



RESNET 2017: Putting the 'EE' in Green

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TRC Energy Efficiency Services

- Residential program design and implementation
- Codes and standards
- Market characterization and program evaluation
- Zero Net Energy and emerging technology



Agenda

- Energy Efficiency vs. Green
 - Definitions, structures, & mechanisms
- Principles of a quality green program
- Green programs in the US
- Benefits and pitfalls of green program certifications

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- Price Premiums
- Validation of quality
- Messaging support
- Green-prioritization efforts e.g. incentives

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- Cost Premiums
- Steep learning curve
- Paperwork, paperwork, paperwork
- (lack of) consumer awareness

EE vs. Green



Green Programs Are:

- Multi-dimensional
- Holistic
- Sustainable

As such, they appeal to a wider audience/customer

Four Principles of Green Programs

Results and decisions must be reproducible by others using the same standard.

Science Based

Transparent

Standards and process for awarding the certification should be transparent and open for examination.

Certification body should be free of conflict.

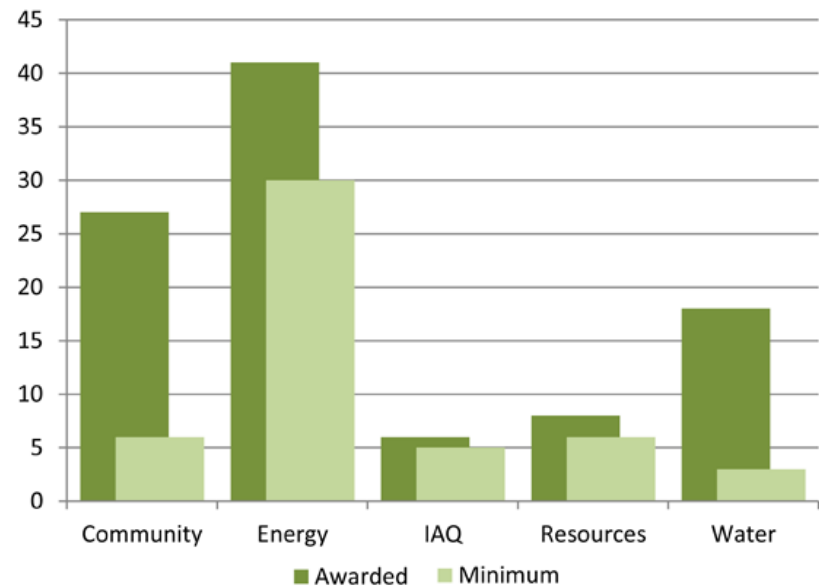
Objective

Progressive

Standards should advance industry practices, not simply reward business as usual.

Green Program Structures

- Points structure
(most common):
 - Minimum point-per-category
 - Total points needed for each certification tier
- Often **checklist** based
- Use of **prerequisites** checklist items



Green Program Structures

- Potential quality control and verification components:
 - Checklists with documentation requirements
 - 3rd party vs. 1st party vs. self-certification
 - Professional accreditation or certification
 - Secondary quality control spot checks
 - Professional sign-off verification
 - Ethics pledges



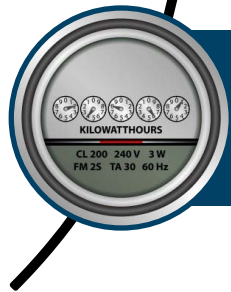
Green Program Structures



Prescriptive – (checklist)



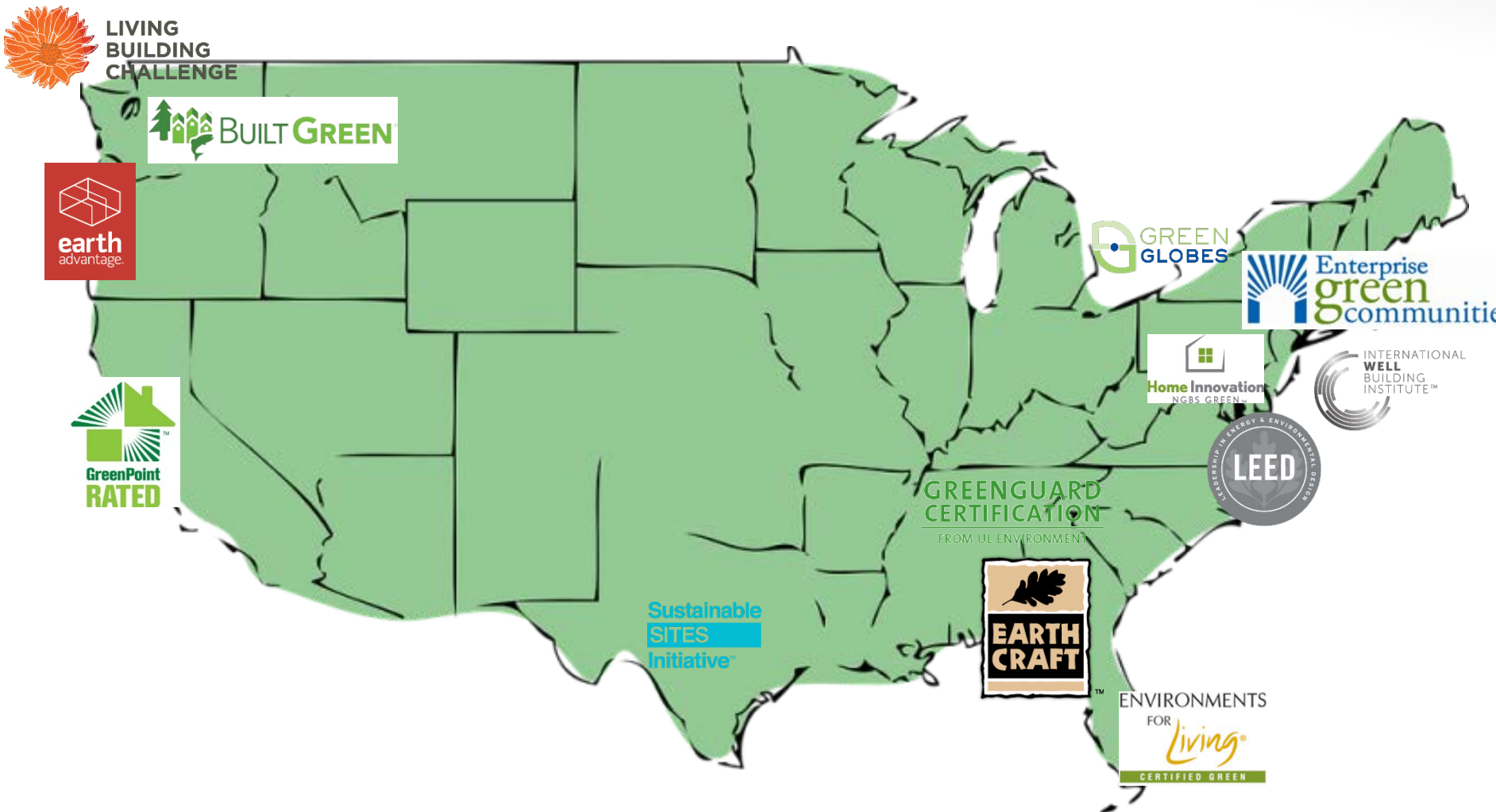
Performance – (modeled)



Outcomes – (metered)

Performance mostly applies to EE, but can apply to water, or waste

Green Programs in the US



Non-comprehensive; as of Feb 2017

Nobody wants a NASCAR house



Weighing the benefits and costs of each program can help you choose how to engage



Benefits and Pitfalls of Green Program Participation

Costs of Green Program Participation

- Increased labor
- Increased material costs
- Upgrade equipment
- Field verifications
- Learning curve
- Getting your credentials
- Time to document program requirements
- QC Process
- Certification Fees

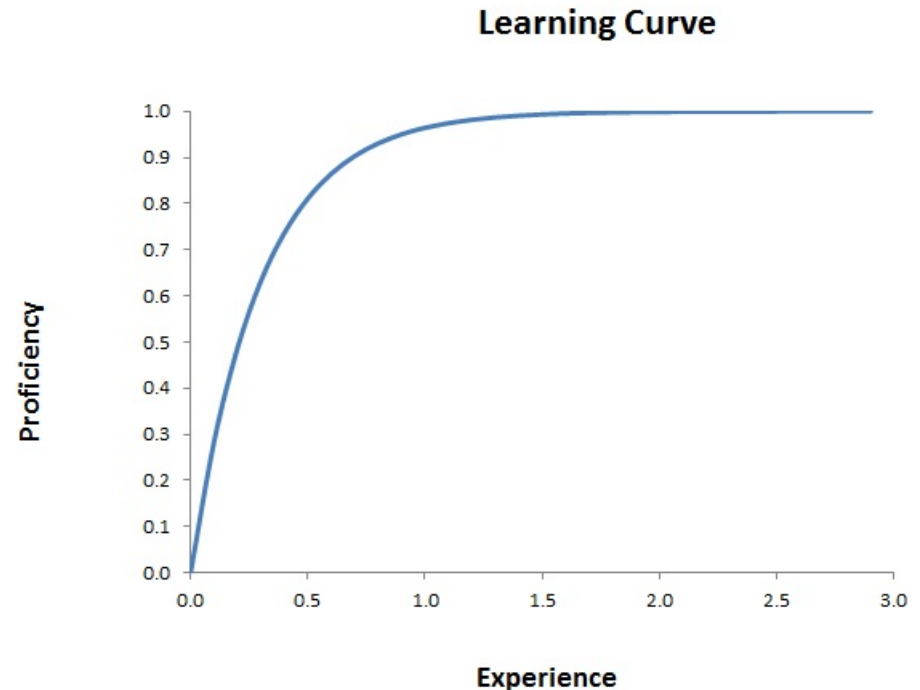


Research results vary greatly, but the green-certification **cost premium** is typically found to be from **-2% to 10%**.

– **2.4%** - *Average residential premium according to USGBC*

Learning Curve of Green Program Participation

- Upwards of multi-thousand page handbooks
- Credentials and certifications required
 - Trainings often available
- Program rules evolve over time
 - New technologies,
 - upgraded code standards
 - custom measures
- Delving into new fields
- Certification Tools
- Scheduling & timing



Paper Work of Green Program Participation



- Checklists
- Specifications sheets
- Affidavits
- Forms
- Calculations

Many programs strive to simplify paperwork, but it will always be there

If you build it, they may not come



- Consumer awareness quickly improving – know your market
- The Prius effect – localities with high Prius density show higher rates of green building demand
- Competitors may greenwash

The Cash Value of Green Program Certificates

- Increased sales prices
 - Reported price premium varies greatly – 0% to 30%
 - 3.5% to 9% common in robust studies
- 5% to 15% reduction in operating costs
- High demand means faster sales cycle – 22% less time
- For low-income; Utility Allowance adjustments can mean higher rent due to lower tenant utility costs
- 6% higher return on investment



Green Programs Validate Quality

- Use of nationally recognized standards



- Vetting of green-product labels



- 3rd party verification, documentation, quality control processes, ethics commitments all add up
- Help in clarifying what's really green



Reach a Wider Customer Base with Messaging Support

When the ‘Save Energy!’ pitch falls flat:

- Protect your children (IAQ, health and wellness)
- Protect your investment – more durable, and resilient
- Live in the home the experts would live in
- Save money on maintenance as well as energy/water bills
- Eco-consciousness, sustainability, climate change,



Access Incentives through Green Programs

INCENTIVE CATEGORIES

Financial Incentives

Tax credits
Fees subsidies
Rebates
Grants
Loans

Development Incentives

Density and height
bonuses
Expedited
permitting

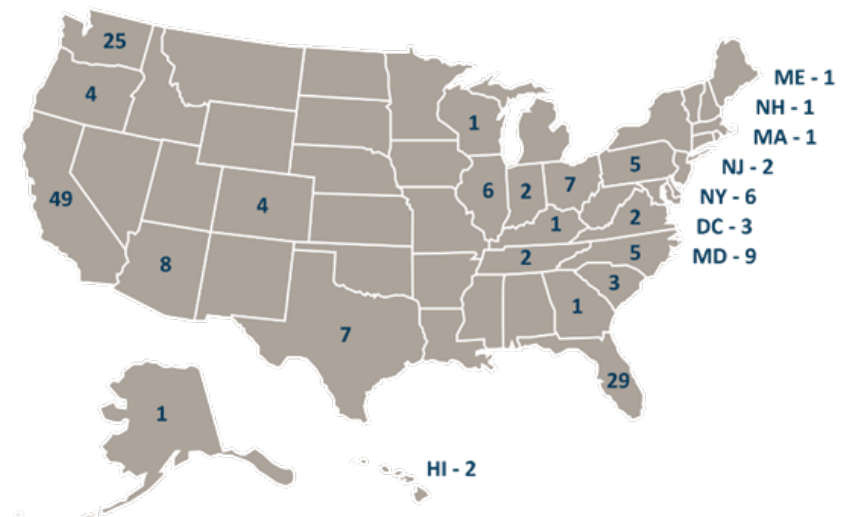
Other Incentives

Technical
assistance
Marketing
assistance

Access Incentives through Green Programs

Partnership Volume

- 104 known US local governments with home certification program partnerships
- Governments often offer incentives for several programs – 190 total



HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)



Thank You

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