

# Reducing GHG: How do Energy Efficiency Programs Stack Up?

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AESP, February 2010

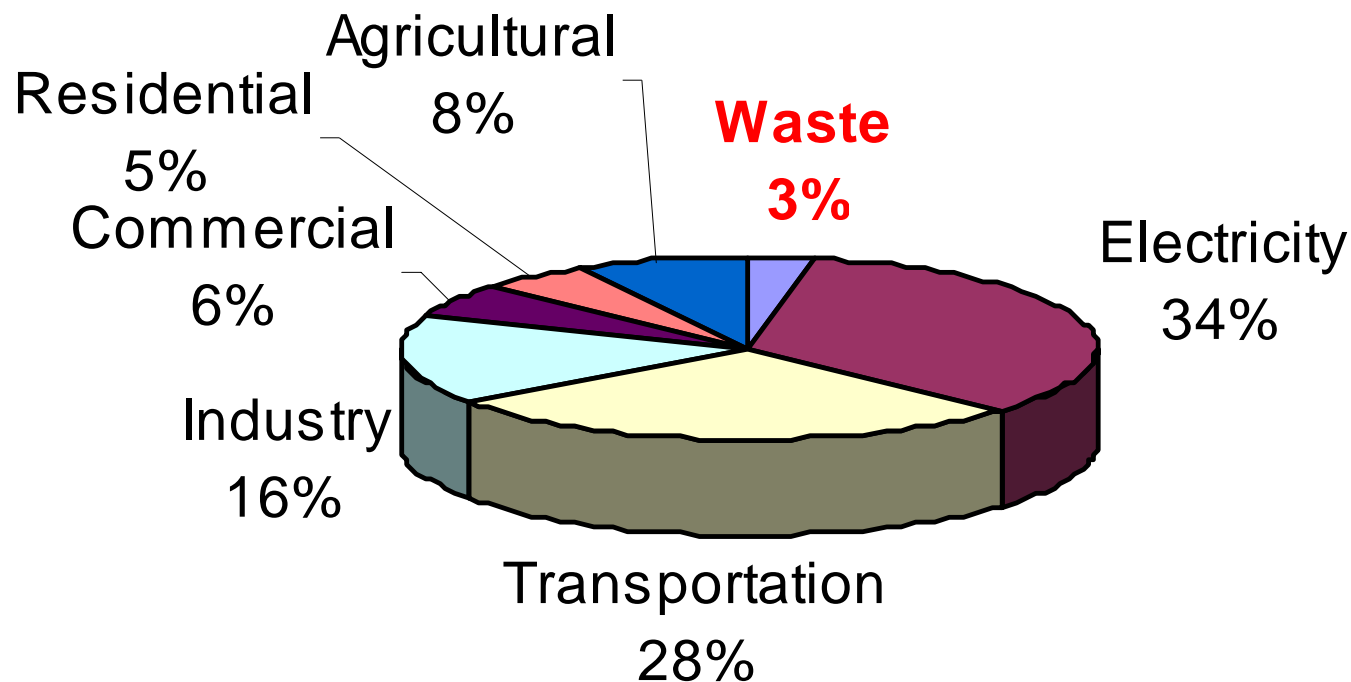


**SERA**

# Topics

- Sources of GHG emissions
- Programs analysis
  - Solid Waste
  - Energy
- Relative costs
- Job creation
- Other factors
- Community initiatives

# US Greenhouse Gas Emission Sources - Traditional



Source: USEPA, 2005

# Goal – Reduce MTCE\*

- Historic takeaways –
  - Prioritized actions in energy efficiency (EE), transportation
- Other considerations
  - cost hierarchy?
  - other factors?

*\*MTCE – Metric Ton of Carbon Equivalent*

# *PROGRAMS ANALYZED*

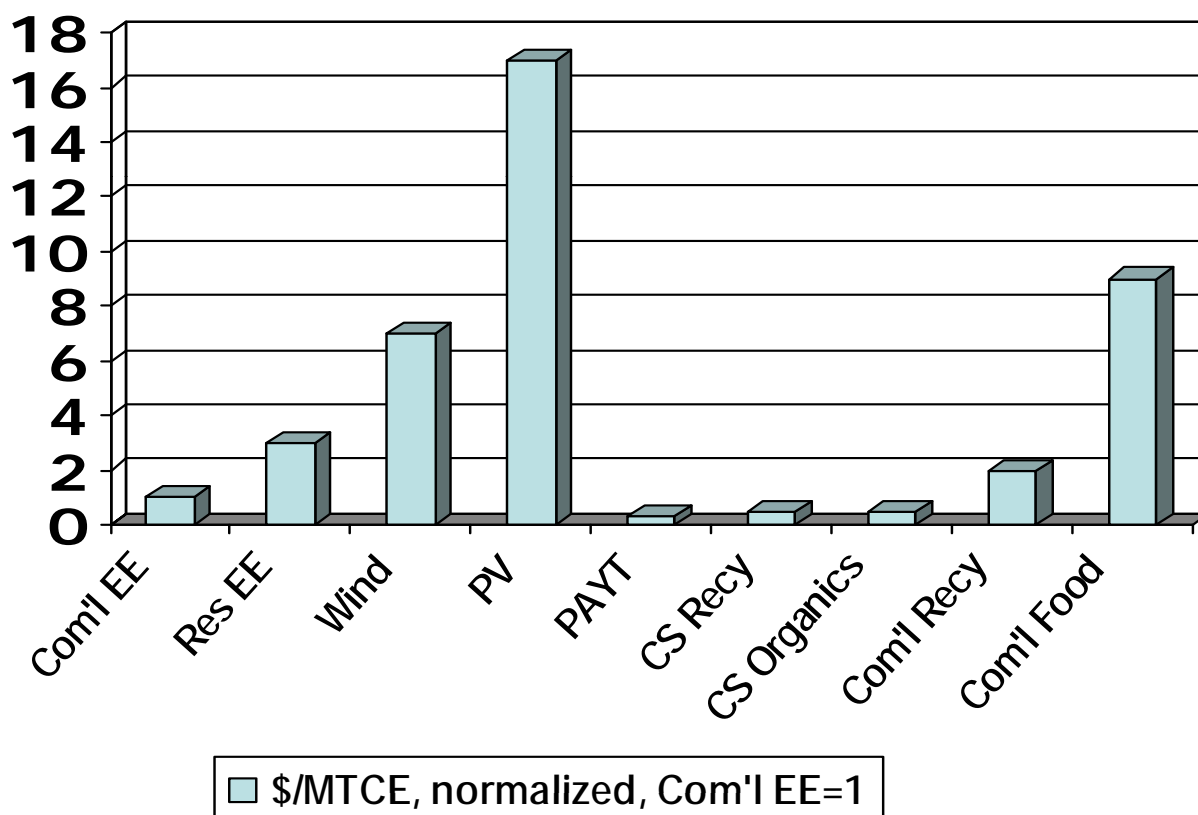
# *Programs Modeled*

- Solid waste:
  1. Pay as you throw (PAYT)
  2. Residential curbside recycling
  3. Commercial recycling
  4. Residential organics
  5. Commercial organics
- Energy Efficiency:
  1. Commercial lighting retrofit
  2. Residential weatherization
  3. Wind
  4. Photovoltaics / solar

# *Calculation Approach*

- Impacts
  - Tons
  - kWh
- GHG
  - Modeling approaches
- Cost
  - Data sources
- Results “normalized” for policy focus

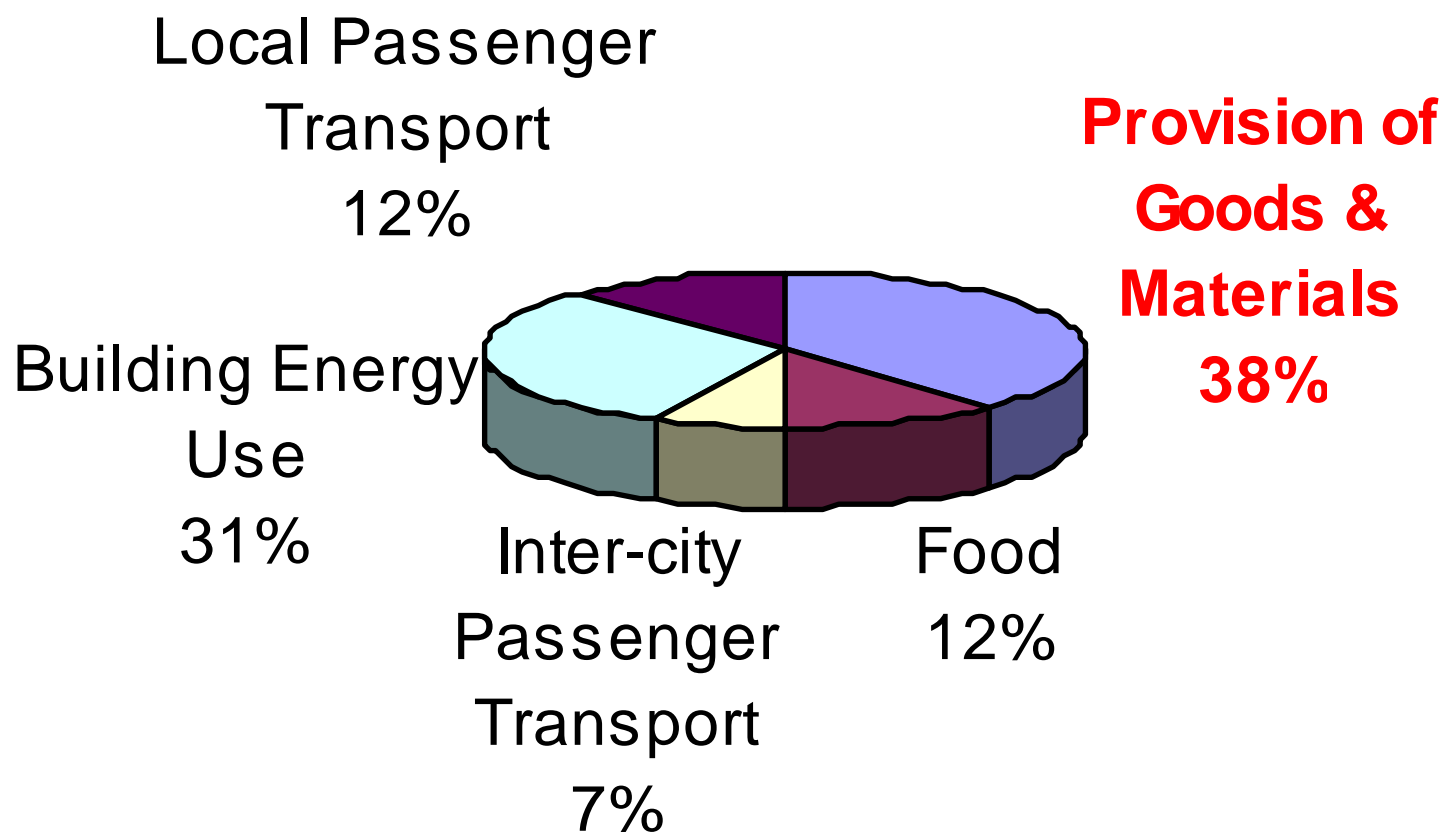
# Relative Cost per MTCE for Solid Waste and Energy Programs



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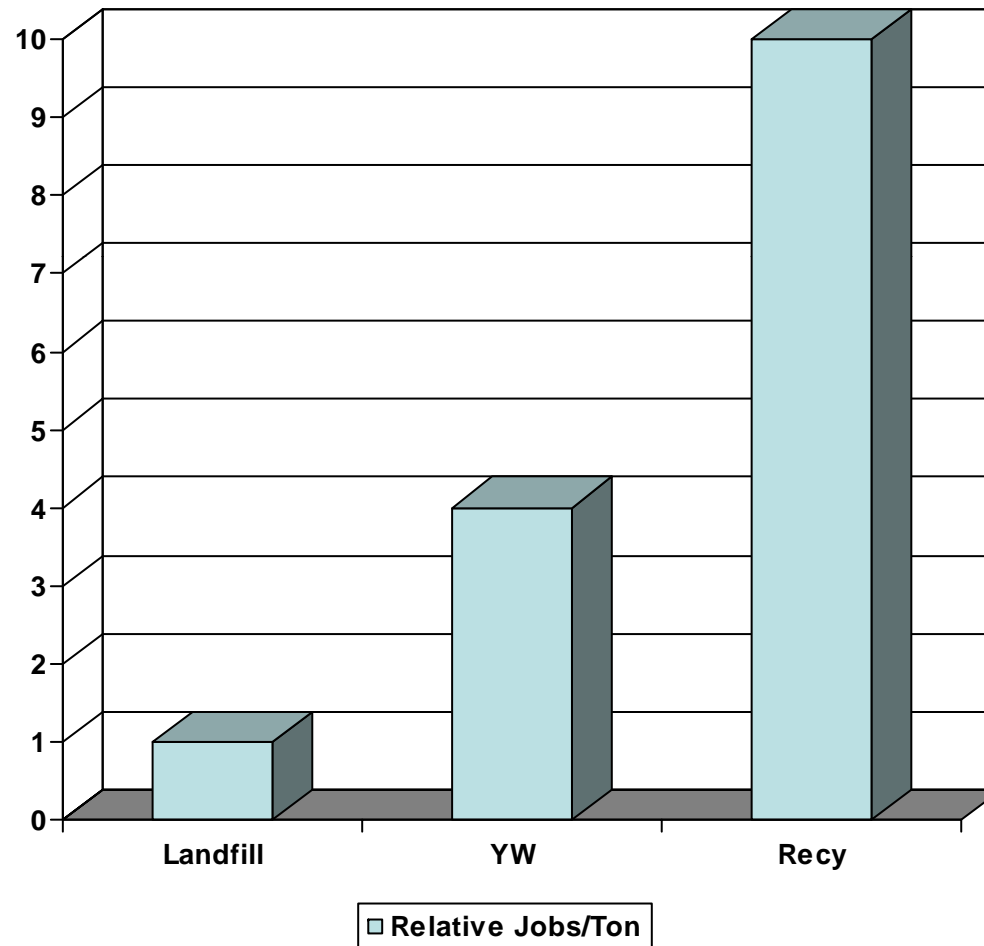


# US Greenhouse Gas Emissions Sources (revised)



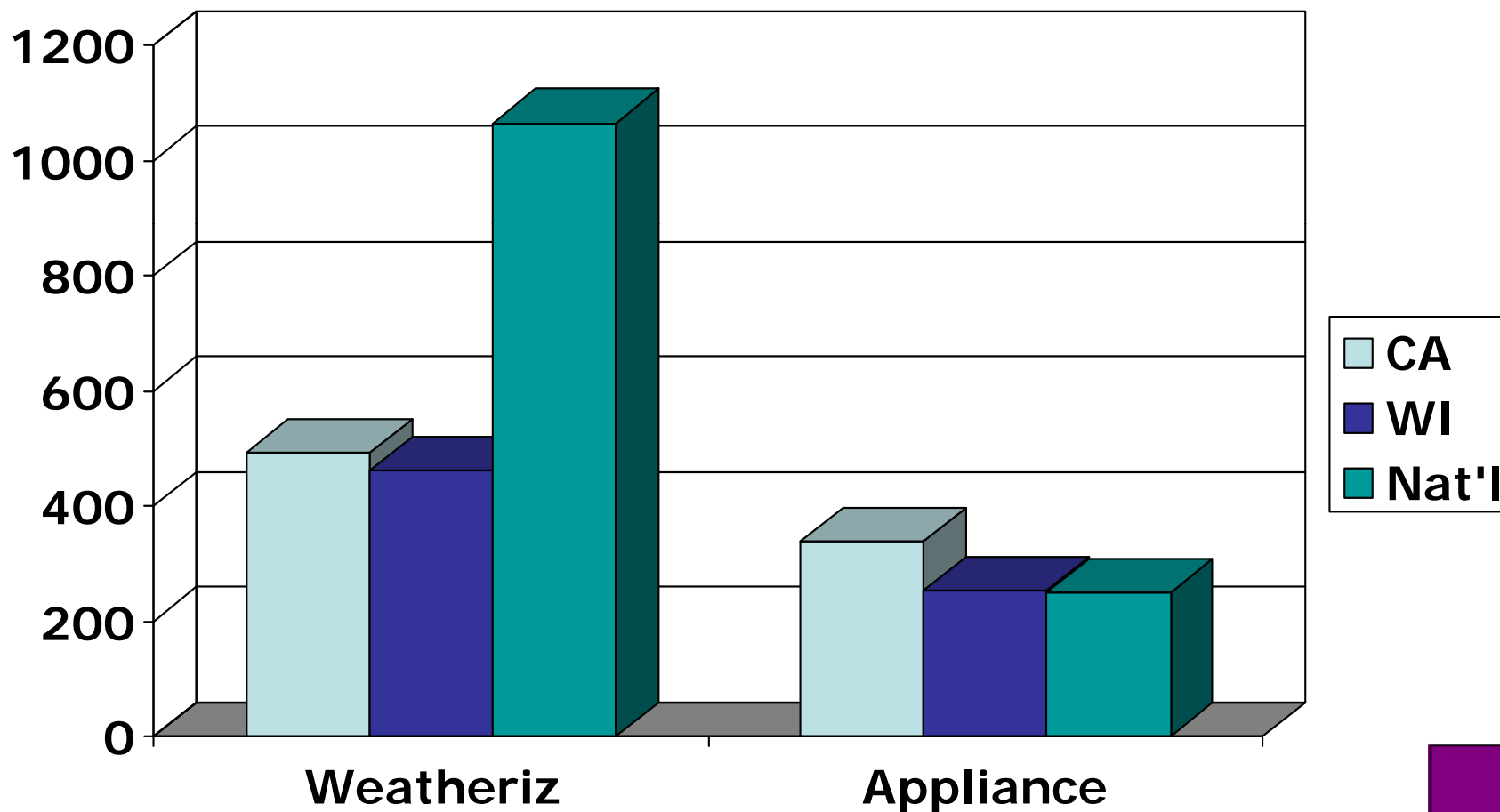
# ***JOB IMPACTS***

# Relative Job Impacts – Solid Waste - Generalized



Source: Institute for Local Self Reliance

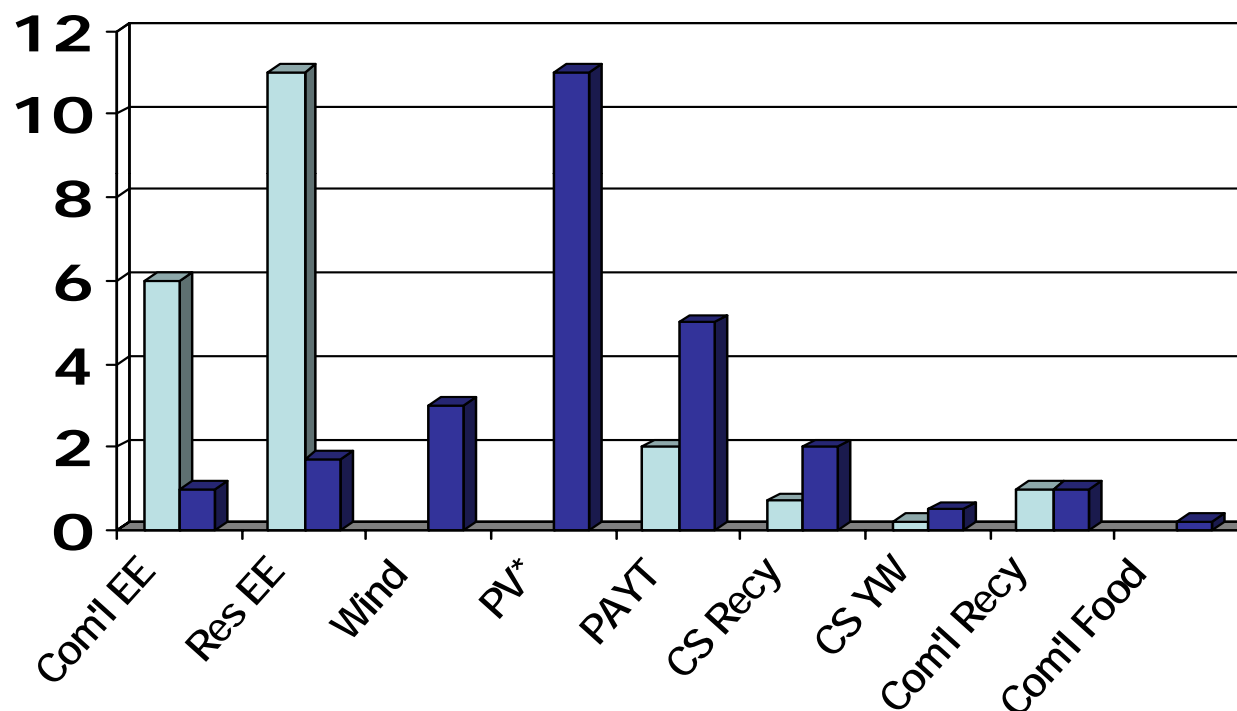
# Relative Job Impacts - Energy



# *Computing Jobs Impacts*

- Modeling approaches
- Base case issues
- Impact case sectors for energy, recycling, organics, PAYT
- → STIMULUS implications

# Relative Jobs per MTCE and per Dollar Invested



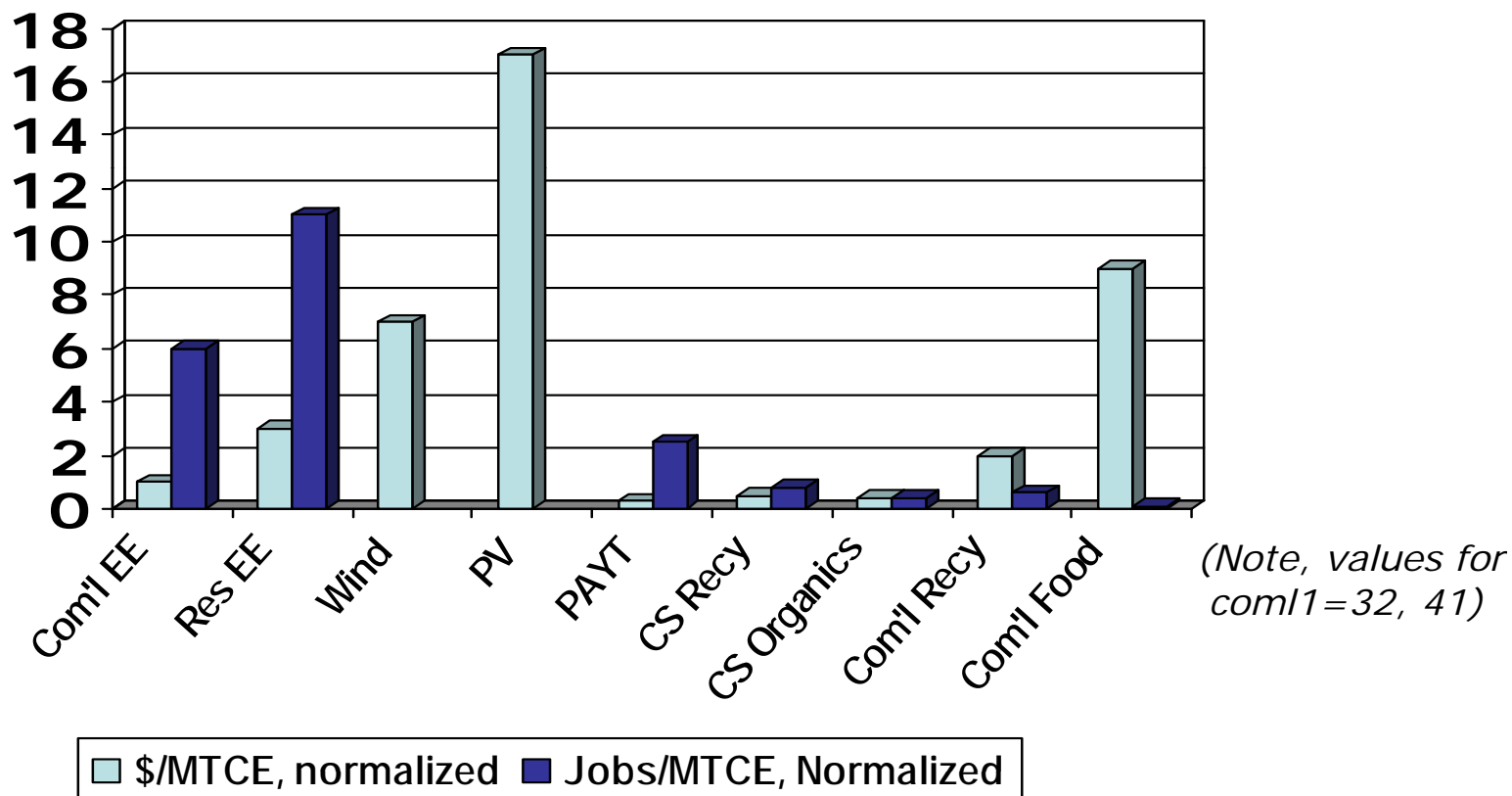
Some figures  
Not available  
For PV, Wind

■ Jobs/MTCE, normalized; Com'l Recy=1

■ Jobs/\$ spent, Normalized, Com'l EE=1

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# Relative Cost and Jobs per MTCE



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# ***OTHER PROGRAM / POLICY CONSIDERATIONS***



## *Other Program Considerations*

- Speed / Timing
  - Ramp-up comparisons
- Coverage
- Authority to implement
- Retention
- Out of pocket costs / funding
- Integrated planning

# ***SUSTAINABILITY INITIATIVES IN LEADING COMMUNITIES***



# *Sustainability Approaches in Leading Cities*

- Denver
  - 5 categories of initiatives - fairly typical
    - water / environment;
    - solid waste / recycling;
    - energy / emissions;
    - green building / industry;
    - urban design / transport
- San Francisco
  - 5 year plan “Sustainable City”
  - 20% of planned GHG reductions from landfill diversion

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# *Sustainability Approaches in Leading Cities*

- Seattle
  - 2006 Climate Action Plan
  - Quantitative goals toward 2012
  - Reduce cars (25%); fuel efficiency / biofuels (29%); building energy use (46%); and partnerships.
- Fort Collins
  - 60 programs
  - Multi-media “Climate Wise” audits
  - Early progress / feedback

# ***CONCLUSIONS / IMPLICATIONS***

## *Conclusions / Implications*

- EE and solid waste options feasible to reduce GHG
- Favorable results for solid waste –
  - Job creation
  - Costs, coverage / speed, authority, funding
- Tradeoffs: solid waste vs. energy; within (between) energy
- Argument for phasing; diversified city sustainability plans

# *Contact Information*

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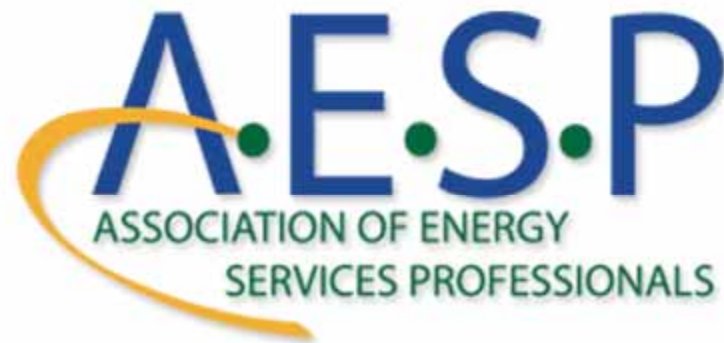
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