Energy Trust of Oregon

Draft Energy Efficiency Resource Assessment and Supply Curves 2008 – 2027 for Portland General Electric

October 21, 2008

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Overview of Presentation

- Show a draft of the Technical and Achievable, cost effective potential over 20 year planning horizon.
- What is new
- Describe the steps of the estimation process
- Present total Technical potential for both PPL and PGE.
- Provide estimates of Technical and achievable potential by Sector and End Use.
- Talk about next steps: Bundling measures into programs, and deploying programs over the 20 years.

What's New?

- Updated utility data
- Updated baseline, high efficiency specifications, and costs
- Added Benefit/Cost Ratios
- Addressed emerging technologies
- Commercial model can separate self direct and >1aMW

New measures

- Home energy monitors
  - In home feedback devices that provide real time feedback on electricity consumption
- Refrigerator recycling
- Minisplit heat pumps
  - Ductless split system heat pumps featuring Advanced Inverter Technology
- Energy Star homes
  - Updated for new homes code change
- Heat pump water heater

Before You Start – Decide On A Cost-Effectiveness Metric

- Participant Cost Test (PTC)
  - Costs and benefits to the program participant
- Total Resource Cost (TRC)
  - All Quantifiable costs & benefits regardless of who accrues them. Includes participant and others' costs
- Utility Cost Test (UTC)
  - Quantifiable costs & benefits that accrue only to the utility system. Specifically excludes participant costs
- Rate Impact Measure (RIM)
  - Net change in electricity utility revenue requirements.
    - Attempts to measure rate impact on all utility customers especially those that do not directly participate in the conservation program
    - Treats "lost revenues" (lower participant bills) as a cost

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Cost Benefit Tests

- BCR (Benefit Cost Ratio)= NPV of benefits / Total resource cost

- NPV of benefits includes:

  Savings * Avoided Costs

  Plus Adjustments for

  Time of use, Hedge Value, Carbon adder, quantifiable Non Energy Benefits (water savings, O&M savings)

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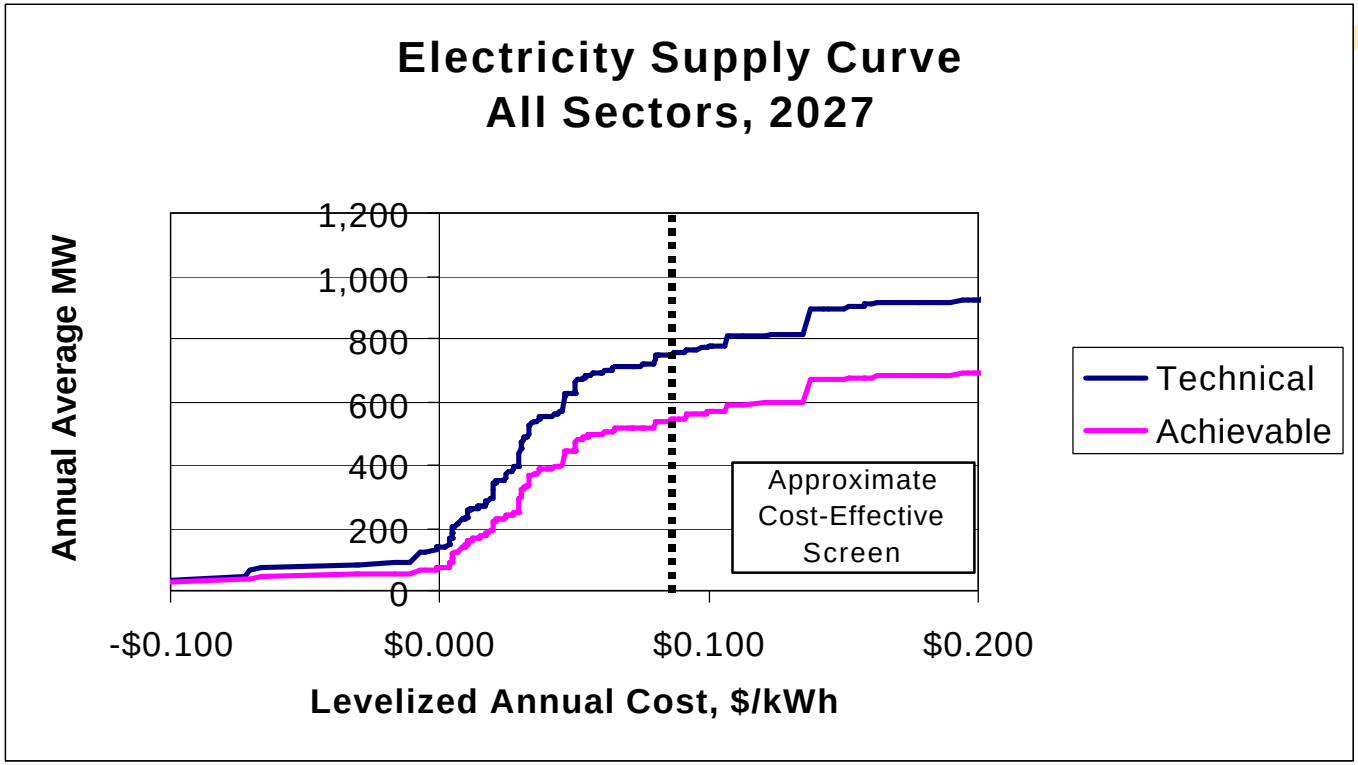
Inputs to Resource Potentials Assessment Methodology

- Availability
  - Scope of measures
    - Technologies
    - Practices
  - Applicability territory
    - Number of units
    - Units savings
  - Achievable over time
    - Retrofit
    - Lost-Opportunity

- Costs
  - Materials & labor
  - Annual O&M
  - Periodic Replacement
  - Program Admin
  - Externalities
  - Other non-electric

2008 - 2027 Draft Supply Curve for ETO - Oregon Electric IOU's

- 769 aMW of Technical Potential at $0.095/kWh Levelized cost



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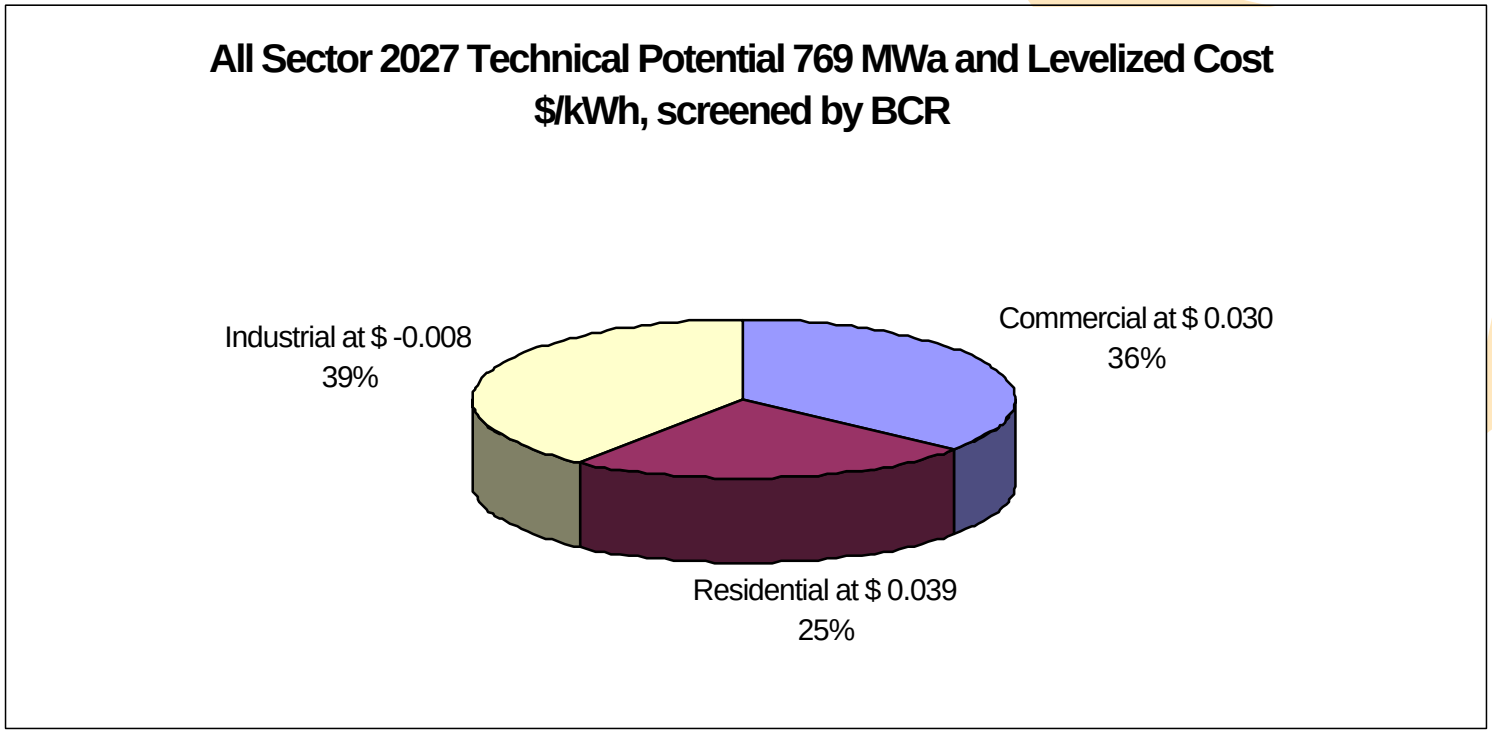
2008-2027 Sector Percentages of Technical Potential - Oregon Electric IOU's



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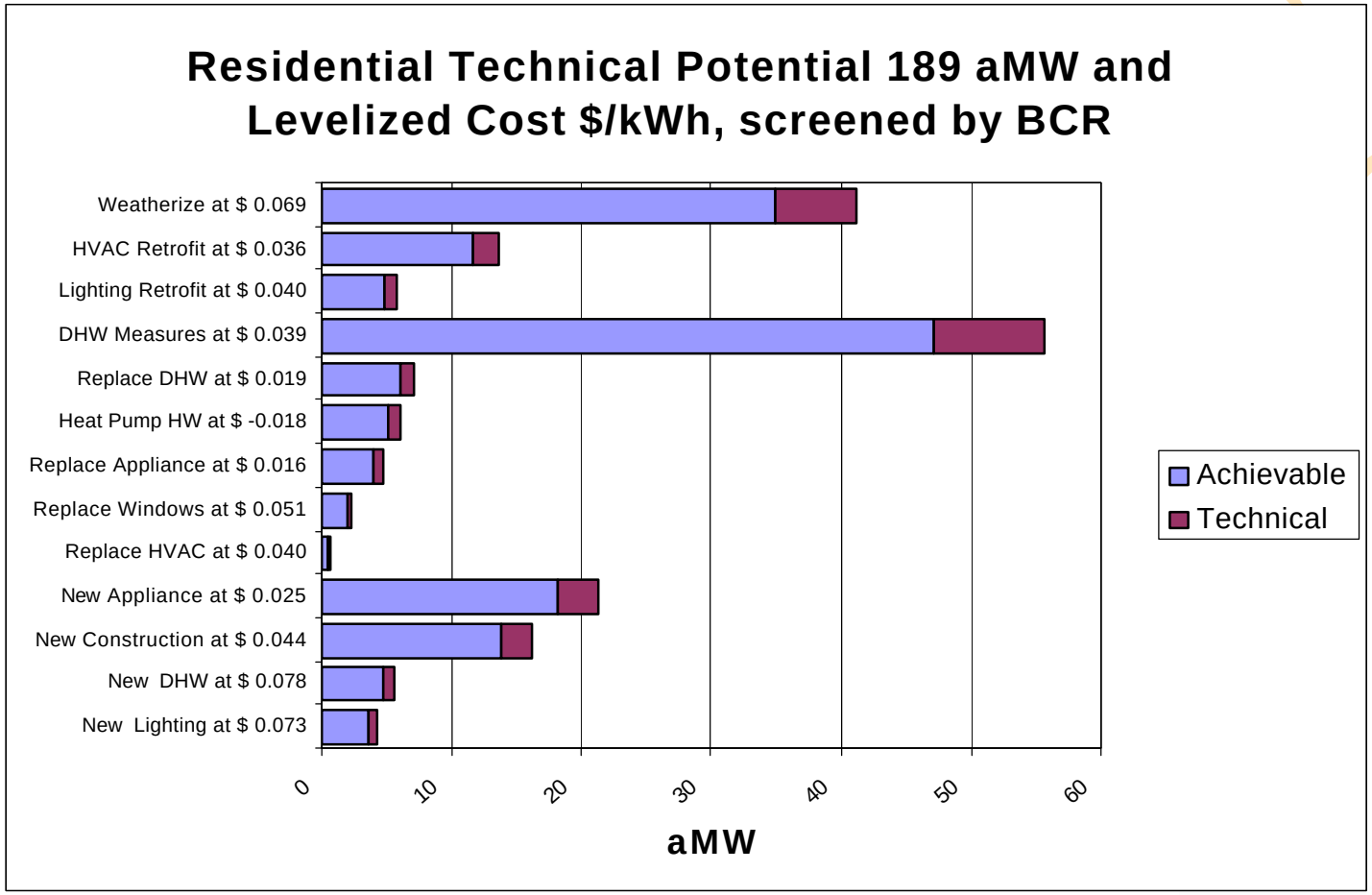
2008 - 2027 Residential Sector Measures of Cost Effective Achievable & Technical Potential - Electric



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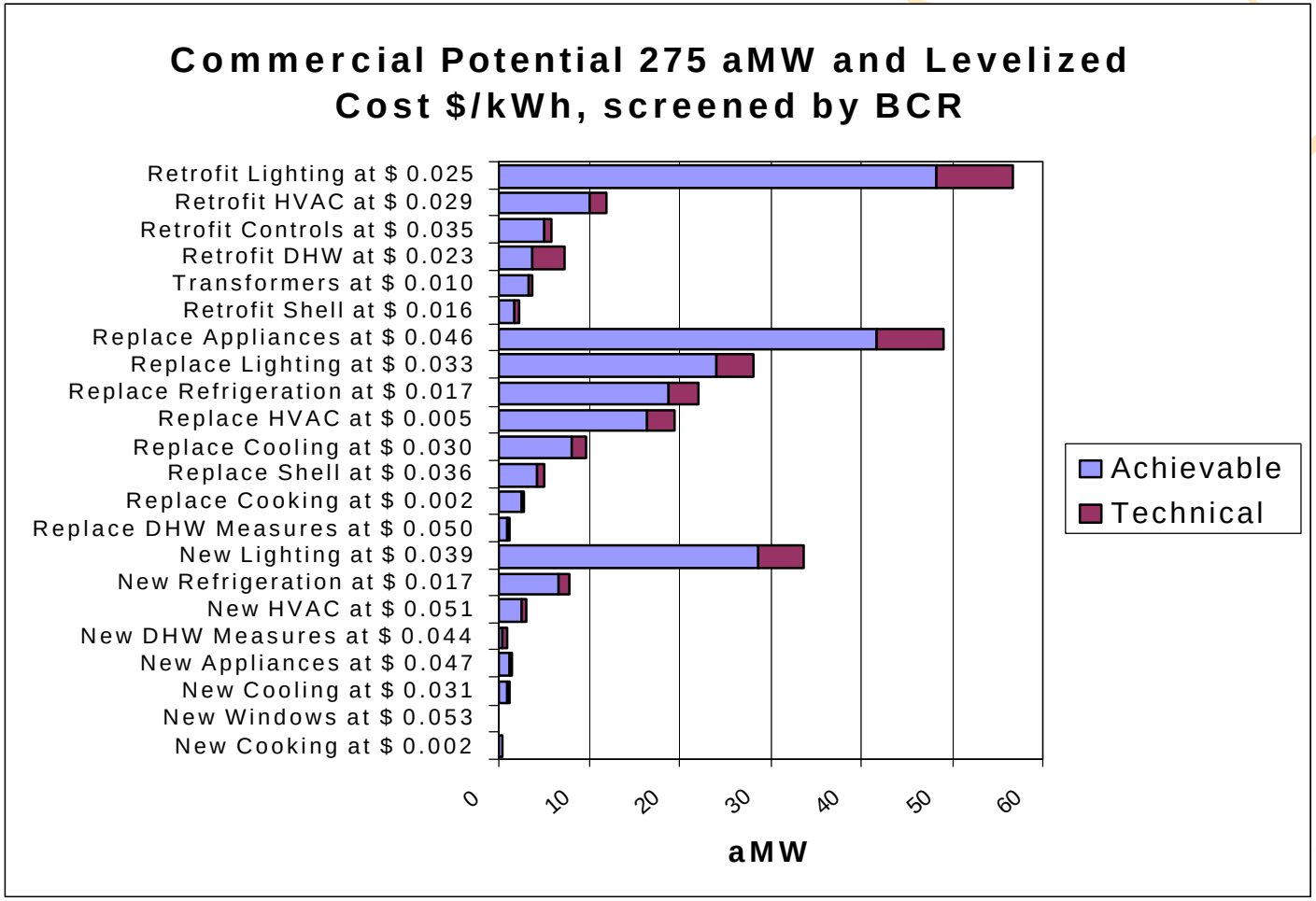
2008 – 2027 Commercial Sector Measures of Cost Effective Achievable & Technical Potential - Electric



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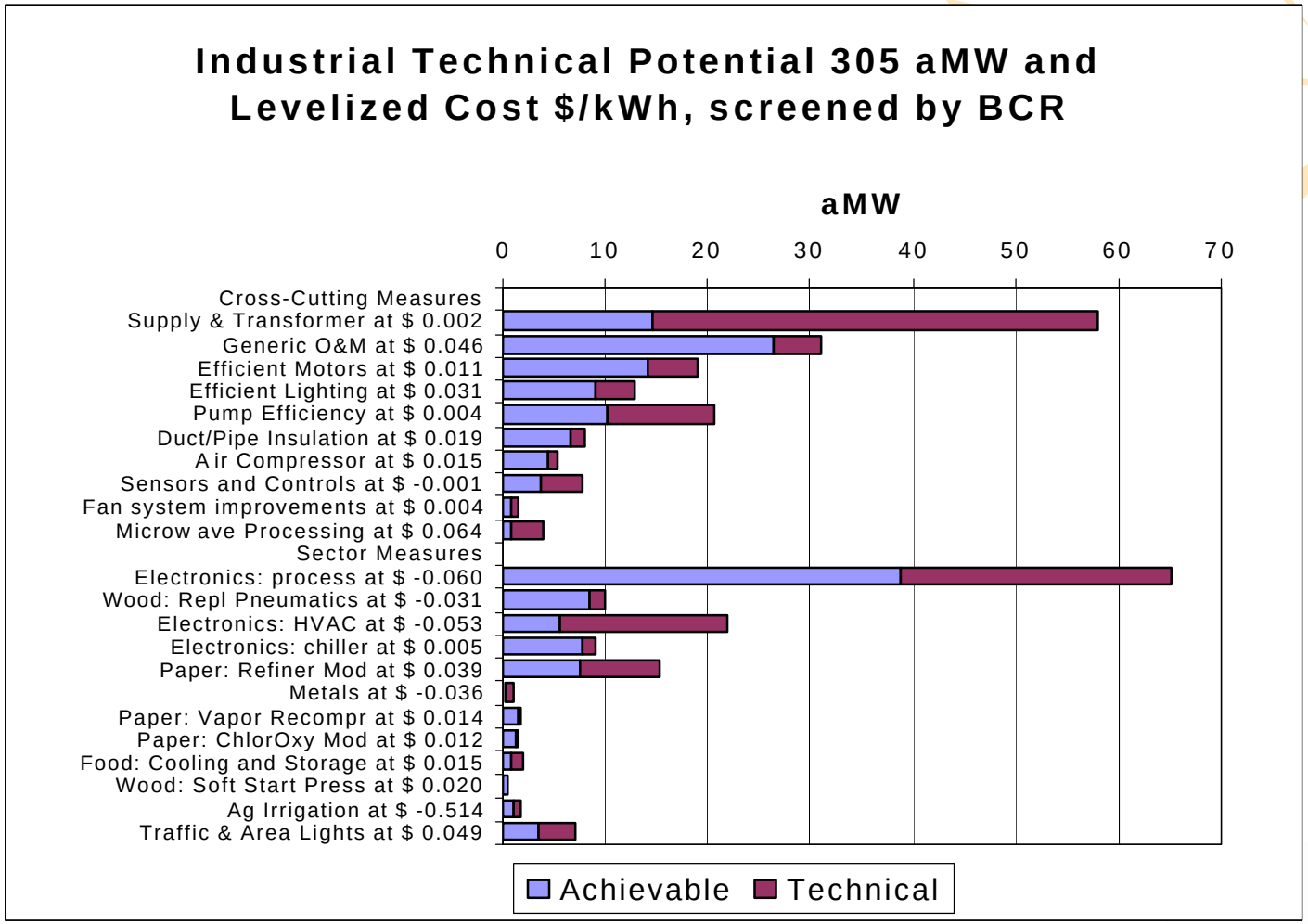
2008 - 2027 Industrial Sector and Cross-Cutting Measures of Cost Effective Achievable & Technical Potential - Electric



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Next Steps

- Program Budgets – Ramping in new measures, going deeper with existing programs (2 years).
- Deployment Scenarios (20 years).
- Integrate with utility IRP's

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