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The Case for Home Energy Efficiency Measures

BASEA

Proposed topics for this discussion

- **Macro view: Why saving energy in households is important**
- **Micro view: How saving energy can help you**
- **Why aren't more homeowners doing this?**
- **What Energy Efficiency companies need to do…now**

Are there other topics you would like to hear about?

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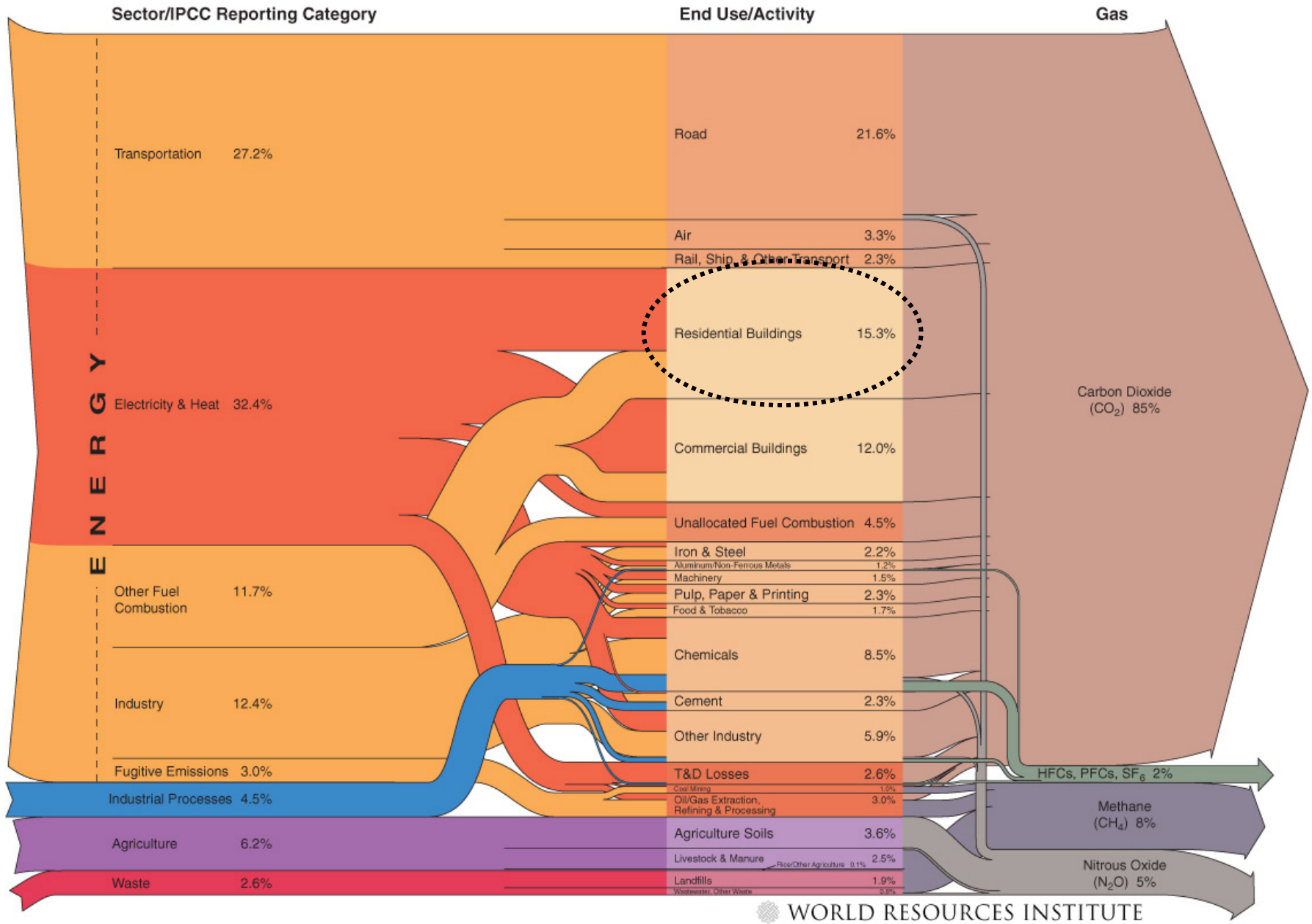
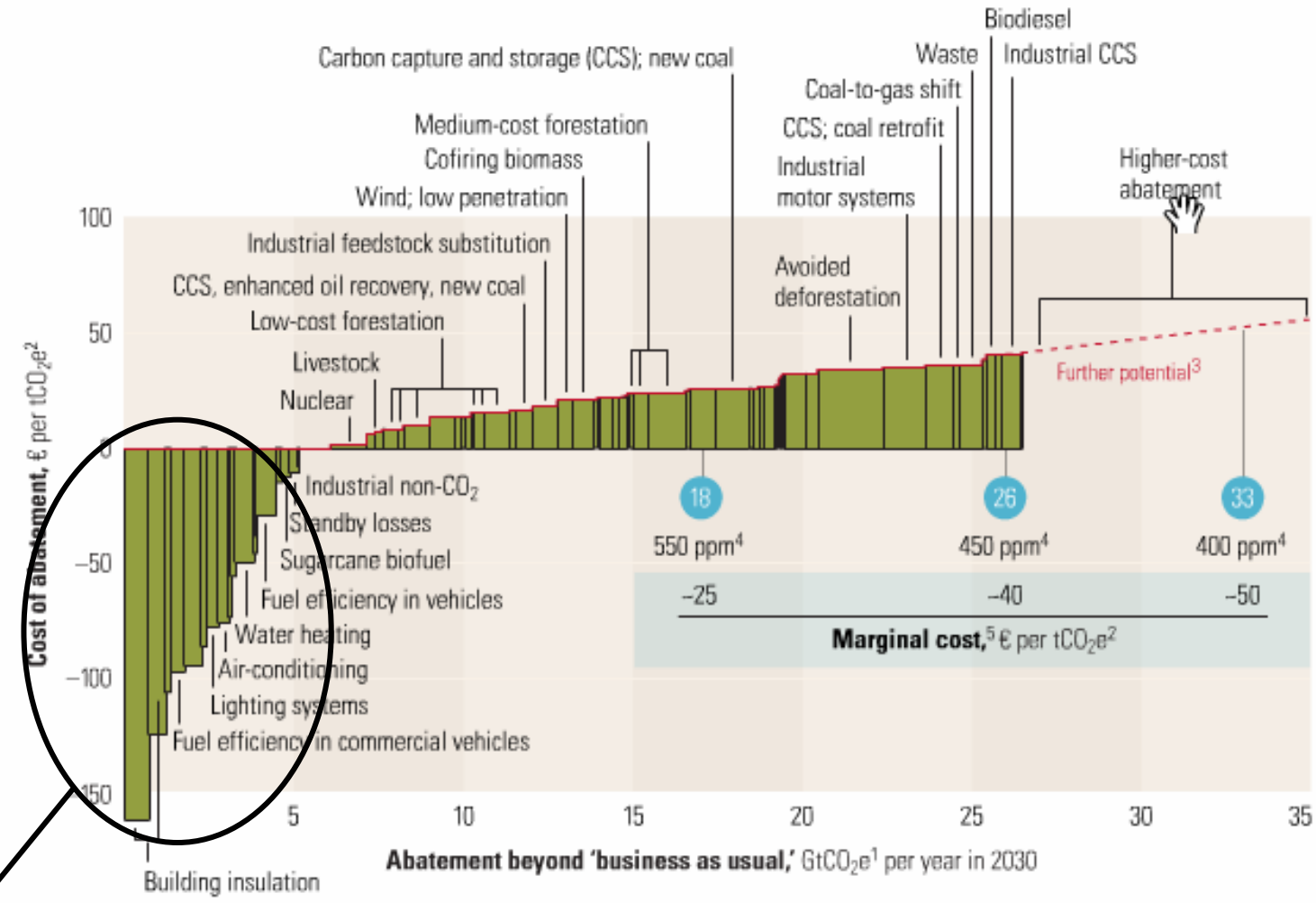
Macro view: Residential buildings account for 15.3% of greenhouse gases

U.S. GHG emissions flow chart



McKinsey identified energy efficiency as a significant savings opportunity

What might it cost?



Efficiency investments

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Some quotes from leading media sources on the benefits of home energy efficiency

"Obviously, game-changing technologies will…be essential to achieving the reductions in greenhouse gas emissions…But as it frames its strategy to deal with both problems, the Obama administration ***cannot overlook the low-hanging fruit*** *— the gains to be had from making existing technologies more* ***efficient…most of the carbon abatement needed between now and 2030 could be achieved with*** *existing technologies, things like* ***insulating homes****, improving fuel efficiency…*

New York Times, "Energy inefficient" January 18, 2009

"Correct those [air leak] flaws, and ***heating and cooling costs are typically cut by 20 percent to 30 percent, a saving of more than $1,000 annually in some households****. In addition, carbon dioxide emissions and the strain on the national electric and gas systems are reduced.*

New York Times, "Focus on Weatherization Is Shift on Energy Costs" December 29, 2008

"Whereas the burning of fossil fuels releases greenhouse gases, which contribute to global warming, and nuclear plants generate life-threatening waste, ***the only by-product of energy efficiency is wealth, in the form of lower fuel bills*** *and less spending on power stations, pipelines and so forth….*

The Economist, "The elusive negawatt" May 8, 2008

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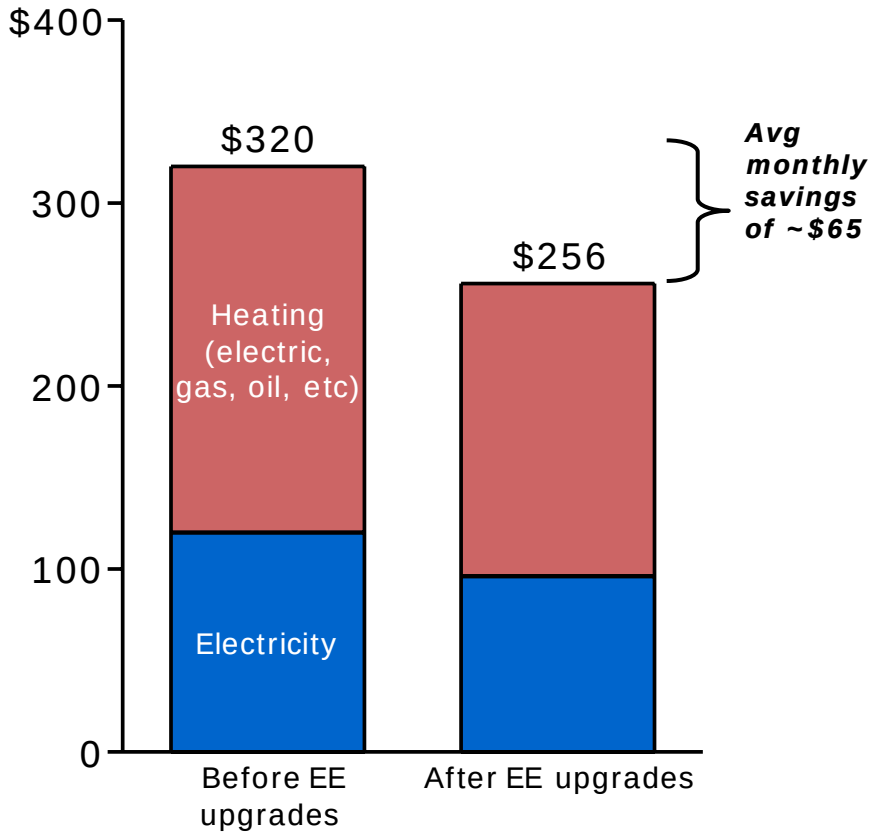
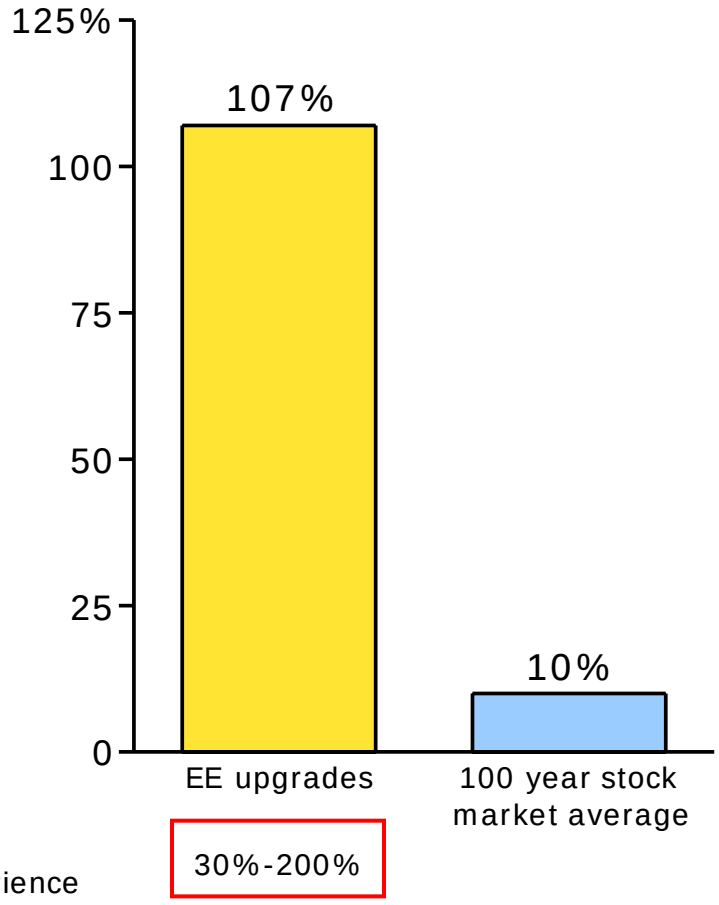
Micro view: How much can individual homeowners benefit from energy efficiency?

ILLUSTRATIVE

Example monthly energy bill (all energy sources)



Average annual return on investment over 5 year period



Source: Buildings Energy Databook 2004; EnergyStar.gov; EERE.gov; aceee.org

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So if Energy Efficiency upgrades are such a home run, why don't more people do them?

- **Many people don't realize their homes are inefficient**
  - The costs of excess energy usage are mostly invisible
    - e.g. air conditioned air leaking out of homes
  - We all may have an idea about what our monthly energy usage should be (based on previous houses), not knowing that nearly all houses in the US are inefficient
    - Homes are built with an eye towards costs and deadlines, not efficiency
  - We think mainly of transportation when we try to figure out ways to cut our footprint
- **Even those who realize their homes are inefficient may find it difficult to act**
  - Each house has a unique footprint with specific savings opportunities
  - Identifying the highest impact changes takes specialized training and equipment
  - Once the right changes are identified, it can be burdensome to enact solutions
  - Overall savings are either unclear or not seen as worth their efforts

Chances are…your home is inefficient. Now what?

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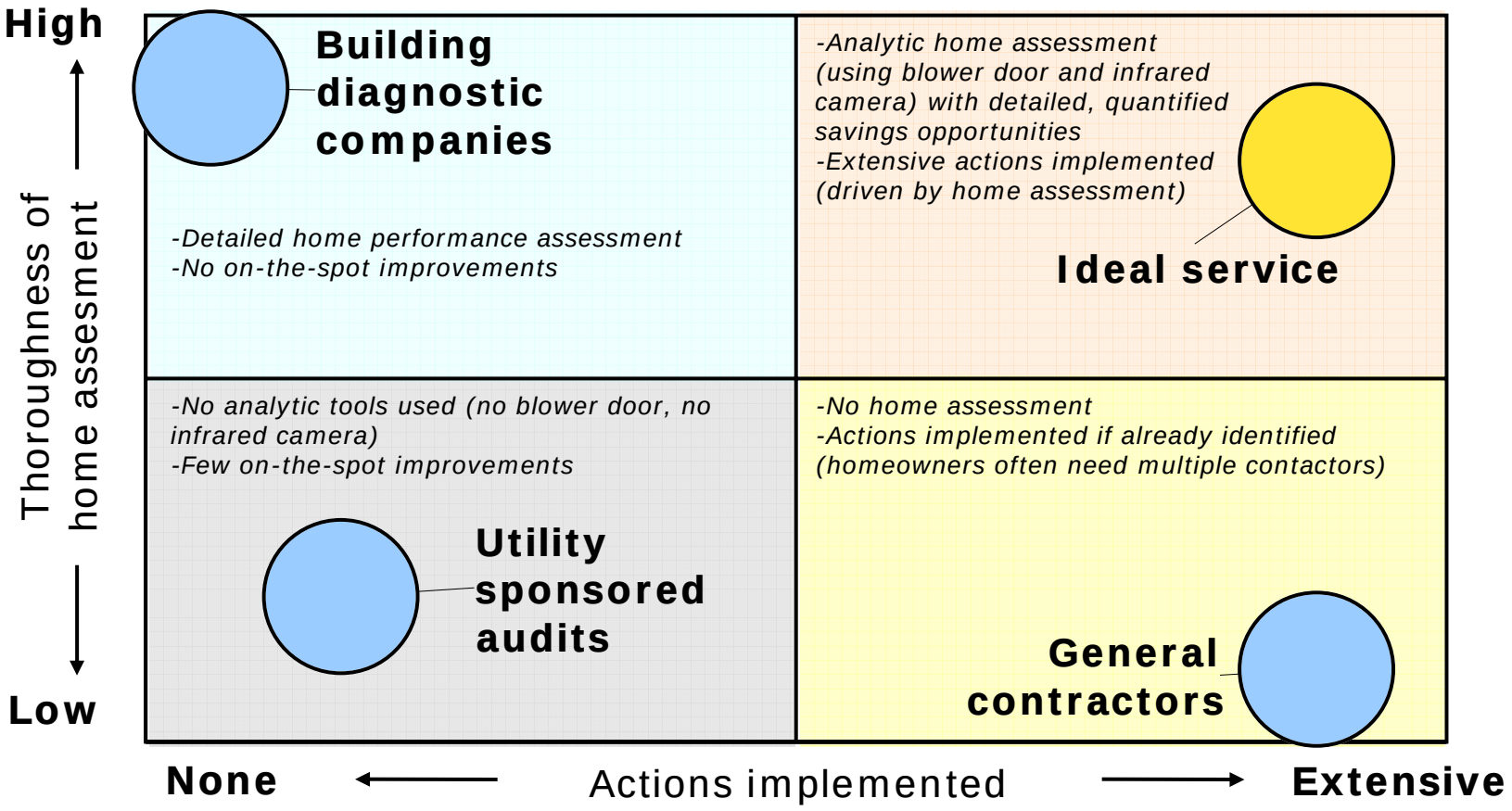
Market landscape needs to evolve—EE companies need to become data-driven and action-oriented



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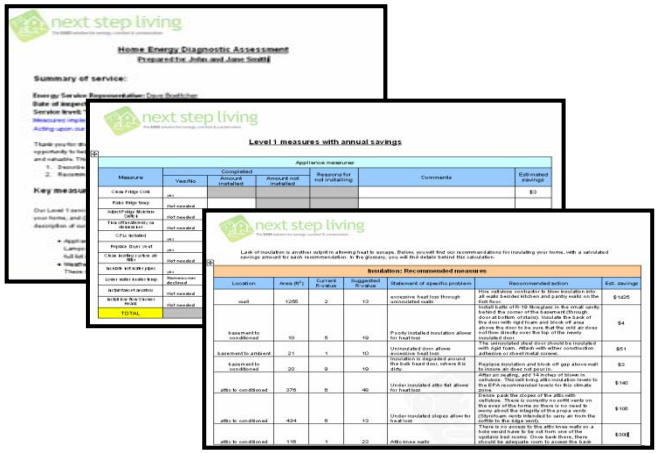
In other words, EE companies have to make it easy for you through a simple step-by-step process

1 Diagnose

- Review with customer a survey completed prior to visit that outlines current energy usage behavior and needs
- Conduct an analytical and rigorous assessment of the home laying out prioritized changes needed

2 Create customized plan

- Show consumer clear menu options of savings measures and estimated savings over time:
  - Immediate efficiency upgrades (e.g. door sealing and weather stripping, hot water pipe insulation, CFL replacement, etc.)
  - Longer payback efficiency options identified in the assessment (e.g. attic insulation upgrades, air circulation fan installation, appliance upgrades)
  - Behavior changes (e.g. turn off lights when not in a room; automatic sleep mode for computers)



3 Execute upgrades

- Immediately implement efficiency (Level 1) upgrades in the home that day
- Provide level II attic air sealing and insulation for those who choose this service

4 Follow-up

- Calculate and track energy /carbon savings
- Provide customer updates about new upgrades applicable to their home
- Provide recommended contractors for larger jobs

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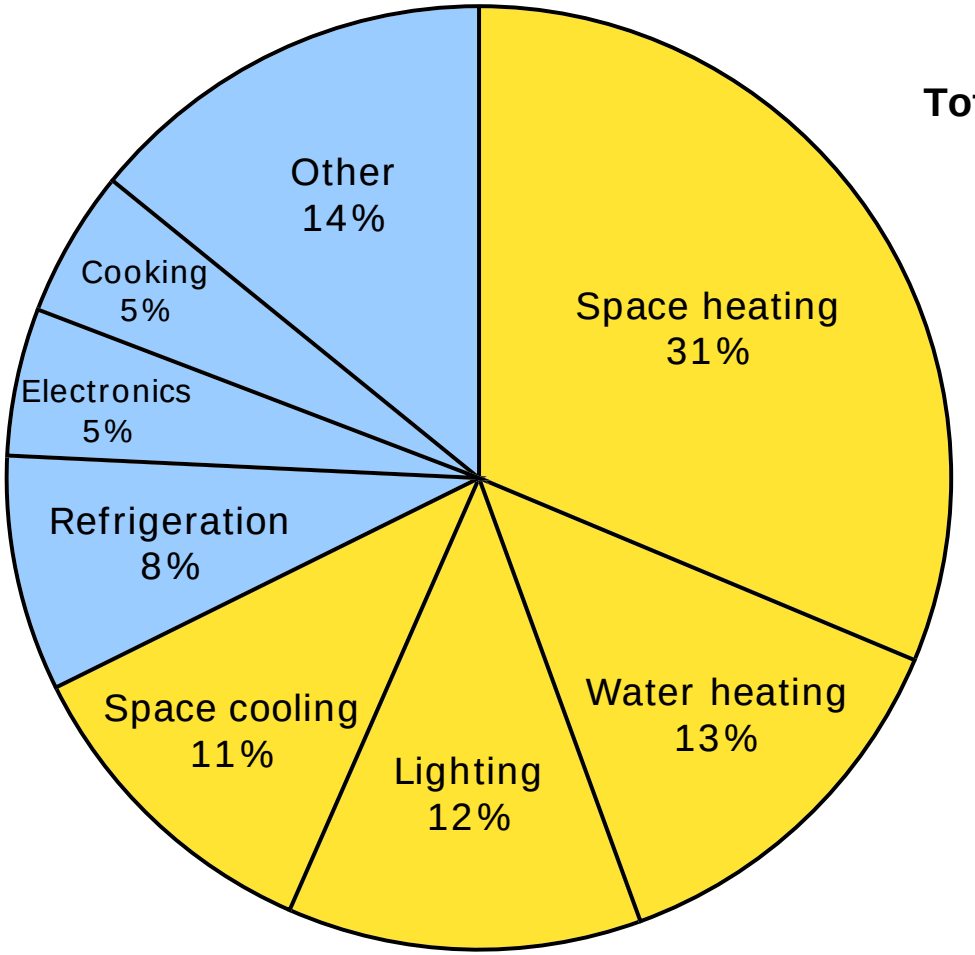
EE company services should target main drivers of home energy usage

U.S. Residential Buildings Primary Energy End-Use Splits, 2004



Total Energy Consumption:
21.07 Quadrillion Btu

Source: Buildings Energy Databook 2004

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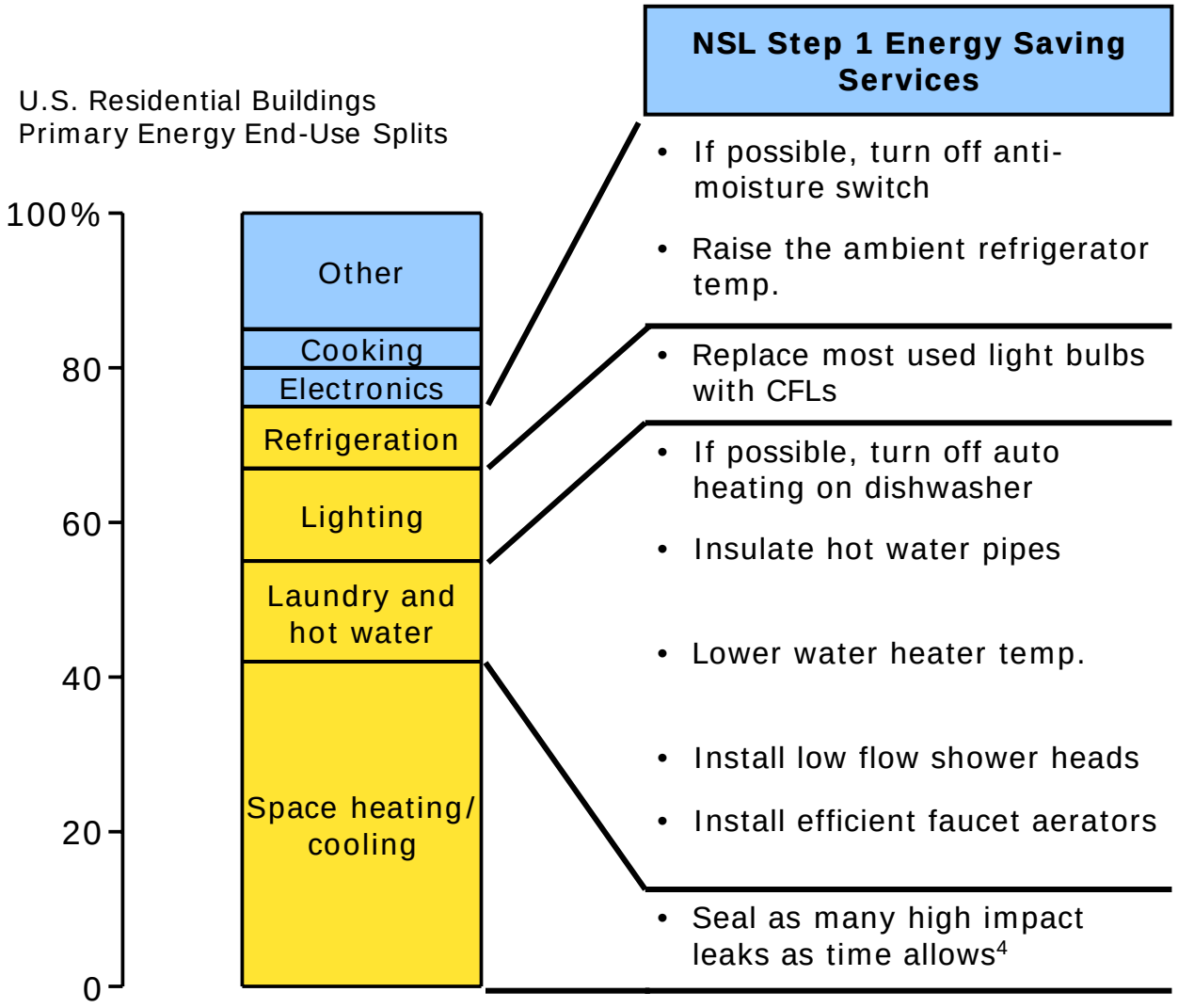
Our service does this, and we hope others will soon follow



Step 1 measures should result in 10-20% annual savings

Source: Buildings Energy Databook 2004; EnergyStar.gov; EERE.gov; aceee.org

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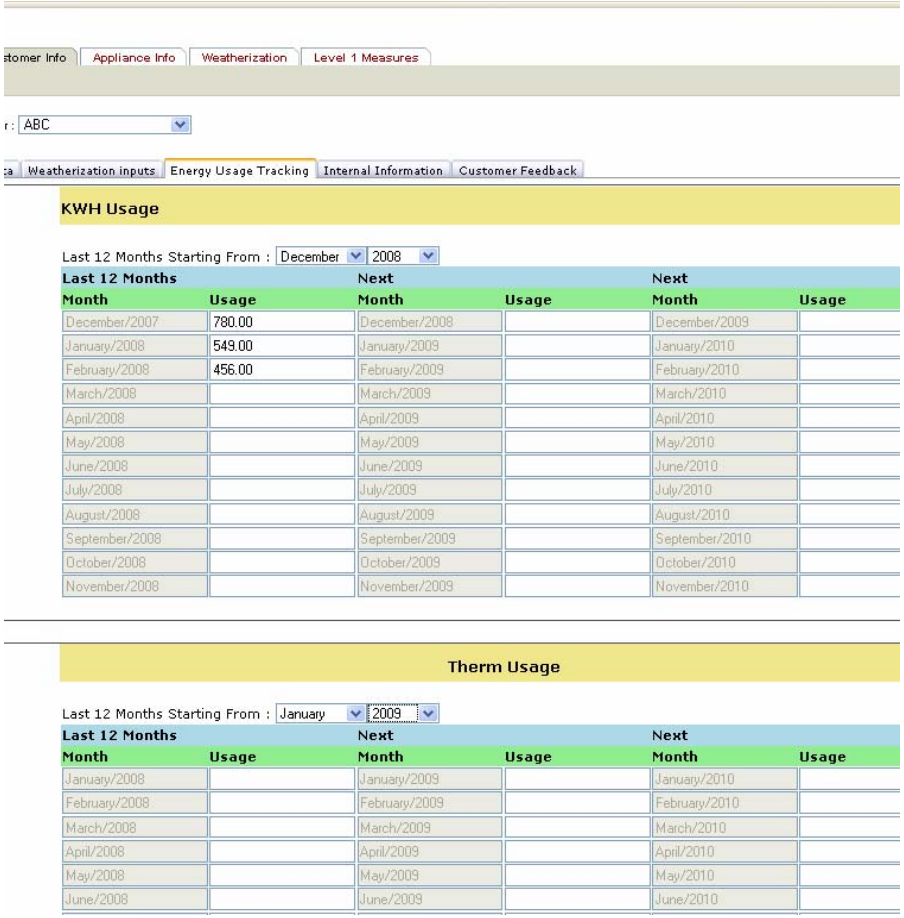
Just as critically, EE companies need to track data to ensure that customers are saving

NSL customer energy tracking software



stomer Info | Appliance Info | Weatherization | Level 1 Measures

r: ABC

a | Weatherization inputs | Energy Usage Tracking | Internal Information | Customer Feedback

KWH Usage

Last 12 Months Starting From : December 2008

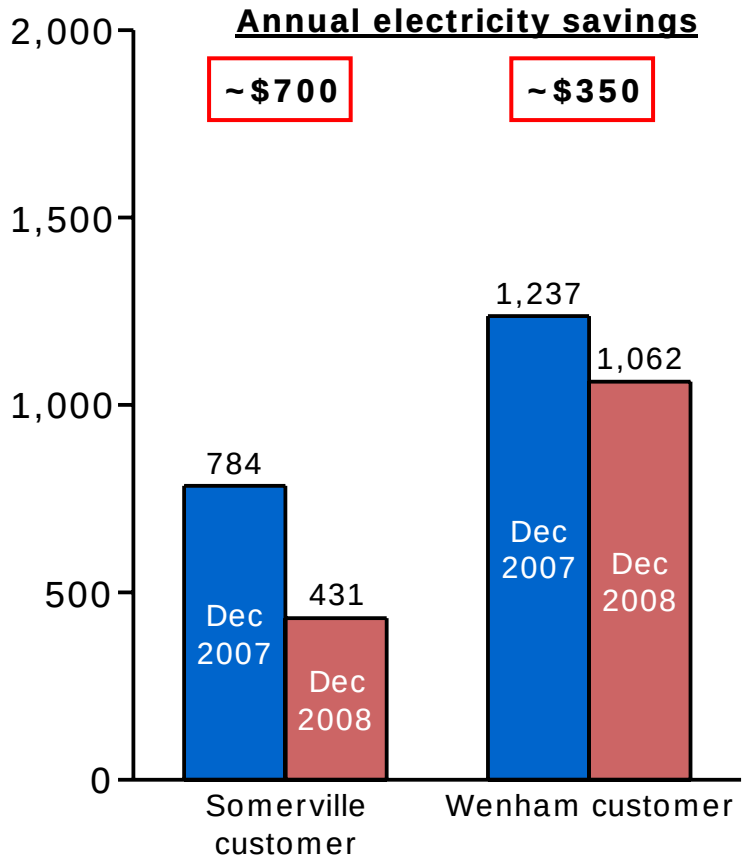
Last 12 Months		Next		Next	
Month	Usage	Month	Usage	Month	Usage
December/2007	780.00	December/2008		December/2009	
January/2008	549.00	January/2009		January/2010	
February/2008	456.00	February/2009		February/2010	
March/2008		March/2009		March/2010	
April/2008		April/2009		April/2010	
May/2008		May/2009		May/2010	
June/2008		June/2009		June/2010	
July/2008		July/2009		July/2010	
August/2008		August/2009		August/2010	
September/2008		September/2009		September/2010	
October/2008		October/2009		October/2010	
November/2008		November/2009		November/2010	

Therm Usage

Last 12 Months Starting From : January 2009

Last 12 Months		Next		Next	
Month	Usage	Month	Usage	Month	Usage
January/2008		January/2009		January/2010	
February/2008		February/2009		February/2010	
March/2008		March/2009		March/2010	
April/2008		April/2009		April/2010	
May/2008		May/2009		May/2010	
June/2008		June/2009		June/2010	

Sample customer electricity usage before and after NSL Step 1 service, in kwh



Tracking data will ensure that the EE service is always optimized

Source: Buildings Energy Databook 2004; EnergyStar.gov; EERE.gov; aceee.org

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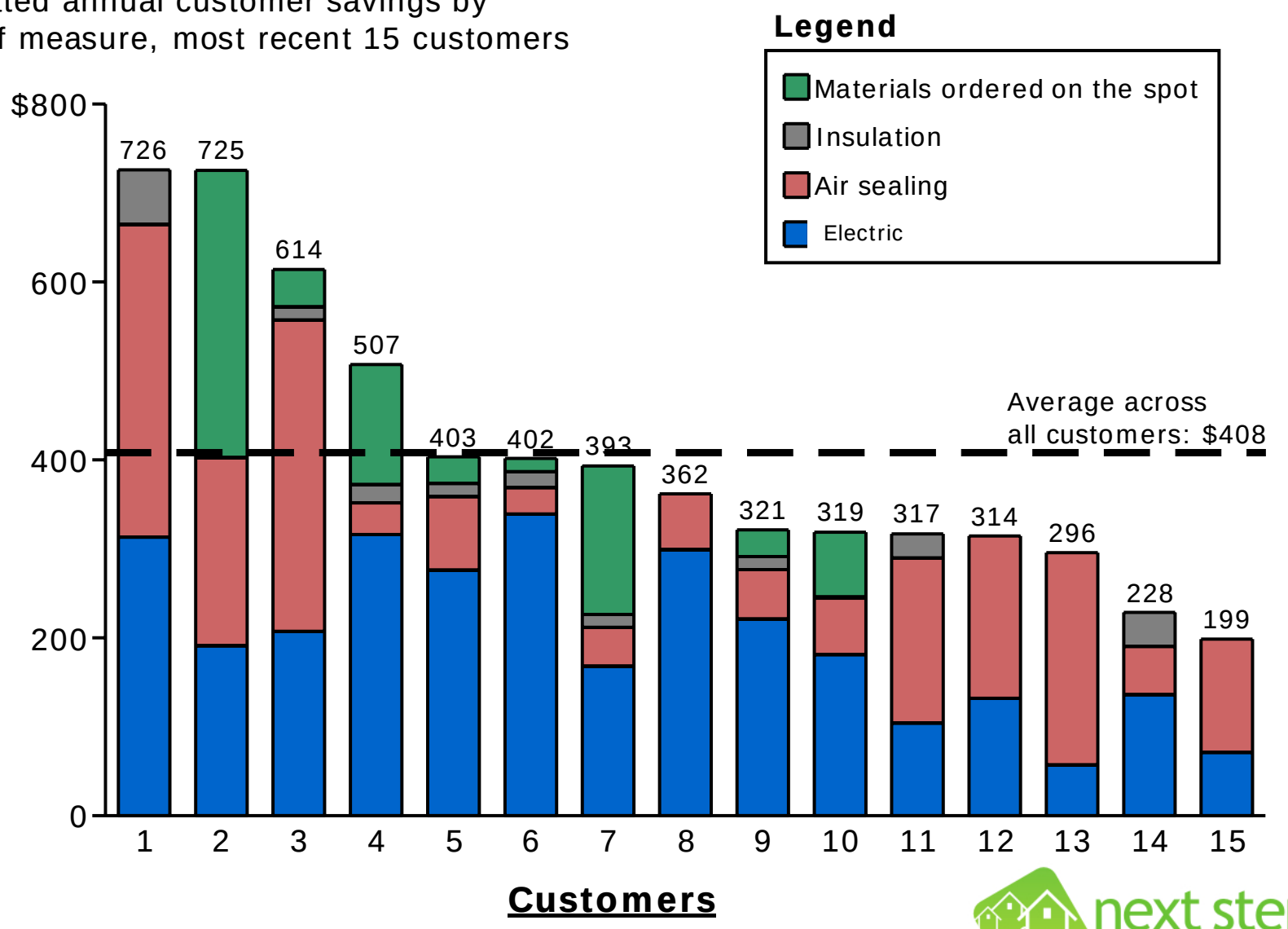
Customer savings data: 15 most recent customers

Estimated annual customer savings by type of measure, most recent 15 customers



Estimates are based on 2009 Dept of Energy estimates for fuel prices (e.g. $2.22 per gallon for oil)

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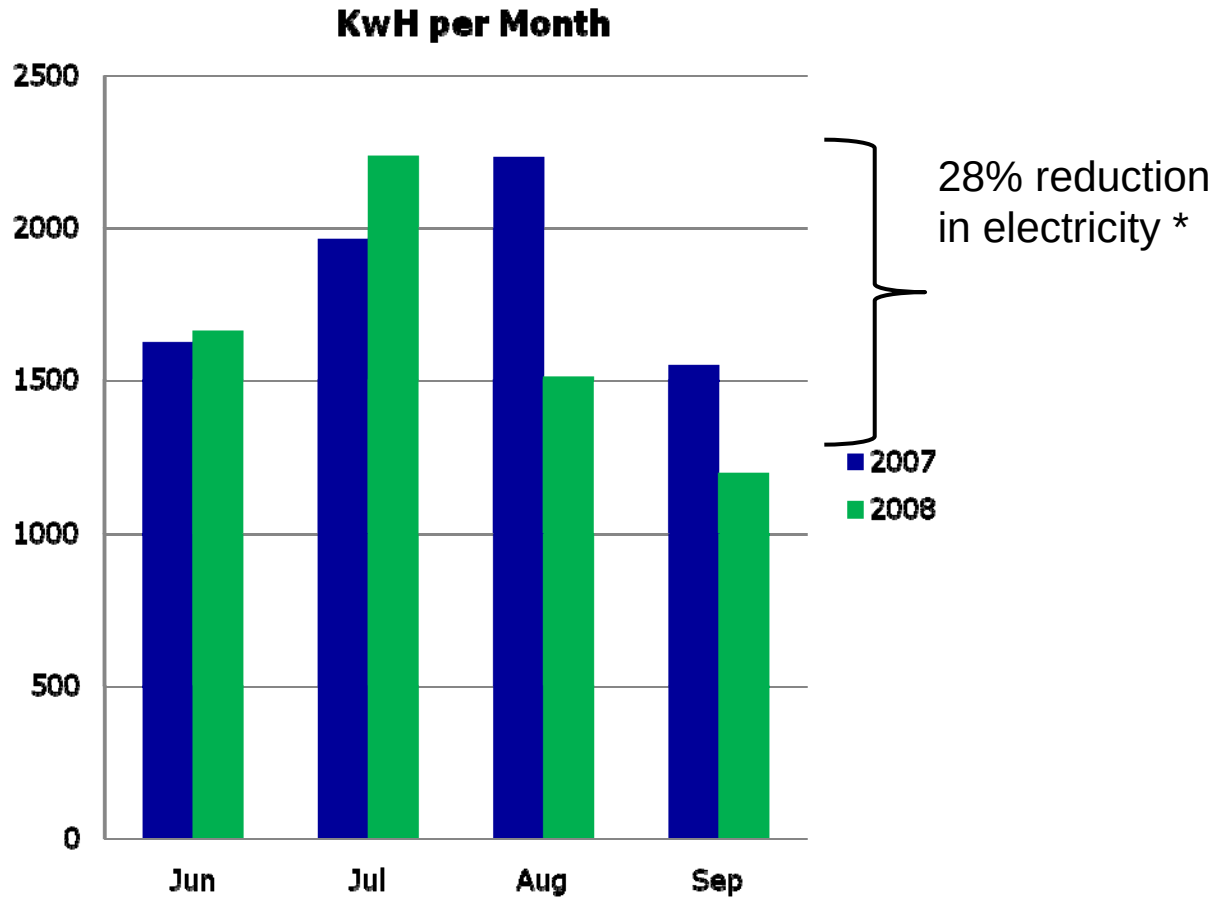
Case Study: Wrapping Attic AC and replacing CFLs led to 28% savings

Typical 3 bedroom home in Needham

- **Diagnosis and changes**
  - Made standard changes within 3 hours on one visit
  - Audit also identified AC in attic as uninsulated and costly
- **Results**
  - Client immediately started saving $75 in electricity alone each month.
  - They are on track to save even more in winter heat and light bills
  - All the work was done by top notch certified auditors and contractors



Other test homes are in the 15-33% savings range

*28% is over two months, average

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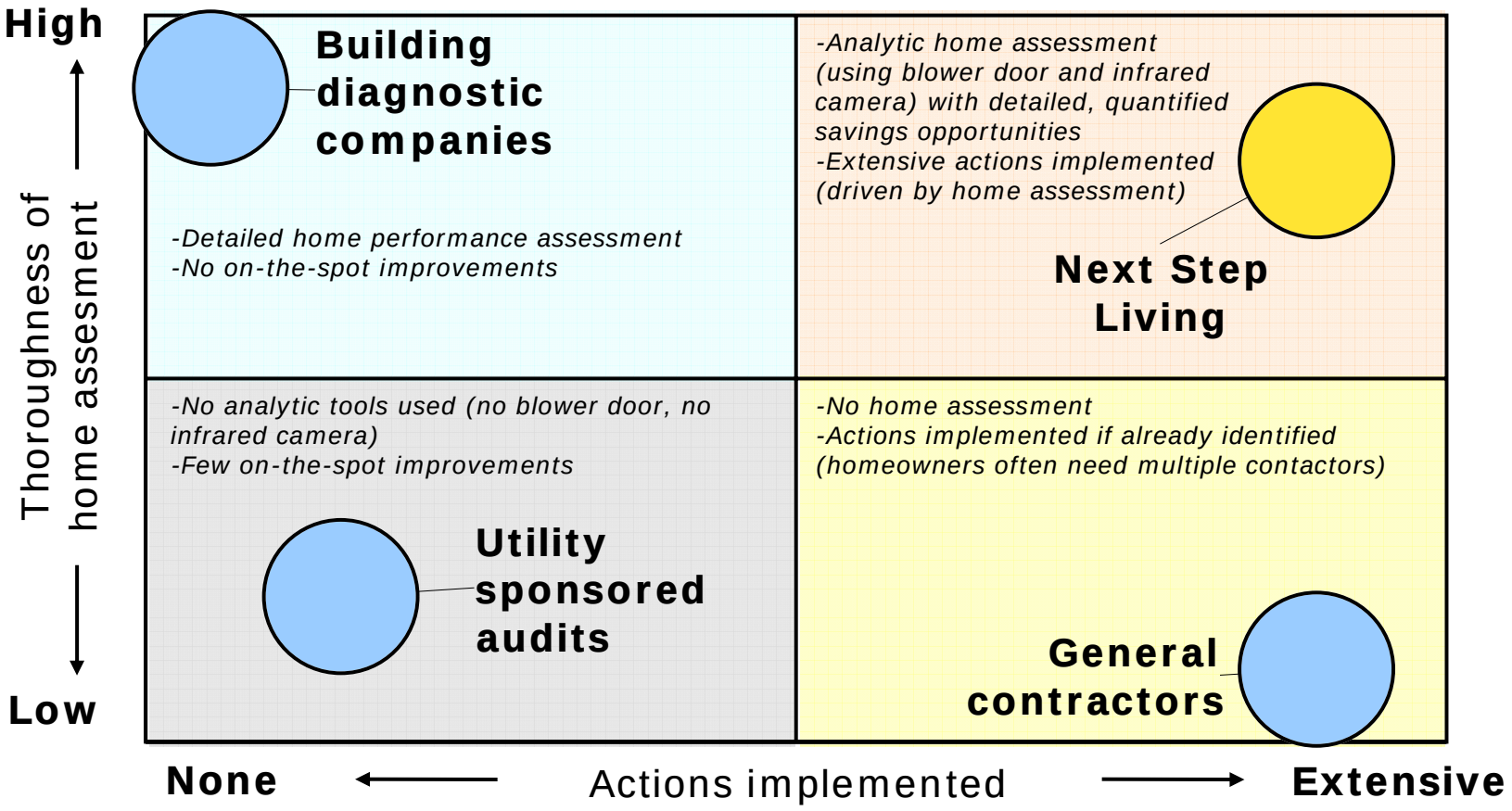
Since we know where the opportunities are, it's important for EE companies to do on-the-spot implementations



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Here's why it makes sense to use us!

- **We back our services with a 100% Satisfaction Guarantee**
  - If your energy usage doesn't **drop by at least 10%** for the 12 months following our service, **we'll come back and make sure you get there—Guaranteed**

- **We save you more for less**
  - The average annual return on our services ranges from 30% to 200% over a 5 year period
  - Studies show changes implemented from a free audit save homeowners 5-10% vs. **10-20%+ from our services. Our services also cost less** than buying all these services independently

- **We save you time and hassle**
  - One point of contact versus several
  - Fewer visits to your home

- **We quantify and make the options simple for your specific home**

- **We bring financing options and all rebates** to your doorstep

- You have an **ongoing advisor you can trust** when considering other projects because we know your home and **we advise against projects that don't make sense for you!**

- **Our field personnel are experienced and professional**

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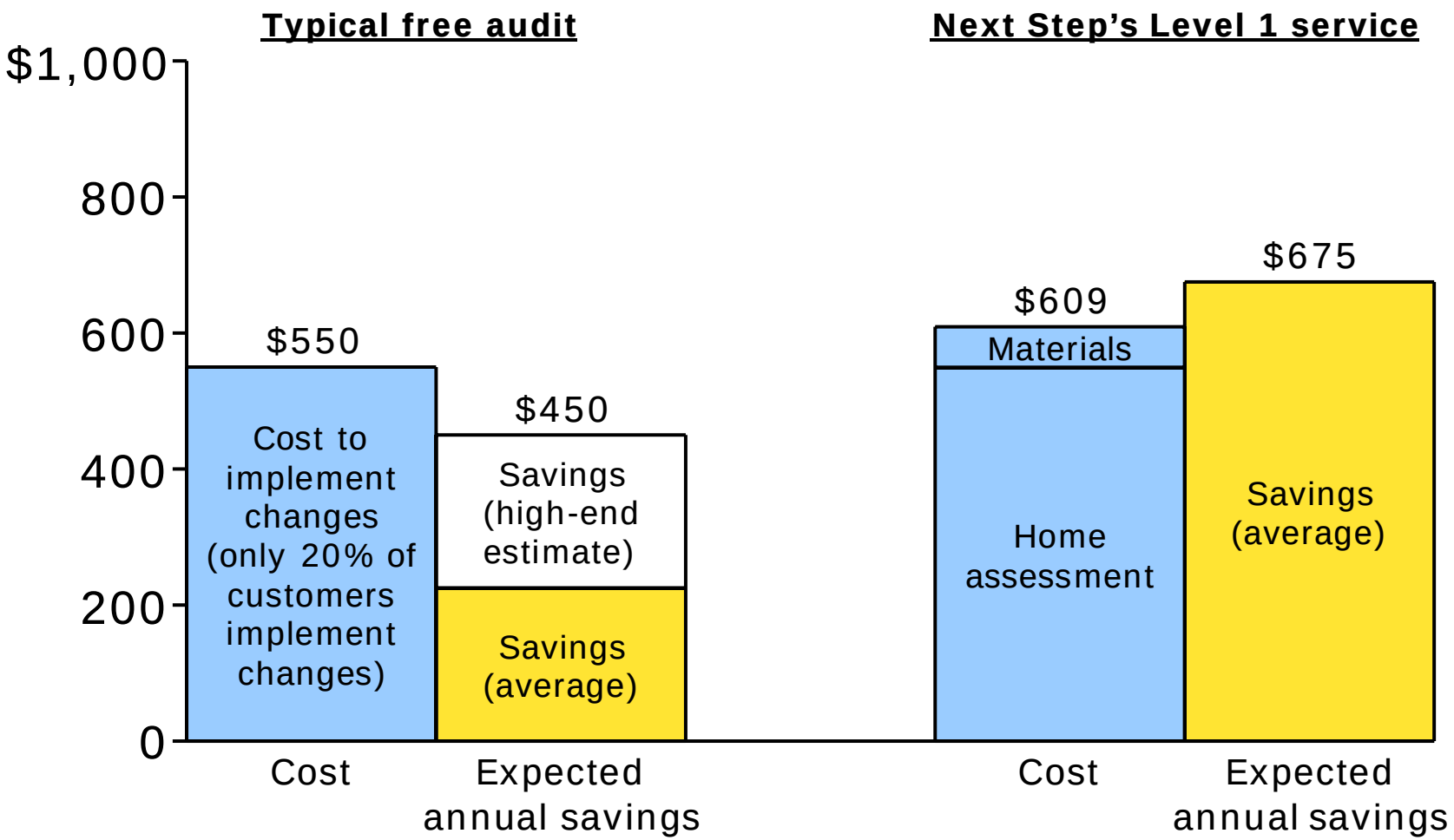
Savings from NSL's Level 1 service are ~50% higher than savings from implementing changes recommended by typical free audits

*Assuming annual energy expense of $4500



Expected annual savings for free audit based on 5% savings rate (actual independent study) and 10% savings (from Residential Conservation Services Roundtable study; Free audit cost to implement includes time to search for good contractors (3 hours at $50/hr), Labor cost to implement changes, and retail cost of materials

Source: Buildings Energy Databook 2004; EnergyStar.gov; EERE.gov; aceee.org

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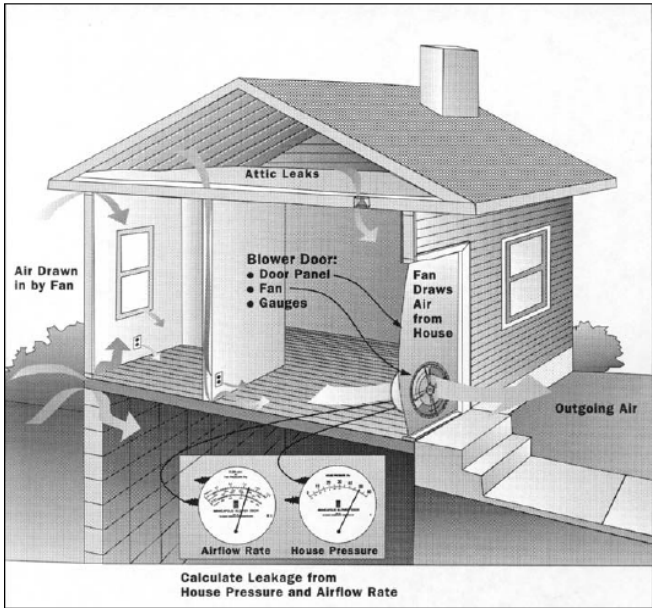
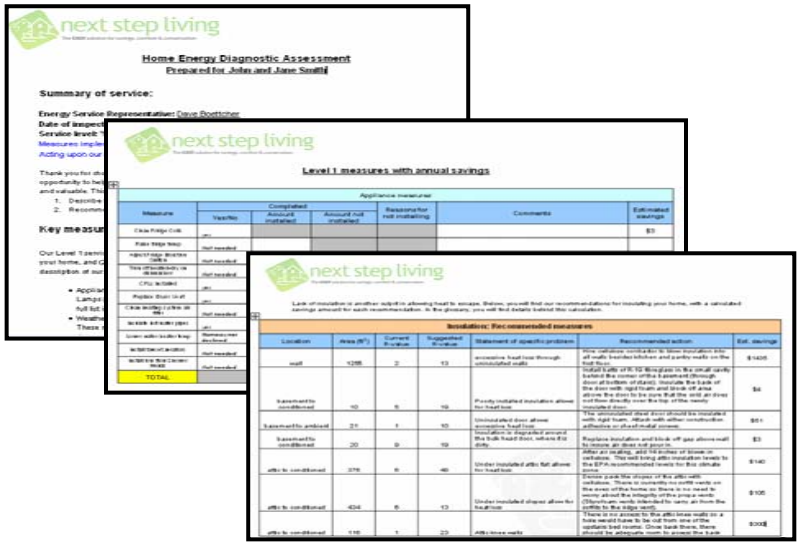
Our Step 1 service will identify the problem areas in your home, and we'll give you a custom report prioritizing the projects based on savings potential!

Rigorous assessment includes infrared camera to find areas in your home where heat escapes



Sample report output



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Here's why it makes sense to use us!

- **We are obsessed with achieving the best results for our customers**
  - We back our services with a 100% Satisfaction Guarantee
    - If your energy usage doesn't drop by at least 10% for the 12 months following our service, we'll come back and make sure you get there—Guaranteed
  - We track your savings and share the results with you to make sure you are satisfied and that our services are working
    - The average annual return on our service ranges from 30% to 200% over a 5 year period—significantly higher than the average annual stock market return of 10%

- **We make it easy for you**
  - We save you time and hassle
    - One point of contact versus several
    - Fewer visits to your home
  - We quantify and make the options simple for your specific home
  - We bring financing options and all rebates to your doorstep
  - We are your ongoing advisor for considering other projects because we know your home and we advise against projects that don't make sense for you!

- **We guarantee the best-trained and most customer friendly workforce available**
  - Our field personnel are trained by the most experienced master auditors in the state and certified by us to meet best of industry standards
  - All employees receive intensive customer effectiveness training to ensure the best possible experience for you

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Top seven benefits for Employers

1. Ability to offer a new and unique benefit

2. In difficult times puts $30-$100 per month back in employees' wallets

3. Low ONE TIME cost of $0-$599 depending on subsidy level; average ~$415 per employee

4. An offset to other benefits being cut and/ or premiums being increased

5. Significant PR value from press covering this issue and Next Step Living

6. Employer gets total dollars and greenhouse gases it saved (NSL compiles)

7. Nearly always an improvement on existing green programs
   - Easy for HR to administer; outsourced to NSL
   - Simple billing; no receipts to approve
   - Usually 10-100X more environmental benefit per dollar

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Employers can choose their funding level; financing options are flexible

Option	Cost to employer	Cost to Employee	Benefit to Employer	Benefit to Employee
Full Subsidy	**100% Subsidy:** $599 + Materials **Only $187** for National Grid and Nstar gas customers in MA* Means employers can serve all employees for ~$350 each if ~half are gas	$0	Maximizes adoption rate, greenhouse gas savings number, and amount saved to employees	Saves 100% of energy cost reduction each month
Partial Subsidy	**50-75% subsidy plus interest** Employer subsidizes some of cost and creates a guaranteed "loan" for remainder through paycheck reduction	Monthly loan payments likely $10-15	Strong adoption rate if promoted by employer; High employee satisfaction; moderate "green" factor	Immediate payback since cash flow positive from day one; Monthly savings of $30-$120> monthly loan payments of $10-$20
Loan to employee	**0% subsidy plus interest** Employer loans 100% of upfront cost to employee and earns interest from loan	Monthly loan payments likely $15-$20	Moderate adoption rate if promoted by employer Employer serves as a conduit for payment	Doesn't need to front the money for the audit Cash flow positive each month

*National Grid and NSTAR gas customers now qualify for 75% off the price of this service plus any additional work up to $2,000. This means employers pay ~$180 for each customer in this category (usually ~50-60% of employee base)

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