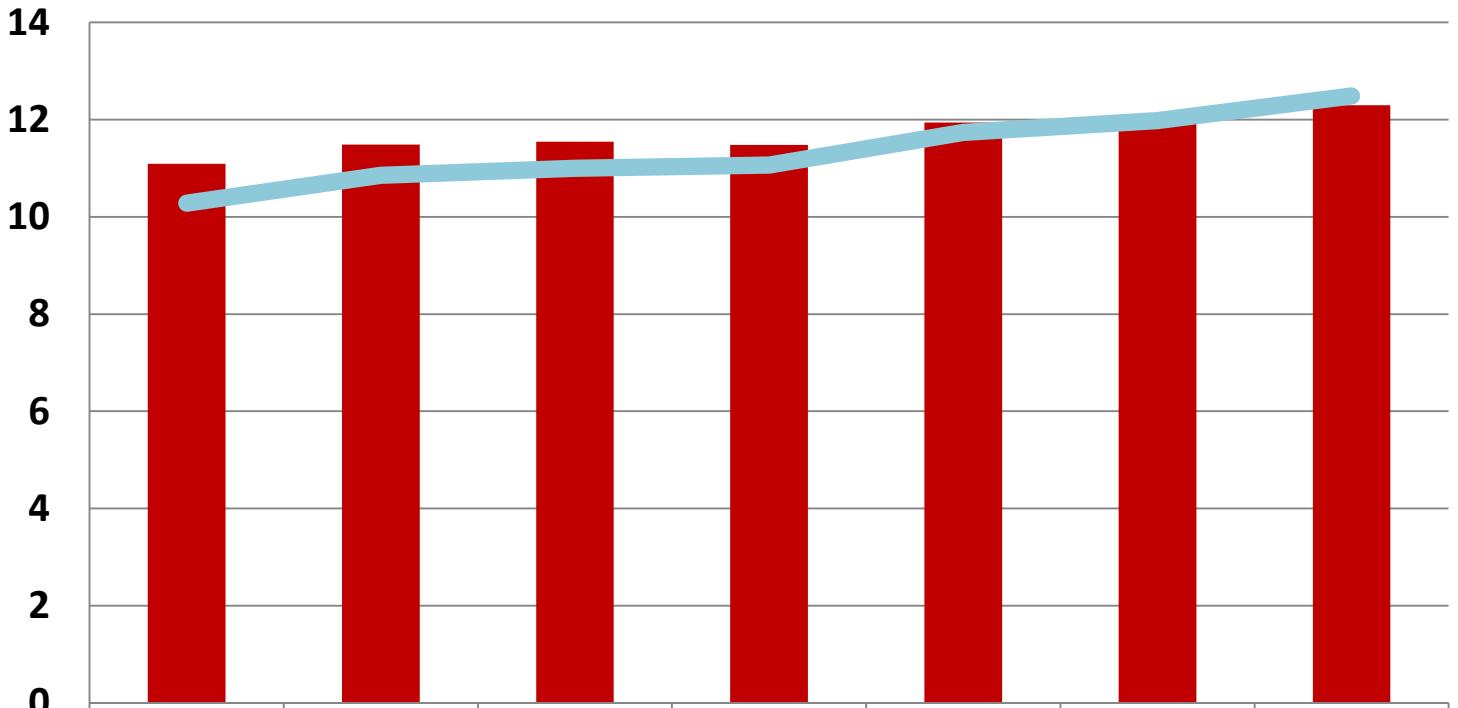
	Change in Sales during 2013	Year over year Growth rate
Commercial	114	1.9%
Residential	174	2.3%
Industrial – Non DSI	(208)	-4.5%
DSI	27	3.9%
Irrigation	13	1.7%
Total Sales	120	0.61%
Total Non-DSI sales	93	0.49%

Total Electricity Sales Are Basically Flat (MWA)



*- preliminary subject to change

Electric Utility Revenue Is Increasing

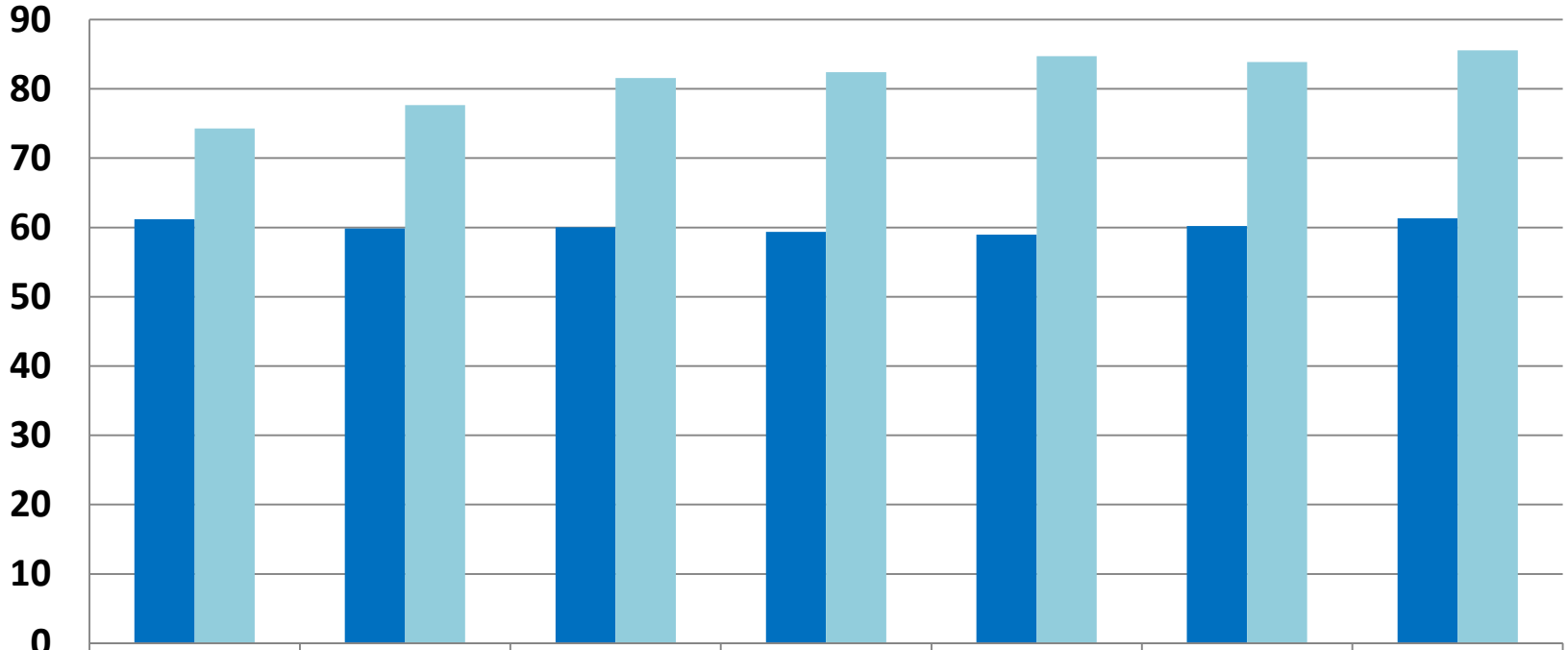


	2007	2008	2009	2010	2011	2012	2013
2012 dollars	11.09	11.49	11.55	11.48	11.94	11.98	12.30
Current Dollars	10.28	10.86	11.00	11.07	11.73	11.98	12.48

Revenue collected per MWH of sale during 2007-2013 grow at an average annual rate of about 3% or about 1.7% after adjustment for inflation.

Average Revenue per MWH of Sales is flat for Publics and Increasing for IOUs

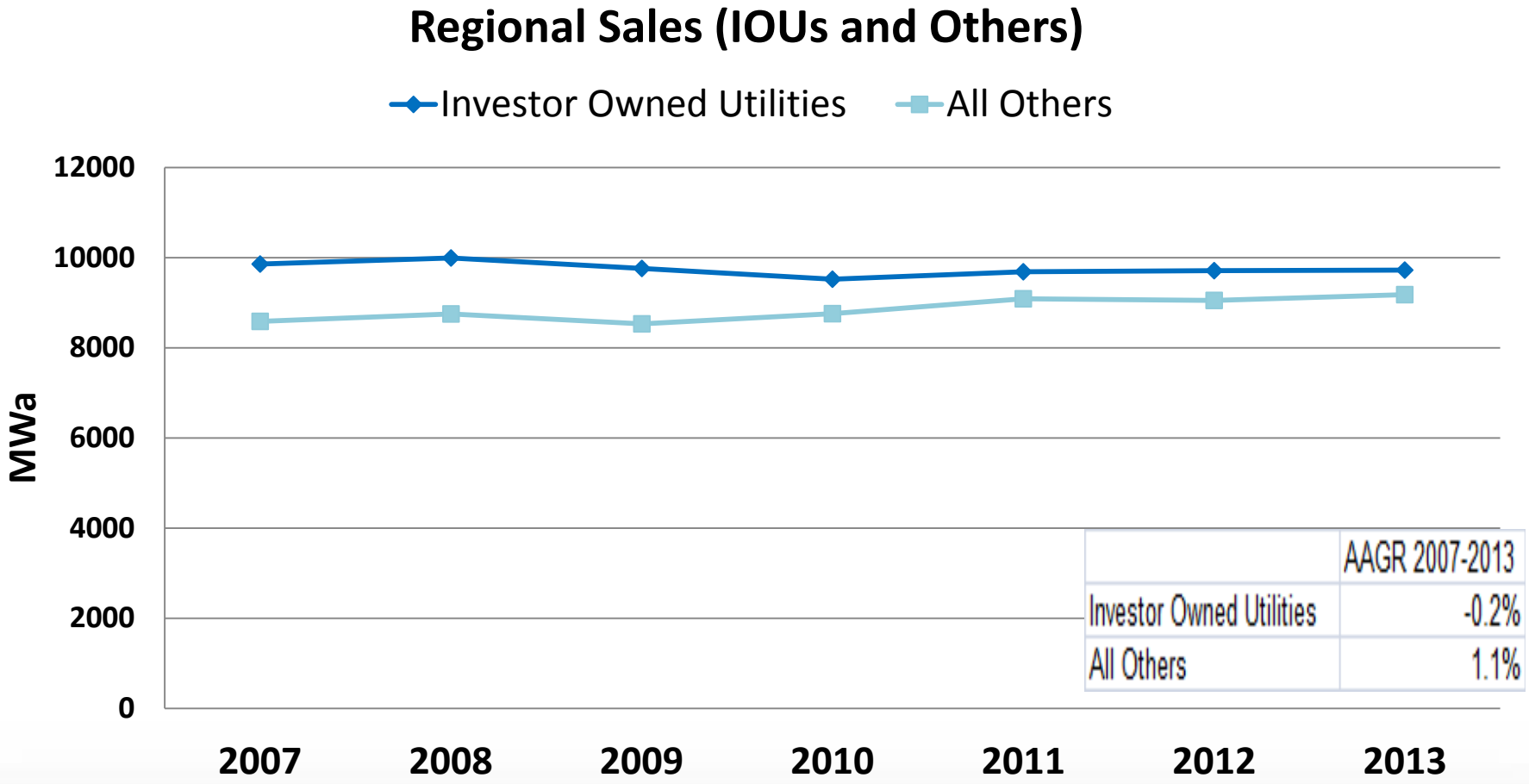
Constant 2012 $/MWH



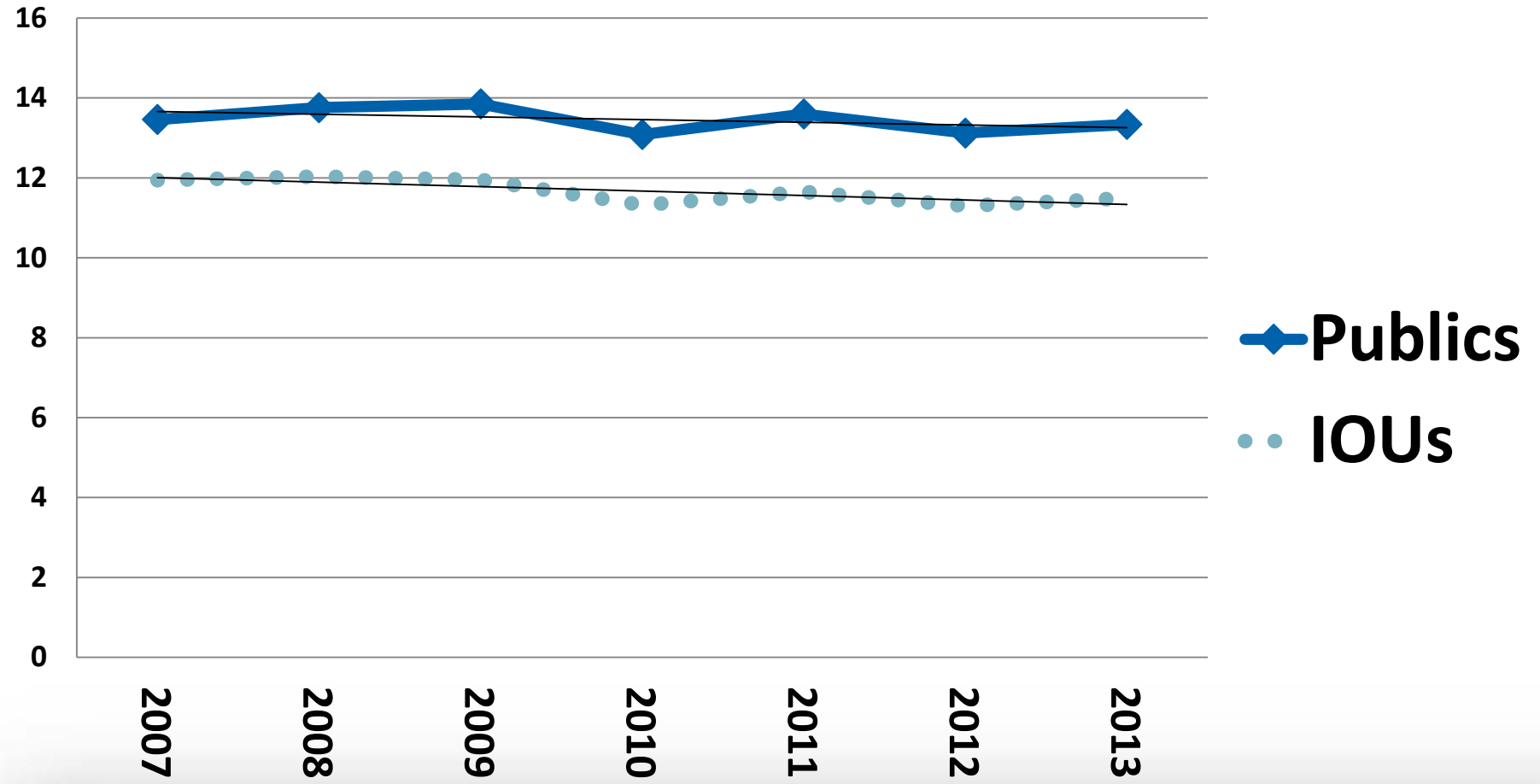
	2007	2008	2009	2010	2011	2012	2013
Publics	61	60	60	59	59	60	61
IOUs	74	78	82	82	85	84	86

After adjustment for inflation, during 2007-2012,
IOUs rates grow at an annual rate of 2% while Public Power rates were flat.

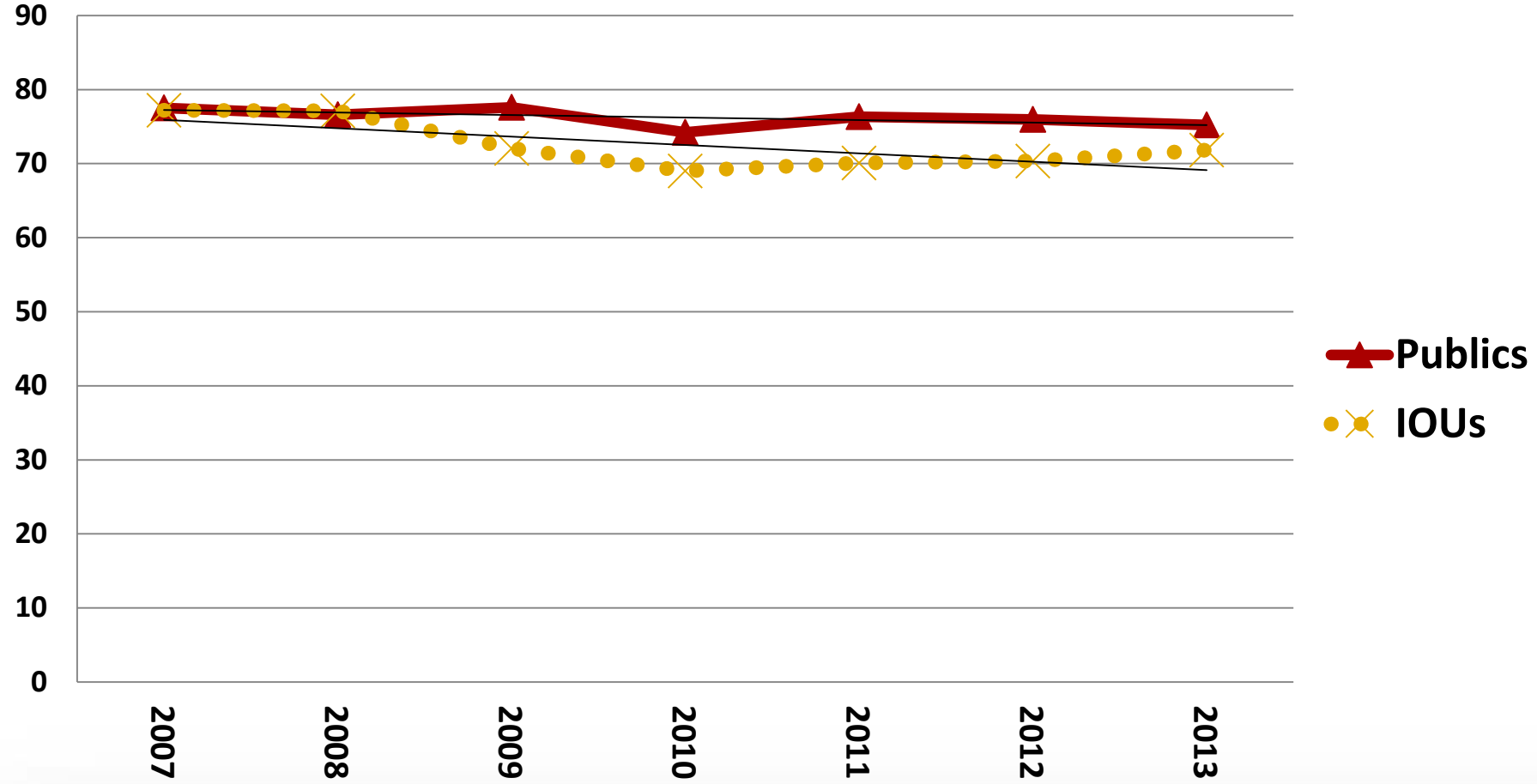
Regional Sales Have been flat, but it seems non-IOU loads growing faster



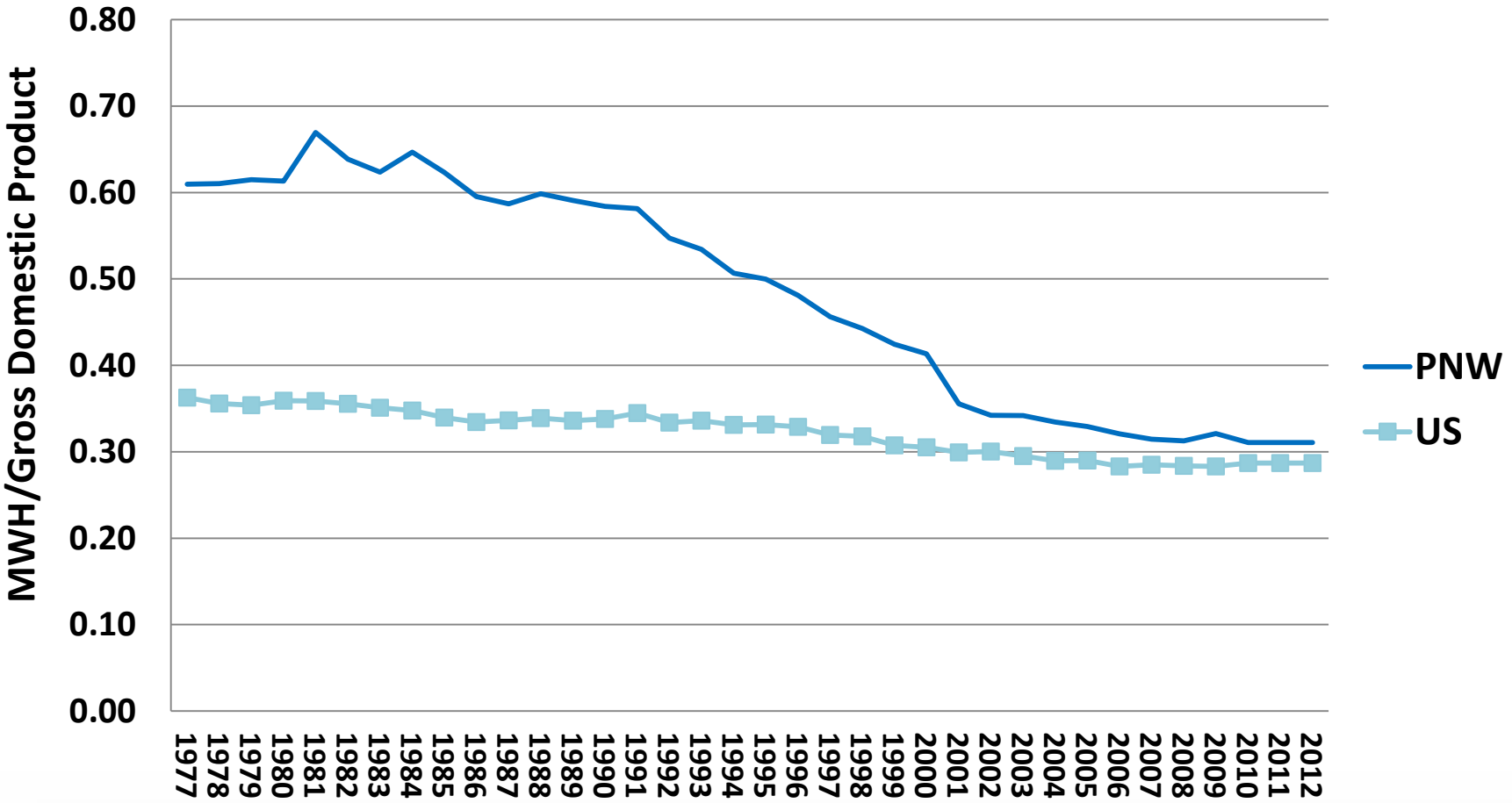
Residential Sector Is Reducing Electricity Use (MWH/customer)



Commercial Sector Is Reducing Electricity Usage (MWH/customer)



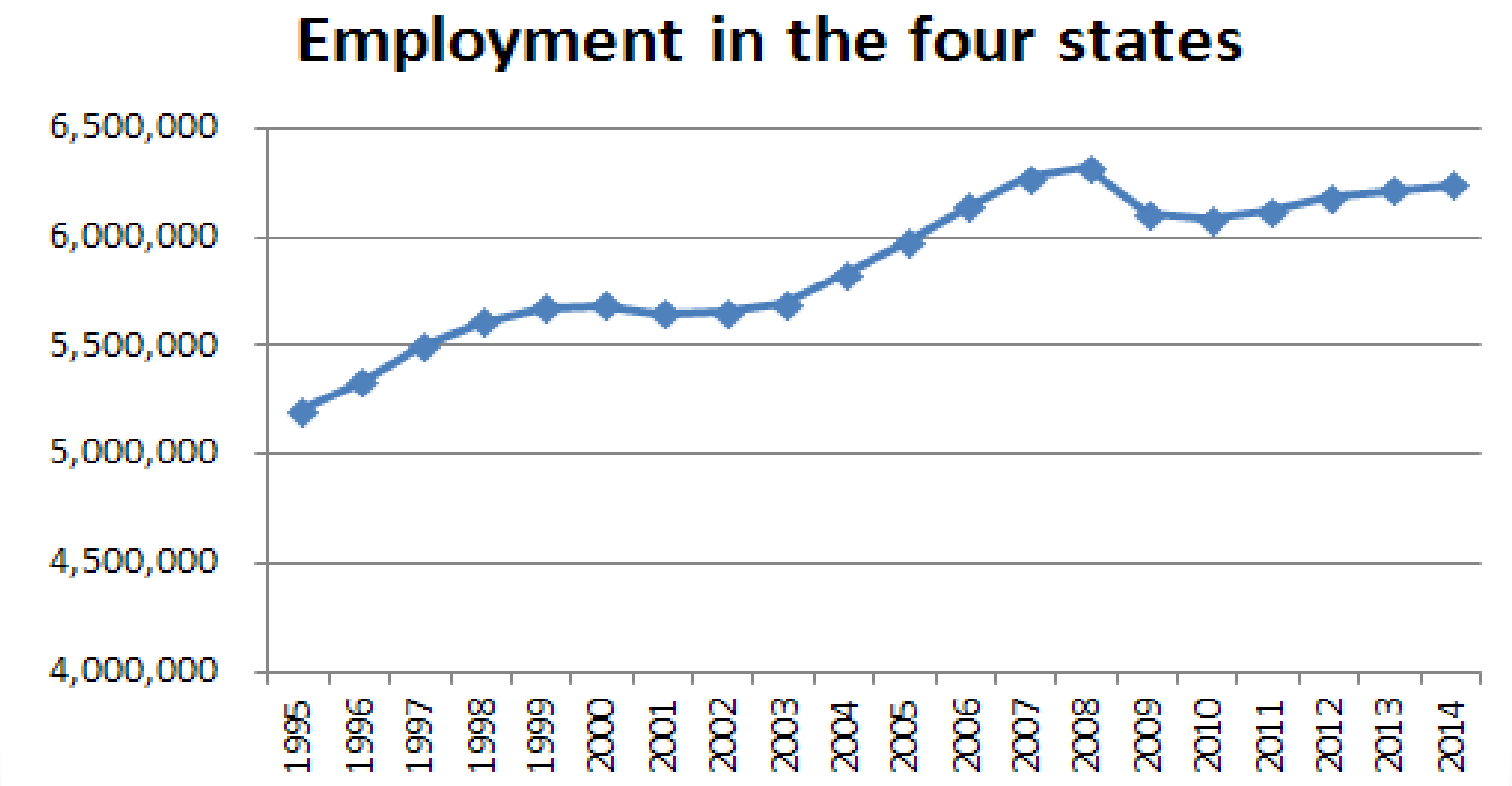
Trends in Electricity Intensity Per Unit of Economic Output



Gross Domestic Product : BEA- 2005 constant dollars

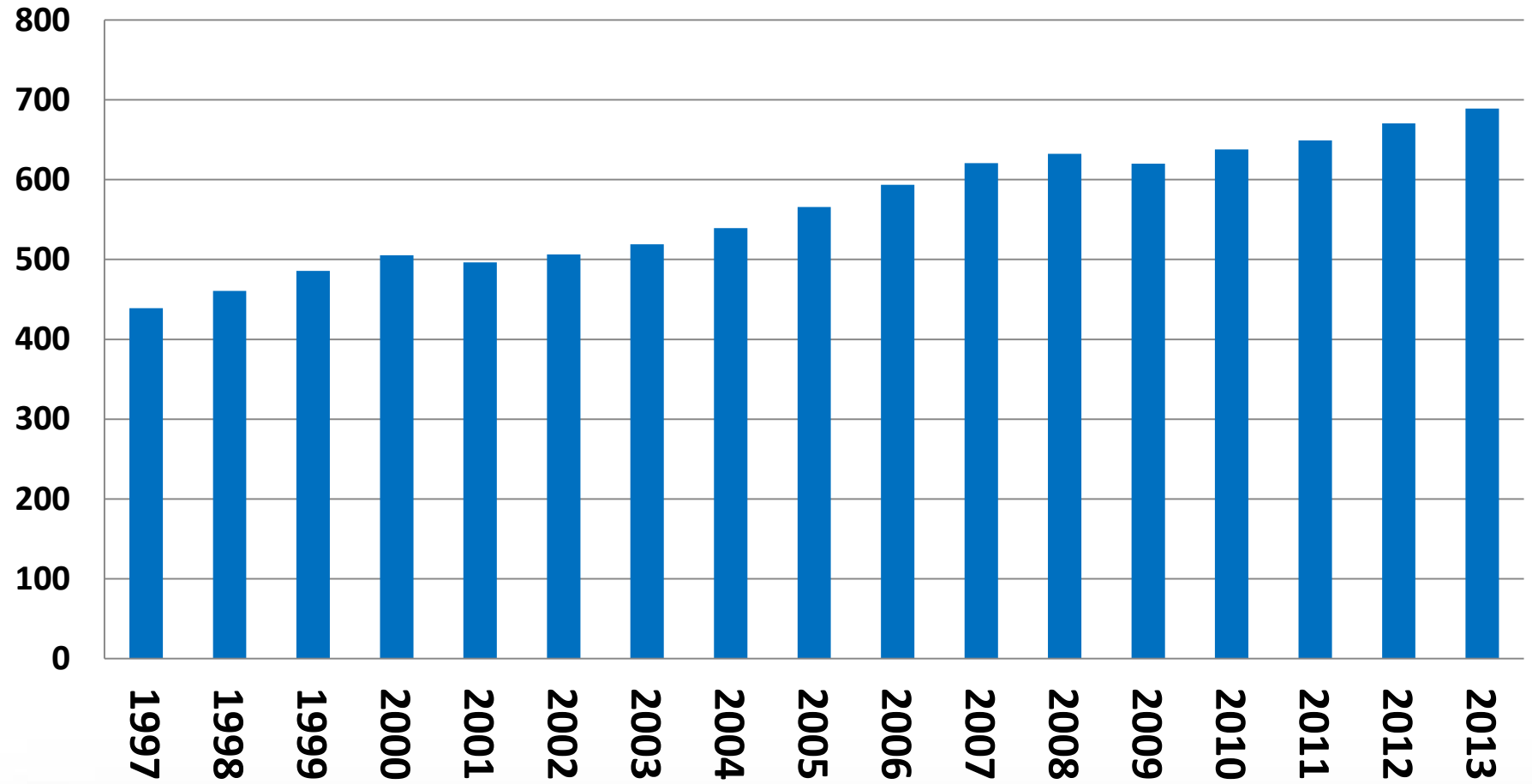
Energy Consumption: State Energy Data System includes all forms of energy not just electricity.

So as the employment picture is improving



and Regional Economy Is Growing

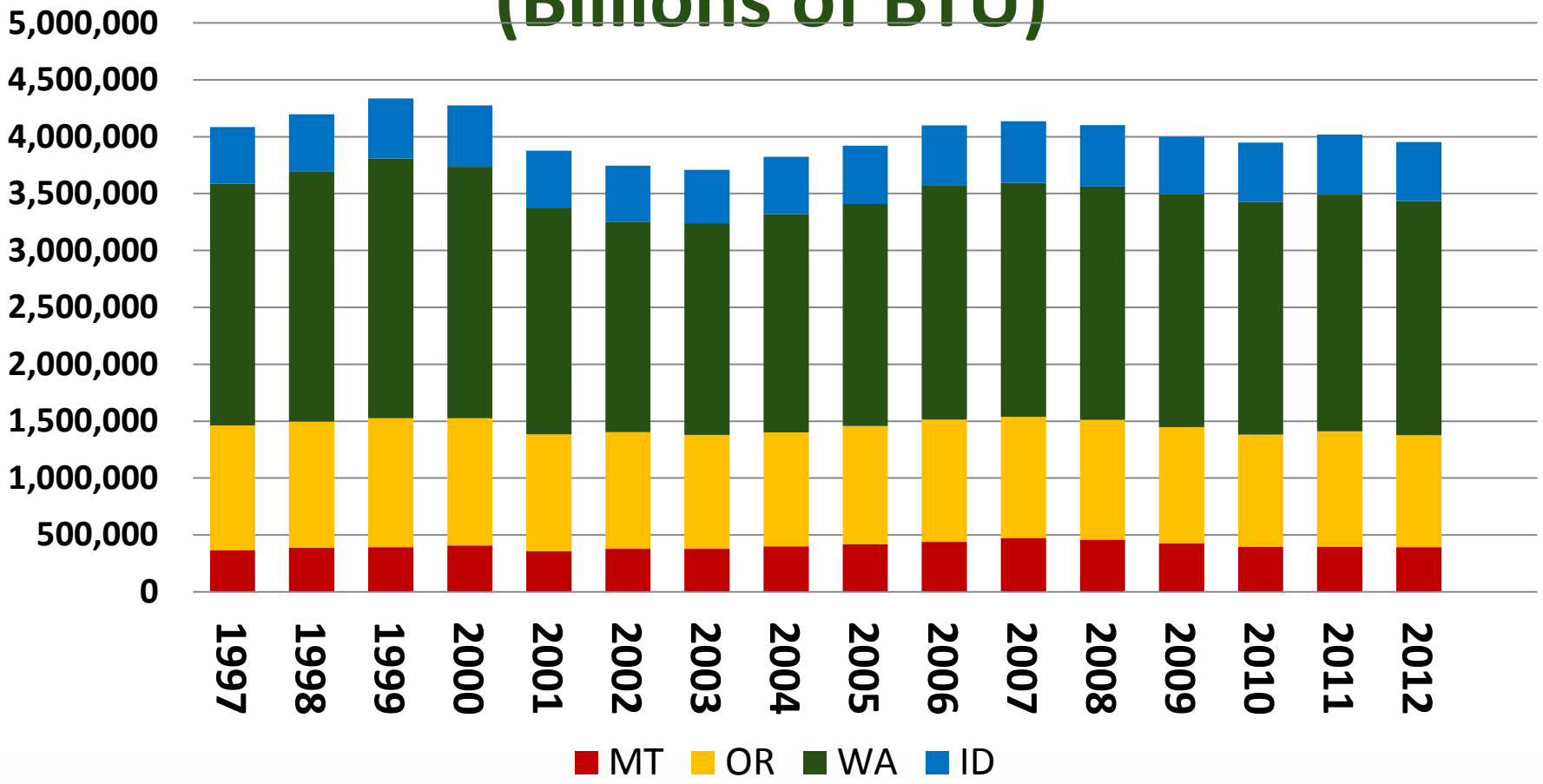
Gross State Product (billions 2009$)



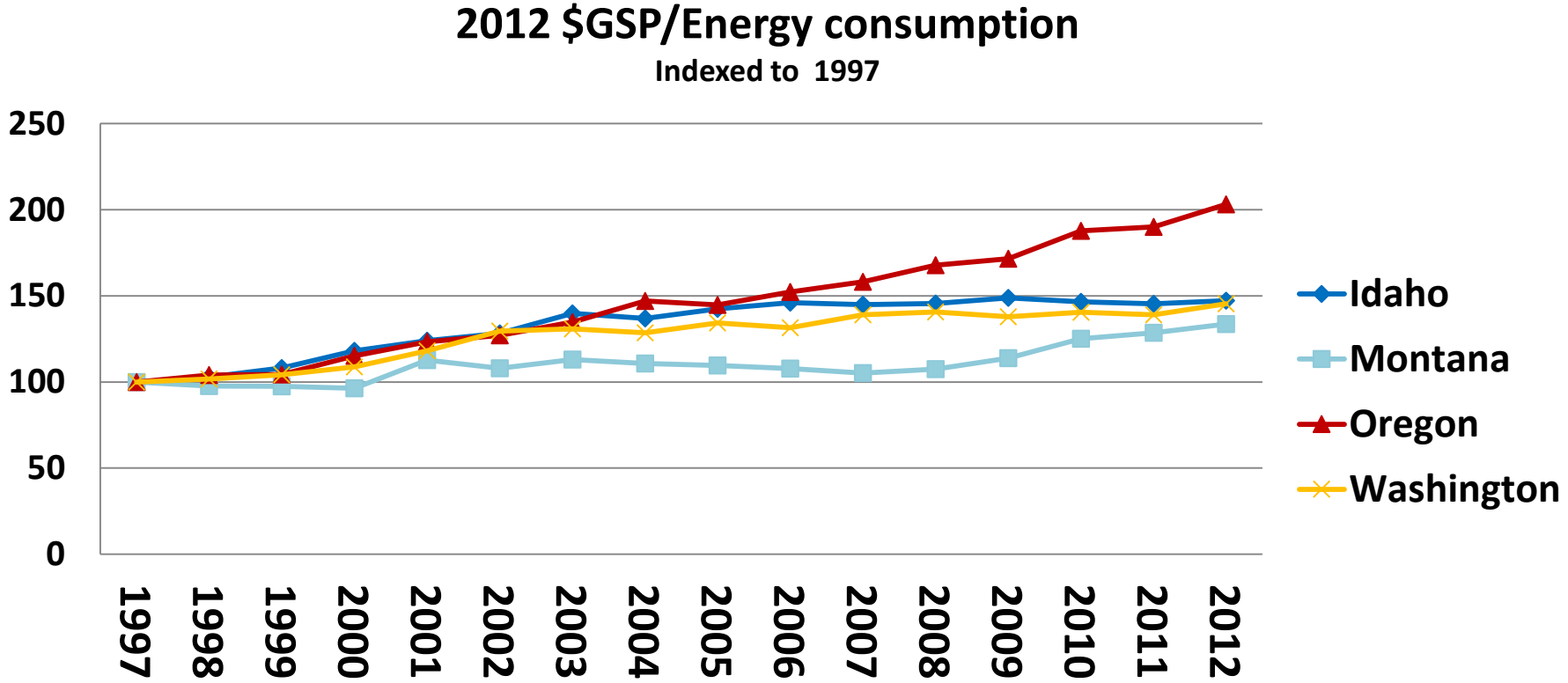
Gross Domestic Product : BEA – Billions of 2009$

Total Energy Use in the Region Has been Stable

(Billions of BTU)



Improvement In Energy Productivity Is Evident In All States

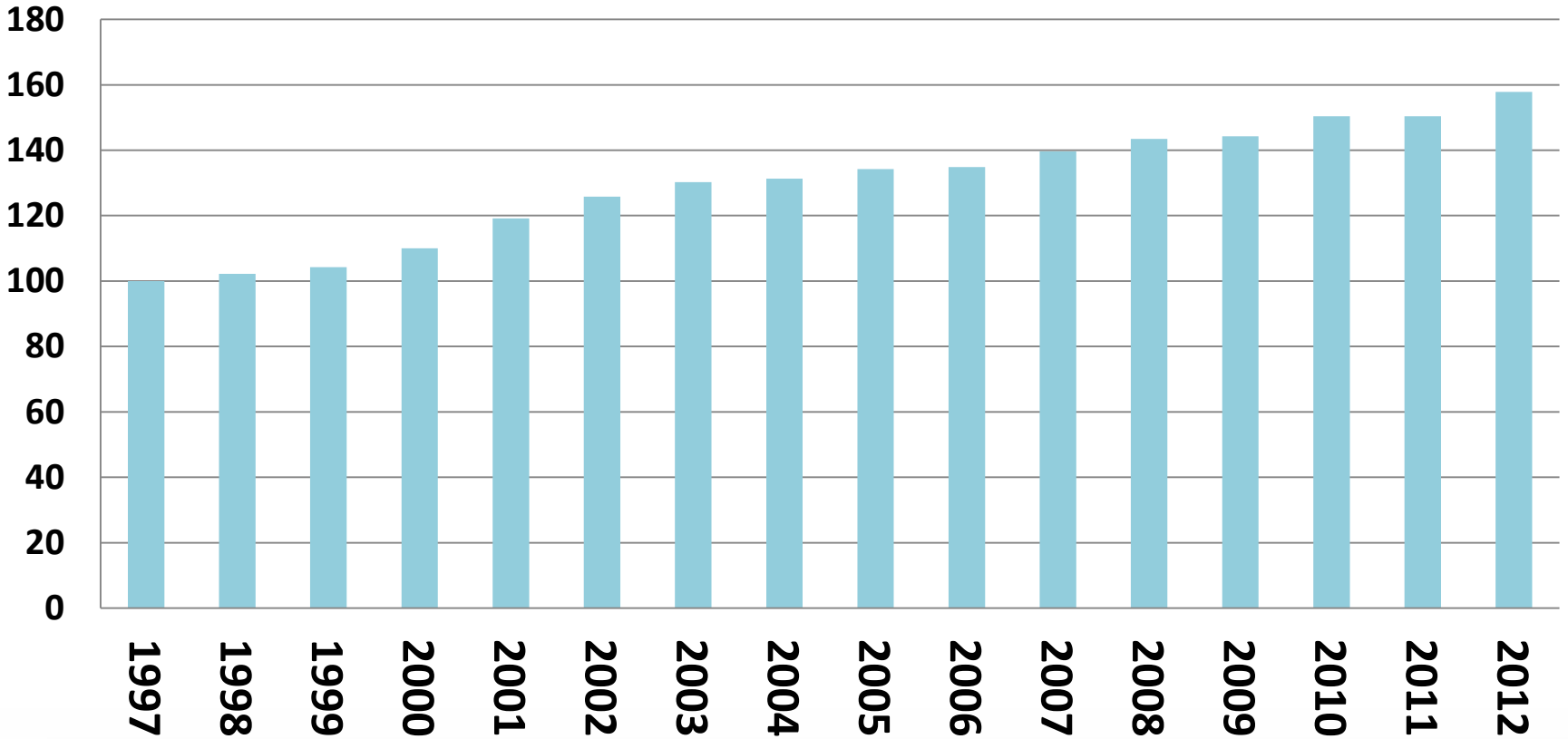


GSP: Growth State Product based on data from Bureau of Economic Analysis
Energy Consumption estimates from State Energy Data System, includes all forms of energy not just electricity.

Region Is Doing More With More Efficiency

Energy Productivity Index (Regional output/Energy consumption)

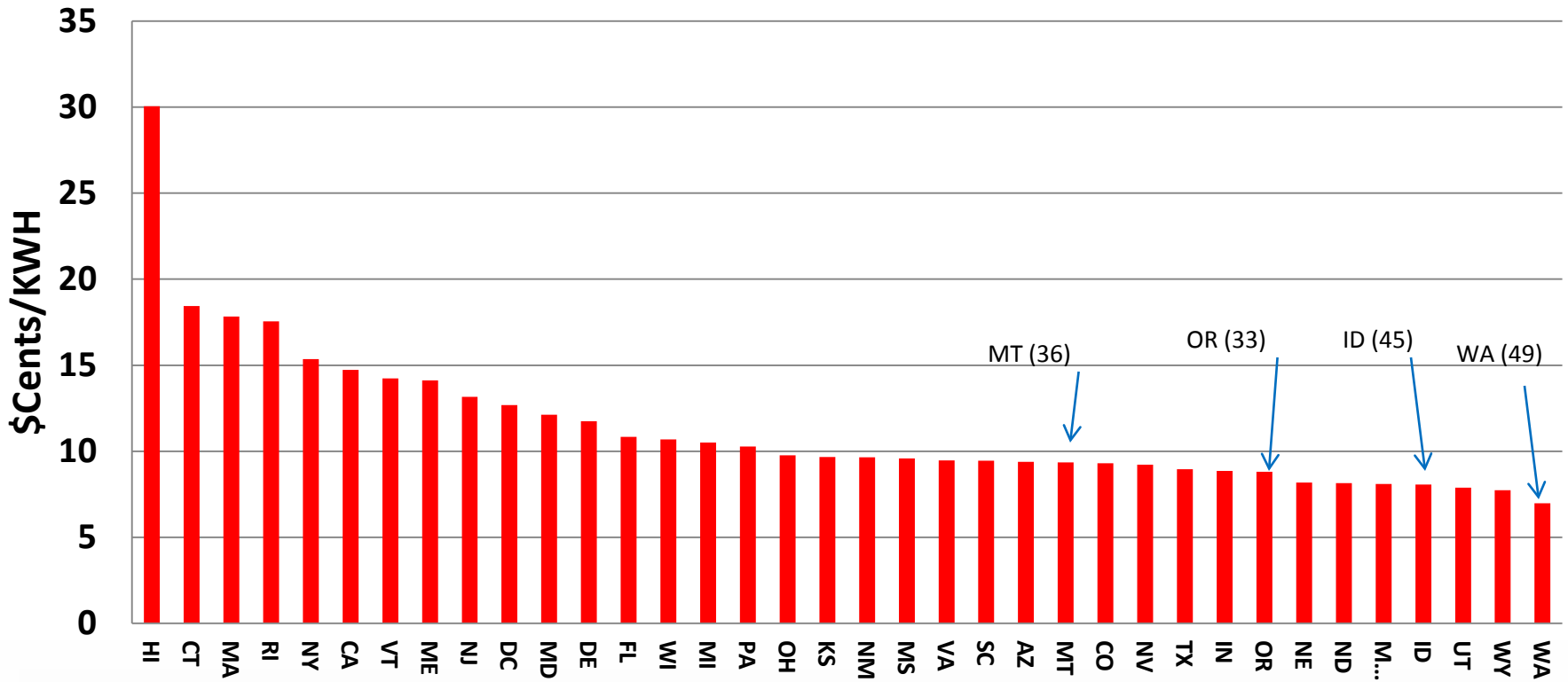
1997=100



Gross Domestic Product : BEA- 2005 constant dollars

Energy Consumption: State Energy Data System includes all forms of energy not just electricity.

Regional residences continue to pay some of the lowest rates in the country
Rates and Ranking as of January 2015



In summary

- Regional sales are growing slowly
- Revenue is growing faster than sales.
- Average revenue requirements are growing but at varying degrees.
- The average revenue requirement gap between Public and IOUs is increasing.
- Regional electric bills remain modest.

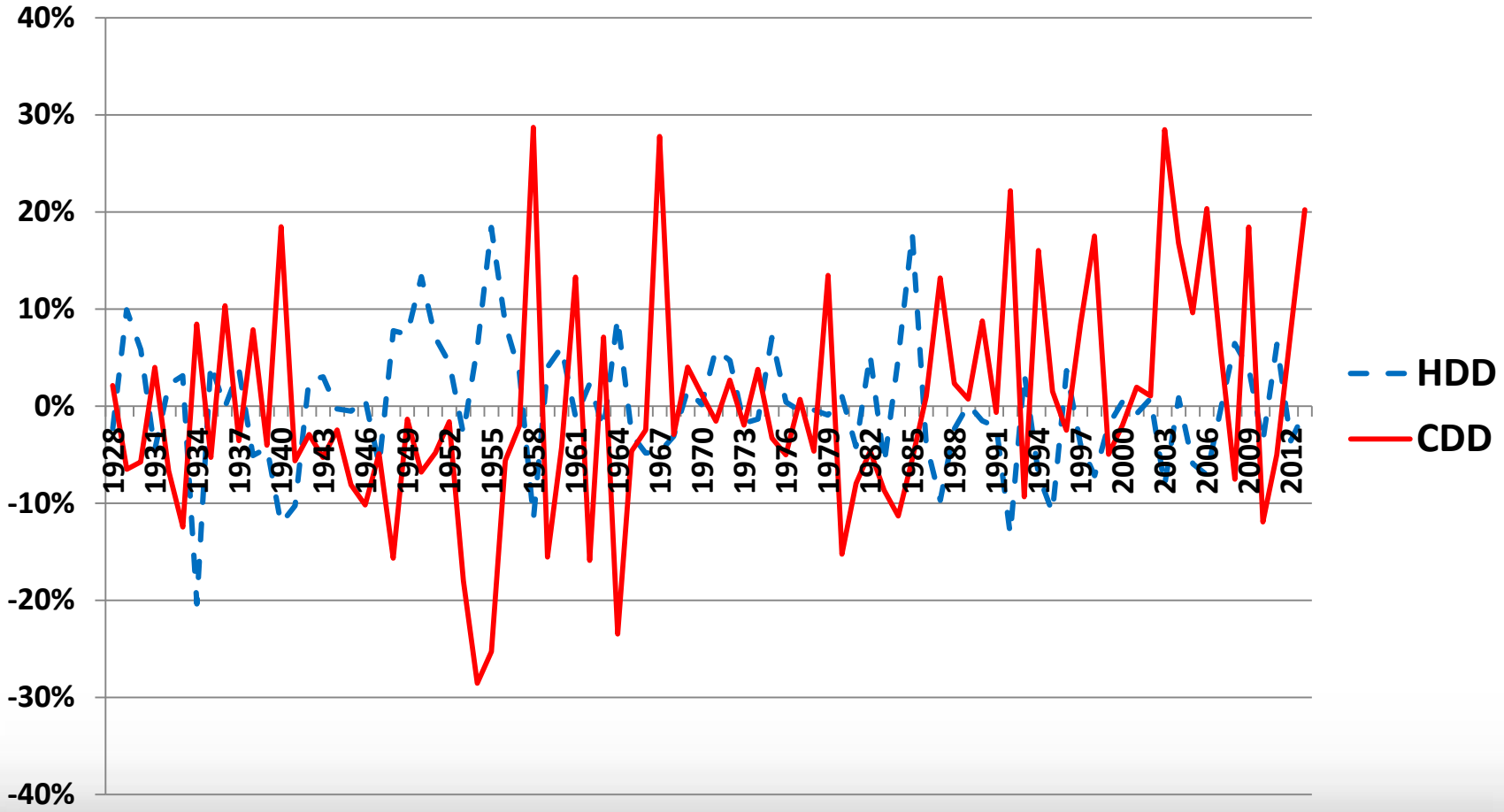
End of presentation

- The following slides are not part of presentation. They are here in case questions come up.

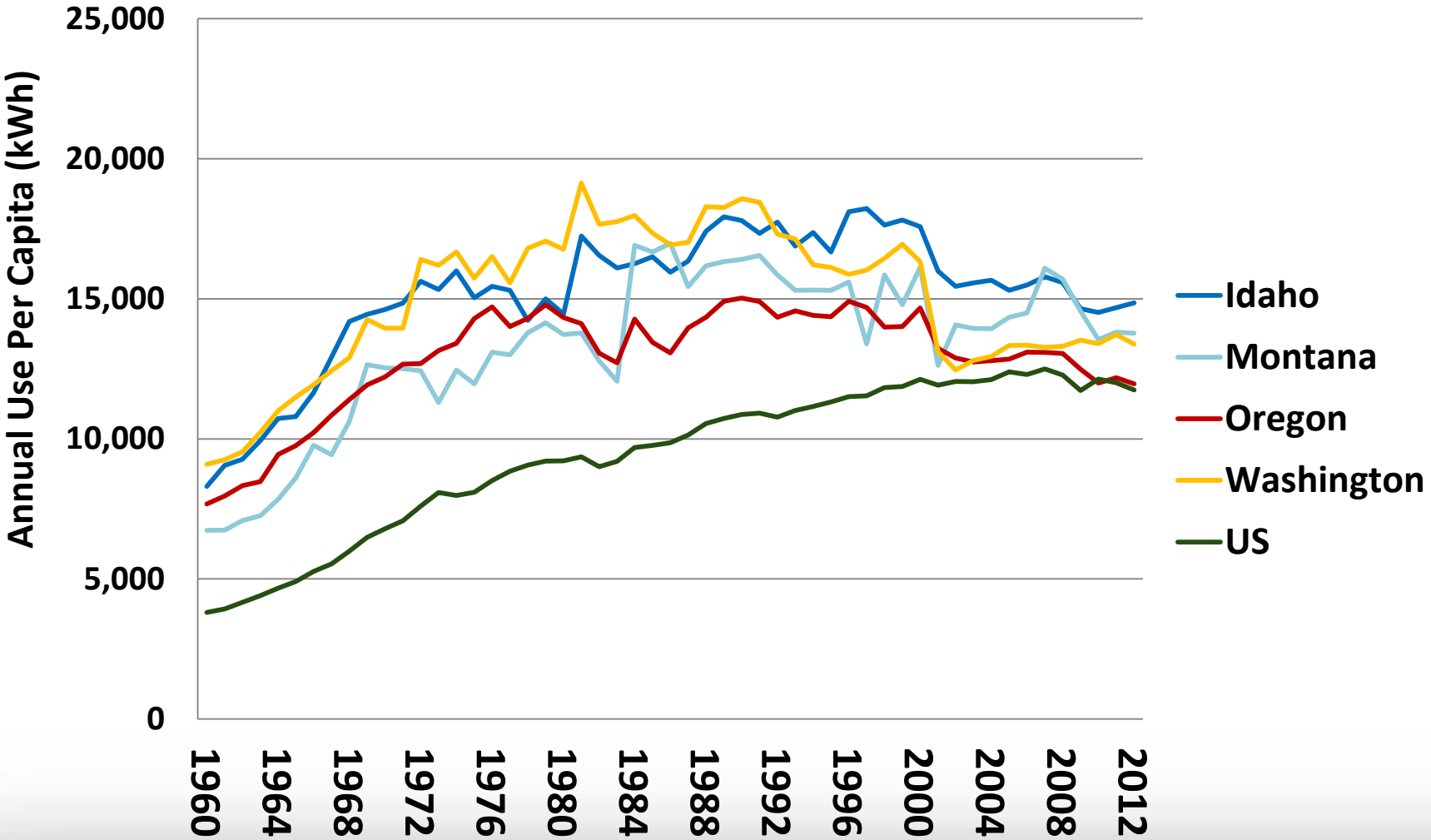
Regional Sales by Sector

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Sales (MWA)	**18,018**	**18,526**	**19,065**	**19,366**	**19,264**	**18,894**	**19,409**	**19,410**	**19,585**
Residential	6,959	7,232	7,428	7,629	7,674	7,303	7,575	7,376	7,557
Commercial	5,869	5,989	6,106	6,331	6,123	5,912	6,055	6,064	6,205
Industrial	5,188	5,302	5,528	5,404	5,463	5,676	5,881	5,967	5,820
Market Shares									
Residential	**38.6%**	**39.0%**	**39.0%**	**39.4%**	**39.8%**	**38.7%**	**39.0%**	**38.0%**	**38.6%**
Commercial	**32.6%**	**32.3%**	**32.0%**	**32.7%**	**31.8%**	**31.3%**	**31.2%**	**31.2%**	**31.7%**
Industrial	**28.8%**	**28.6%**	**29.0%**	**27.9%**	**28.4%**	**30.0%**	**30.3%**	**30.7%**	**29.7%**

Annual Deviation from historic Mean



Trends in Electricity Intensity Per Capita
PNW States and US Average



Trends in Electricity Intensity Per Capita 1960-2012

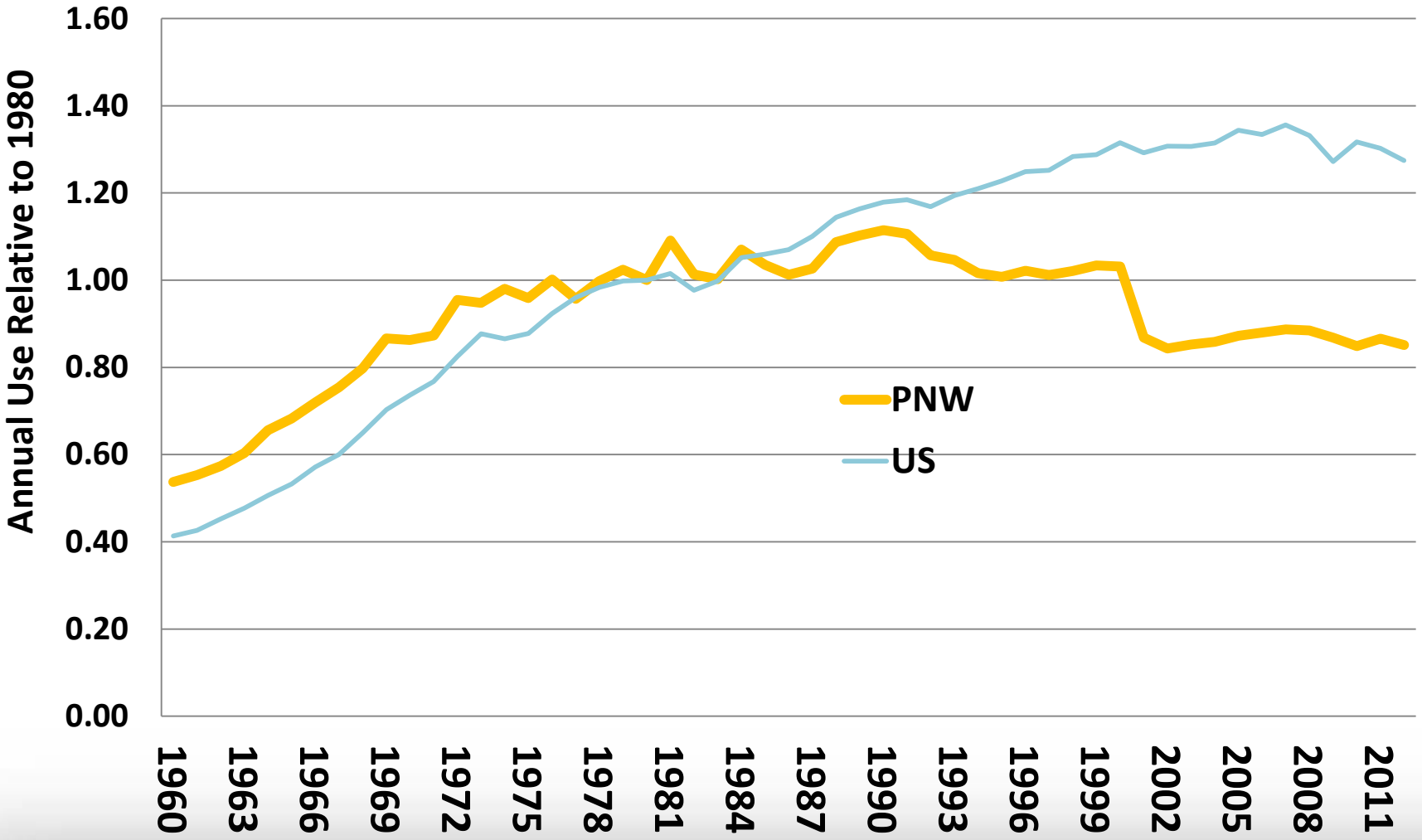
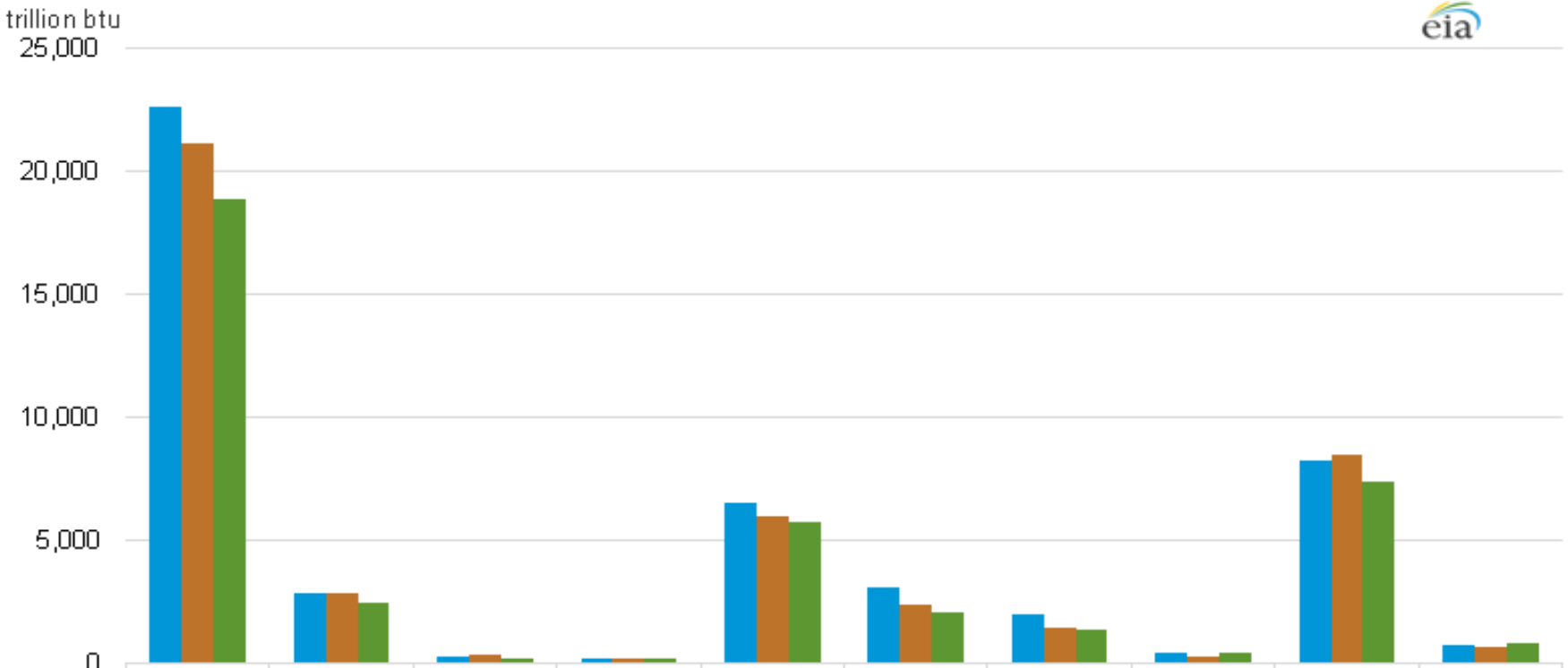


Figure 1. Total U.S. manufacturing energy consumption for all purposes declined 17 percent from 2002 to 2010

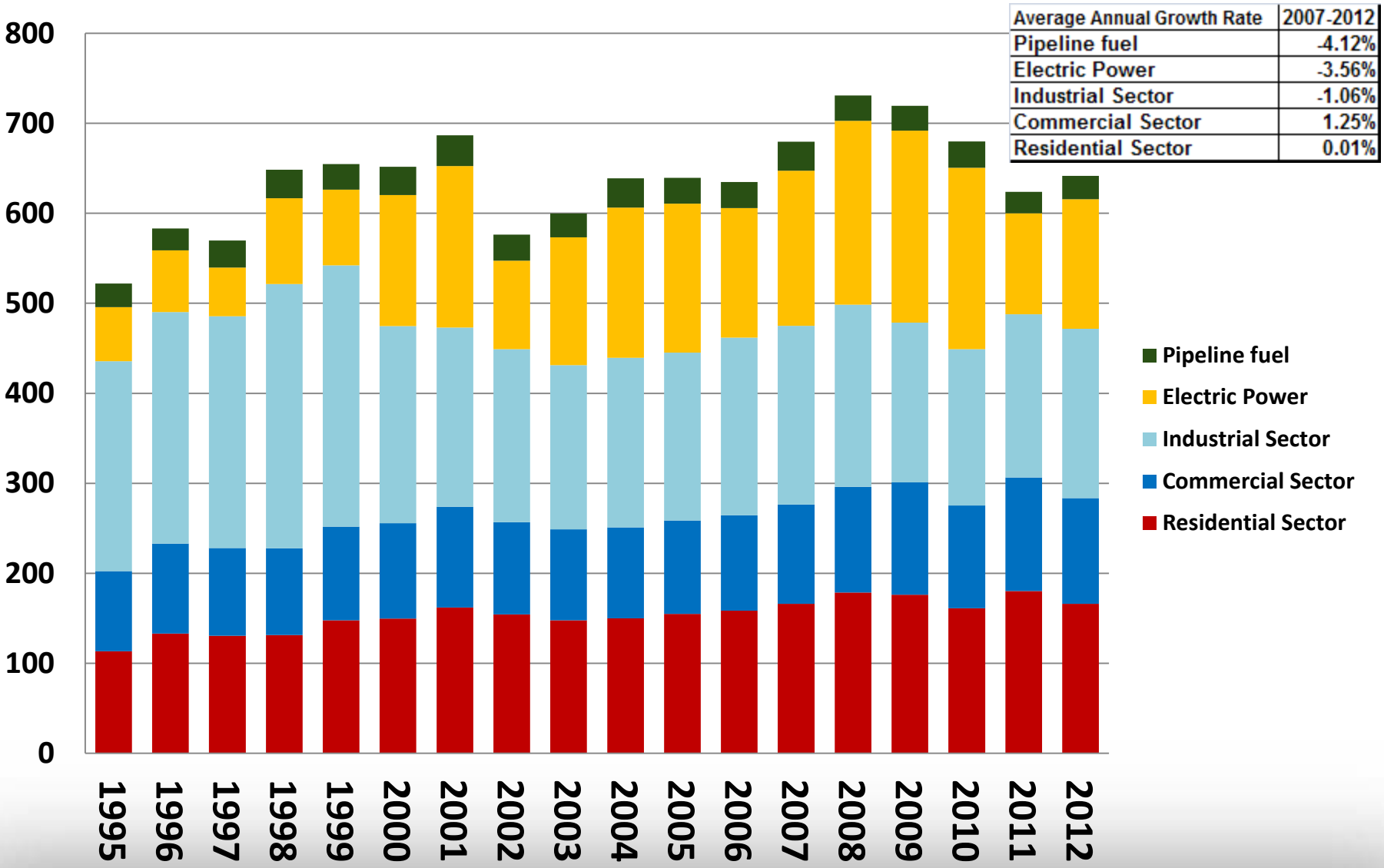


	Total*	Net Electricity	Residual Fuel Oil	Distillate Fuel Oil	Natural Gas	LPG and NGL	Coal	Coke and Breeze	Other	Shipments
2002	22,576	2,839	255	152	6,468	3,070	1,956	385	8,181	730
2006	21,098	2,851	314	143	5,911	2,376	1,433	272	8,443	645
2010	18,817	2,437	170	135	5,725	2,057	1,328	374	7,381	788

*Total is the sum of the energy sources minus the shipments. Shipments of energy sources produced onsite are those shipments produced or transformed onsite from the nonfuel use of other energy sources. Shipments are subtracted from the total to avoid duplication.

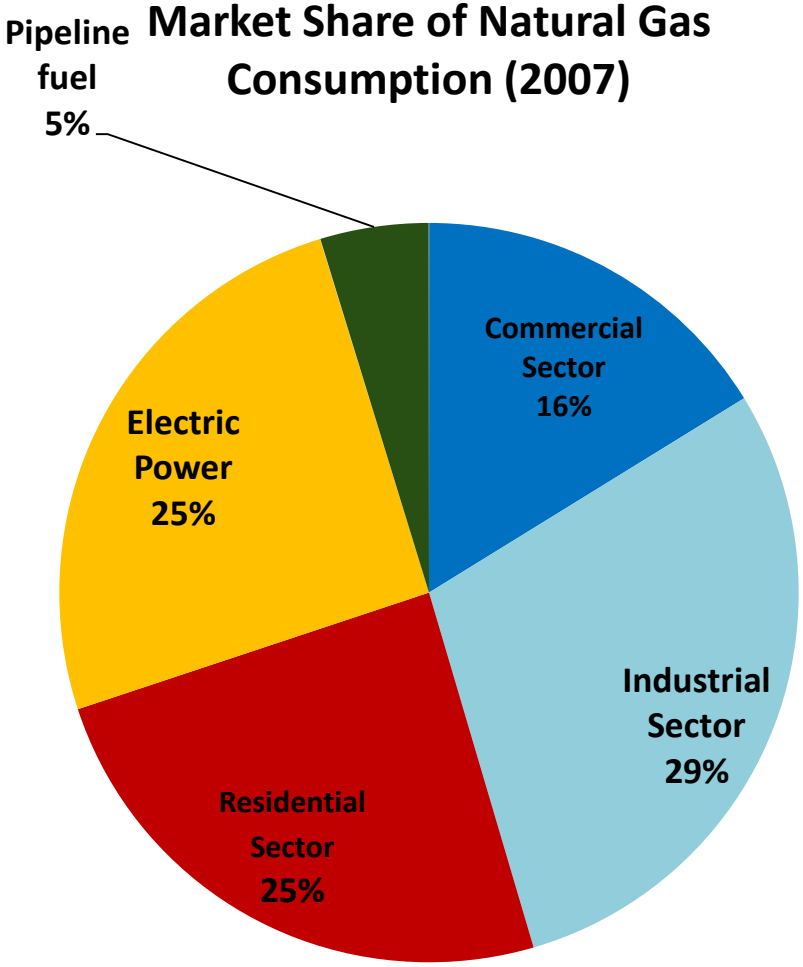
Source: U.S. Energy Information Administration, Manufacturing Energy Consumption Survey - Table 1.2: First Use of Energy for All Purposes (Fuel and Nonfuel), 2002, 2006, and 2010.

Natural Gas Consumption in Oregon, Washington, Idaho and Montanan (Millions D therms)



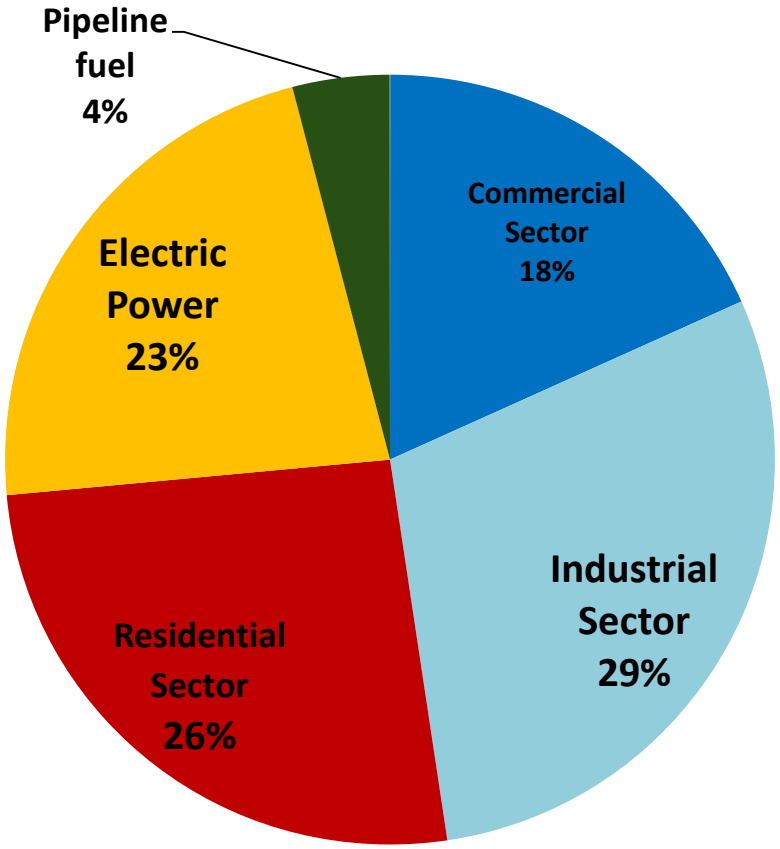
Average Annual Growth Rate	2007-2012
Pipeline fuel	-4.12%
Electric Power	-3.56%
Industrial Sector	-1.06%
Commercial Sector	1.25%
Residential Sector	0.01%

Market Share of Natural Gas Consumption (2007)



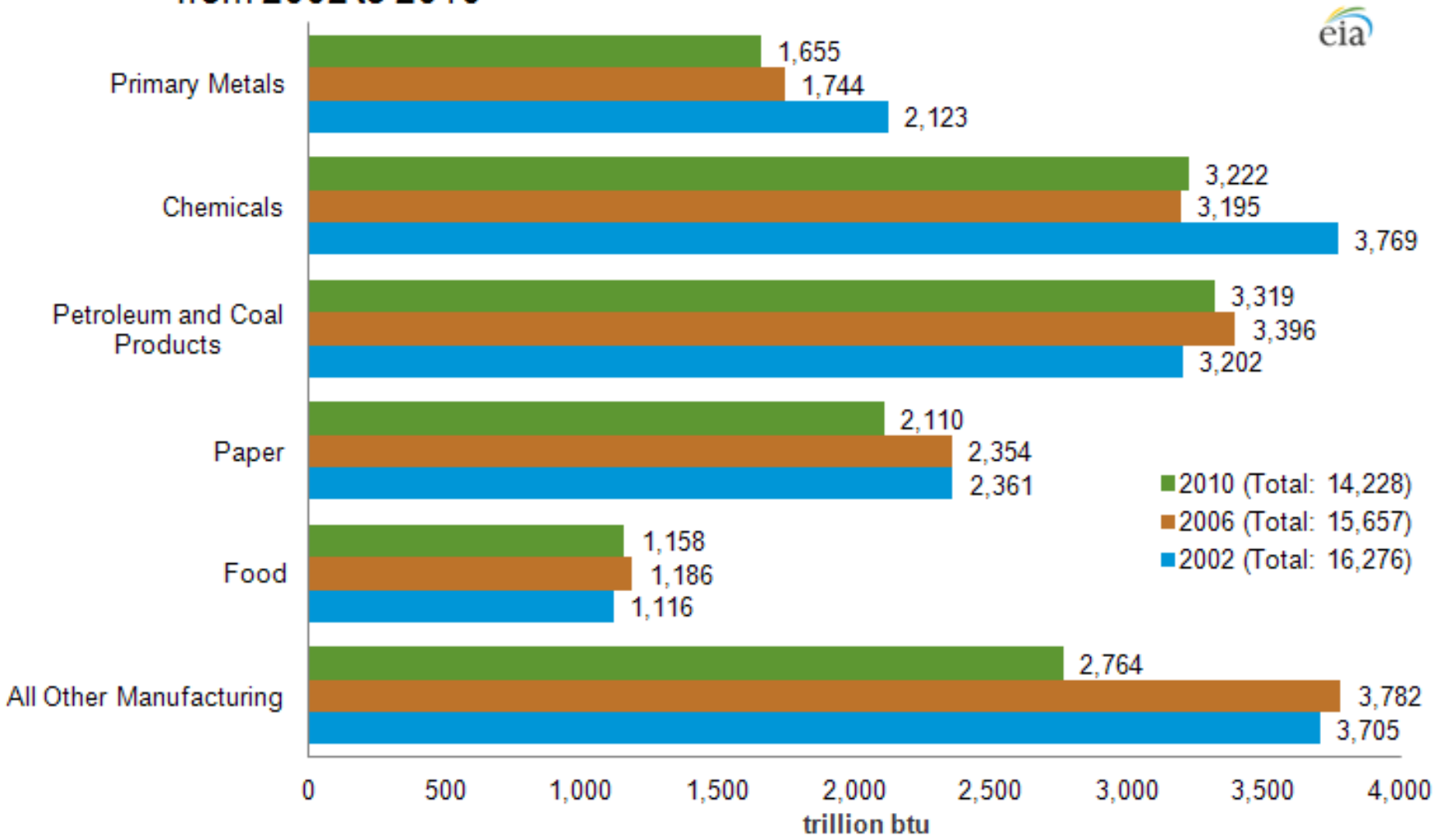
680 million D therms

Market Share of Natural Gas Consumption (2012)



641 million D therms

Figure 2. U.S. manufacturing consumption of energy as a fuel declined 13 percent from 2002 to 2010



Source: U.S. Energy Information Administration, Manufacturing Energy Consumption Survey - Table 3.2: Fuel Consumption, 2002, 2006, and 2010

Industrial Sector Electricity Usage is mixed (MWH /industrial customer)