

Prepared by the NW Energy Coalition  
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Sector	Tellus Full Potential(aMW)	Cost Range (c/kWh)	Cost Competitive (aMW)	Cost Range (c/kWh)
Residential	1618	0.5 to 5.5	840*	0.5 to 3.3
Commerical	945	0.9 to 3.0	945	0.9 to 3.0
Industrial & Other	1374	1.3 to 3.9	1374	1.3 to 3.9
CHP (net savings)	763	3.2 to 3.7	763	3.2 to 3.7
Wind	6437	3.0 to 6.1	6350	3.0 to 4.1
Biomass	2880	1.1 to 6.0	1465	1.1 to 4.5
Geothermal	641	5.0 to 7.0	330	5.0
<b>TOTAL</b>	<b>14,658</b>		<b>12,017</b>	

## How We Can Save Energy?

### THE RESIDENTIAL SECTOR

Five percent of the energy used in homes is consumed by appliances that aren't even turned on! If manufacturers are required to achieve federal efficiency targets for standby electric consumption in VCRs, stereo equipment, and other electronics, 218 aMW can be saved through 2020.

Major conservation opportunities exist right in our homes. One of the cheapest is building homes the right way to begin with – implementing higher standards for insulation and installing efficient heating and cooling systems. Combined with savings from improved ventilation and insulation, better heating systems can reduce residential energy use by 380 aMW over 20 years. Even existing homes can be retrofitted cost-effectively. And switching over to compact fluorescent lights is a quick and easy measure that will save an additional 220 aMW.

**Altogether, residential consumption can be reduced by 16% over the next 20 years, freeing up more than 800 aMWs of electricity and saving \$260 million annually in avoided electricity generation.**

### THE INDUSTRIAL SECTOR

Industrial users can stave off the construction of two power plants through conservation and save themselves \$1.4 billion in the process.

Industry, our biggest electricity user, can reduce its consumption considerably by modernizing equipment and improving operations. The Tellus study found major savings – 570 aMW through 2020 – that can be achieved simply by replacing old drive motors with high-efficiency models and using better designed pumps, air compressors, and fans. Aluminum smelters, the most intensive energy users, can also reduce consumption considerably through retrofitting machinery.

**Altogether, industrial consumption can be reduced by as much as 14% over the next 20 years, freeing up more than 1,300 aMW of electricity. Combined Heat and Power (CHP) co-generation facilities capture heat from manufacturing plants to produce electricity and can give back an additional 300 aMW.**

### THE COMMERCIAL SECTOR

Office buildings and retail stores can save half a billion dollars simply by changing their lighting.

Electricity hasn't traditionally ranked high as a business expense in the Northwest. Consequently, many businesses have overlooked cheap and easy efficiency measures. For example, the use of high-efficiency bulbs, combined with smarter lighting controls, can save 570 aMW of electricity. Fitting new buildings with high-efficiency HVAC systems and using improved refrigeration are some of the least expensive efficiency improvements in this study. Improving general operations and maintenance alone can cut commercial energy use by 3% in the next 20 years.

**Altogether, commercial consumption can be reduced by as much as 15% over the next 20 years, freeing up more than 900 aMW of electricity. Co-generation facilities can cut demand by an additional 462 aMW.**

## How Do We Generate More Power from Clean Sources?

### FROM THE WIND:

Wind energy is the fastest growing source of electricity in the world today. The Northwest, particularly Montana, is rich in wind resources. This study estimates the raw potential for wind energy at about 76,000 aMW. That's more than three times the region's current electric use. Tapping only the most competitive sites, which don't pose environmental risks or intrude on culturally sensitive areas, wind power can supply more than **6,000 aMW, or 20% of the Northwest's energy demand in 2020, for about the same cost as gas-fired generators**

### FROM BIOMASS:

Biomass energy is already popular in the Northwest as a logical way for paper mills to dispose of their waste products. Many utilities capture and burn methane from landfills to generate electricity. But the potential power from burning crop, mill, and logging residues has barely been tapped. We can generate more than **1,400 aMW from biomass on a competitive basis.**

### FROM GEOTHERMAL:

Nearly 3,000 megawatts of electricity are generated from geothermal resources in the United States. Looking only at geothermal sites that can produce power as cheaply as fossil-fuel plants without intruding on environmentally or culturally sensitive areas, the Tellus study found more than **300 aMW of potential geothermal energy** – equal to the output of a medium-sized conventional power plant.

*Clean Electricity Options for the Pacific Northwest* was written by Michael Lazarus, David von Hippel and Stephen Bernow of the Tellus Institute. The study was paid for by The Energy Foundation. The NW Energy Coalition is a regional alliance of more than 95 diverse community organizations and utilities from Montana, Idaho, Washington and Oregon. Based in Seattle, the Coalition advocates investments in energy conservation, new renewable resources, low income energy services and salmon restoration.

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\*The 840 aMW figure includes 76 aMW of residential solar hot water heating efficiency which costs 13 cents per kilowatthour saved, but is cost-effective in certain niche applications