

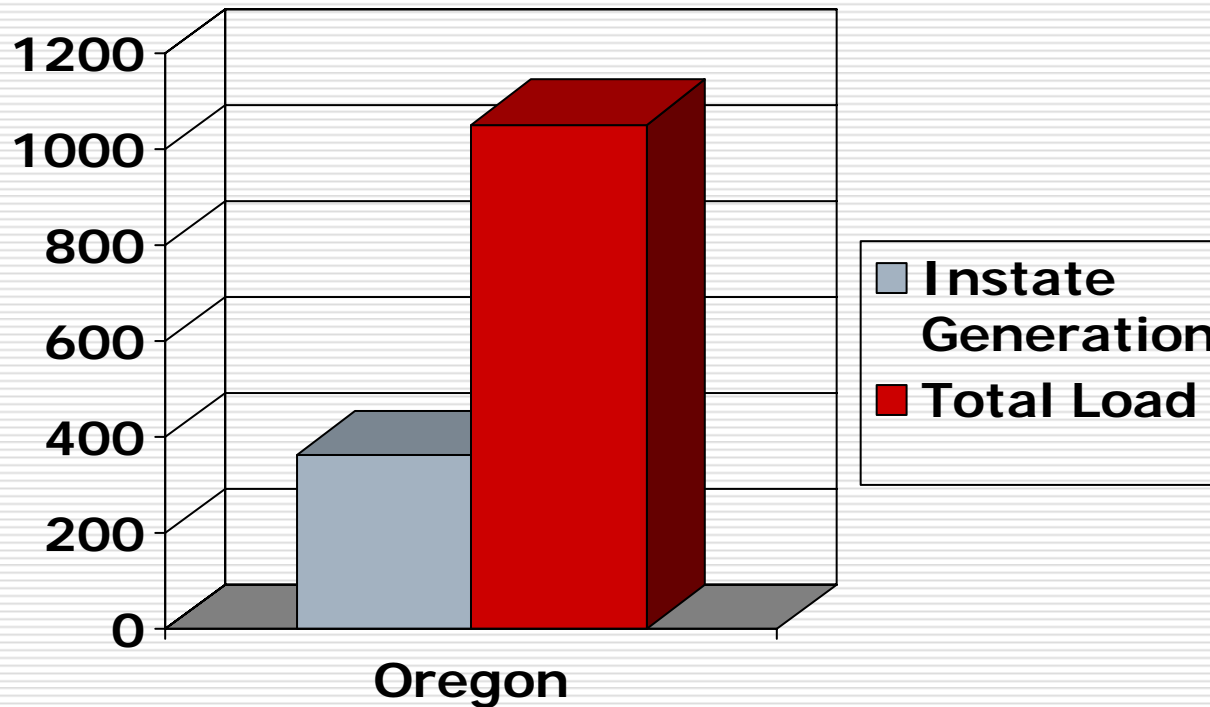
Energy Efficiency - will a load-based cap deliver?

Jim Edelson

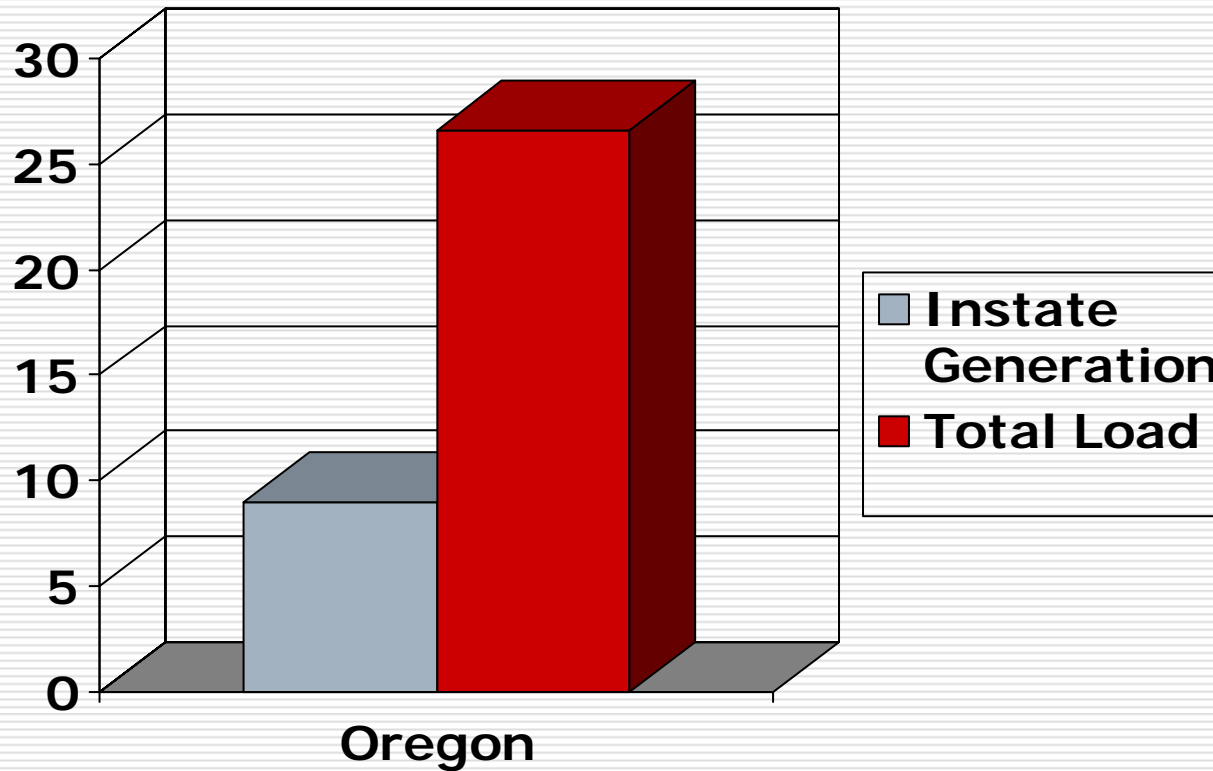
Energy Efficiency As A Resource, Berkeley, CA
2 October 2007

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Leakage: Carbon Intensity (lbs/MWh)



Leakage: CO2 Emissions (Millions of Tons)



Proposal for Oregon Electric Cap-and-Trade

- ❑ Governor's Carbon Allocation Task Force (CATF) began in September 2005
 - ❑ **10 page "median" proposal** at <http://www.oregon.gov/ENERGY/GBLWRM/CATF-Rpt-Ltrs.shtml> [GOOGLE: OREGON CATF]
 - ❑ Includes economic study, the CATF letter to Governor and comment letters
 - ❑ 2007 Hearings on HB 3545.
 - ❑ No further CATF meetings planned
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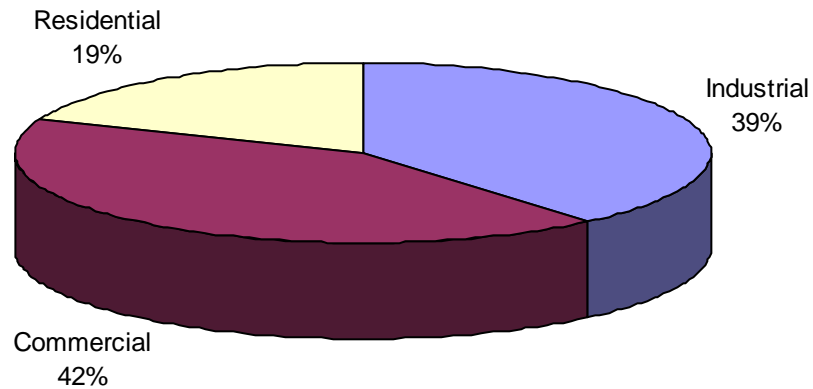
“Median” Electric Proposal

- ❑ Load-Based with tradable allowances
 - ❑ Annual emissions cap for all retail electric suppliers and significant utilities and self-generators (+15,000 tonnes/year)
 - ❑ Base Period: 2002 - 2006 emissions
 - ❑ Cap 2009 - 2011 = Base Period
 - ❑ Cap 2020_(HB 3543) = 10% below 1990 emissions
 - ❑ Cap 2050_(HB 3543) = 75% below 1990 emissions
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Savings are available

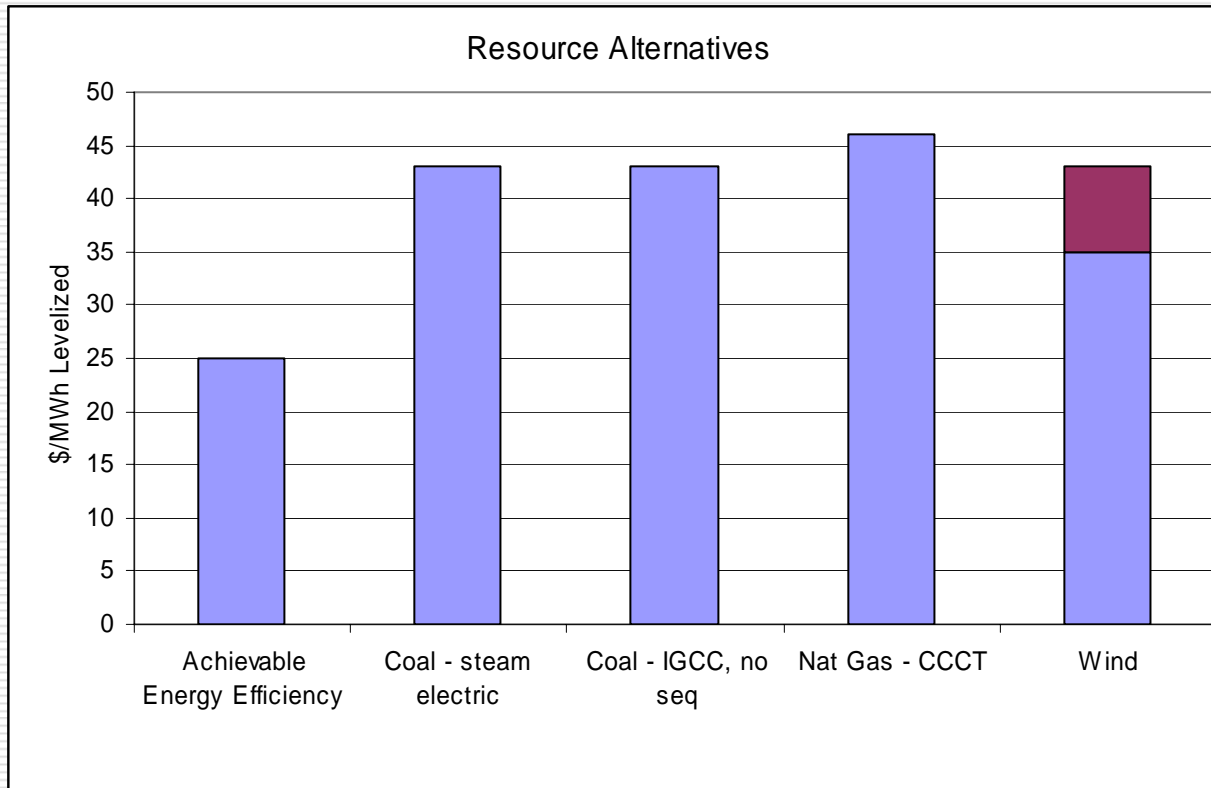
SOURCE: ENERGY TRUST

2017 Electric Technical Potential 575 MWa by Sector with Total Measure Cost Cap of \$0.055/kWh Levelized



EE is lowest cost

SOURCE: ENERGY TRUST

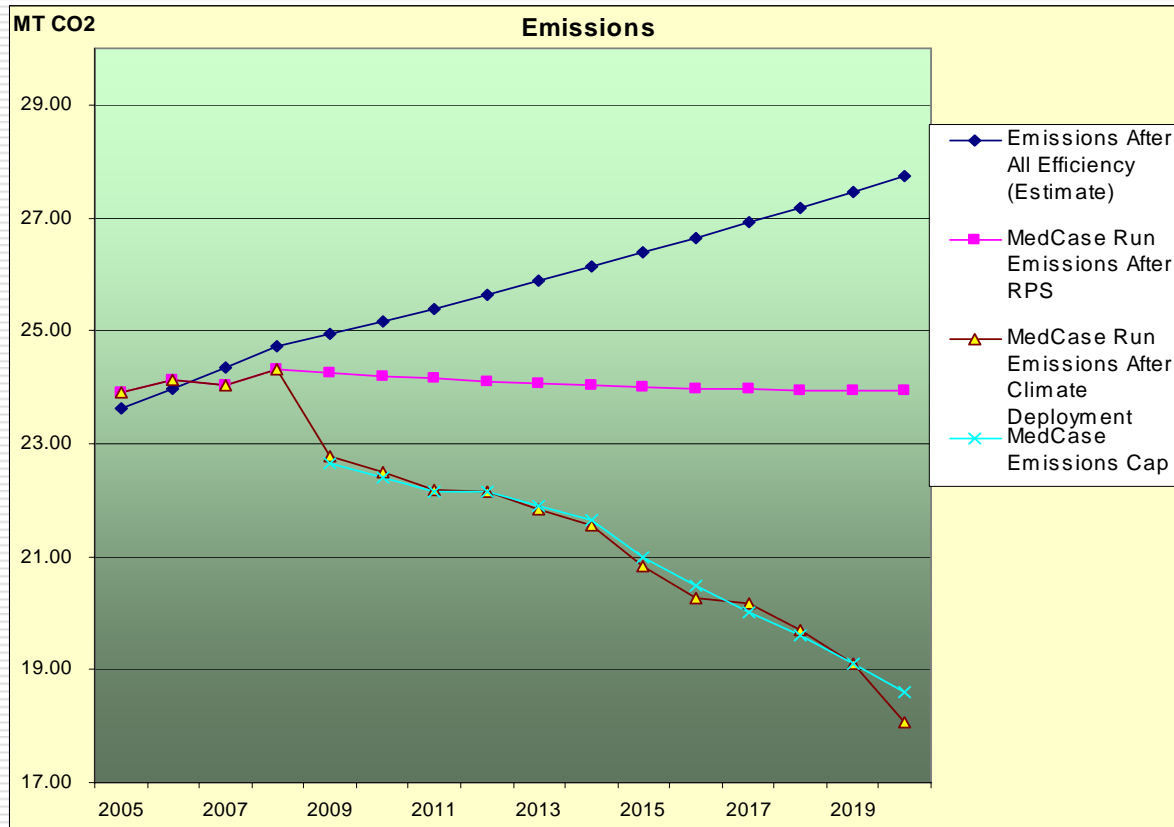


More Savings are Available

- NWPPC: 200 MWa between 5 & 10 cents kwh
 - eg. Residential Space Heat Pump in Warm Climates
 - eg. Lighting T8 to HPT8 on schools
 - NWPPC: 175 MWa above 10 cents kwh
 - eg. Solar WH, residential heat pump conversions, most windows, etc...
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CO₂ Emissions 2006-2020

SOURCE: HAL NELSON



EE Climate Policy Deployment

- Additional 1.8% SBC
 - Additional above market EE measures when they are least-cost options; eg. Air-air heat pumps, indirect evaporative coolers....
 - Due to supply curve uncertainty, capped at 900aMW in 2020
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Energy Efficiency Sensitivities

SOURCE: HAL NELSON

1. Low EE Case--No additional SBC
2. 490 aMW of EE
3. NPV w/ RPS= (\$750M)
4. 17.3 Million MWh of renewables
5. \$31 allowance price

1. High EE Case-- Additional 2.7% SBC
2. 1125 aMW of EE
3. NPV w/ RPS= \$366M
4. 14.4 Million MWh of renewables
5. \$13.50 allowance price

Economic Impacts (ETO Implan Analysis, unpublished)

Factor	2004 Totals		Per aMW
aMW	21.16		1
Jobs	143		6.76
Output*	\$ 25,600,700	\$ 1,209,863	
Wages	\$ 7,677,100	\$ 362,812	
Business Income	\$ 1,214,500	\$ 57,396	
Personal Income	\$ 8,891,600	\$ 420,208	

A Load-Based Cap Approach

- CO2 incentives are at the right place to drive EE
 - Revenue requirements?
 - Favorable bill and economic impacts
 - Helps to have 'below' market resources still available – or abundant
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Conclusions on Load-Based Cap

- ❑ Feasible in a single state
 - ❑ May be complex to work into a regional or federal system
 - ❑ Questions remain on unspecified power
 - ❑ Demonstrates role of EE in meeting CO₂ reductions
 - ❑ Should deliver EE in CO₂ mitigation
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