



Northeast Energy Efficiency Partnerships

Business and Consumer Electronics: A Strategy for the Northeast

Tuesday, August 27th, 2013

1:00pm - 2:00pm

Please note this presentation is being recorded and will be available at neep.org



Presenters



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With invaluable input provided by
the Leadership Advisory Committee

HISTORY: NEEP

MISSION

Accelerate energy efficiency in homes, buildings & industry in the Northeast - Mid-Atlantic region

GOAL

Keep the region a national leader in accelerating energy efficiency

STRATEGIES



Reduce Building Energy Use



Speed High Efficiency Products



Make Efficiency Visible



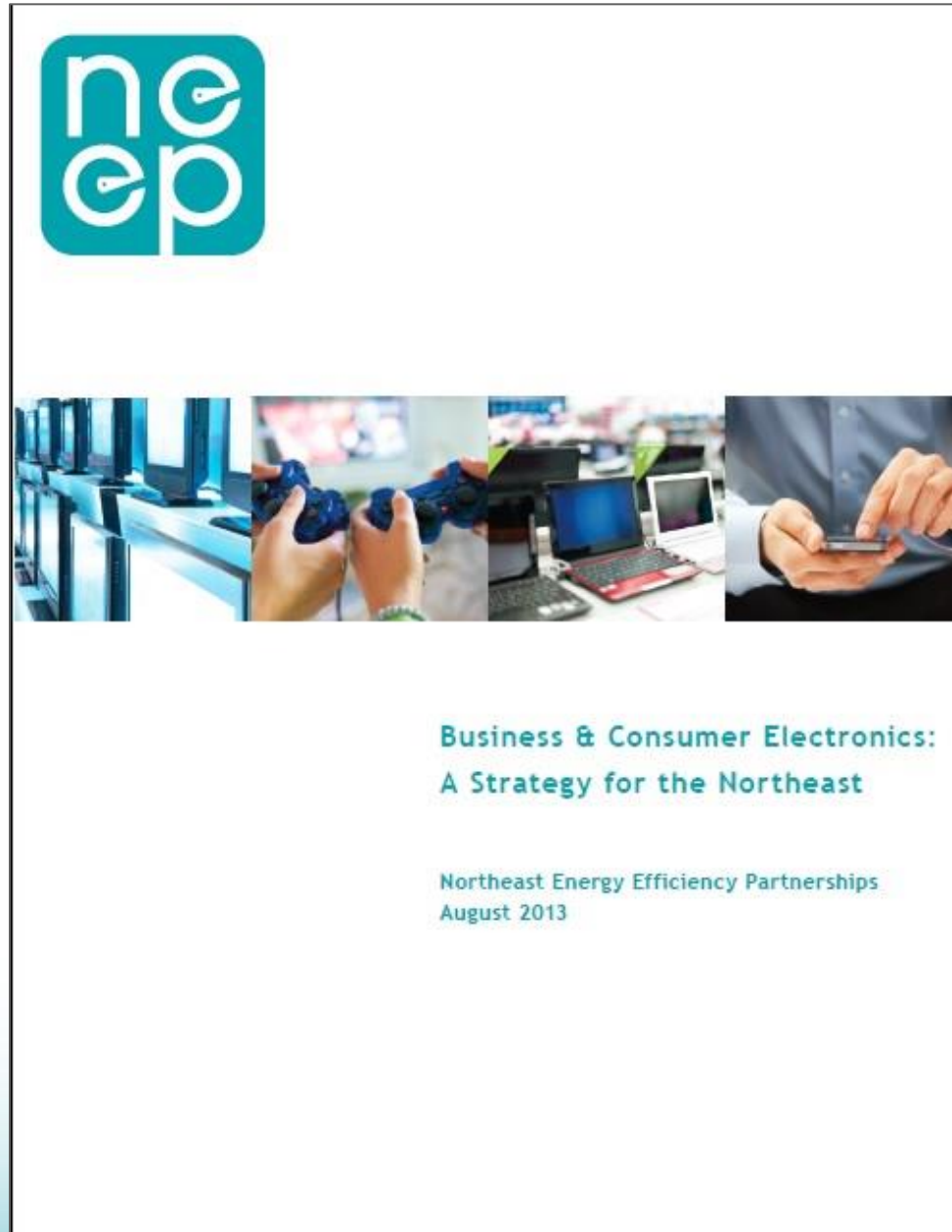
Advance Knowledge - Best Practices

Regional energy efficiency collaborations since 1996

Business and Consumer Electronics: A Strategy for the Northeast



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Introduction: Why Business and Consumer Electronics (BCEs)

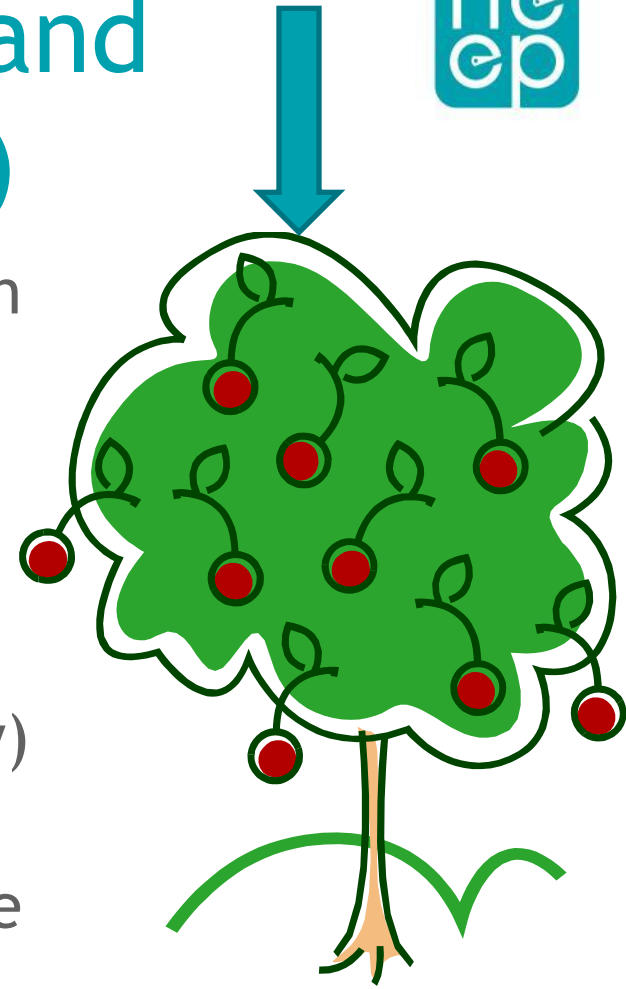
The Northeast Mid-Atlantic region is a leader in energy efficiency

BCEs: a plug load category that keeps growing

- in energy consumption
- # of devices drawing power
- BUT each BCE devices only uses a (relatively) small amount of energy

With these challenges, BCE becomes one of the highest hanging fruits for efficiency programs, policies, and advocacy.

This report provides direction on how to rise up to pick this fruit, transform the BCE market, and keep the region a leader in BCE efficiency



Report Objectives

- Expand Northeast and Mid-Atlantic energy efficiency leadership through programs, partnerships, and tactics that reduce the energy use of BCE products
 - Conduct market assessment of BCE industry
 - Identify major market actors
 - Profile BCE product energy consumption
 - Analyze existing BCE programs and products
 - Understand BCE consumer trends
 - Document BCE energy-efficiency policy trends
 - Identify various barriers to meeting objectives
 - Recommend strategies for generating future energy savings and spurring innovation

Research Methodology

- Secondary research and data analysis on topics deemed most critical
- Research resources included:
 - Industry reports
 - BCE product sales forecasts and in-home installations
 - Certification and label organizations' qualified products lists
 - BCE program impact and process evaluations
 - Consumer and market research studies and reports
 - Policy briefs

BCE Products Researched

- Advanced Power Strips
- Audio Visual Equipment
- Computer Monitors
- Desktop Computers
- Game Consoles
- Home Office & Imaging Equipment
- Home Theater
- Laptops & Thin Clients
- Set-Top-Boxes
- Tablets & Smartphones
- TVs

Key Research Findings



Rapidly Growing & Evolving Market

BCE Market is characterized by:

1. Rapid growth
2. Constant product innovation
3. Sophisticated supply chains
4. Small number of retailers control market share

Brick-and-Mortar Stores Lead Retail Sales



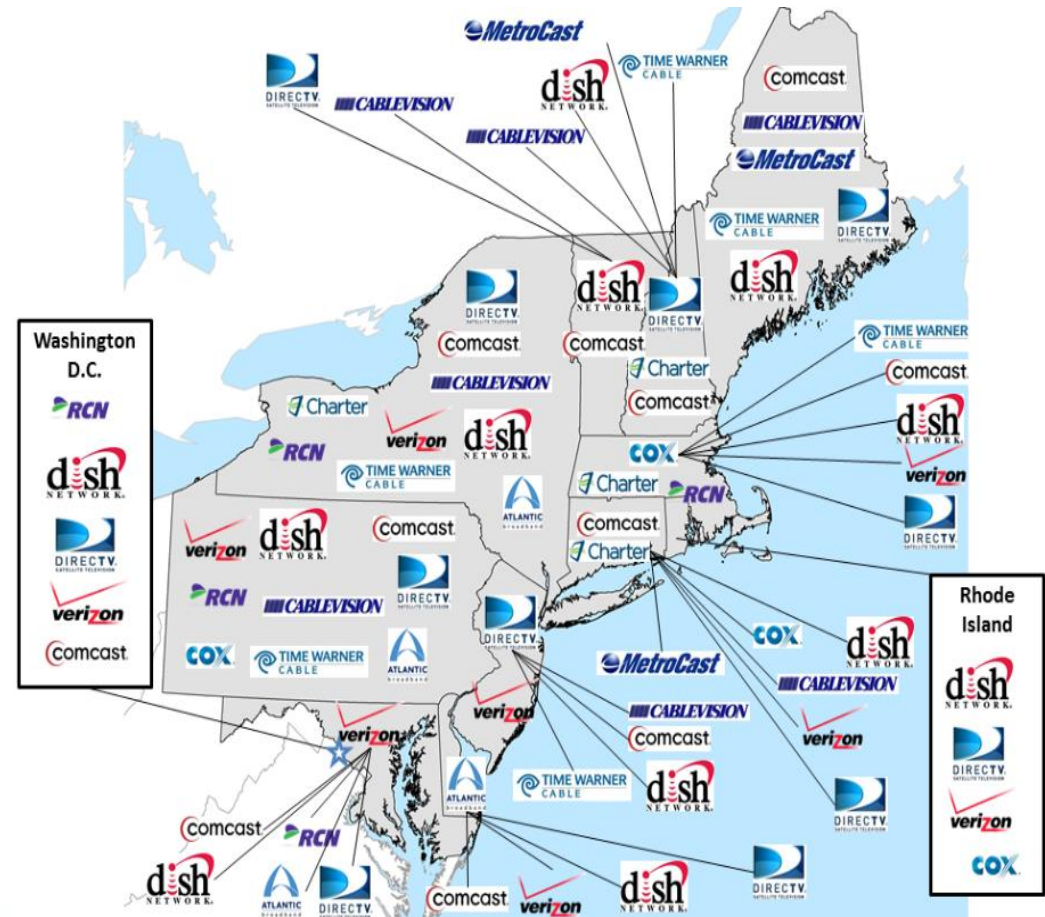
- BCE products sold in brick-and-mortar stores account for roughly 80% of total sales in 2012

Brick & Mortar Retail Purchases		Online Purchases	
Consumer electronics retailer (e.g., Best Buy)	51%	eCommerce website (e.g., Amazon.com, ebay.com)	18%
Manufacturer branded store (e.g., Apple Store)	23%	Consumer electronics retailer website (e.g., bestbuy.com)	14%
Communications service provider (e.g., AT&T)	18%	Manufacturer's website (e.g., apple.com)	9%
Other (e.g., Walmart, Costco)	24%	Communication service provider website (e.g., Verizon.com)	6%
		Other website (e.g., walmart.com)	8%

Model for Content Service is evolving



- Consumers have options when considering a service provider, i.e. programming packages, features, companies.
- “Over-the-top” services, or cutting the cord, through digital media readers is growing
 - 60% growth in sales for services estimated by 2015



Consumers are becoming increasingly connected & “smart”

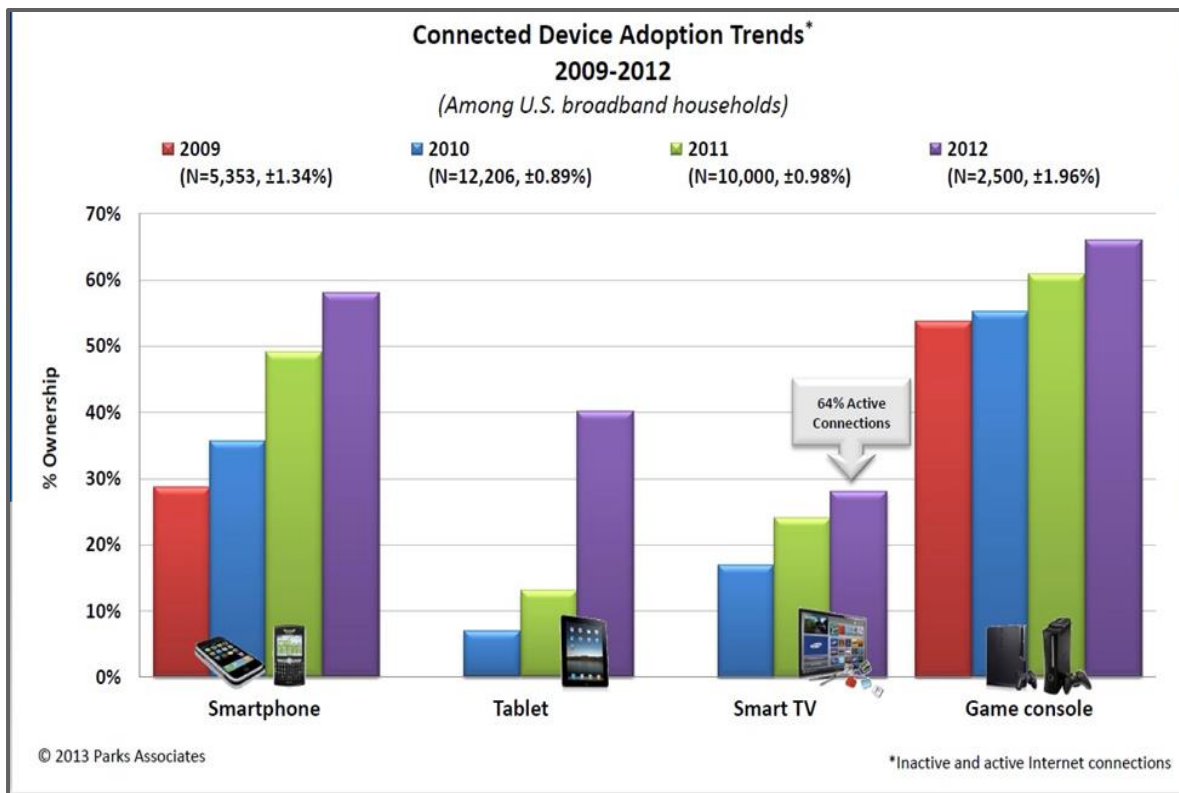


Top 3 BCE Product Advances:

1. Product Convergence
2. Proliferation of Internet Connectivity in BCE products
3. The Advent of Cloud Computing

Connected Home

- Beyond Home Automation (the remote control of home systems, including HVAC, lighting, appliances and security).
- Includes additional analytics and optimization in addition to remote control.



Multiple certifications and labels exist for BCE products



Factors Driving BCE Product Energy Consumption and Reduction



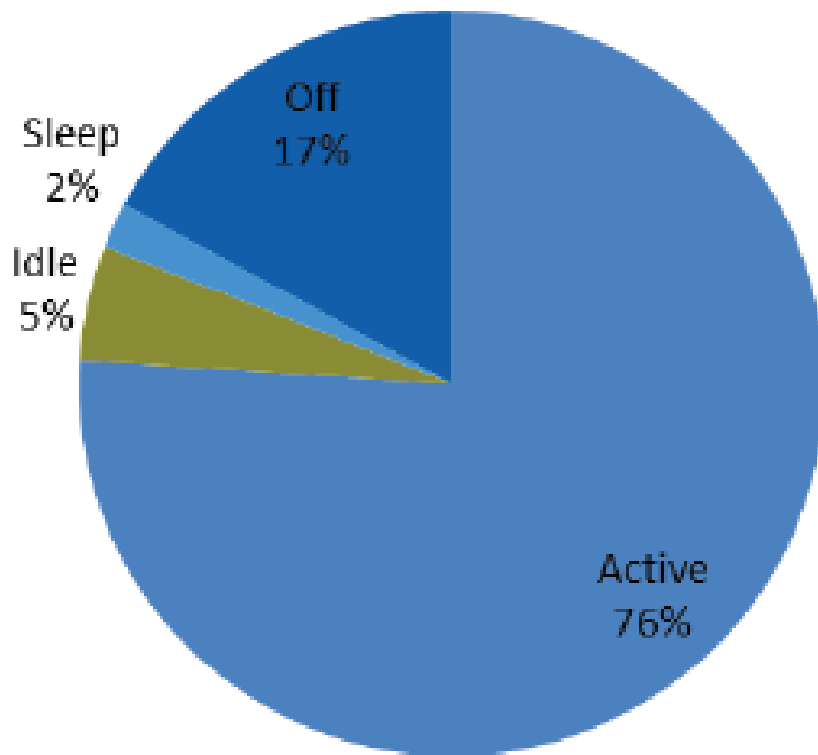
Consumption driven by:

1. An increase of the penetration of BCE products found in homes and subsequent connected load
2. Necessary expansion of product functionality in reaction to consumer demand
3. Increased hours of operation from consumer adoption and behavior

Decreasing the energy consumption and increasing the energy efficiency of BCE products is possible based on:

1. How products are used in homes
2. How products are purchased in stores
3. How product options are understood and acted upon in unique situations

One-quarter of BCE energy consumption is wasted



- The Northeast and Mid-Atlantic can save an estimated 4.83 TWh by eliminating off, sleep, and idle mode consumption from:
 - Audio Visual
 - Computers
 - Game consoles
 - Televisions
- Advanced Power Strips (APS) can provide between 75 - 381 kWh annual savings

Baseline drives potential TV savings



Chart A

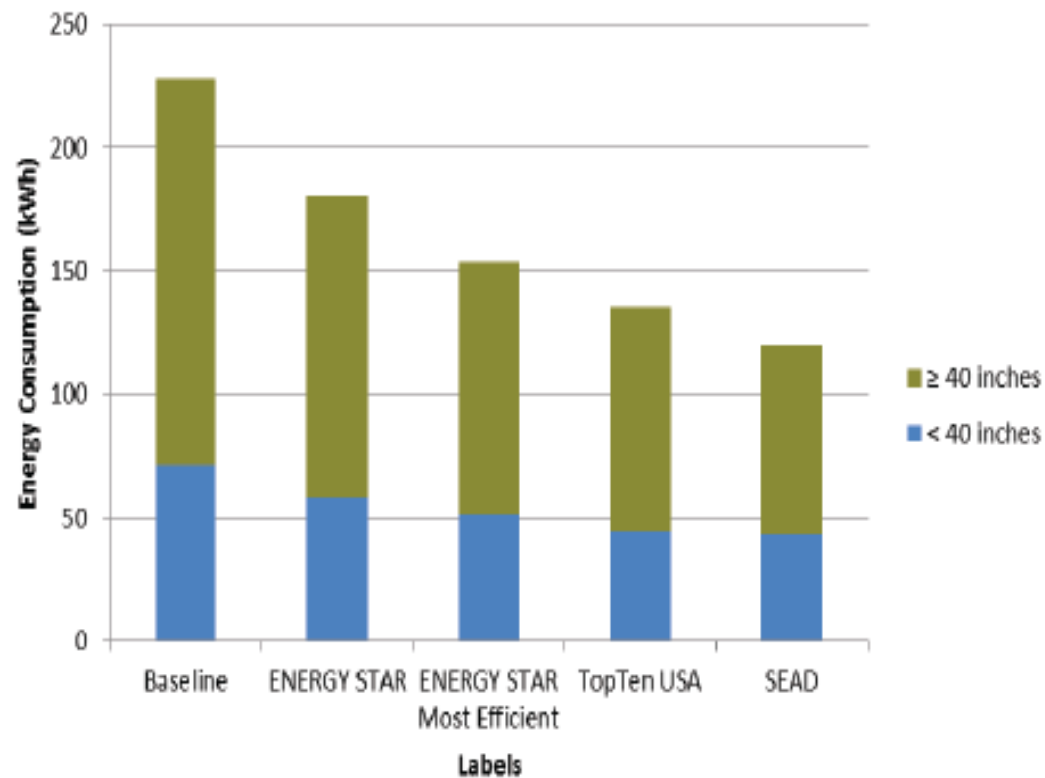
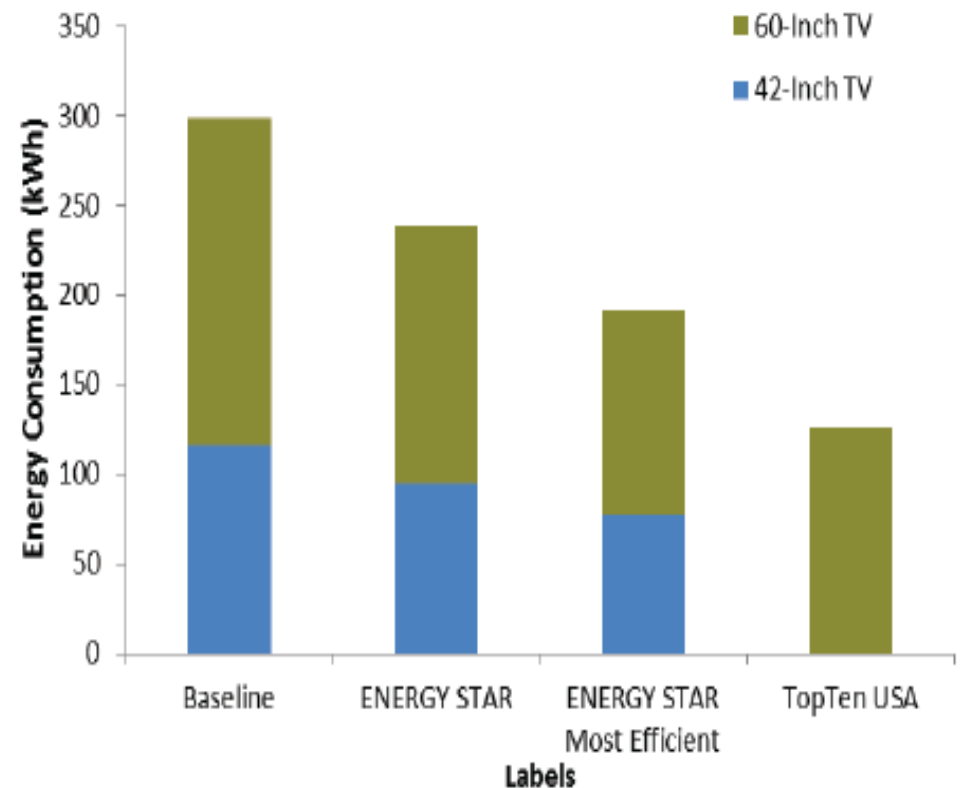


Chart B



Greatest savings exist for TVs 40-inches and greater.

Find the right market for computing



Computing Products	Baseline ⁶⁴	ENERGY STAR ⁶⁵	ENERGY STAR M.E. ⁶⁶	TopTen USA ⁶⁷
Desktop Computer	239.00	162.00	NA	48.94
Laptop	75.00	52.00	NA	19.90
Computer Monitor	66.00	52.00	24.81	29.57

- Bulk purchasing through commercial environments may be the best approach to impact desktop computers, as 68% are sold to commercial consumers.
- High market penetration of ENERGY STAR-certified laptops and computer monitors (75% and 85%, respectively) provide low potential energy savings.

Three approaches to realizing Set-Top Box (STB) efficiency



1. Deep Sleep: Could reduce annual energy consumption by 50%
2. Limit the Number of STBs: consider a multi-room approach
3. Gateway/Thin Client: eliminate basic STBs configuration

Better yet...bypass STBs entirely?

Old School Idea



New School Thought



- Converting three TVs from an HD DVR and two HD thin clients to a Cable Digital Transport Adapter (DTA) and two Digital Media Receivers (DMR) can save 80 kWh annually.

Game consoles: Unique Opportunities and Unique Challenges



Current Generation Console			
Efficient?			
Last Generation Console			
Sales split of three major last generation game consoles	40%	31%	28%

- Wii and Wii U are the most energy efficient gaming consoles in market currently
- The Xbox One and PS4 consoles launch in November
- ENERGY STAR recognition criteria exists; Wii U meets it, but is not currently recognized

Two Programs, Two Different Approaches



TV Programs

- Midstream model is used exclusively
- PAs claim between 16 to 339 kWh for savings based on the size of the TV
- Baseline differs between TRMs used

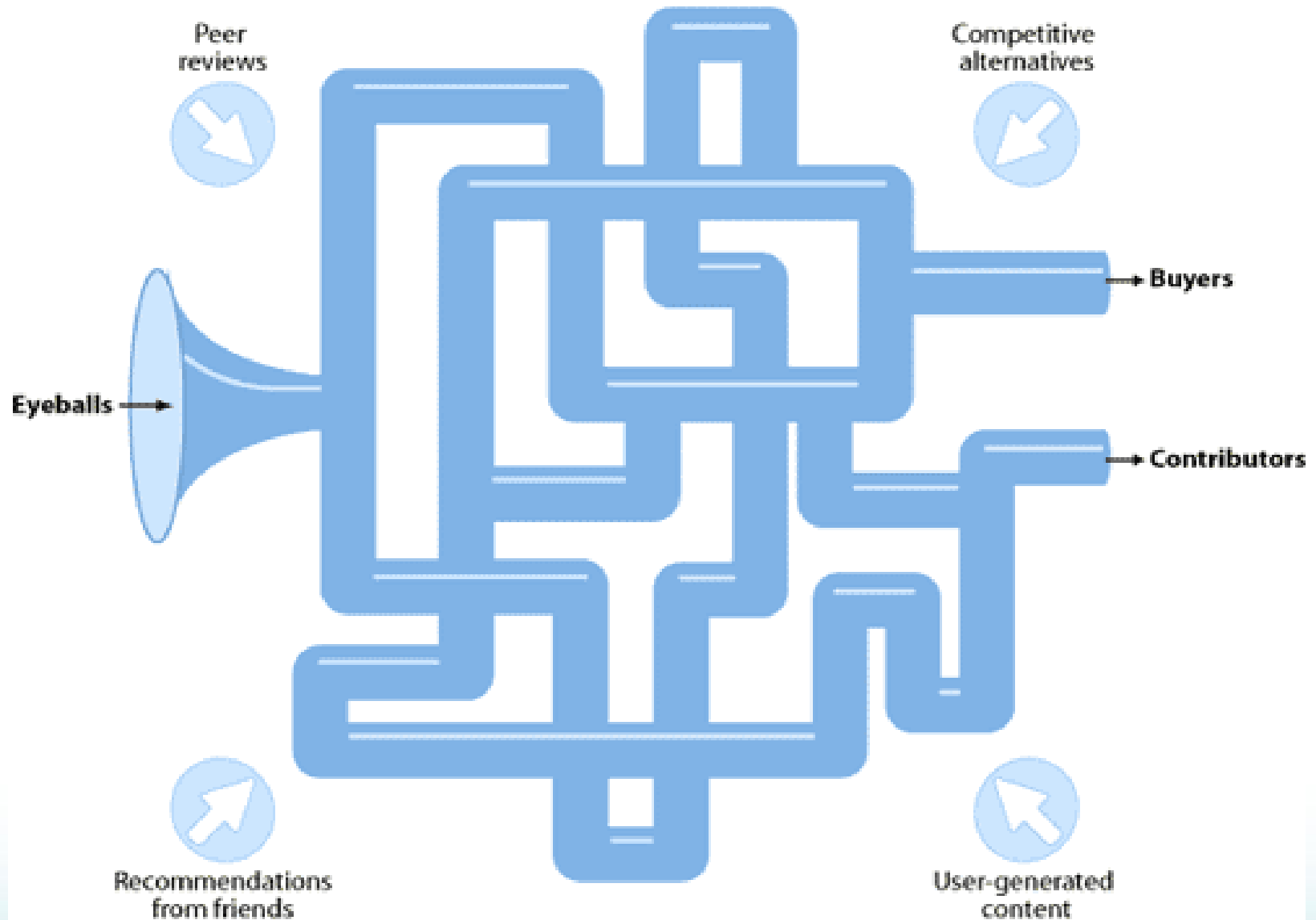
APS Programs

- Upstream model is used; direct install is becoming widely considered for implementation
- PAs claim between 31 to 103 kWh for savings based on the number of outlets
- All TRMs are based on the same sources

Path to Purchase for BCE Products is Non-Linear



A complex,
customer
decision-
making
journey



BCE products present opportunities for policy makers



- Codes & Standards:
 - TVs, external power supplies, and battery chargers are the BCE products most commonly impacted by standards.
 - ASHRAE 90.1-2010, the most recent commercial building code, includes a plug load management provision to help decrease wasted energy in commercial buildings
- Voluntary agreements:
 - Act as a substitute for codes and standards where industry and other stakeholders agree on performance standards that can be obtained.
- Efficiency Programs:
 - Explore opportunities for BCE products through their efficiency programs by addressing plug load, marketing and education, and appliance standards.

Barriers



Identified Barriers

Product & Industry

- Rapid Technological Advancement
- Focus on Functionality
- Limited Number of Players
- Converging Products
- Lack of Uniformity

Consumer

- Lack of Awareness
- Efficiency is Not a Priority
- BCE Product Purchase Complexity
- Limited Retirement

Program Administrator

- Diminishing Per-Unit Savings
- Uncertainty with Behavior-Related Savings
- Inability to Attribute Savings to Programs
- Challenge of Promoting Multiple Certifications and Specifications

Policy

- Short Product Lifecycle Makes Policy Actions Challenging
- Industry Resistance
- Federal Preemption

Opportunities & Recommended Strategies



Methodology for Identifying Opportunities and Strategies



- Evaluated all opportunities by:
 - What level of collaboration is needed?
 - How complex would it be to implement?
 - What kind of timeline is necessary to make them a reality?

We identified a wide range of opportunities, but are focusing on the few that we feel have the greatest immediate potential to impact BCE efficiency.



Opportunity: Plug Load Management



- Increase Awareness
 - Educate consumers about different product power settings
- Increase the Installation of APS
 - Support APS products that can reduce energy consumption in idle mode
- Remove old BCE Products from Homes
 - Recycle old TVs and other high energy consuming products



Opportunity: Impact Content Consumption



- Influence customers to change behaviors for accessing content
 - Encourage consumers to adopt more efficient configurations
 - Encourage multi-room and thin client distribution and adoption
 - Encourage consumers to move to network-enabled devices
- Discuss product efficiency options with STB manufacturers



Opportunity: Saturate the Market with efficient BCE products



- Enhance Mid-Stream Programs
 - Implement short-term incentive programs
 - Pursue all possible energy savings from efficient televisions (large, smart, and OLED)
- Focus on the Commercial Market
 - Pursue computer monitor and desktop programs for commercial customers



Opportunity: Impact Policy

- Pursue Codes & Standards (when applicable)
 - Work with state regulators and policy makers to pursue efficiency standards
 - Extend plug load provisions into residential building codes and standards
- Track Market Developments and Make Course Corrections (if necessary)
 - Monitor and support STB voluntary agreement and develop a contingency plan
 - Impact 2nd generation game console efficiency, if applicable

Remaining Opportunities

- Address Consumer Behavior
 - Utilize load disaggregation to implement behavior-based programs
 - Explore new incentive models based directly on energy reductions.
- Understand and Embrace the “Connected Home”
 - Implement studies on energy efficiency potential from home energy management products and coordinate with ENERGY STAR
 - Pursue incentive programs to encourage service providers to increase home energy management services and individual home energy management products
 - Pursue incentives for demand response enabled products.

Remaining Opportunities

- Increase Education and Awareness about Benefits of Efficient BCE Products
 - Improve consumer educational materials
 - Train sales associates
 - Streamline most efficient labeling efforts
- Increase Collaboration with key Market Actors
 - Establish strong relationships with retailers and manufacturers
 - Collaborate with R&D departments
 - Encourage immediate discussion between PAs, regulators, and evaluators

Conclusion

- The BCE product category offers a wide range of energy efficiency opportunities and we have outlined many recommendations and next steps towards capturing BCE energy savings.
- With partnerships and collaboration between NEEP, program administrators, national retailers and manufacturers, policy makers, regulators, efficiency advocates and thought leaders in this space, the Northeast Mid-Atlantic region has the tools to push forward as an efficiency leader in BCE.

Regional Goal

Through successful implementation of this strategy, we feel the region can achieve a goal of **20 percent total BCE category energy reduction by 2020** (from 30.21 to 24.17 TWh)

Together as a region, we can overcome these barriers and pick (and enjoy!) the high hanging fruit of achieving energy efficiency in Business and Consumer Electronics.



Next Steps

- NEEP is committed to fostering collaboration and continuing work to improve BCE efficiency with interested stakeholders through working groups or collaborative initiatives that implement the outlined recommendations.
- Key potential areas include:
 - Set Top Boxes
 - Game Consoles
 - Plug Load Management
 - Others?



Thank you!

We would love to hear your thoughts on our findings, conclusions, recommendations, and next steps

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Read the full Report, available from

<http://neep.org/efficient-products/business-consumer-electronics/index>