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January 7, 2014

MEMORANDUM

TO: Power Committee

FROM: Charlie Black and Massoud Jourabchi

SUBJECT: Trends in Regional Energy and Peak Electricity Loads

Council staff has prepared a historical review of regional energy and peak electricity loads during 1995-2012. The presentation will review historical changes in the economic drivers of load growth, as well as changes in the sector level electricity sales during this period.

In brief, actual regional system energy loads (net of direct service industries) during 1995-2012 grew at an annual average annual rate of 0.40 percent per year. After removing impacts of weather, the annual average growth rate for regional energy loads was 0.46 percent per year.

For actual regional coincident system peak loads (net of direct service industries) during 1995-2012 the annual average annual rate of growth was negative 0.10 percent per year.

Trends in Energy and Peak Loads

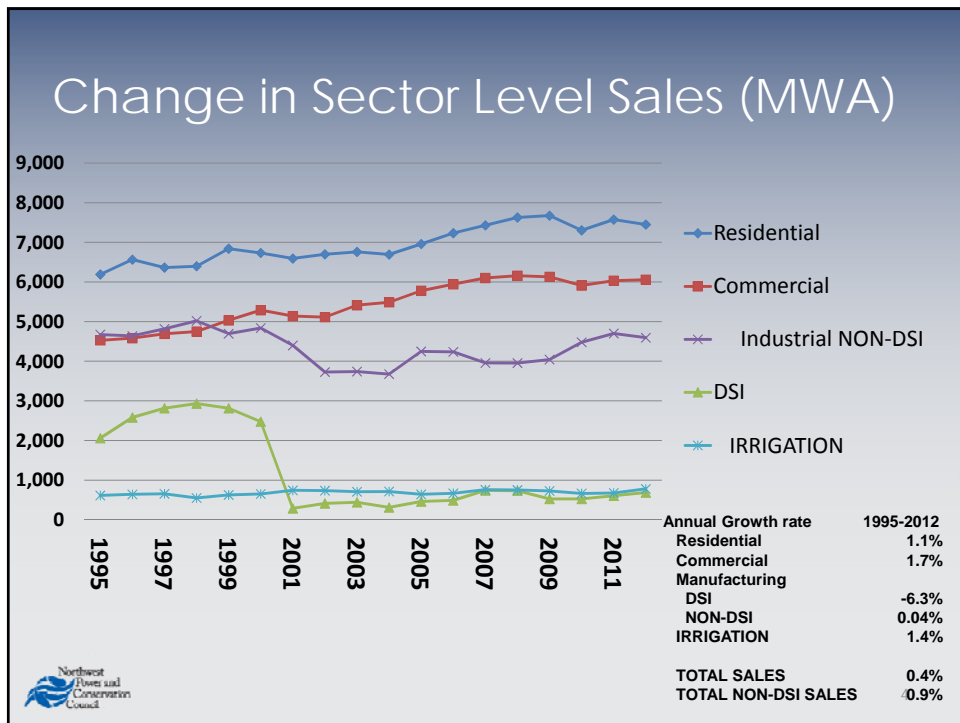
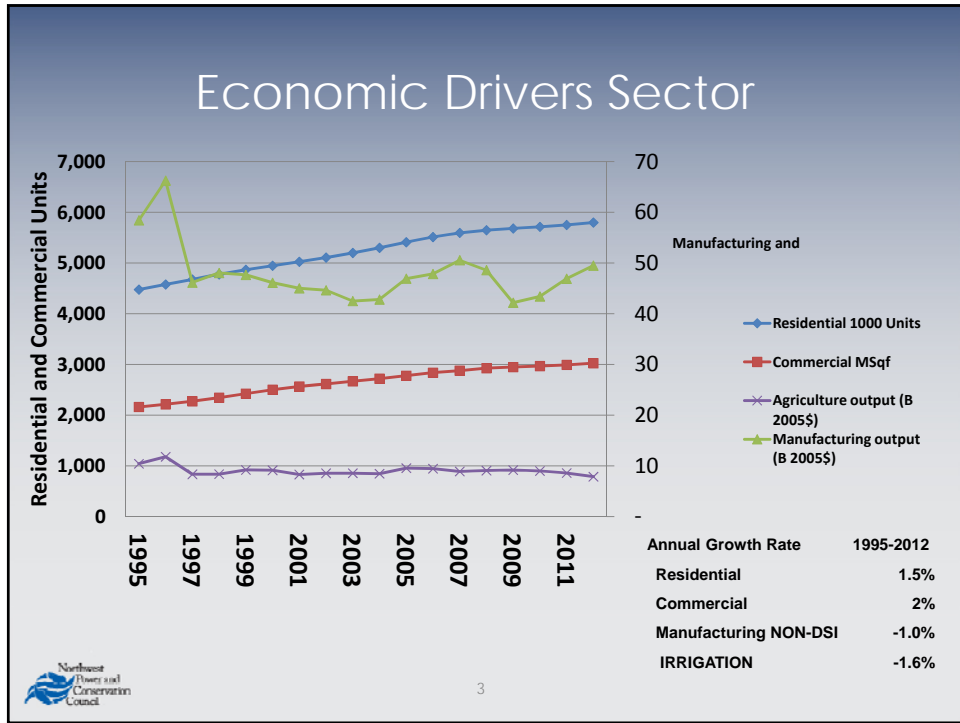
January 15 2014



In today's Presentation

- Economic Drivers behind Load growth?
- How sector level sales have been doing?
- How regional loads changing over time?





Data Center Loads in the NW 2011-2012

Large Data Center loads in the region represent about 5% -10% of non-Direct Service Industrial sales

- 350 to 500 average megawatts (~ half are in Oregon)
- As much electricity as lumber & wood products
- About half as big as Oregon's pulp and paper sector

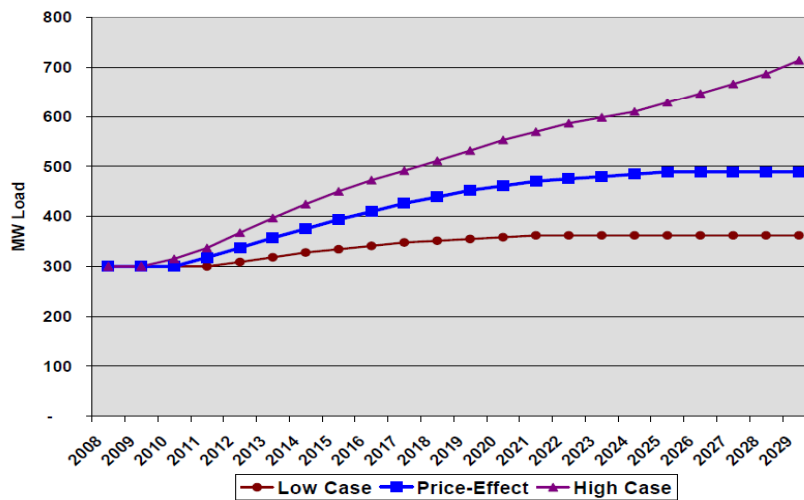
Smaller Data Centers loads within commercial buildings represent roughly 5%-6.5% of commercial sector sales

- About 300 to 400 average megawatts

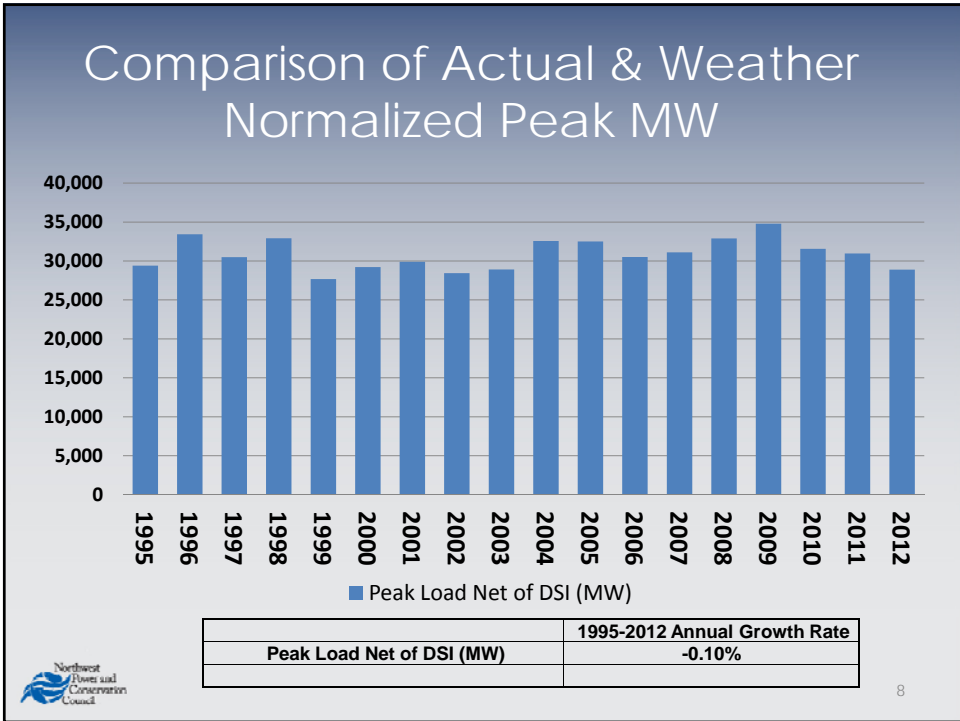
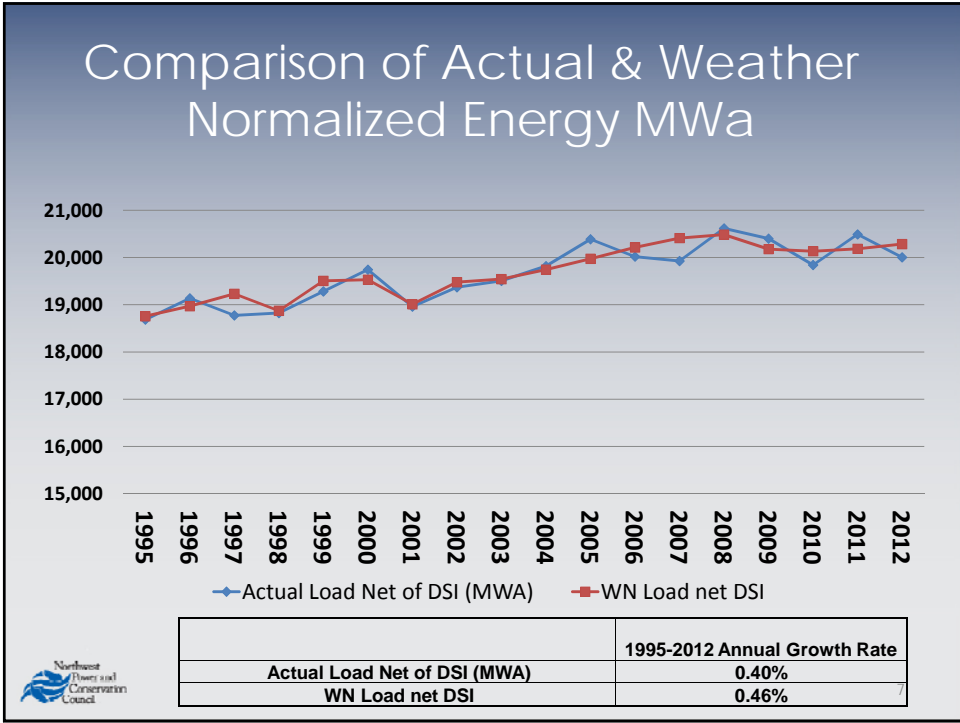


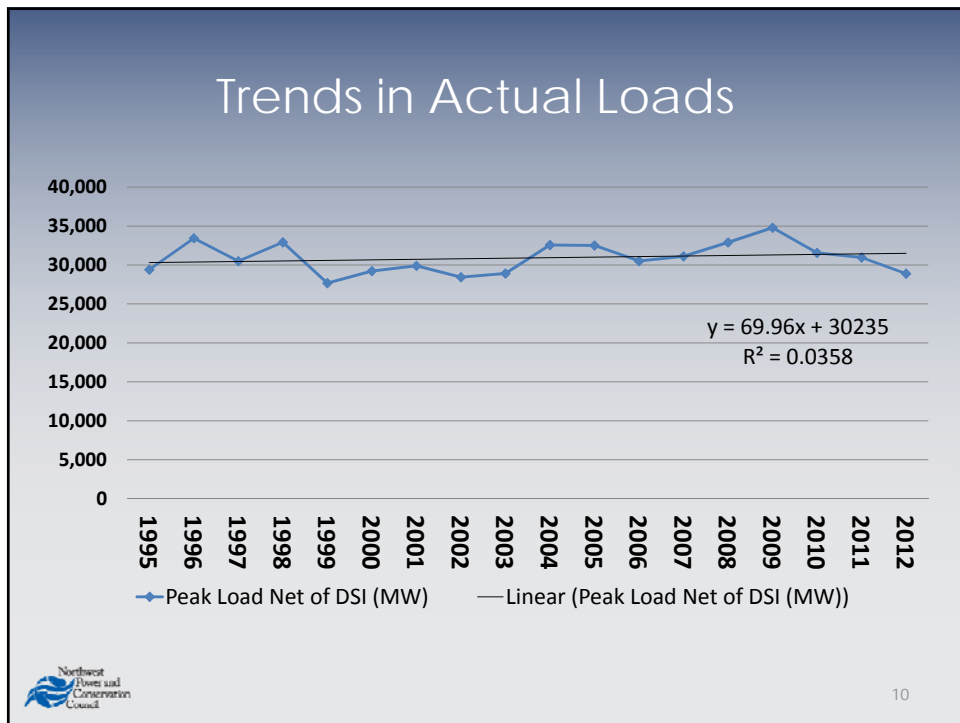
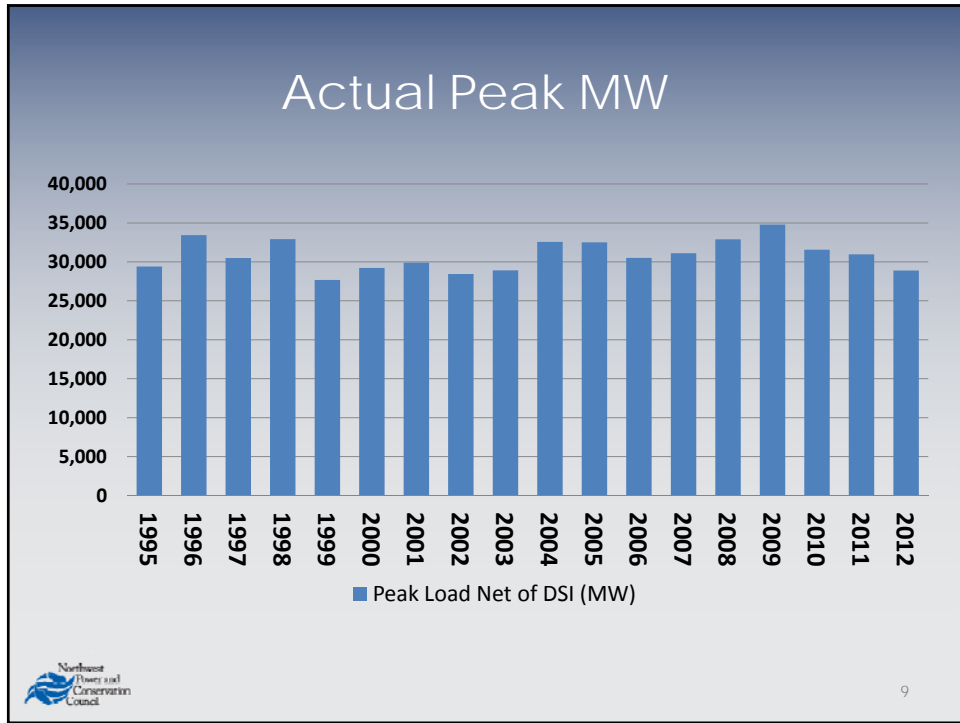
Council's 6th Plan Forecast for range of Custom Data Center Loads

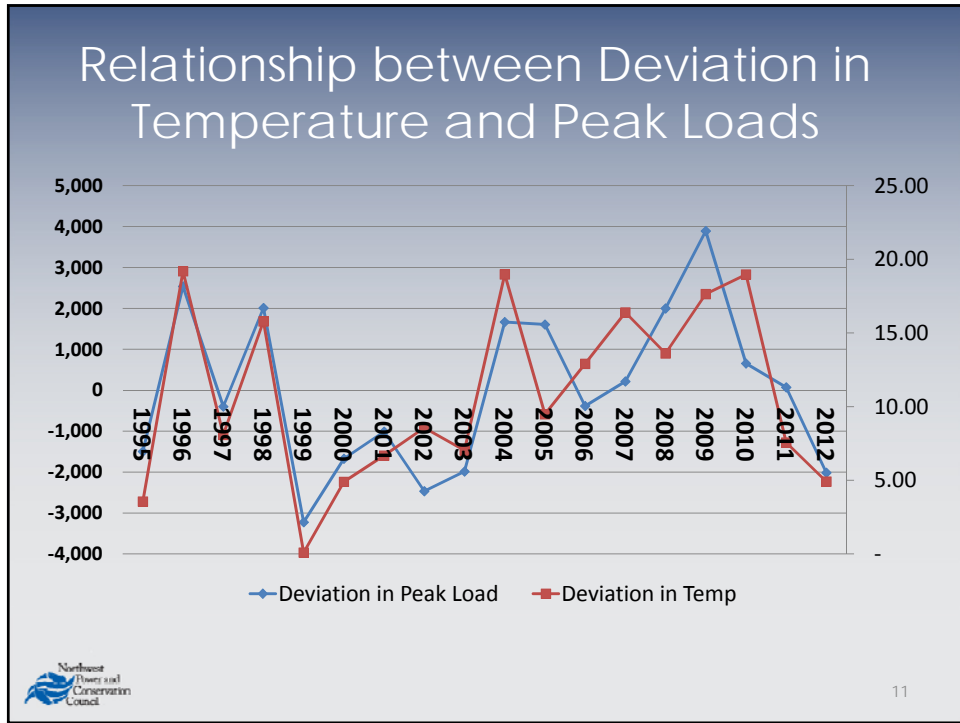
Figure C-21: Projected Load (MW) from Custom Data Centers



As of 2012 we seen to be in the Price-Effect (Medium) to High case range







How Normal Weather Peak Hour is Calculated

Step 1: Estimate Weather Normalized highest Energy Day
Step 2: Allocate that day's energy across the hours

Temperature (Monday December 9 th 2013)	SeaTac	PDX	Spokane	Boise
Yesterday's Temperature	26	20	5	9
Today's Temperature	29	21	13	3
Normal Regional temperature for this date	38			
Yesterday's Regional Temperature	20.12			
Today's Regional Temperature	22.12			
Deviation from Normal Temperature				
Yesterday	(18)			
Today	(16)			
Weather Normalized Load (net of DSI) for today	23,339 MWa			
Weather Normalized Peak hour (net of DSI)	27,607 MW			

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