How to Design a Utility Program…

ENERGY STAR Homes Partner Meeting

March 2010

Tom Hines, APS

Energy Efficiency

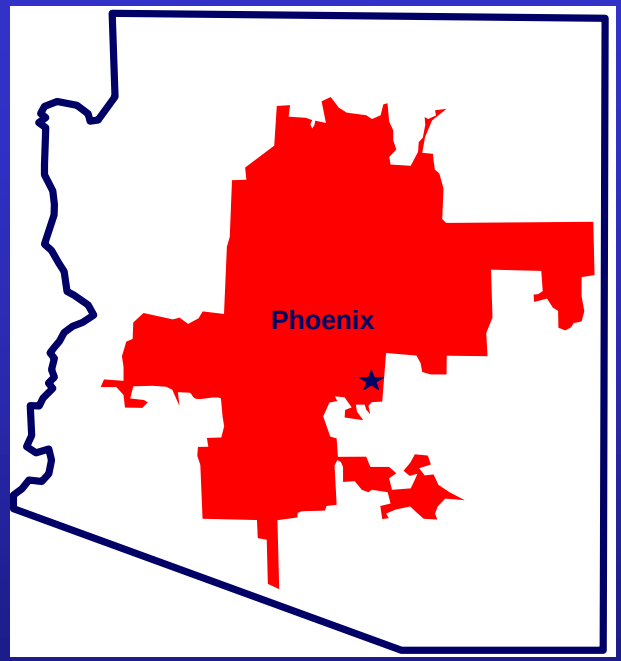
How to Design a Utility Program…

…That appeals to your management, regulators, builders, contractors, realtors, trade allies, special interest groups, the general public….and your customers.

APS
Energy Efficiency

Profile: Arizona Public Service

- Largest electric utility in Arizona
- 1.1 million customers
- Peak demand of 7,500 MW
- Annual sales of 30,000 GWH
- Annual sales growth rate higher than national average – but slowed in 2008
- $3.5 billion in annual revenue
- 0.7% of annual revenue spent on Energy Efficiency ($25 M)

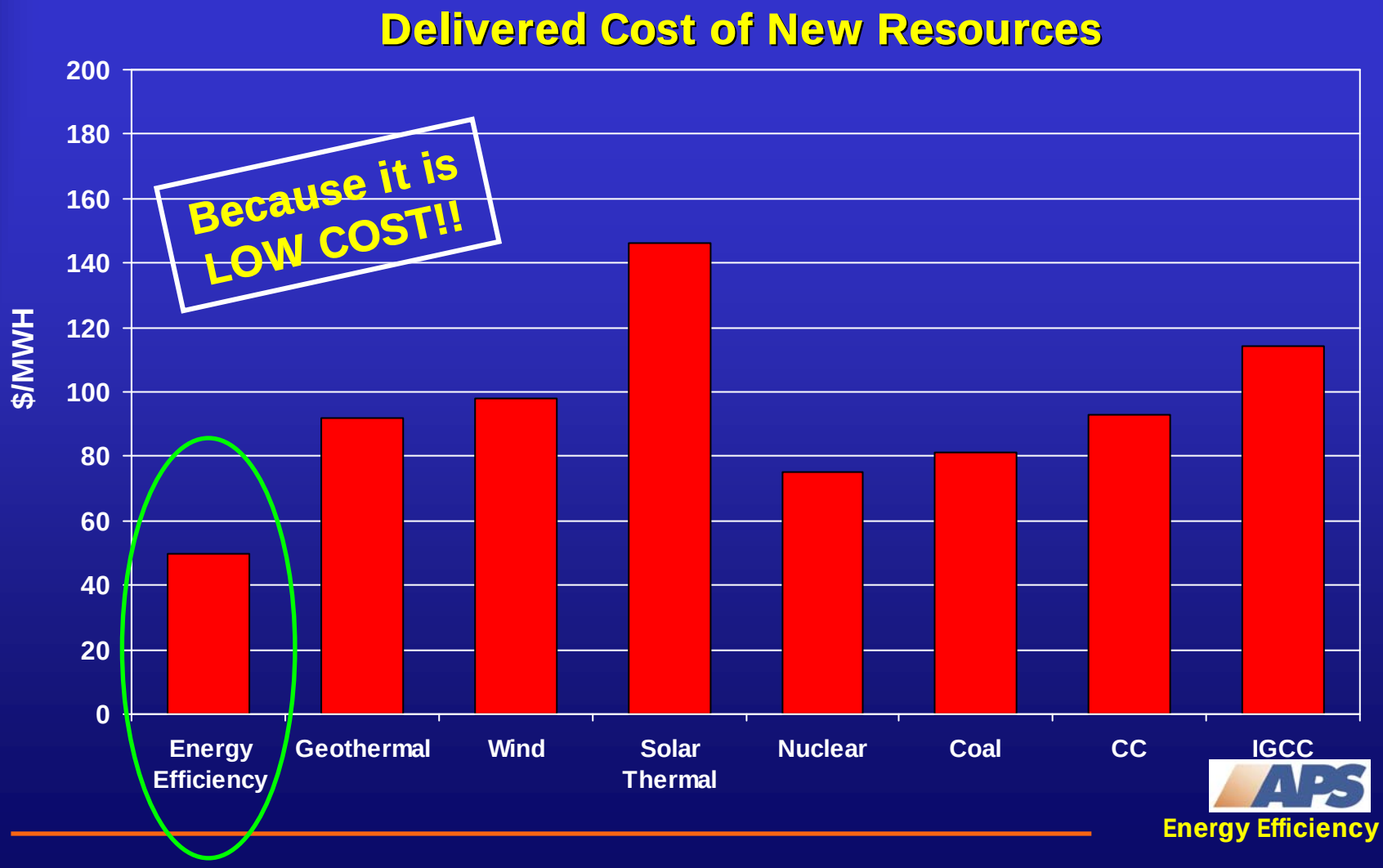


APS
Energy Efficiency

APS Energy Efficiency Program Spending

APS Energy Efficiency

Why is Energy Efficiency Important?



What Has Changed?

- Energy Efficiency is a RESOURCE
- To rely on EE as a resource a utility needs:
  - Predictability of savings
  - Cost effectiveness of savings
  - Verification of savings
  - Persistence of savings

Why Building Science Should be at the Heart of Utility EE Programs

Utility Resource Needs	Building Science Principles
Persistence	Durability
Cost Effectiveness	Design the house as a system
Predictability	Process to ensure performance
Verification	Performance testing

Why Building Science?

- **Energy savings goals**
  - Helps ensure real performance in the field
- **Builder recruitment**
  - Establishes need to participate
- **Builder retention**
  - Helps ensure successful implementation
- **Trade ally value**
  - Positions utility as valuable partner/energy expert
- **Customer Satisfaction**
  - Helps deliver performance that you are promising

12 Step Program For Program Design

1. Create Clear Goals and Objectives
2. Know Your Service Area
3. Know Your Target Audience
4. Know Your Trade Partners
5. Raise Awareness.....what?
6. Encourage Participation.....why?
7. Make it Easy to Participate.....how?
8. Retention - Deliver Value for all Participants
9. Design Tools to Help Partners Succeed
10. Evaluation/Feedback – Impact and Process
11. Stay Flexible!
12. Raise the Bar

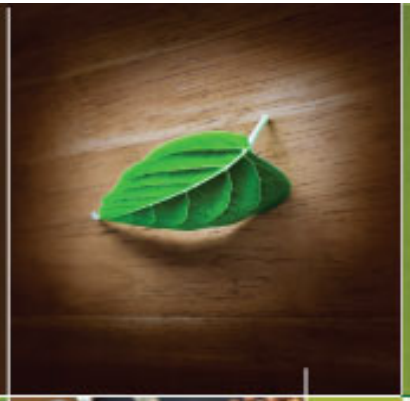
APS
Energy Efficiency

Keys to New Home Program Success with Builders

How does building science help?

- Builder Recruitment
  - Build awareness
  - Generate interest
  - Understand benefits of participation
- Builder Retention
  - What are key construction details to focus on?
  - What processes need to be put in place?
  - How do you sell the features and benefits?

APS Energy Efficiency



Houses That Work™

HOUSES THAT WORK

EEBA's Educational Series

- HTW Turn-Key Educational Sessions Provide:
  - Building practices and requirements as they relate to the IECC
  - Building science principles applied to mainstream construction practices
  - Increase the durability and performance of the structures you build
  - Reduction of litigation due to building system failure
  - Reduction of costly call-backs
  - Incorporation of "green" practices
  - Increase of customer satisfaction
  - Improve your marketing strategies
  - Increase your sales and profits

- Houses That Work education qualifies for CEU credit for AIA, AIBD, RESNET and the NAHB's CGP Designation and is approved by the USGBC's Education Provider Program

CONTINUING EDUCATION AIA

AIBD

RESNET Residential Energy Services Network

USGBC EDUCATION PROVIDER

Recruitment Training

- Identify need for making changes – current issues and challenges facing builders
- Show reasons for common callbacks
- Provide proof points using infrared and other data
- Understand basics of applied building science – (i.e. one CFM in = one CFM out)
- Understand benefits of a systems approach to construction
- Learn the advantages of selling high performance homes

APS
Energy Efficiency

Builder Participant Training "Success with ENERGY STAR"

- Offered to participating builders
- In-depth training on key construction details and thermal bypass checklist items
- Process training to make sure successful implementation is built into the construction process
- Key to retaining builders!
- Now required before we pay incentives

APS
Energy Efficiency

CREATING HIGH PERFORMANCE HOMES

GENERAL FRAMING DETAILS

BAD MAL HECHO | GOOD BIEN HECHO

1

CHASES — All chases connecting conditioned area to unconditioned area are capped

VÍAS DE DUCTOS — Todas las vías de ductos que conectan áreas acondicionadas y no acondicionadas están tapadas

2

SHIMS — Shims are installed between all cripple studs and window sills to slope sill toward the outside 1/8th inch

CALZOS — Calzos están instalados entre los tacos cortados y las alféizares de las ventanas para inclinar la alféizar 1/8" hacia afuera

3

SHEATHING GAP — All wood sheathing panels have a 1/8" of separation at all joints

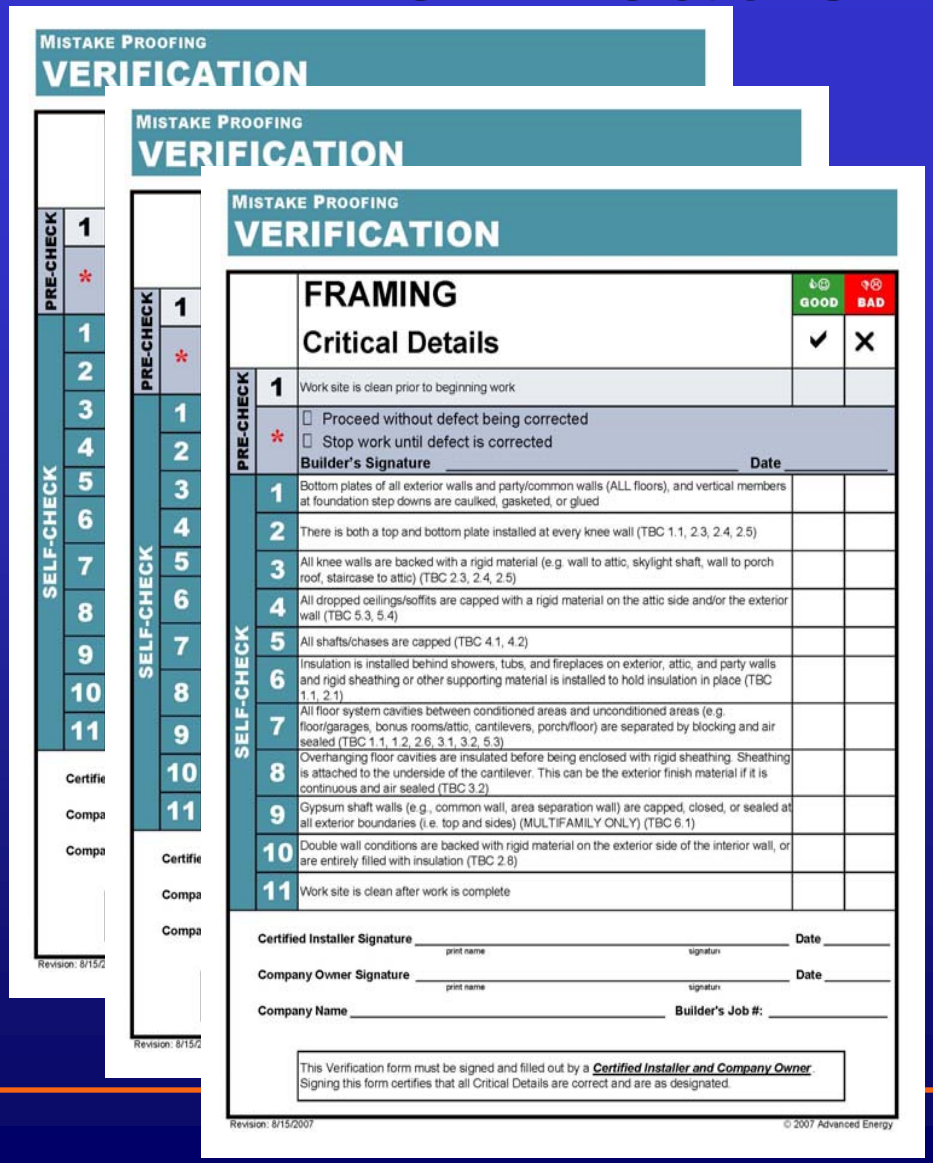
DISTANCIA ENTRE REVESTIMIENTO — Todos los paneles de revestimiento tienen 1/8" de separación en todas las uniones

4 & 5

RAISED SHEATHING/SILL GASKET — No sheathing or untreated lumber touches concrete, and sill gasket or Liquid Nails used under all sill plates

REVESTIMIENTO Y ALFÉIZARES — Ninguna madera sin preservar toca el hormigón, y juntas del alféizar están instaladas debajo de las placas inferiores

Mistake Proofing Verification Forms



"Pre-Check" and "Self Check" covers critical details

Energy Efficiency

Lessons Learned?

- Buy-in from builder management is key
- It's all about the process.....
- Require builders staff and key subs to attend
- Involve raters
- Make it relevant to your market and builders product
- Include field walks when possible
- Follow up to ensure changes persist
- Consistency/repetition (never saturated)

APS
Energy Efficiency

Know Your Builder's Different Perspectives

- Sales
  - Traffic!
  - Advertising/marketing support
- Construction
  - How will this affect their process?
  - How can they get better performance from subs?
- Purchasing
  - How much will it cost? How does it change specs?
  - Justification for product changes
- Warranty/Service
  - Impacts on callbacks and claims

APS
Energy Efficiency

12 Step Program For Program Design

1. Create Clear Goals and Objectives
2. Know Your Service Area
3. Know Your Target Audience
4. Know Your Trade Partners
5. Raise Awareness.....what?*
6. Encourage Participation.....why?*
7. Make it Easy to Participate.....how?*
8. Retention - Deliver Value for all Participants*
9. Design Tools to Help Allies Succeed*
10. Evaluation/Feedback – Impact and Process*
11. Stay Flexible!
12. Raise the Bar*

How many of these steps involve building science?

APS Energy Efficiency

Metrics

- Market Penetration/participation
  - 40 participants, 9 of top 10 AZ builders
  - Currently >30% market share (~5th highest)
- Builder participant evaluations
  - Recent process evaluation – all participating builders rated the program 10 out of 10!
- Cost Effectiveness = ~3.0 TRC

APS Energy Efficiency

Thank You

tom.hines@aps.com

APS ENERGY STAR® Homes Program

APS Energy Efficiency