



*ENERGY STAR Programmable Thermostats
Stakeholders Meeting
Feb. 13, 2007*

Today's Agenda



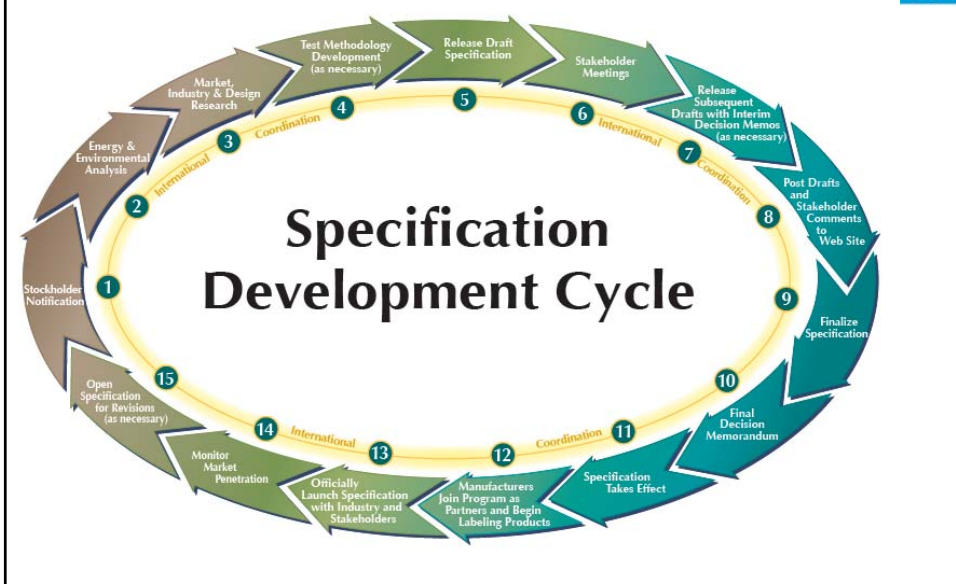
- History of the Specification Process
- Re-cap of Research
- CEC Activities/Update
- New Partnership Agreement & Requirements
- Future Considerations
- Next Steps

Program History



- April 1995: Label launched for programmable thermostats
- 2002-Present
 - Launch of EPA Cool Your World/First Frost campaigns – actively promote proper PT use
 - Begin gathering research on thermostat use/savings
 - Coordinate individual stakeholder meetings/attend industry tradeshow
 - Proposed specifications drafted
 - Followup Industry Meetings
 - 2003 meeting in conjunction with the ENERGY STAR HVAC Partner Meeting
 - 2006 stakeholder meeting in Washington, DC

ENERGY STAR Product Development Cycle



ENERGY STAR Guiding Principles



- EPA and DOE consider the following criteria when determining whether to develop or revise ENERGY STAR product specifications:
 - Significant energy savings will be realized on a national basis.
 - Product energy consumption and performance can be measured and verified with testing.
 - Product performance will be maintained or enhanced.
 - Purchasers of the product will recover any cost difference within a reasonable time period.
 - Specifications do not unjustly favor any one technology.
 - Labeling will effectively differentiate products to purchasers.

Barriers to Labeling PTs



- **Little differentiation between ENERGY STAR Qualified Programmable Thermostats and Non-Qualified Programmable Thermostats**
- **Little evidence that ENERGY STAR Qualified Programmable Thermostats save money on a consistent, nationwide basis**
- **Carbon emission reductions (EPA's goal) and savings to the consumer are based on** consumer behavior
 - Different from other product categories where savings are assured by label on product, not its use
 - Consumers don't always use all of the features of the programmable thermostat; typically hold and override are the most used "features"

Barriers to Labeling PTs



- Consumer confusion over savings from PT installation vs proper use – only *behavior* saves, not the box
- ES focus on retail sales yet vast majority of Tstats sales to HVAC contractors with little/no end user education
- No consistent user interface -- no “silver bullet” for consumer friendliness (plus lack of consensus on this subject among experts)

Field Studies



<u>Organization</u>	<u>Investigators</u>	<u>Location & Year</u>	<u>Sample size</u>	<u>Conclusions</u>
Southern California Edison	Paul Reeves Jeff Hirsch Carlos Haiad	CA 2004	N/A	Energy savings depend on behavior and can be + or -
Energy Center of Wisconsin	Monica Nevius Scott Pigg	WI 1999	299 homes	No significant savings. PT's don't change behavior.
Connecticut Natural Gas Corporation	David Cross David Judd	CN 1996	100 homes	PT's cause no significant behavior change.
BPA / PNNL	Craig Conner	NW 2001	150 homes	No significant behavior change / savings.
Florida Solar Energy Center	Danny Parker	FL 2000	167 homes	No savings, some increases.

Decision Analyst Study – Jan. 05



- Diverse behaviors/needs create serious challenges to energy savings
- User belief - the main benefit is to provide more accurate, consistent temperatures (comfort)
- Programming difficulty, lack of knowledge/confidence / motivation to face programming challenges
 - Honeywell: 70% of homeowners find PTs too difficult to operate and lose out on energy savings benefits (2004)
- Most users lack manuals or even instruction (inherited Tstat) or minimal direction (new Tstat)
- PTs being used in much the same way as manual thermostats
- Hold/Override features used the most, even among “optimal” users
- No awareness of default settings
- Little understanding/awareness of key terms (default, set point, “programmable”) – on-line information lacking
- Communication must fill in knowledge gaps & motivate people to use properly

Decision Analyst Study – Sample Quotes



- “We have a digital thermostat. It can be programmed – but we don’t know how to do that.”
- “There are a lot of features in my thermostat that I never use. I just manually adjust it as needed for my comfort.”
- “I haven’t recommended this type or brand of thermostat to anyone, mainly because we can’t figure out how to use it.”
- “When I bought my townhome...it came with this thermostat. No directions were provided by the previous owners, so I’ve fumbled my way to try to get it working. It’s not working.”
- “It is not user-friendly enough to figure out the programming without the manual, and I’m a PROGRAMMER by profession.”
- “We use hold all the time, but that’s all we use.”

New Study: GasNetworks



- Data collected April 2003 to March 2006
- 7,000 participants
- Customers saved approximately 75ccf or 6.8% with a programmable thermostat
- Customers using manual thermostats increased their usage by 25ccf
- Limitations – addresses gas savings, New England focus, does not prove label made a difference

ENERGY STAR Strategy



- Transition from performance-based spec to educational partnership effective summer 07
- Address user understanding and behavior
- Modeled on other successful ES educational initiatives (Home Sealing, Home Performance, Power Management, Lighting)
- Savings potential is more than \$150/year – we want to realize those savings

Educational Platform Organization/Execution



- Educational graphic/graphics guidelines for manufacturers, retailers, installers, program sponsors (PTs only)
- Enhanced education, consistent messaging via
 - Product literature
 - Website(s) – EPA main repository **
 - Instructions/user manuals (on-line version required)
 - Direct mail/bill stuffers?
 - Consumer/trade outreach
- Distribution channels/Applications
- Target audience – optimal, sub-optimal users or both?

Sample ENERGY STAR MARK



HELP STOP
GLOBAL WARMING
Program your
thermostat to save
energy and money while
you're asleep or away.
LEARN MORE AT
energystar.gov

Similar Campaigns



Change a Light, Change the World

- Launched in 1999

Strategy:

Uses education/promotion to motivate consumer to take pledge
Enlists organizations as educational partners/pledge drivers
Annual Commemorative Day with events nationwide
Extensive PR/publicity

Goals:

- Drive sales of energy saving fixtures/bulbs
- Create specific timeframe (Oct-Nov) when manufacturers, retailers, utilities promote/educate consumers
- Opportunity for broader education



Change a Light, Change the World Campaign



Results

- Currently **386,000 pledges**, representing **823,268 bulbs** changed and saving more than **232 million kWh of energy**, **366 million lbs of GHG emissions**, more than **\$23 million in energy costs**
- 700 partnering organizations in 2006/07 (up from 300 in 2005)
- Increasing involvement of non-traditional partners e.g. K-12 schools, universities, state and local governments, non-profits, boy scout troops, congregations, businesses and corporations, community groups, etc.

Similar Campaigns



Power Management

- Launched in 2001

Strategy:

Targets decision making executives, facility managers, and IT managers
 (Computer-intensive corporations, Colleges/universities,
 Secondary school systems, local/state/federal govt)
 Education, Software distribution, tech support
 PR/trade press outreach
 Recognition

Goals:

Annually address monitor power management
 “sleep” features on 1 million monitors to save
 energy, money, prevent pollution



Power Management: Million Monitor Drive Campaign

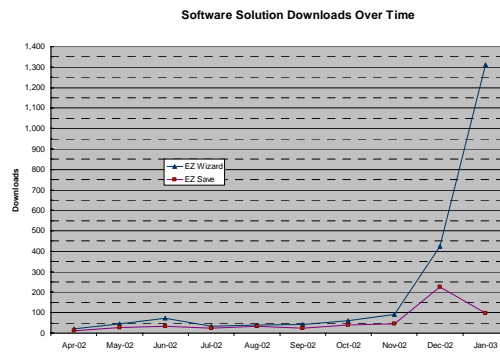


Results

- **Trade media placements:**
 - IDG News
 - InfoWorld
 - PC World
 - ComputerWorld
 - Yahoo News
- **Other media placements:**
 - National Public Radio
 - Fortune Magazine
 - CFO Magazine
 - AOL Money Newsletter
 - The Oakland Tribune
 - Philadelphia Business Journal
 - Environmental Defense Fund News
 - American School Board Journal



Results:
media placements boosted software
tool downloads by over 1300%



Power Management: Million Monitor Drive Campaign



Results: 12 million monitors over the past 6 years

- Hundreds of organizations pledged to activate Power Management, including:
 - Corporations
 - Ford Motor (140,000)
 - General Motors (120,000)
 - General Electric (100,000)
 - Wells Fargo (100,000)
 - Citigroup (90,000)
 - Boeing (85,000)
 - Proctor & Gamble (82,000)
 - & many more...
 - Schools and Universities
 - Fairfax County Public Schools, VA (64,000)
 - Harvard (6,300)
 - New York City Dept. of Education (10,000)
 - Government
 - US EPA and other federal agencies
 - 50+ city and municipal governments
 - Many state and county agencies
- **760,000 tons of greenhouse gas emissions** saved annually
- Currently embarking on a **similar effort for power managing the computer (PC box)**

The screenshot shows the bhg.com website with the title '(Way More Than) 20 Ways to Lower Your Home Cooling Costs'. The page includes sections for 'Commensurate Cooling', 'Cool Your World', and 'Upgrade to Save'. An ENERGY STAR logo is visible in the top right corner of the browser window.

ENERGY STAR Cool Your World/First Frost Campaigns ES@Home educational tool

New Documents: Partnership Agreement and Campaign Requirements



- **All ENERGY STAR partners sign the same Partnership Agreement (PA)**
 - Some programmable thermostat partners under the old MOU because of the specification revision process, but most have signed a PA
- **EPA has suggested Program Requirements for partners to participate in the campaign and use the associated ENERGY STAR mark**
- **Only those manufacturers that sign a PA can participate in the campaign and use the marks**
- **Will continue to be ENERGY STAR partners**
- **Discussion**

Future Considerations



- Performance requirements suspended until future studies and/or technology improvements confirm meaningful savings from performance attributes/features
- NEMA guidelines
- Potential for future performance-based spec under ES (PTs could play a more integral role in the EE home)

Next Steps



- Industry/manufacturers provide feedback on partnership agreement
- Establish Working group – to refine educational platform (unified messaging, distribution channels, tactics) – led by EPA
- New timeline for adoption of the marks and messaging
- Educational efforts launch in summer 07

Contacts



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Partnership Agreements

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