Set Top Boxes



CALIFORNIA

TECHNICAL FORUM

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Presentation Overview

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Objective: Seeking TF approval of draft workpaper

- Measure Description
- Workpaper Methodology
- Results
- Issues and Concerns
- Questions or Comments





4/15/2015

Measure Description



• Units: per unit

Measure Application and Delivery Type

- Midstream Incentive (ROB)
- Midstream Incentive (RET)

Eligibility

- Climate Zones: All
- Building Types: Residential Single Family

Target Market

Residential Sector

Market Potential

Estimated as 1,000 boxes being replaced



Measure Description

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Measure Costs

- The following costs are currently unknown
 - Baseline cost (material + labor)
 - Measure cost
 - Incremental cost
- Industry has kept these costs confidential

• EUL

6 year (DEER EUL ID: <u>To be Requested</u>)

• NTG

0.70 (DEER EUL ID: <u>All-Default<=2yrs</u>)



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Workpaper Methodology: Baseline

- Baseline data collection
 - SDG&E Plug Load Study
 - Collected the following parameters from 22 homes
 - Average Active/Inactive STB Power (kW)
 - Hours Watched per Day Active/Inactive Hours
 - M&E Study
 - Experimental Design Found that those customers offered the upgrade offer had upgraded their STB at an 11 times higher rate than the control group who did not receive the same offer.
 - Pay TV Provider
 - Energy usage for non-Energy Star boxes for SD, HD, HD-DVR
- Baseline methodology
 - Yearly Energy Consumption:
 - Yearly Consumption (kWh/year) = [(Average Active Power*Active Hours Watched per Day) + (Average Inactive Power*Inactive Hours per Day)]*(365 days/year)*(1 Watt/kW)



Workpaper Methodology: Measure

- Measure data collection
 - Energy Star Specs
 - × Version 3.0
 - Version 4.1
- Measure methodology
 - Energy Star Specs provide Total Energy Consumption Values for different boxes/features





Workpaper Methodology: Measure

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DEER Interactive Effects

- CFL Interactive effects used as proxy
 - Account for reduce heat load within the home
- Therms will be found from DEER factors
- Coincident Diversity Factor
 - × Found from SDG&E field study

Туре	Average DEER Peak Reduction Factor	
		00.000/
Cable		28.33%
Cable HD		35.56%
Cable HD DVR		24.60%
Satellite		21.09%
Satellite SD DVR		28.69%
Satellite HD DVR		19.58%





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Table of Results – kWh (before interactive effects)

Measure	Baseline kWh	Measure kWh	Yearly kWh Savings
Satellite Non Estar STD Def STB Upgrade To Satellite Thin Client ES 3.0	153	35	118
Satellite Non Estar HD STB Upgrade To Satellite HD (ES 3.0)	196	95	101
Satellite Non Estar HD STB Upgrade To Satellite Thin Client ES 3.0	196	60	136
Satellite Non Estar HD DVR STB Upgrade To Satellite HD (ES 3.0)	243	140	103
Satellite Non Estar HD DVR STB Upgrade To Satellite Thin Client ES 3.0	243	105	138
Satellite Estar 2.0 HD STB Upgrade To Satellite Thin Client ES 3.0	123	60	63
Satellite Estar 2.0 HD DVR STB Upgrade To Satellite Thin Client ES 3.0	183	105	78
Satellite Non Estar STD Def STB Upgrade To Satellite Thin Client ES 4.1	153	30	123
Satellite Non Estar HD STB Upgrade To Satellite HD (ES 4.1)	196	70	126
Satellite Non Estar HD STB Upgrade To Satellite Thin Client ES 4.1	196	35	161
Satellite Non Estar HD DVR STB Upgrade To Satellite HD (ES 4.1)	243	115	128
Satellite Non Estar HD DVR STB Upgrade To Satellite Thin Client ES 4.1	243	80	163
Satellite Estar 2.0 HD STB Upgrade To Satellite Thin Client ES 4.1	123	35	88
Satellite Estar 2.0 HD DVR STB Upgrade To Satellite Thin Client ES 4.1	183	80	103



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Table of Results – kW (before interactive/CDF effects)

Measure	Baseline kW	Measure kW	kW Savings
Satellite Non Estar STD Def STB Upgrade To Satellite Thin Client ES 3.0	0.01751	0.00400	0.01351
Satellite Non Estar HD STB Upgrade To Satellite HD (ES 3.0)	0.02233	0.01084	0.01148
Satellite Non Estar HD STB Upgrade To Satellite Thin Client ES 3.0	0.02233	0.00685	0.01548
Satellite Non Estar HD DVR STB Upgrade To Satellite HD (ES 3.0)	0.02769	0.01598	0.01171
Satellite Non Estar HD DVR STB Upgrade To Satellite Thin Client ES 3.0	0.02769	0.01199	0.01571
Satellite Estar 2.0 HD STB Upgrade To Satellite Thin Client ES 3.0	0.01404	0.00685	0.00719
Satellite Estar 2.0 HD DVR STB Upgrade To Satellite Thin Client ES 3.0	0.02089	0.01199	0.00890
Satellite Non Estar STD Def STB Upgrade To Satellite Thin Client ES 4.1	0.01751	0.00342	0.01408
Satellite Non Estar HD STB Upgrade To Satellite HD (ES 4.1)	0.02233	0.00799	0.01434
Satellite Non Estar HD STB Upgrade To Satellite Thin Client ES 4.1	0.02233	0.00400	0.01833
Satellite Non Estar HD DVR STB Upgrade To Satellite HD (ES 4.1)	0.02769	0.01313	0.01456
Satellite Non Estar HD DVR STB Upgrade To Satellite Thin Client ES 4.1	0.02769	0.00913	0.01856
Satellite Estar 2.0 HD STB Upgrade To Satellite Thin Client ES 4.1	0.01404	0.00400	0.01005
Satellite Estar 2.0 HD DVR STB Upgrade To Satellite Thin Client ES 4.1	0.02089	0.00913	0.01176



Issues and Concerns

Abstract Review Comments from the Cal TF

Program Delivery

SCE's M&E team performed a study to show program influenced adoption of measure through it's incentives

Effective Useful Life

ECOVA study determined life was between 5-7 years

X Measure Cost

Cost information is kept confidential by industry



Issues and Concerns – Future Updates

- Increase monitored sample size
 - Help gain confidence in the data used to calculate savings

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- Cost
 - Find alternate sources for cost information



Questions or Comments?



