



## *New Jersey's Clean Energy Program*<sup>™</sup>

# **Importance of Baselines: Lessons from the Energy Efficient Set Top Box Initiative**

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# About VEIC

- **Mission-driven nonprofit**
- **25 years reducing economic, environmental costs of energy**
  - 3 regional hubs (VT, DC, OH)
  - 35 states, 6 Canadian provinces
  - 6 Countries in Europe, Asia
- **Energy efficiency, renewable energy & transportation**



# About VEIC

- **National & international consulting & implementation**
  - Program design, planning, & evaluation; policy & advocacy, research & development
  - Regulators, government agencies, utilities, foundations, advocates
- **3 Energy Efficiency Utilities**
  - Efficiency Vermont: nation's 1<sup>st</sup> energy efficiency utility
  - Efficiency Smart: efficiency services to 48 Midwest municipal electric systems
  - DC SEU: sustainability services in the nation's capital

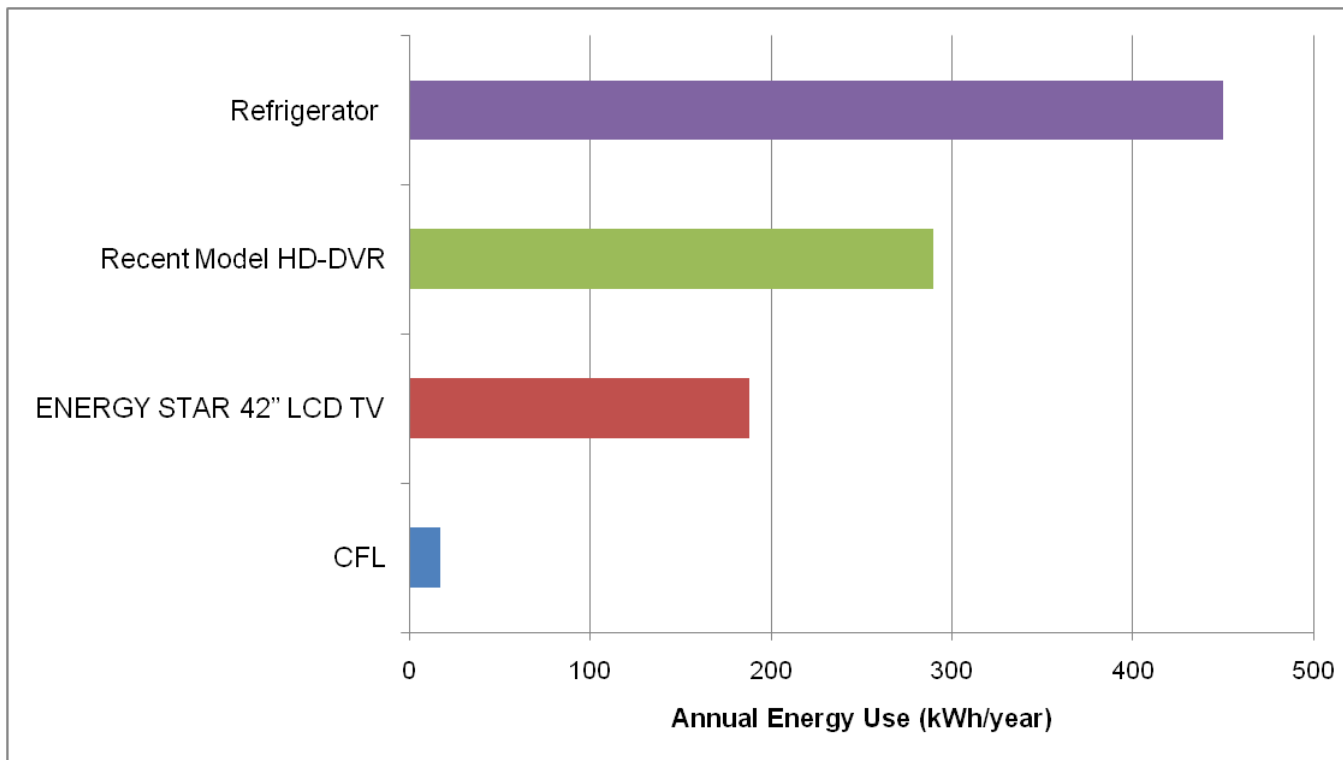




# Background on STBs



# Why Focus on STBs? Big Power in a Little Box



Source: 2010 Ecos / NRDC Study



# Primary STB Distribution Model: Service Providers are Key



- Subscribers have **limited choice** between service providers
- Service providers **customize** set top box for their content
- Service Providers **specify** design parameters to Mfgs
- Service Providers **own and operate fleets** of STBs
- Service Providers have their own **regulators**



# Challenges in Setting Baselines





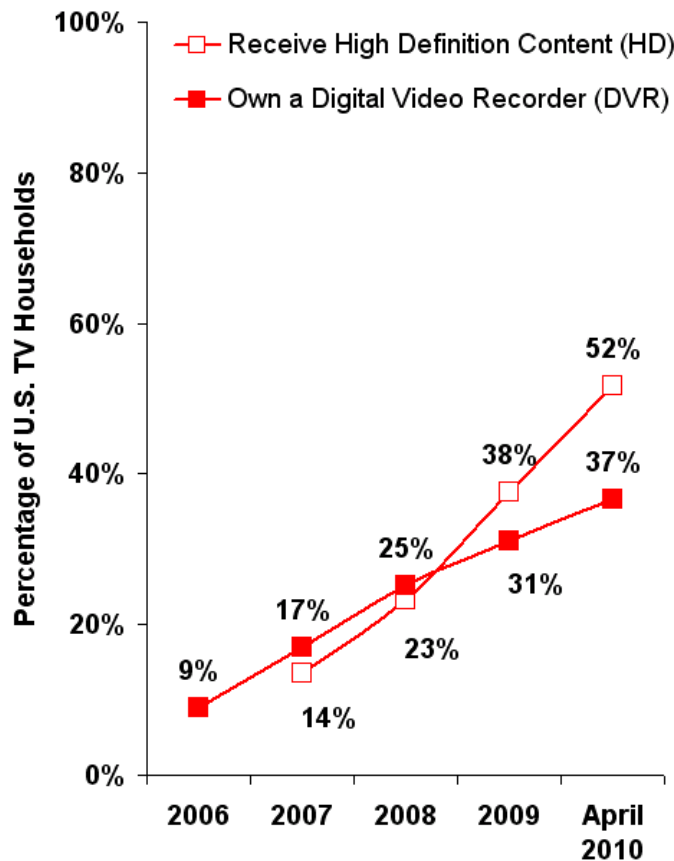
# Lack of Market Intelligence



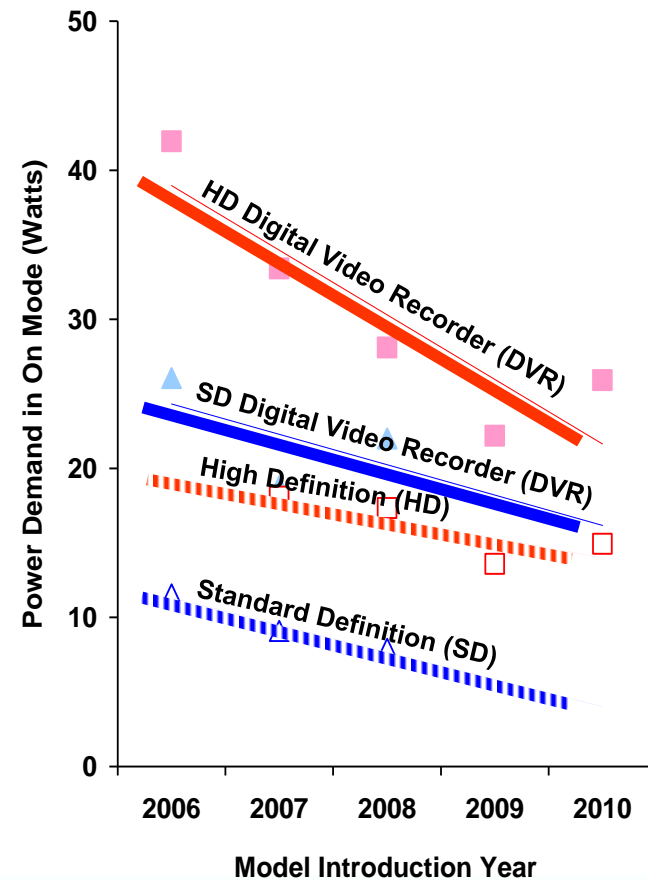




# Market Moves Quickly (#1)



Source: Nielsen

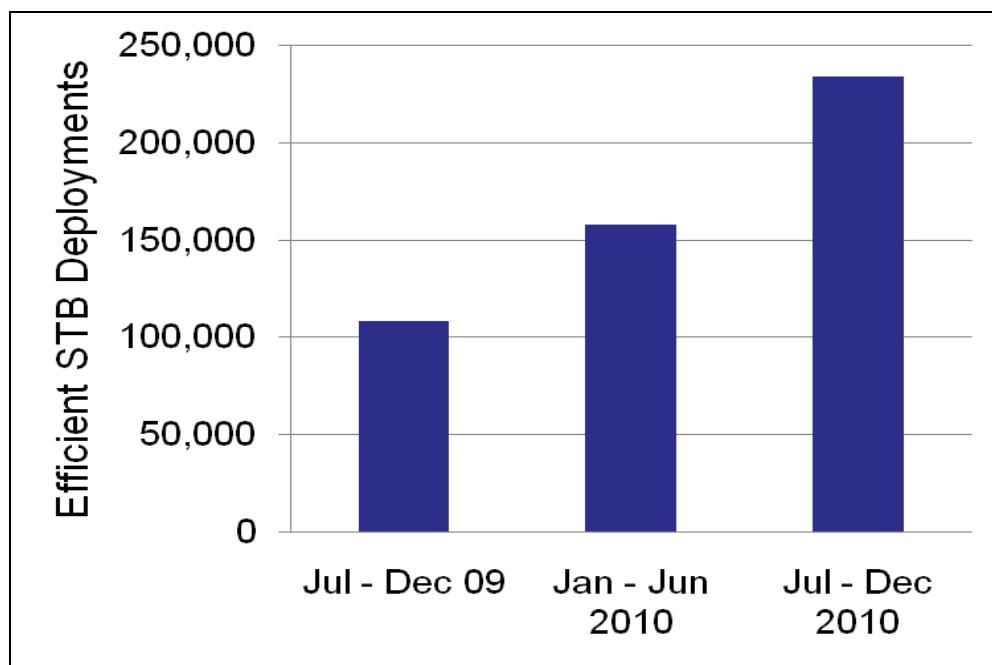


Source: NRDC/Ecos 2010 NJCleanEnergy.com



# Market Moves Quickly (#2)

- One service provider's experience in NJ program

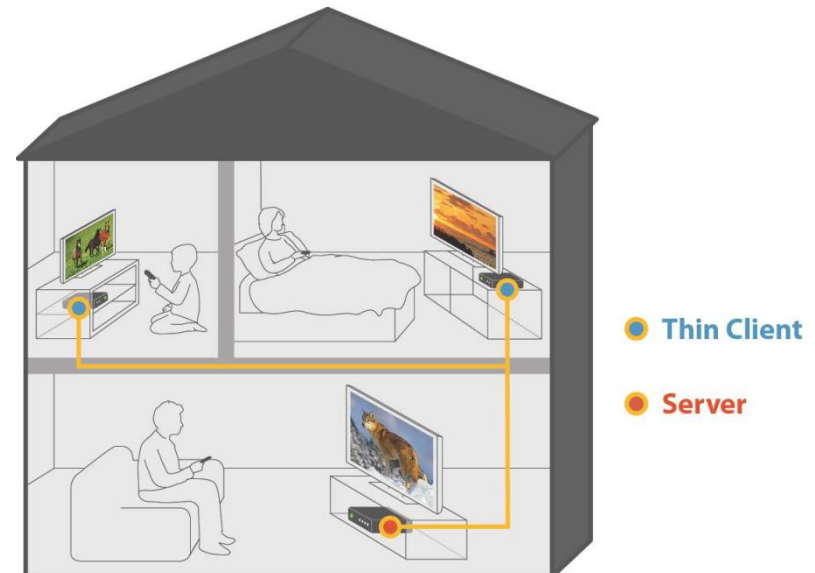


Average increase  
between periods  
= 38%



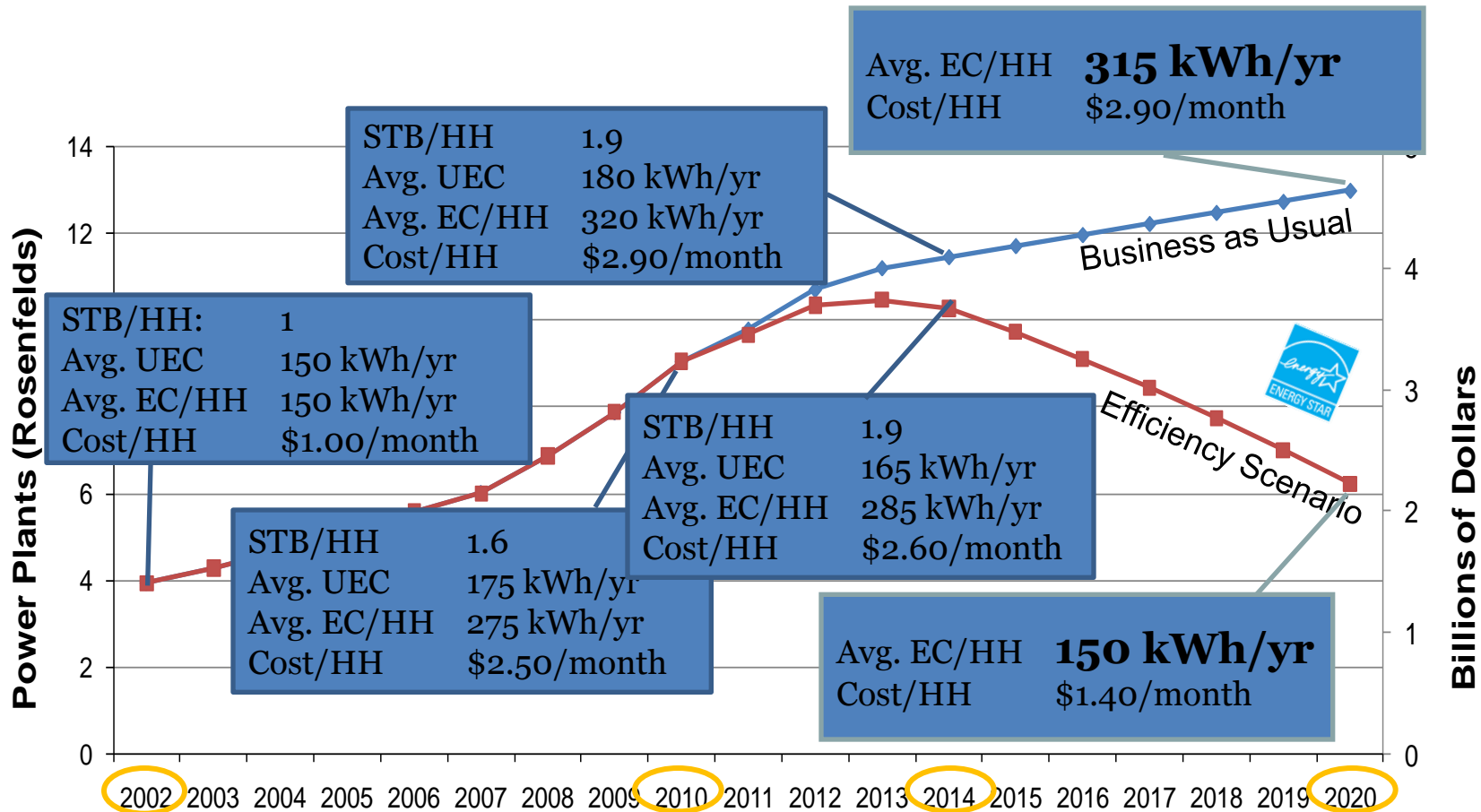
# Multiple Baselines to Consider

- Baseline of energy used per device
  - Important in a one-for-one change out approach
- Baseline of energy used per home
  - Important in a more comprehensive approach that includes multi-room configurations





# Total Energy Consumption Scenarios



Business as Usual maps preliminary projections from NRDC 2010 forward. The Efficiency Scenario plots ENERGY STAR V3.0 adoption from 25% in 2011 to 100% in 2014 followed by a linear reduction in Energy Consumption per Household (EC/HH) to 150 kWh/yr in 2020. UEC = Unit Energy Consumption.



# NJ Program Response and Recommendations for Other Program



# Making the Case: STBs in NJ

- 2.6 million cable subscribers
  - Estimate of 500,000 digital subscribers
- 7 cable service providers
  - Comcast, Cablevision, Verizon, Hometown Online, Service Electric TV of Hunterdon, Service Electric of NJ and Time Warner
- 2 satellite providers
  - DirecTV and Dish Network
- 566 municipalities in NJ
  - 563 municipal franchise areas
- Massive potential for savings
  - Estimate of 94kWh annual savings per year per box
  - 244,400 MWh if all STBs converted to higher efficiency units



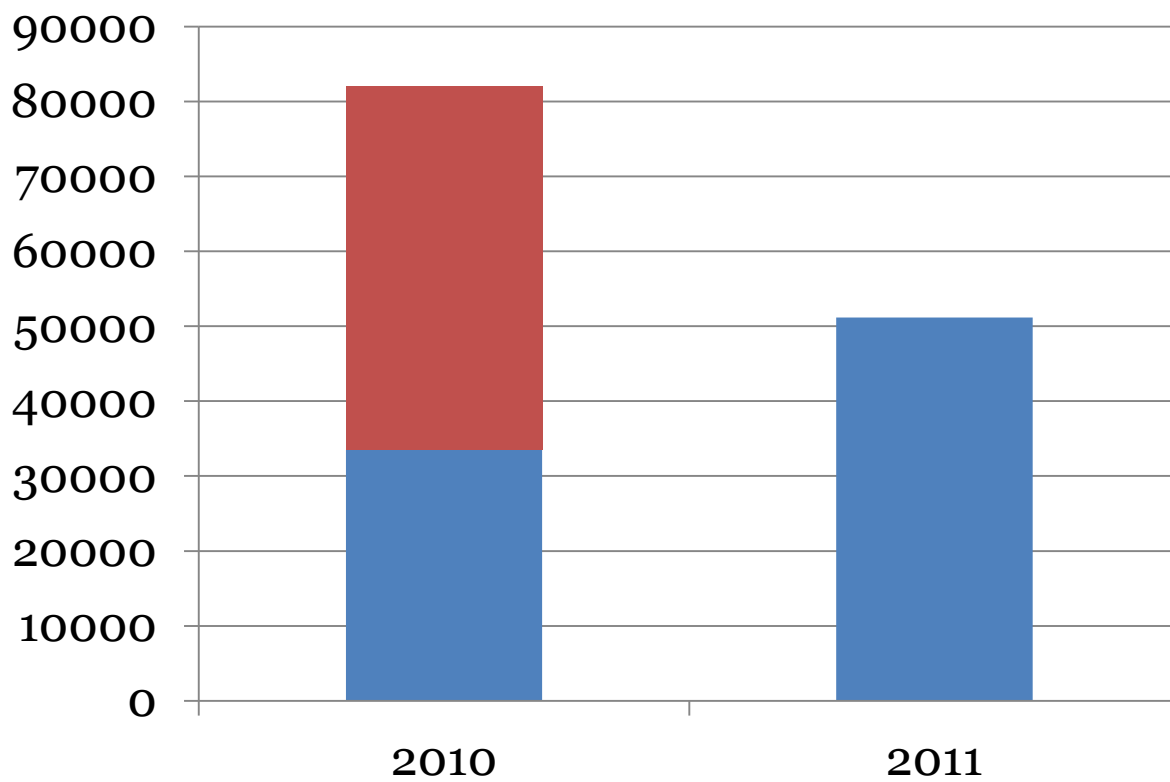


# NJ Program in a Nutshell

- Issued RFP to service providers
- Reviewed responses and selected participants
  - 2010: Largest cable and largest satellite provider
  - 2011: Largest satellite provider
- Worked one-on-one with participants to develop plan
- Energy savings: approximately 100 kWh/yr per STB
- Lifetime: approximately 4 years
- Incentive: approximately \$12/STB
  - Includes incentive to service provider and fee to program implementer



# NJ Program Results to Date



- Total STBs Rebated: 133,146
- Approximate cost/kWh: 3¢



# How We Addressed the Baseline Challenges

- Educated regulators on energy savings opportunity
- Developed RFP approach to limit risk to program
  - Weren't required to award any service provider's proposal
- Initiated partnerships with service providers
  - Helped them understand their individual opportunities
  - Helped them develop an action plan
- Worked with Ecova, NRDC, others to conduct research and compile data based on what we learned...



# National STB Deployments in 2010: Cable

Cable	Installed Base (% of total)	Average Energy Use (kWh/yr )	New STBs (% of total)	Average Energy Use (kWh/yr )
SD	51.7%	131.33	24.6%	126.37
SD-DVR	5.4%	224.59	2.6%	216.37
HD	18.4%	180.97	33.1%	150.36
HD-DVR	24.5%	287.48	39.7%	233.65



# National STB Deployments in 2010: Satellite and Telecom

Satellite	Installed Base (% of total)	Average Energy Use (kWh/yr)	New STBs (% of total)	Average Energy Use (kWh/yr)
SD	61.0%	91.53	61.0%	68.19
HD	17.0%	153.99	17.0%	120.02
DVR	22.0%	307.79	22.0%	247.27
Telecom	Installed Base (% of total)	Average Energy Use (kWh/yr)	New STBs (% of total)	Average Energy Use (kWh/yr)
HD	77.0%	85.09	77.0%	78.81
DVR	23.0%	140.35	23.0%	134.04



# Recommendations for Other Programs

- For STBs, can be difficult to establish baseline up front, but a program was still feasible
  - Focused on communicating the opportunity for savings
  - RFP approach limited risk for regulator
  - Tailored approaches were needed for each service provider
- National level data is now available to justify programs
  - Rulemaking Overview and Preliminary Market and Technology Assessment: Energy Efficiency Program for Consumer Products: Set-top Boxes and Network Equipment, DOE, Jan.2012  
[http://www1.eere.energy.gov/buildings/appliance\\_standards/pdfs/stb\\_framework\\_prelimassessment\\_revised.pdf](http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/stb_framework_prelimassessment_revised.pdf)
  - ENERGY STAR STB Specification Information  
[http://www.energystar.gov/index.cfm?c=revisions.settop\\_box\\_spec](http://www.energystar.gov/index.cfm?c=revisions.settop_box_spec)
  - Upcoming Ecova report for NJ Clean Energy Program





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