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

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**Tim Baker**  
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**Richard Devlin**  
Oregon

July 5, 2018

### **DECISION MEMORANDUM**

**TO:** Council members

**FROM:** Massoud Jourabchi, Tina Jayaweera, Kevin Smit

**SUBJECT:** Release of White Paper on: "Recent Trends in Energy Consumption and Their Impact on the Northwest Economy"

**PROPOSED ACTION:** Release white paper for a 45-day public comment period, beginning after Council approval and ending on August 24, 2018.

**SIGNIFICANCE:** Council staff has estimated the change in efficiency of energy use in the Northwest. Examining economic trends in residential and business sectors shows that if the regional economy had held the same level of efficiency in energy usage, regional electricity loads would have been at about 14,000 aMW higher than they were in 2015. Approximately 58% of this reduction is due to structural change in the economy and 42% is from energy efficiency programs and impacts of codes and standards.

### **BUDGETARY/ECONOMIC IMPACTS**

This action has no budgetary impacts.

### **BACKGROUND**

Council staff is often asked if the impacts of energy efficiency in the economy are real and are they sustainable in the long run. This study took a long-term view by going back to 1990 and estimating what the energy demand in the region would have been in 2015 if the efficiency was kept at 1990 levels. Study shows that demand for all sectors and

all forms of energy would have been higher. The Northwest region has been producing more goods and services with lower demand for energy.

Staff prepared a white paper and presented to the Power Committee at the [June 2018 Council meeting](#). The Committee recommended release of the white paper for public comment.

## **ALTERNATIVES**

The alternatives would be:

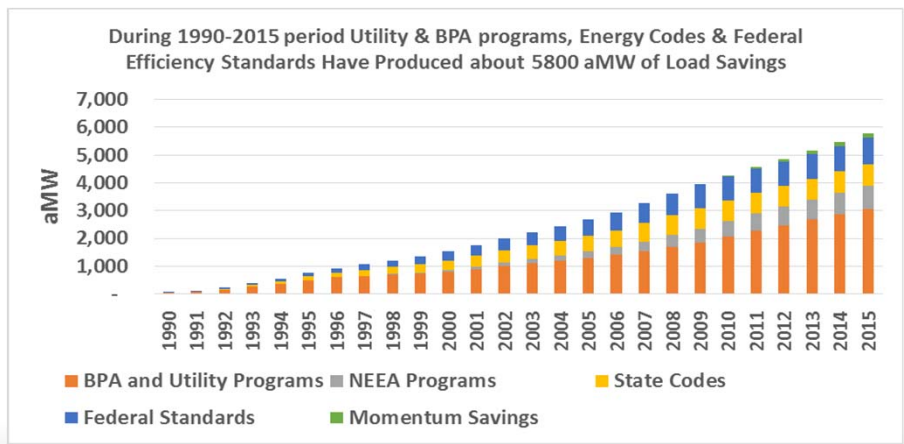
1. Release the report without public comment;
2. Do not release the report;
3. Release the report with a longer or shorter public comment period.

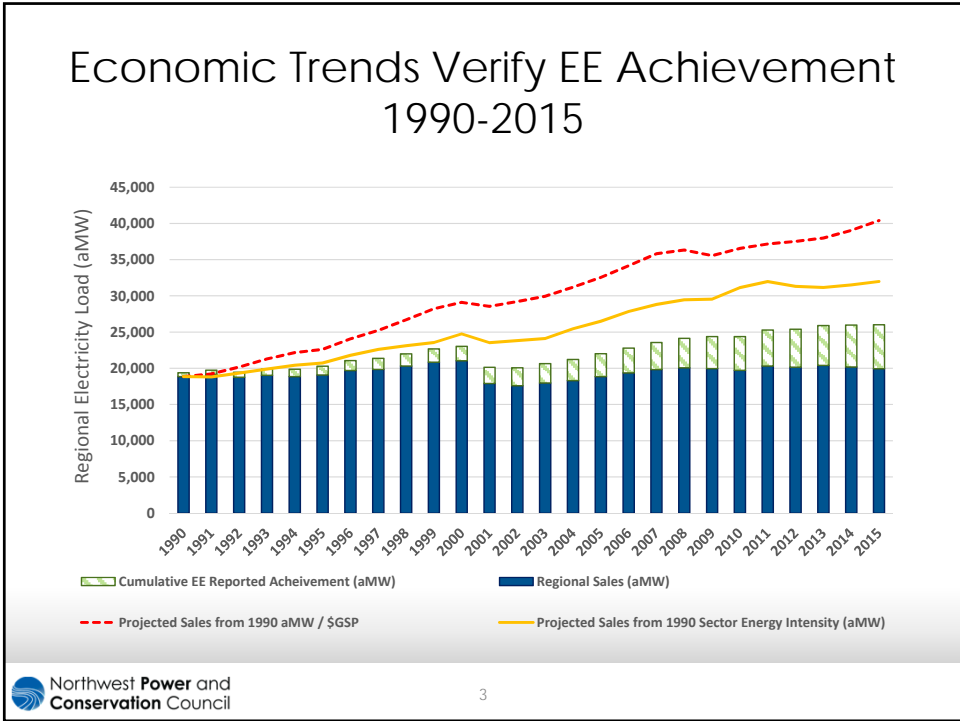
## Recent Trends in Energy Consumption and Its Relationship to the Regional Economy

Ben Kujala, Tina Jayaweera,  
July 11, 2018



## Cumulative Energy Efficiency 1990-2015



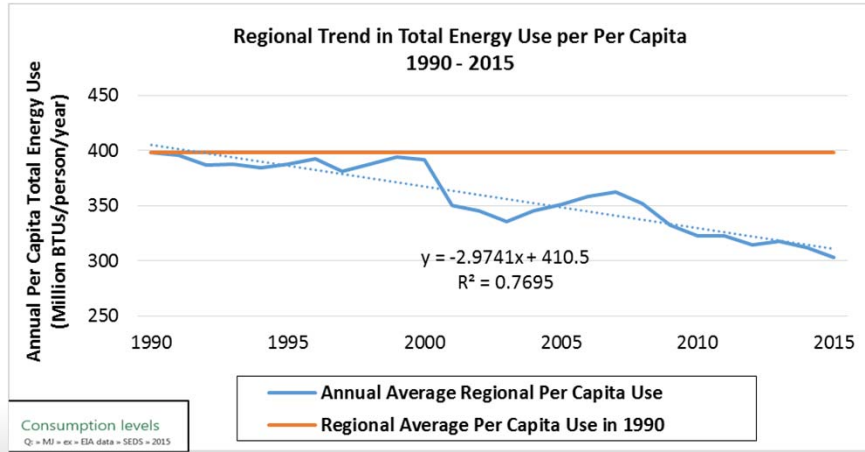


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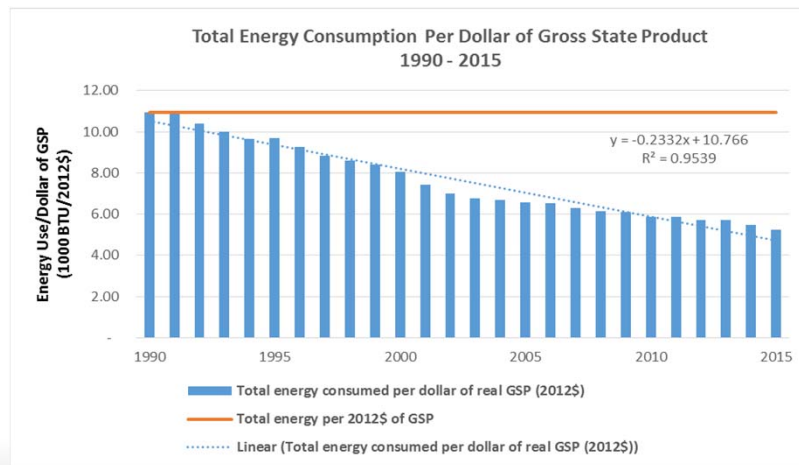
## The Details:

Northwest Power and Conservation Council

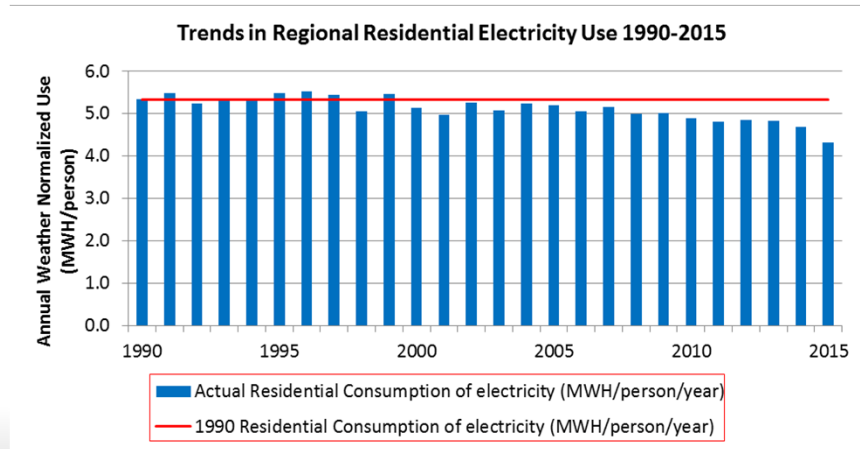
## A 25% decrease in per capita energy consumption



## A 53% reduction per dollar of output



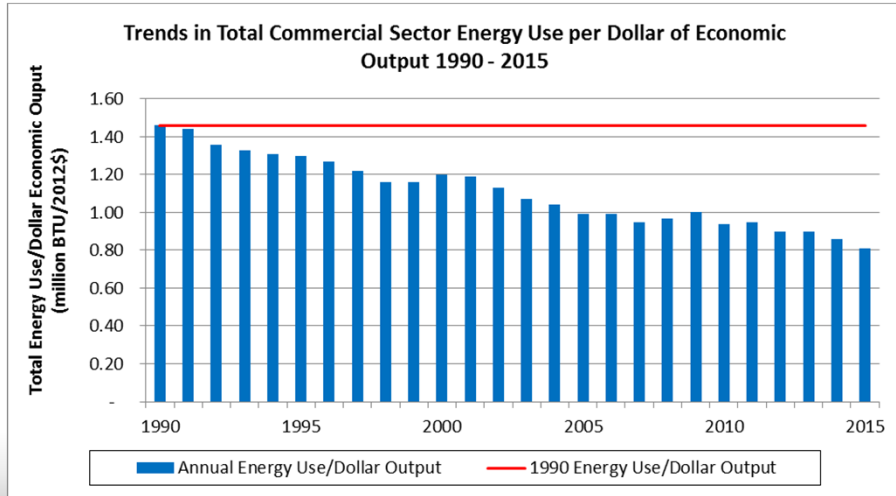
## Electricity consumption dropped by 1 MWH per capita



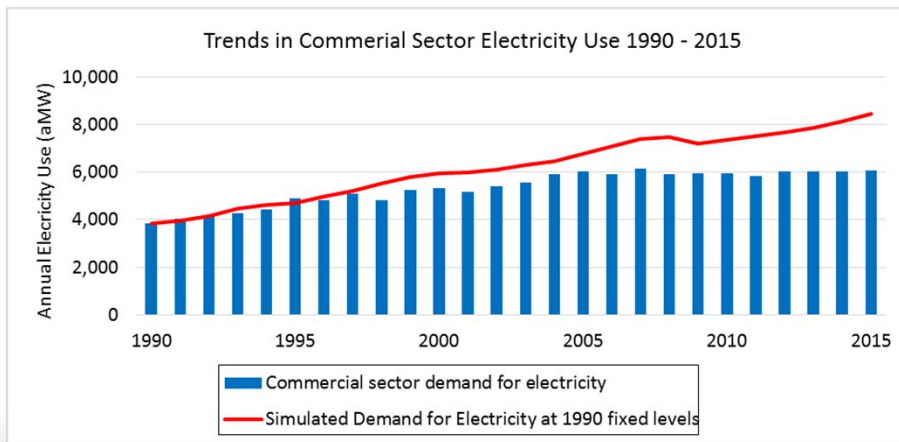
## Drivers for Changes in Residential Demand

Increasing Consumption	Decreasing Consumption
Increasing size of home	Increased use of natural gas for space and water heating
Expansion of electricity-using appliances/devices	Increasing electricity prices
Increased air conditioning	
Increasing appliance size (e.g. refrigerators)	

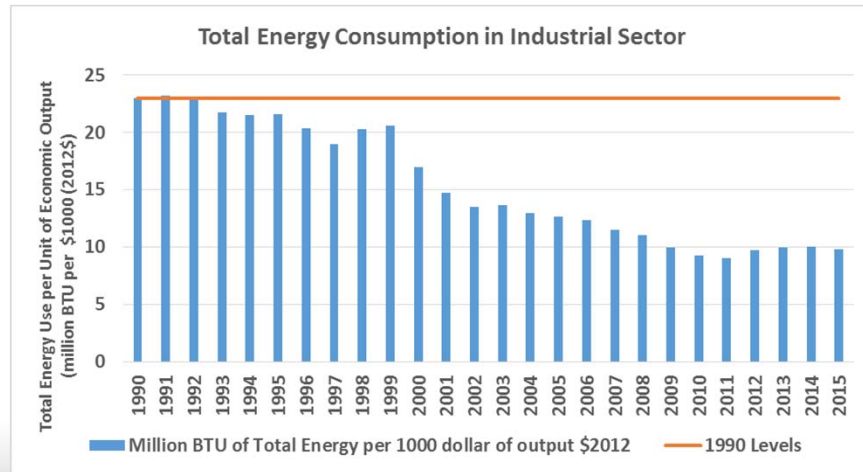
## Commercial Sector demand per unit of output declined by over 80%



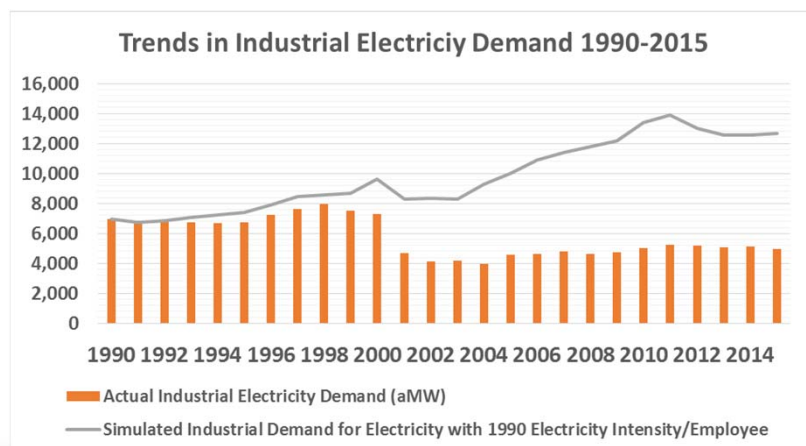
## Commercial sector had a 38% drop in electricity usage



## 57% drop in Industrial Sector Energy Demand



## Industrial Demand for Electricity could have been 7700 aMW higher by 2015





### Impact on Regional Electricity Demand Due to Changes in the Region's Economy and Efficiency Improvements (aMW)

	Actual 2015 Electricity Demand	2015 Electricity Demand with 1990 Energy intensities	Difference in Demand
Residential (WN)	6,862	8,308	1,613
Commercial (WN)	6,071	8,452	2,375
Industrial	4,934	12,668	8,376
Aggregated	17,867	29,428	12,364

Questions?