



Measure 1.3.a Supplemental Report - Reduce non-electric fossil fuel consumption associated with residential and commercial end users from the 2010 three year average level of 165.9 trillion Btu to 140 trillion Btu in 2020.



3.1.3.a Decrease Residential and Commercial Fossil Fuel Consumption to 140 trillion/BTU by 2020



Department of Commerce
Innovation is in our nature.



What the Heck is a “British Thermal Unit (BTU)”?

The energy of a match



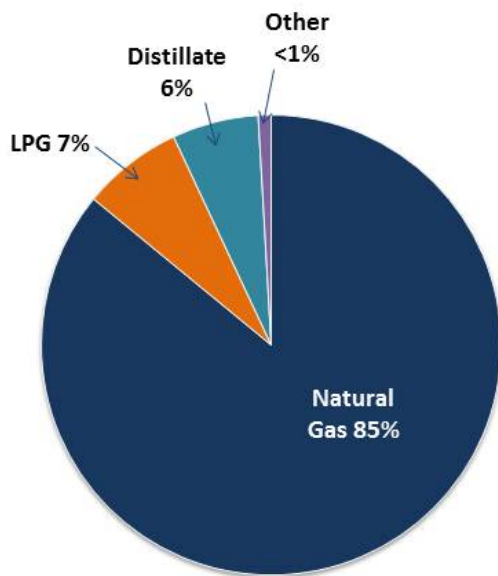
How Much is 1 Trillion BTUs?

- 7,000,000 gallons of gasoline
- 1 Billion Cubic Feet of Natural Gas

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3.1.3.a Decrease Residential and Commercial Fossil Fuel Consumption

Background: Direct Use of Fossil Fuels in Homes & Businesses



- 2 Million Single Family Homes
 - 48% Heated with natural gas
- 1.8 Billion Square Feet of Commercial Buildings
 - 70% Heated with natural gas
- Largest Use of Fossil Fuel (except for transportation) is natural gas

LPG— Liquefied Petroleum Gas (propane, butane)
Distillate- Petroleum based fuel such as diesel and fuel oil

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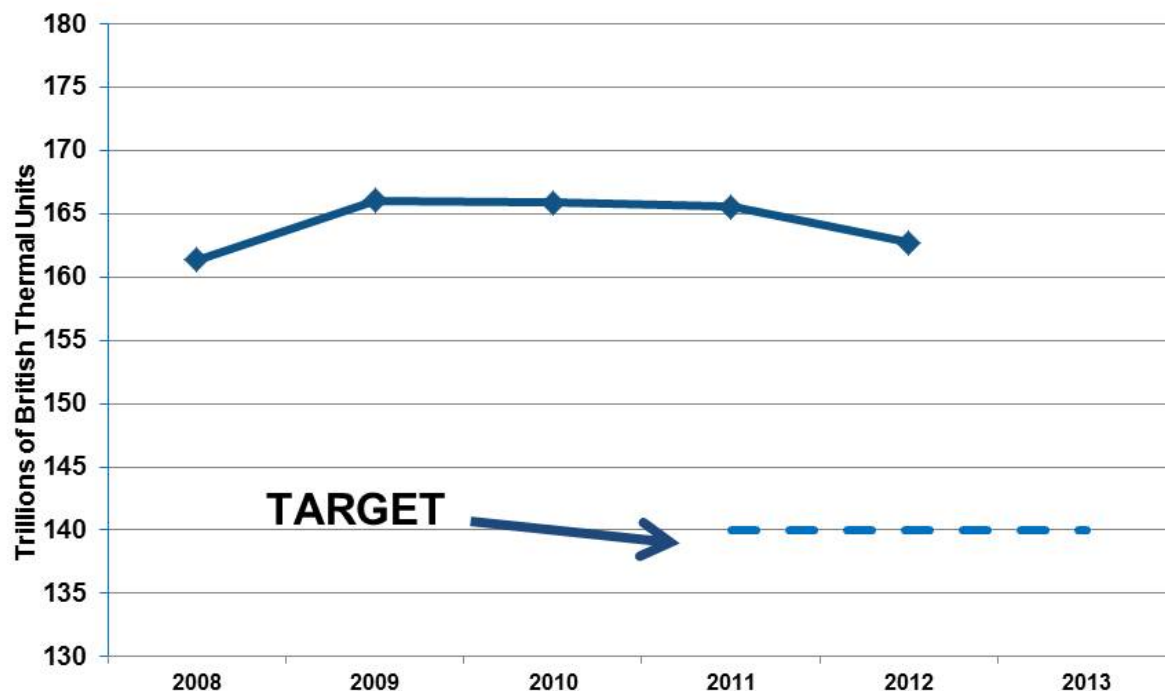
Current State: We are on Behind in Achieving our 2020 Goal

- Fossil fuel energy use in residential and commercial sectors is increasing slowly
- Likely due to several factors
 - Increased economic activity
 - Low natural gas prices
 - More buildings
 - Relatively small gas utility investment in energy efficiency
 - Lack of an overall efficiency requirement



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Efficient Homes and Businesses: Leading Indicator 3.1.3a



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Problem/Opportunity: **Insufficient Investment in Natural Gas Efficiency**



Challenges

- Supplies of natural gas are abundant and prices are low
- Hard to justify efficiency investments with traditional cost effectiveness tests
- No direct price for carbon
- No overall natural gas efficiency targets

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Strategies: **Focus on Policies to Significantly Increase Natural Gas Efficiency**

- Develop aggressive building codes for new commercial and residential buildings.
 - Achieve the 70% efficiency improvement target in our state energy code by 2030.
- Making our public buildings more efficient.
- Expand the traditional tests for cost-benefit analysis of building efficiency projects. Internalize the costs of GHG emissions.
- Expand financing options to make it easier to retrofit existing buildings.

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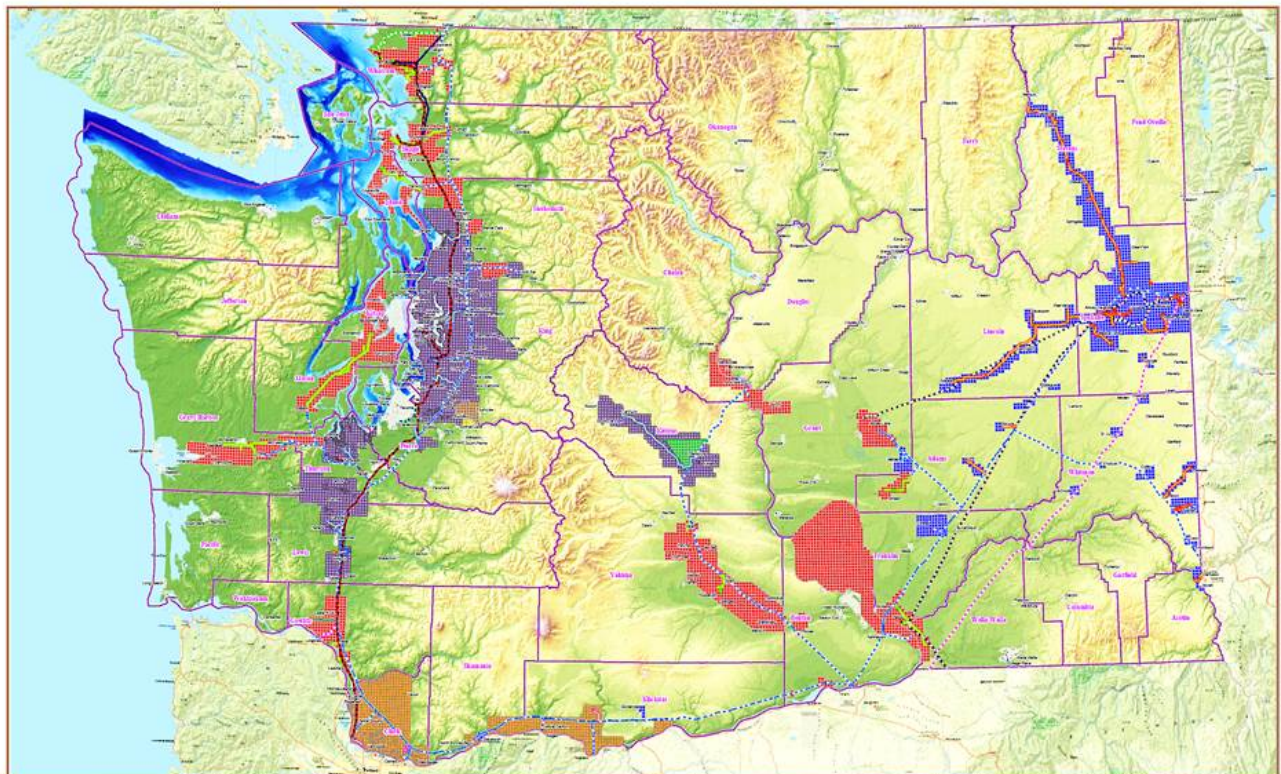
Strategies:

Focus on Policies to Significantly Increase Natural Gas Efficiency

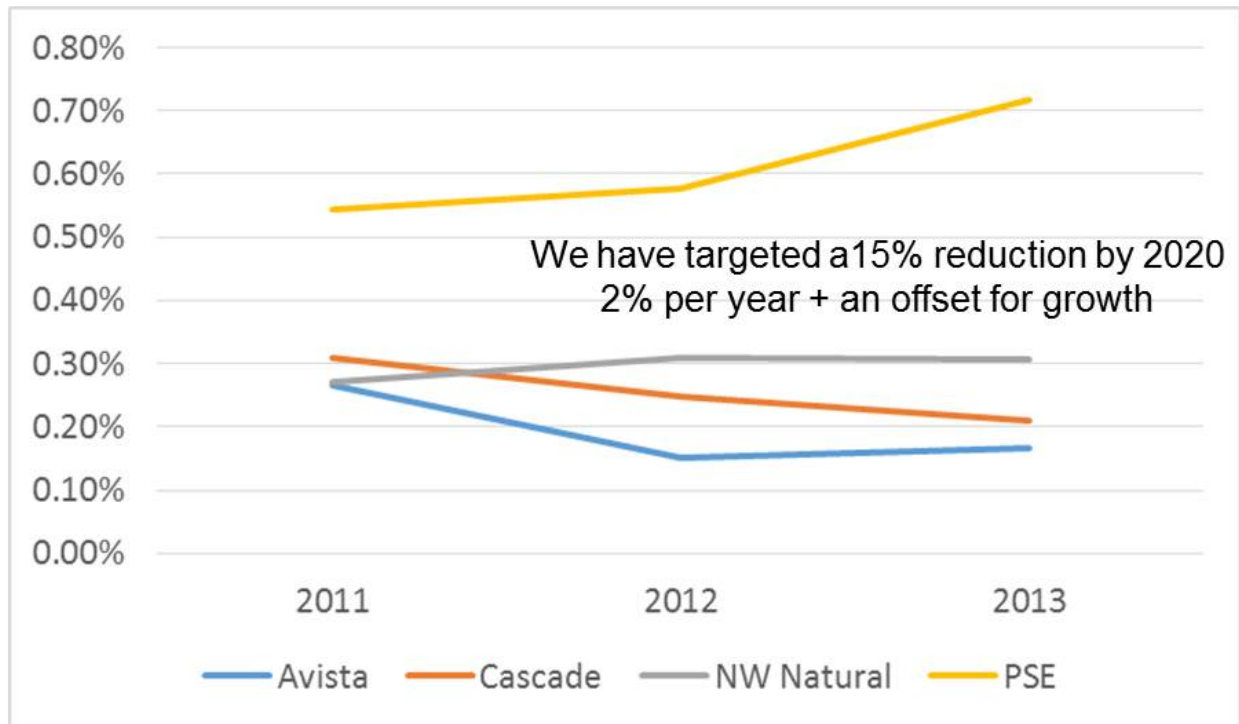
- Provide businesses and homeowners with access to energy use, efficiency and cost information through utility disclosure and other means
- Continue and expand support to vulnerable and low income populations through weatherization programs, and assistance to get off oil heat.
- Examine ways to provide statewide branding and marketing of energy efficiency tied to consumer protection and easy access to information.
- Consider developing and adopting state/utility requirements for natural gas efficiency investments/achievements

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Four Utilities Serve 99% of Natural Gas Customers

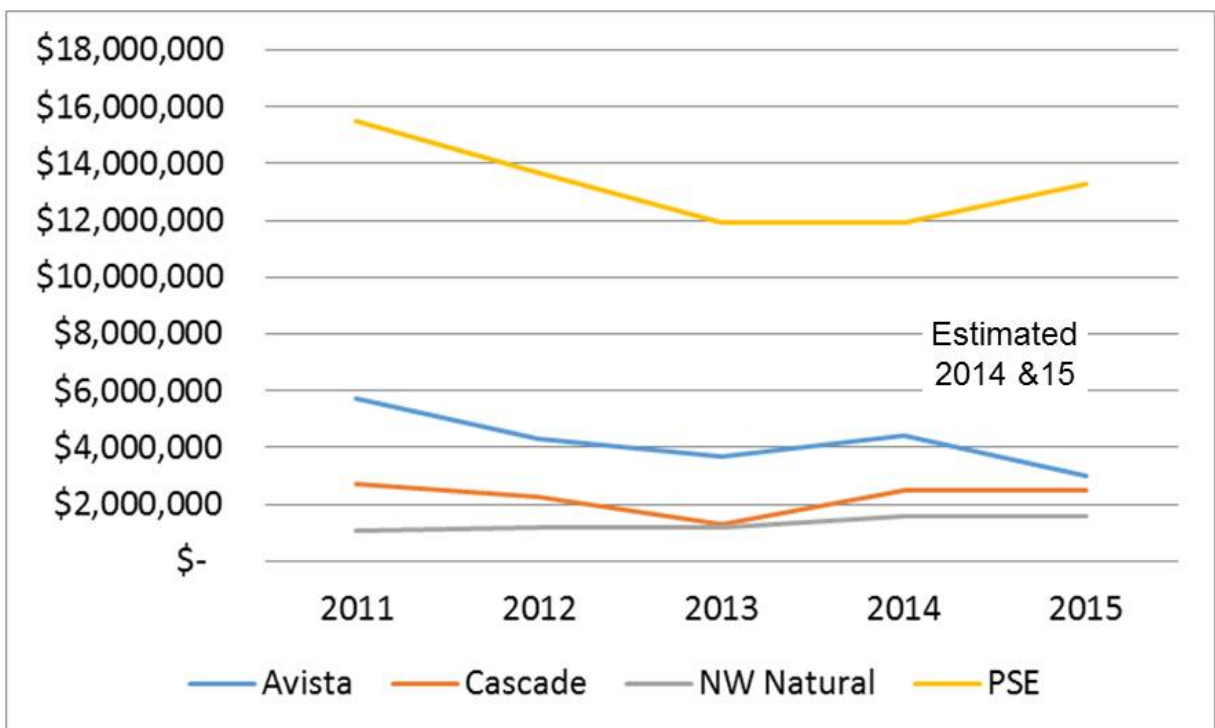


Natural Gas Utility Conservation as Percent of Load



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Natural Gas Utility Annual Conservation Expenditures



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Table 3.3 Summary of Cumulative Achievable, Economic and Conservation Potential

	2015	2016	2019	2024	2034
Baseline projection (1,000's of Therms)	328,757	331,980	339,842	339,444	366,869
Cumulative Natural Gas Savings (1,000's of Therms)					
Achievable Potential	1,677	2,639	9,890	20,615	36,887
Economic Potential	4,152	5,877	17,371	32,580	49,566
Technical Potential	12,512	19,298	53,433	100,103	170,543
Cumulative Natural Gas as a percentage of Baseline					
Achievable Potential	0.5%	0.8%	2.9%	6.1%	10.1%
Economic Potential	1.3%	1.8%	5.1%	9.6%	13.5%
Technical Potential	3.8%	5.8%	15.7%	29.5%	46.5%

Move technical potential to the economic potential category

- Higher fuel cost
- Lower installed cost
- Faster market adoption of new tech.

Move economic potential to achievable potential category

- # of participants



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Increase the adoption of retrofit projects

- Technical potential divides into two classes:
 - **Discretionary** (retrofit) These are available at any time
 - **Lost-opportunity** (new construction and replacement of equipment on burnout) Only available at a specific time
- In the residential and commercial sectors, most activity has been in lost opportunity
 - In 2013, one utility provided 1,910 gas furnace rebates but only 30 floor insulation rebates.

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Figure 26. Residential Natural Gas Annual Cumulative Achievable Technical Potential by Resource Type



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Figure 26. Residential Natural Gas Annual Cumulative Achievable Technical Potential by Resource Type



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Govt. intervention & program design can change utility achievement

Measure	Project Count	Measure	Project Count
E and G Manufactured Home Duct Sealing	1,867	E and G Manufactured Home Duct Sealing	1,867
E Attic Insulation With Electric Heat	46	G Energy Star Home - Natural Gas Only	4
E Floor Insulation With Electric Heat	12	G Attic Insulation With Natural Gas Heat	164
E Wall Insulation With Electric Heat	19	G Floor Insulation With Natural Gas Heat	30
E Window Replc From Double Pane W Elec Heat	144	G Wall Insulation With Natural Gas Heat	72
E Window Replc From Single Pane W Elec Heat	137	G Window Replc With Natural Gas Heat	922
Total	2,225	Total	3,059

CEEP, Manufactured Home Duct Sealing
 Program Delivery: Direct Install
 Payment: Full Cost, State cost share with utility

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3.1.3a Increase Residential and Commercial Energy Efficiency

Action Plan

Task	Task Lead	Partners	Expected Outcome	Status	Due Date
Update the State Energy Code	Commerce	SBCC, NEEA, NWECC	New, higher efficiency code (8 to 14% improvement)	On Track	Dec. '15
New Funding for Low Income Weatherization	Commerce	USDOE, BPA WA Utilities, HHS	Increased efficiency in low income dwellings	Included in all three budgets	June '15
Expand Natural Gas Conservation Programs	Commerce	UTC, IOU Utilities, NW Power Council, NWECC	More efficient use of natural gas s	Ongoing Activity	Ongoing
Increase markets for energy efficient gas products	Commerce	NEEA, UTC, IOUs	More efficient gas using equipment marketed and installed	On Track	Ongoing
Continue State Investment in Public Building and Residential/Business Efficiency	Commerce	State Agencies, K-12, Local Gov, Lenders	Maintain and increase efficiency in these sectors	Awaiting Budget	June '15

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