



Building Better Energy Efficiency Programs for Low-Income Households

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Report overview

1. What are the housing and energy use characteristics of low-income households?
2. Program landscape addressing low-income energy efficiency and energy affordability
 1. Program types, approaches, delivery mechanisms for utility programs
 2. How low-income programs compare to general residential programs (spending and savings)
3. Primary challenges for low-income utility programs
4. Strategies being used to overcome these challenges
5. Technologies and measures underutilized in current programs and opportunities to realize greater savings by incorporating them into programs

Low-income housing and energy use characteristics

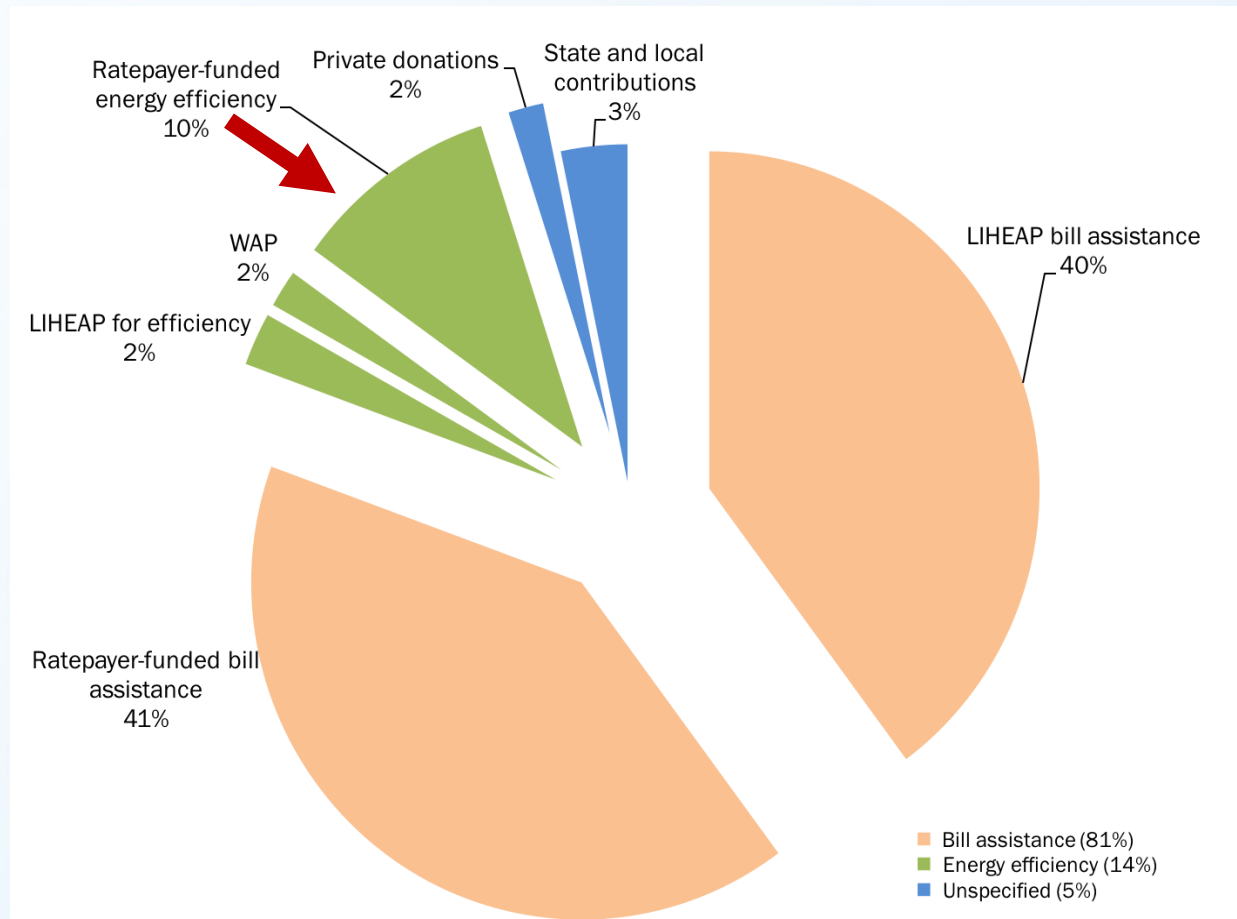
- Lower annual household energy expenditures, but higher cost per square foot

	Low-income households	All residential households
Annual energy expenditure	\$1,690	\$2,134
Energy cost/sq. ft.	\$1.23	\$0.98

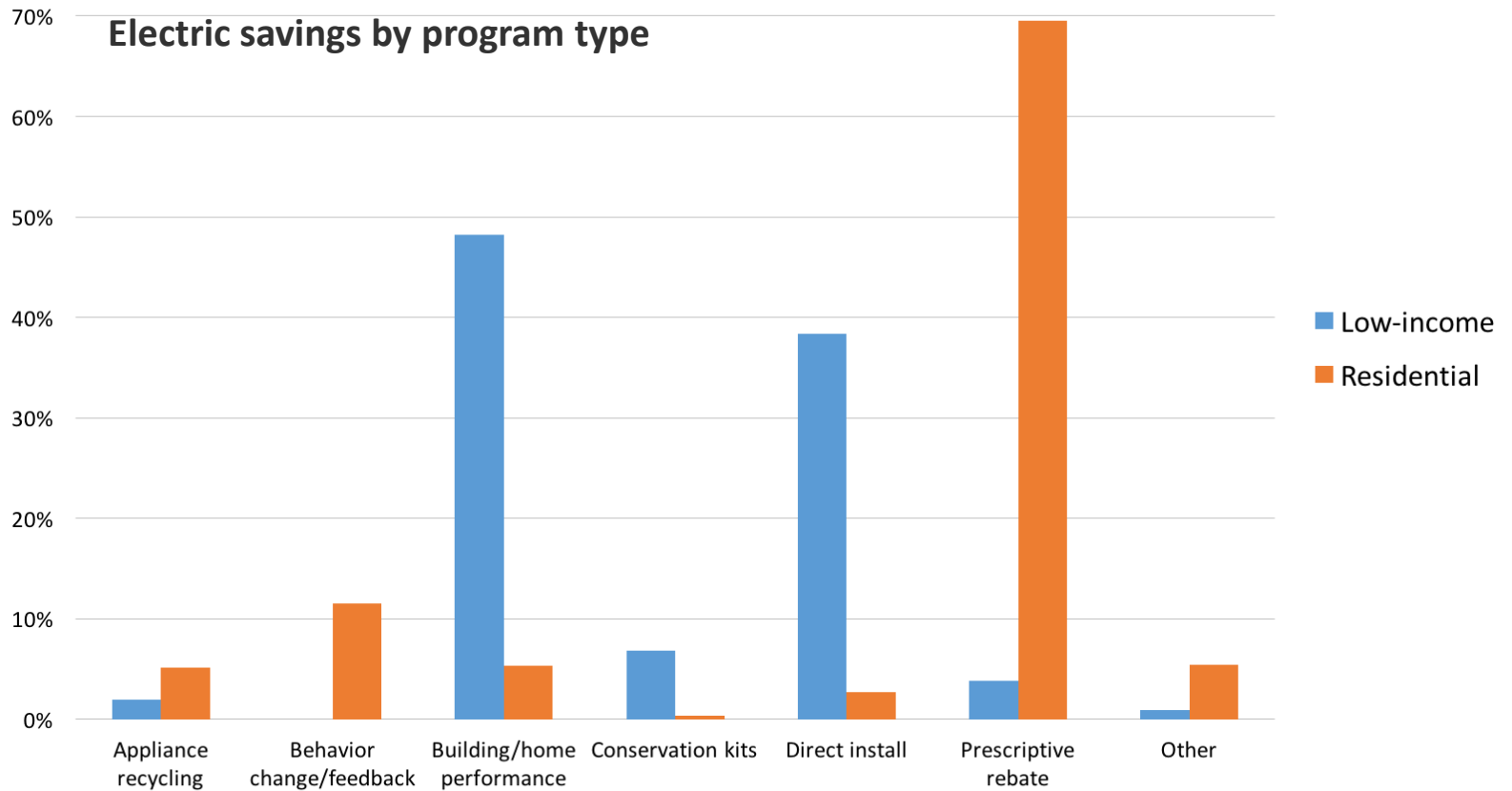
Source: EIA 2009

- Older, less efficient appliances (fewer ENERGY STAR models)
- More electric space heating and water heating

Low-income energy efficiency and energy affordability landscape

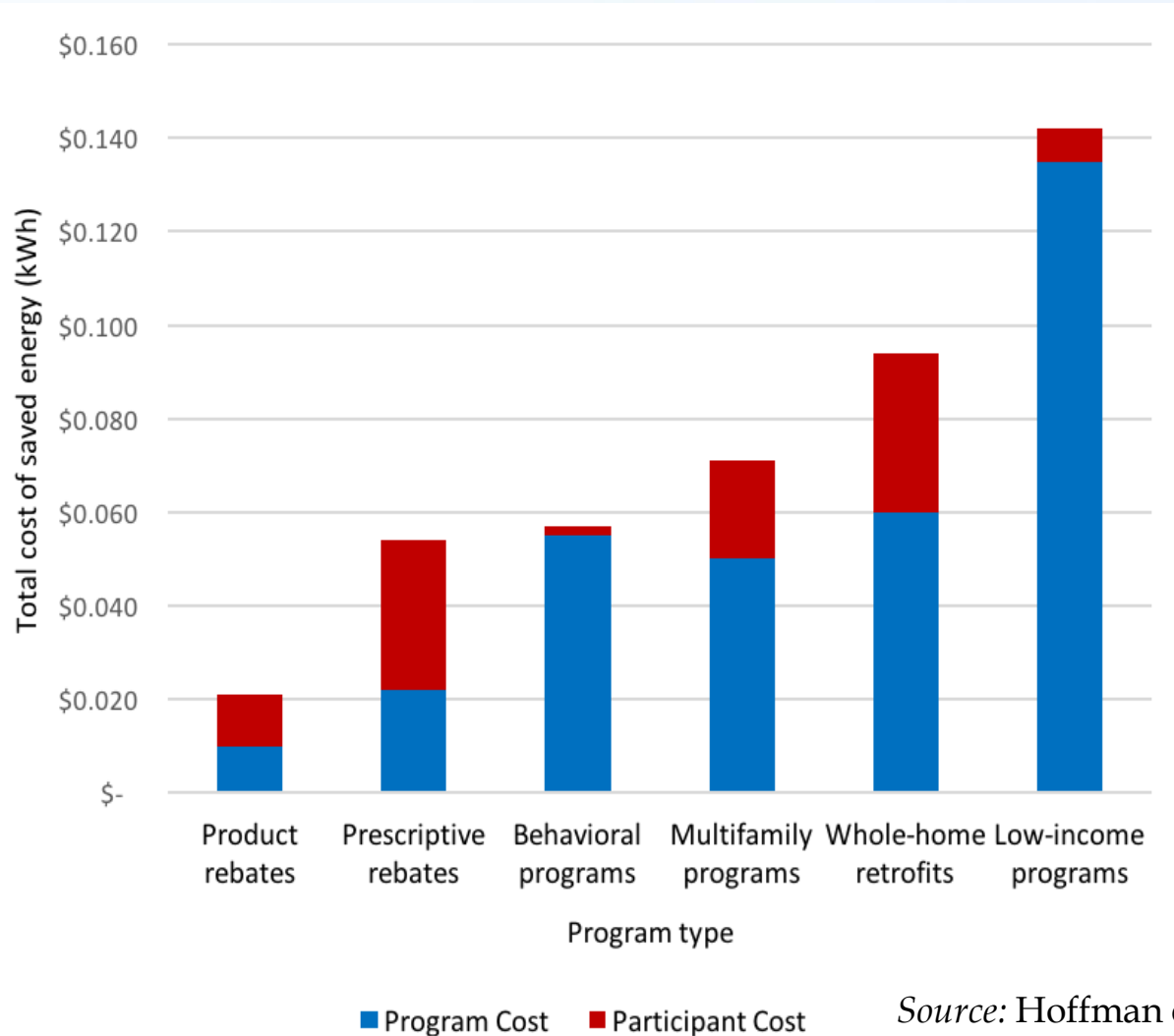


Ratepayer funded energy efficiency programs



2014 electricity savings by program type for low-income programs compared to all residential programs. Savings are post-program reported savings from compiled state filings on program performance. *Source: E Source 2015.*

Cost of saved energy for residential programs



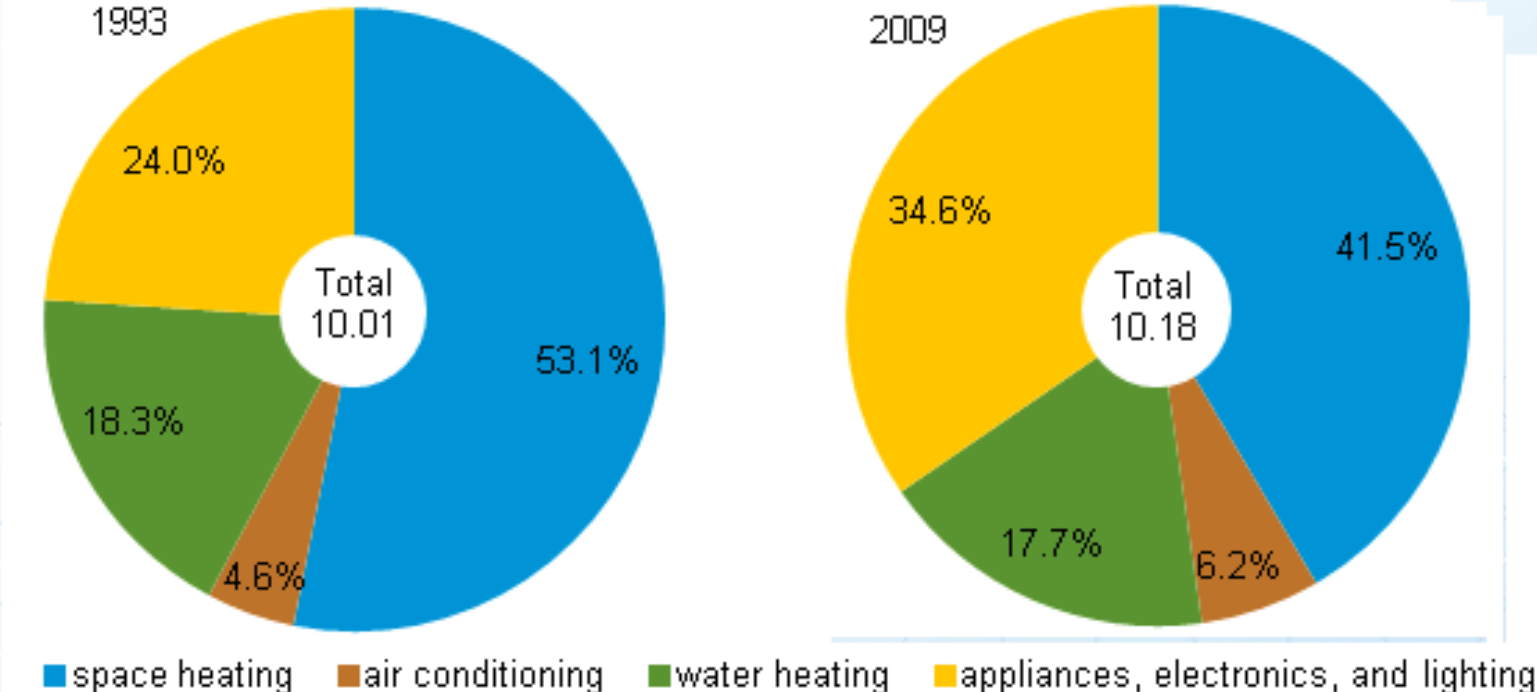
Multiple benefits of low-income energy efficiency

- Resource benefits (reduced water, sewer costs)
- Operations
- Comfort
- Safety
- Home Improvements
- Health

Best practices for building low-income energy efficiency programs

1. Offer a range of eligible measures
2. Coordinate with other organizations
3. Use a portfolio approach
4. Address health, safety, and building integrity issues
5. Incorporate customer education
6. Develop dual-fuel/fuel-blind programs
7. Coordinate efficiency and bill payment assistance
8. Increase electric savings through high efficiency products and equipment

Offer a range of eligible measures tailored to regional building stock and energy use characteristics



Source: EIA 2013

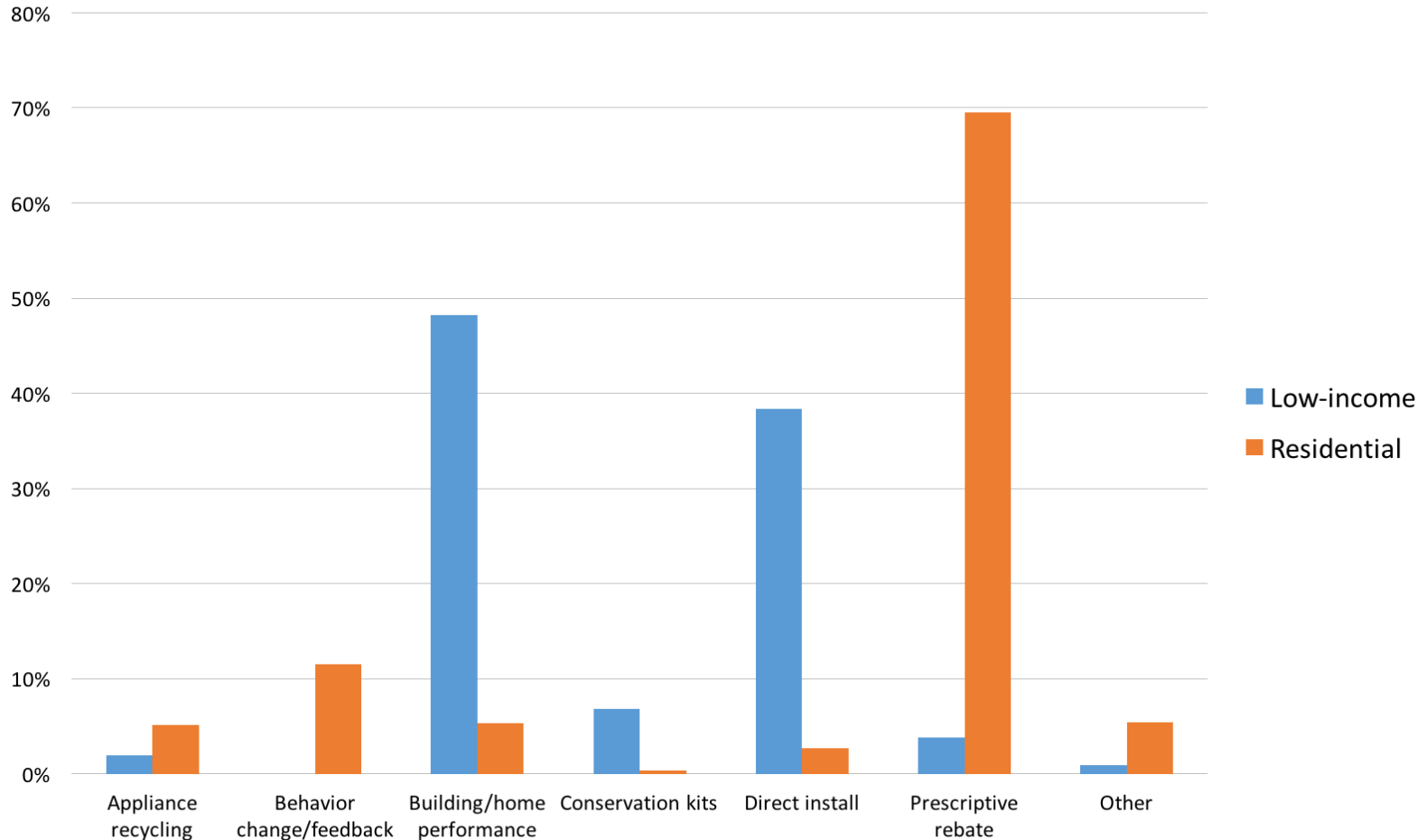
Coordinate with other organizations serving low-income households

- Align programs with existing state and federally funded weatherization efforts
- Add-on measures
- Deliver measures through innovative channels
 - Efficient light bulbs distributed through food banks, community events, mobile food markets
 - Coordination with Women Infants and Children (WIC) program for refrigerator replacement at Efficiency Vermont

Have a plan to address health, safety, and building integrity issues

- For minor improvements: health and safety budget
- For major improvements: connect households with resources for repairs to be completed
- Coordinate with local housing rehab organizations

Revisiting electric savings by program type

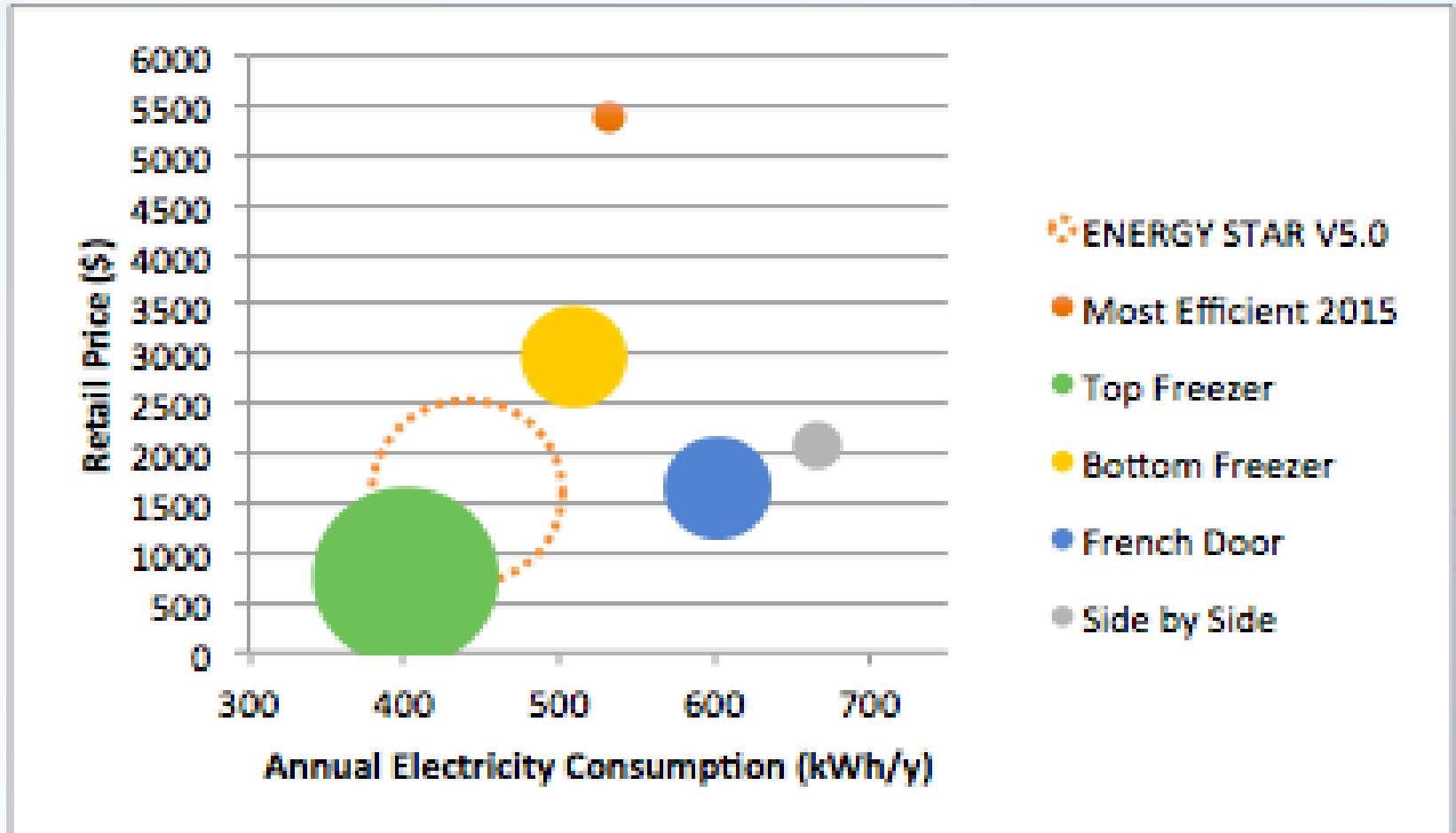


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Opportunities for improving appliance efficiency

- Older, less efficient major appliances
- Residential product programs not reaching low-income households (Frank and Nowak 2015)
- Design appliance programs to address the specific needs of low-income customers
 - Tailoring eligible product lists
 - Emphasize highest efficiency products at moderate price points

Refrigerator retail price and electricity use



Strategies for product programs

- Incorporate into existing weatherization efforts as an “add-on”
- Integrate into home repair and upgrade projects of other organizations
 - E.g. Consumers Energy of Michigan
- Equipment rental/leasing options
 - E.g. Green Mountain Power

Conclusions

- Design programs to overcome particular barriers low-income households have to participation in energy efficiency programs
- Increase savings through smart partnerships with other efforts to serve low income households
- Account for the full range of benefits from energy efficiency upgrades

Thank you!

Link to full report:

<http://aceee.org/research-report/a1601>

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