

### ESTIMATED GAS SAVINGS

#### ThermWise® Appliance Rebates

<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
92% AFUE natural gas furnace	16.6 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace	20.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
95% AFUE natural gas furnace with ECM	20.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
98% AFUE natural gas furnace with ECM	21.8 Dth/unit	2013 PECI Energy Model Estimate
Gas Storage Water Heater Tier 1	1.71 Dth/unit	2010 Deemed savings reduced by realization rate*
Gas Storage Water Heater Tier 2	3.96 Dth/unit	2010 Deemed savings reduced by realization rate*
Tankless Gas Water Heater Tier 1	8.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Tankless Gas Water Heater Tier 2	9.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	18.7 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	25.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECI Energy Model Estimate
Clothes Washer	1.74 Dth/unit	6 <sup>th</sup> Power Plan (RTF)
Direct Vent natural gas fireplace	10.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
92% AFUE natural gas furnace	5.6 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace	11.3 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace with ECM	11.3 Dth/unit	2013 PECI Energy Model Estimate
98% AFUE natural gas furnace with ECM	12.2 Dth/unit	2013 PECI Energy Model Estimate

\*See Cadmus Phase II Evaluation

Gas Storage Water Heater Tier 1	1.71 Dth/unit	2010 Deemed savings reduced by realization rate*
Gas Storage Water Heater Tier 2	3.96 Dth/unit	2010 Deemed savings reduced by realization rate*
Tankless Gas Water Heater Tier 1	8.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Tankless Gas Water Heater Tier 2	9.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	12.08 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	16.11 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECI Energy Model Estimate
Clothes Washer	1.74 Dth/unit	6 <sup>th</sup> Power Plan (RTF)
Direct Vent natural gas fireplace	4.1 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
<b>ThermWise® Business Rebates</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
Gas Storage Water Heater Tier 1	1.23 Dth/unit	Calculation based upon difference between baseline and minimum efficiency energy factor
Gas Storage Water Heater Tier 2	3.7 Dth/unit	
Gas Storage Water Heater Tier 3	0.175 Dth/unit	
Tankless Gas Water Heaters	0.14 Dth/unit	ENERGY STAR® Residential Water Heaters Specification as of 1/5/09 and Final Criteria Analysis
Clothes Washer	1.74 Dth/unit	Energy Trust of Oregon 2006
Commercial Clothes Washer	2.6 Dth/unit	ENERGY STAR® Commercial Clothes Washer Calculator
Low Flow Pre-Rinse Spray Valve	33.6 Dth/unit	California Urban Water Conservation Council, Rinse & Save Program Evaluation 2005
92% AFUE natural gas furnace	16.6 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace (with & without ECM)	18.1 Dth/unit	ENERGY STAR® Furnace Calculator
98% AFUE natural gas	21.8 Dth/unit	2013 PECI Energy Model Estimate

\*See Cadmus Phase II Evaluation

furnace with ECM		
Boiler (hot water) Tier 1	0.18 Dth/unit	ENERGY STAR® Boiler Calculator
Boiler (hot water) Tier 2	0.34 Dth/unit	
Boiler (steam) Tier 1	0.18 Dth/unit	ENERGY STAR® Boiler Calculator
Boiler (steam) Tier 2	0.074 Dth/unit	
Direct Contact Water Heater	0.23 Dth/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program
Condensing Gas Water Heater	9.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Unit Heater (NonCondensing)	0.06 Dth/unit	PG&E 2004 and ACEEE 2003 Reports
Unit Heater (Condensing)	0.17 Dth/unit	
Infrared Heating System	0.48 Dth/system	1) Gas Networks Savings Estimates 2) GDS Report 3) ASHRAE Research #4643
Boiler Outside Air Reset Control	74.1 Dth/unit	GDS Report 2004 CA Statewide Gas Potential Study Kema-Xenergy 2003
Boiler Tune-up – Tier 1	9.8 Dth/unit	2013 Nexant Engineering Estimate
Boiler Tune-up – Tier 2	48.86 Dth/unit	GDS Report 2004 CA Statewide Gas Potential Study Kema-Xenergy 2003
Boiler Tune-up – Tier 3	.09 Dth/per kBtu	2013 Nexant Engineering Estimate
Gas Fryer	40.4 Dth/unit	ENERGY STAR® Gas Fryer Calculator
Steam Cooker	35.3 Dth/unit	ENERGY STAR® Steam Cooker Calculator
Convection Oven	16.15 Dth/per vat	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Combination Oven	40.3 Dth/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Griddle	8.8 Dth/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Windows site built (new construction)	0.0124 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Windows pre fab (new construction)	0.0208 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Windows site built (retrofit)	0.0267 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Windows prefab (retrofit)	0.0344 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Wall Insulation (new construction)	0.0006 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Wall Insulation (retrofit)	0.004 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline

\*See Cadmus Phase II Evaluation

Roof Insulation (new construction)	0.0013 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Roof Insulation (retrofit)	0.0031 Dth/ sq. ft.	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
<b>ThermWise® Builder Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
ENERGY STAR® 3.0	30.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
High Performance Home	43.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
ThermWise® BOP 1 – (Builder Cert.)	17.1 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
ThermWise® BOP 2 – (Rater Cert.)	21.4 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
92% AFUE natural gas furnace	9.48 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace	11.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
95% AFUE natural gas furnace with ECM	11.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
98% AFUE natural gas furnace with ECM	12.4 Dth/unit	2013 PECI Energy Model Estimate
Gas Storage Water Heater Tier 1	1.71 Dth/unit	2010 Deemed savings reduced by realization rate*
Gas Storage Water Heater Tier 2	3.96 Dth/unit	2010 Deemed savings reduced by realization rate*
Tankless Water Heater Tier 1	8.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Tankless Water Heater Tier 2	9.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	12.08 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	16.11 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECI Engineering Estimate
2X6 R-20 Walls	12.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Windows R-5	0.029 Dth/per sq. ft.	PECI Energy Model (REM/Design v. 12.61)
<b>MULTIFAMILY</b>		

\*See Cadmus Phase II Evaluation

<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
ENERGY STAR® 3.0	14.70 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
High Performance Home	20.70 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
ThermWise® BOP 1 – (Builder Cert.)	6.50 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
ThermWise® BOP 2 – (Rater Cert.)	8.30 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
92% AFUE natural gas furnace	5.6 Dth/unit	2013 PECI Energy Model Estimate
95% AFUE natural gas furnace	6.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
95% AFUE natural gas furnace with ECM	6.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
98% AFUE natural gas furnace with ECM	7.1 Dth/unit	2013 PECI Energy Model Estimate
Gas Storage Water Heater Tier 1	1.71 Dth/unit	2010 Deemed savings reduced by realization rate*
Gas Storage Water Heater Tier 2	3.96 Dth/unit	2010 Deemed savings reduced by realization rate*
Tankless Water Heater Tier 1	8.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Tankless Water Heater Tier 2	9.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	12.08 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	16.11 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECI Engineering Estimate
2X6 R-20 Walls	4.0 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Windows R-5	0.021 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
<b>ThermWise® Home Energy Plan</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
Kitchen Sink Aerator	1.32 Dth/unit	2010 Nexant Engineering Calculation
Pipe Insulation	1.4 Dth/system	DOE Rebuild America Reenergize Energy Efficiency Guidebook

\*See Cadmus Phase II Evaluation

Faucet Aerator	0.44 Dth/unit	DOE Rebuild America Reenergize Energy Efficiency Guidebook
Low Flow Shower Head	5.79 Dth/unit	Nexant 2006 Market Study Report
Programmable Thermostat	2.66 Dth/unit	20% persistence assumption
<b>ThermWise® Weatherization Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
Windows	0.0412	2010 Deemed savings reduced by realization rate*
Windows – R-5	0.0698 Dth/ sq. ft.	Nexant 2011 Engineering Calculation
Wall Insulation	0.0053 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Attic Insulation Tier 1	0.0053 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Attic Insulation Tier 2	0.0013 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Floor Insulation	0.0068 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Duct Sealing & Duct Insulation	13.48 Dth/ System	Nexant 2011 Engineering Calculation
Air Sealing	0.0048 Dth/system	Nexant 2011 Engineering Calculation
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
Windows	0.041 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Windows – R-5	0.0698 Dth/ sq. ft.	Nexant 2011 Engineering Calculation
Wall Insulation	0.0053 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Attic Insulation Tier 1	0.0053 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*

\*See Cadmus Phase II Evaluation

Attic Insulation Tier 2	0.0013 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Floor Insulation	0.0068 Dth/ sq. ft.	2010 Deemed savings reduced by realization rate*
Duct Sealing & Duct Insulation	8 Dth/ system	Nexant 2011 Engineering Calculation
<b>Low Income Assistance Program</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
95% AFUE natural gas furnace (with & without ECM)	20.50 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
<b>ThermWise® Business Custom Rebates</b>		
<b>Measure</b>	<b>Annual Savings</b>	<b>Source</b>
Program Measures	700 Dth/project	2012 Nexant Engineering Estimate

\*See Cadmus Phase II Evaluation

**MEASURE LIFE**

<b>ThermWise® Appliance Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
92% AFUE natural gas furnace	18	2013 PEGI estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PEGI estimate
98% AFUE natural gas furnace with ECM	18	2013 PEGI estimate
Gas Storage Water Heaters	13	2011 PEGI estimate
Tankless Water Heaters	20	2011 PEGI estimate
Condensing Storage Water Heater	13	2011 PEGI estimate
Hybrid Water Heater	15	2011 PEGI estimate
Gas Boilers	20	2011 PEGI estimate
Solar Assisted Gas Water Heaters	20	2011 PEGI estimate
Clothes Washer	14	2011 PEGI estimate
Direct Vent Natural Gas Fireplace	20	2011 PEGI estimate
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
92% AFUE natural gas furnace	18	2013 PEGI estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PEGI estimate
98% AFUE natural gas furnace with ECM	18	2013 PEGI estimate
Gas Storage Water Heaters	13	2011 PEGI estimate
Tankless Water Heaters	20	2011 PEGI estimate
Condensing Storage Water Heater	13	2011 PEGI estimate
Hybrid Water Heater	15	2011 PEGI estimate
Gas Boilers	20	2011 PEGI estimate
Solar Assisted Gas Water Heaters	20	2011 PEGI estimate

\*See Cadmus Phase II Evaluation

Clothes Washer	14	2011 PECE estimate
Direct Vent Natural Gas Fireplace	20	2011 PECE estimate
<b>ThermWise® Business Rebates</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
Gas Storage Water Heaters	15	Calculation based upon difference between baseline and minimum efficiency energy factor
Tankless Gas Water Heaters	15	ENERGY STAR Residential Water Heaters Specification as of 1/5/09 and Final Criteria Analysis
Clothes Washer	10	ENERGY STAR Commercial Clothes Washer Calculator
Commercial Clothes Washer	10	ENERGY STAR Commercial Clothes Washer Calculator
Low Flow Pre-Rinse Spray Valve	5	California Urban Water Conservation Council, Rinse & Save Program Evaluation 2005
92% AFUE natural gas furnace	20	2013 Nexant estimate
95% AFUE natural gas furnace (with & without ECM)	20	ENERGY STAR Furnace Calculator
98% AFUE natural gas furnace with ECM	18	2013 PECE estimate
Boilers (hot water)	20	ENERGY STAR Boiler Calculator
Boilers (steam)	20	ENERGY STAR Boiler Calculator
Direct Contact Water Heater	20	PG&E -CPUC 2004-2005 / Single Family Rebate Program
Condensing Gas Water Heater	15	PECE Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	15	PECE Energy Model (REM/Design v. 12.61)
Unit Heaters	18	PG&E 2004 and ACEEE 2003 Reports
Infrared Heating System	17	1) Gas Networks Savings Estimates, 2) GDS Report, 3) ASHRAE Research #4643
Boiler Outside Air Reset Control	20	GDS Report 2004 CA Statewide Gas Potential Study Kema-Xenergy 2003
Boiler Tune-up (tiers 1, 2, & 3)	2	GDS Report 2004 CA Statewide Gas Potential Study Kema-Xenergy 2003
Gas Fryer	8	ENERGY STAR® Gas Fryer Calculator
Steam Cooker	10	ENERGY STAR® Steam Cooker Calculator
Convection Oven	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Combination Oven	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Griddle	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program

\*See Cadmus Phase II Evaluation

Windows (new construction & retrofit)	35	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Wall Insulation (new construction & retrofit)	35	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
Roof Insulation (new construction & retrofit)	35	DOE-2 modeling against ASHRAE 90.1-2004 Baseline
<b>ThermWise® Builder Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
ENERGY STAR® 3.0	30	2011 PECl estimate
High Performance Home	30	2011 PECl estimate
ThermWise® BOP 1 – (Builder Cert.)	30	2011 PECl estimate
ThermWise® BOP 2 – (Rater Cert.)	30	2011 PECl estimate
92% AFUE natural gas furnace	18	2013 PECl estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECl estimate
98% AFUE natural gas furnace with ECM	18	2013 PECl estimate
Gas Storage Water Heaters	13	2011 PECl estimate
Tankless Water Heaters	20	2011 PECl estimate
Condensing Storage Water Heater	13	2011 PECl estimate
Hybrid Water Heater	15	2011 PECl estimate
Residential Gas Boilers	20	2011 PECl estimate
Solar Assisted Gas Water Heaters	20	2011 PECl estimate
2X6 R-20 Walls	30	2011 PECl estimate
Windows – R-5	30	2011 Nexant estimate
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
ENERGY STAR® 3.0	30	2011 PECl estimate
High Performance Home	30	2011 PECl estimate
ThermWise® BOP 1 – (Builder Cert.)	30	2011 PECl estimate
ThermWise® BOP 2 – (Rater Cert.)	30	2011 PECl estimate
92% AFUE natural gas furnace	18	2013 PECl estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECl estimate

\*See Cadmus Phase II Evaluation

98% AFUE natural gas furnace with ECM	18	2013 PEI estimate
Gas Storage Water Heaters	13	2011 PEI estimate
Tankless Water Heaters	20	2011 PEI estimate
Condensing Storage Water Heater	13	2011 PEI estimate
Hybrid Water Heater	15	2011 PEI estimate
Gas Boilers	20	2011 PEI estimate
Solar Assisted Gas Water Heaters	20	2011 PEI estimate
2X6 R-20 Walls	30	2011 PEI estimate
Windows – R-5	30	2011 Nexant estimate
<b>ThermWise® Home Energy Plan</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
Kitchen Sink Aerator	10	DOE Rebuild America Reenergize Energy Efficiency Guidebook
Pipe Insulation	10	DOE Rebuild America Reenergize Energy Efficiency Guidebook
Faucet Aerator	10	DOE Rebuild America Reenergize Energy Efficiency Guidebook
Low Flow Shower Head	10	Nexant 2006 Market Study Report
Programmable Thermostat	15	Nexant 2006 Market Study Report
<b>ThermWise® Weatherization Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
Windows	25	RMP Home Energy Savings Program Filing 2006
Windows – R-5	30	2011 Nexant estimate
Wall Insulation	35	RMP Home Energy Savings Program Filing 2006
Attic Insulation	35	RMP Home Energy Savings Program Filing 2006
Floor Insulation	35	RMP Home Energy Savings Program Filing 2006
Duct Sealing & Duct Insulation	20	RMP Home Energy Savings Program Filing 2006
Air Sealing	20	Nexant 2011 Engineering Calculation
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
Windows	25	RMP Home Energy Savings Program Filing 2006
Windows – R-5	30	2011 Nexant estimate

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Wall Insulation	35	RMP Home Energy Savings Program Filing 2006
Attic Insulation	35	RMP Home Energy Savings Program Filing 2006
Floor Insulation	35	RMP Home Energy Savings Program Filing 2006
Duct Sealing & Duct Insulation	20	RMP Home Energy Savings Program Filing 2006
<b>Low Income Assistance Program</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECl estimate
<b>ThermWise® Business Custom Rebates</b>		
<b>Measure</b>	<b>Lifetime</b>	<b>Source</b>
Program Measures	15	Database for Energy Efficient Resources, Revised/Updated EULs Based on Retention and Persistence Studies Results, SERA July 2005

### INCREMENTAL COST

<b>ThermWise® Appliance Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
92% AFUE natural gas furnace	\$277/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
98% AFUE natural gas furnace with ECM	\$1,105/unit	2013 Questar Gas furnace survey
Gas Storage Water Heater Tier 1	\$100/unit	2011 PECl estimate
Gas Storage Water Heater Tier 2	\$400/unit	2011 PECl estimate
Tankless Gas Water Heater Tier 1	\$750/unit	2011 PECl estimate
Tankless Gas Water Heater Tier 2	\$1,345/unit	2011 PECl estimate
Condensing Storage Water Heater	\$1,150/unit	2011 PECl estimate
Hybrid Water Heater	\$1,238/unit	2011 PECl estimate

\*See Cadmus Phase II Evaluation

Gas Boiler Tier 1	\$1,550/unit	2011 PECE estimate
Gas Boiler Tier 2	\$1,550/unit	2011 PECE estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2011 PECE estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2012 PECE estimate
Clothes Washer	\$100/unit	2011 PECE estimate
Direct Vent natural gas fireplace	\$500/unit	2011 PECE estimate
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
92% AFUE natural gas furnace	\$277/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
98% AFUE natural gas furnace with ECM	\$1,105/unit	2013 Questar Gas furnace survey
Gas Storage Water Heater Tier 1	\$100/unit	2011 PECE estimate
Gas Storage Water Heater Tier 2	\$400/unit	2011 PECE estimate
Tankless Water Heater Tier 1	\$750/unit	2011 PECE estimate
Tankless Water Heater Tier 2	\$1,345/unit	2011 PECE estimate
Condensing Storage Water Heater	\$1,150/unit	2011 PECE estimate
Hybrid Water Heater	\$1,238/unit	2011 PECE estimate
Gas Boiler Tier 1	\$1,550/unit	2011 PECE estimate
Gas Boiler Tier 2	\$1,550/unit	2011 PECE estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2011 PECE estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2012 PECE estimate
Clothes Washer	\$100/unit	2011 PECE estimate
Direct Vent natural gas fireplace	\$500/unit	2011 PECE estimate
<b>ThermWise® Business Rebates</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
Gas Storage Water Heater Tier 1	\$100/unit	GDS Report 2004

\*See Cadmus Phase II Evaluation

Gas Storage Water Heater Tier 2	\$400/unit	ENERGY STAR Residential Water Heaters Specification as of 1/5/09 and Final Criteria Analysis
Gas Storage Water Heater Tier 3	\$6.78/kBtu	PG&E -CPUC 2004-2005 / Single Family Rebate Program
Tankless Gas Water Heaters	\$4.24/kBtu	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Clothes Washer	\$100/unit	Aligned w/ Appliance Program
Commercial Clothes Washer	\$300/unit	Energy Star Commercial Clothes Washer Calculator, confirmed with CEE
Low Flow Pre-Rinse Spray Valve	\$50/unit	California Urban Water Conservation Council, Rinse & Save Program Evaluation, 2005
92% AFUE natural gas furnace	\$277/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
98% AFUE natural gas furnace with ECM	\$1,105/unit	2013 Questar Gas furnace survey
Boilers (hot water)	\$5.08/kBTU	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
	\$6.50/kBTU	
Boilers (steam)	\$5.08/kBTU	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Direct Contact Water Heater	\$2.17/kBTU	PG&E -CPUC 2004-2005 / Single Family Rebate Program
Condensing Storage Water Heater	\$1,150/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	\$1,238/unit	PECI Energy Model (REM/Design v. 12.61)
Unit Heater (Non Condensing)	\$2.50/kBTU	Analysis of Standard Options for Unit Heaters and Duct Furnaces (PG&E 2004)
Unit Heater (Condensing)	\$12.00/kBTU	
Infrared Heating System	\$11.43/kBTU	Cost review based upon Vendor Costs (Grainger)
Boiler Outside Air Reset Control	\$835/unit	2004-2005 California DEER Database
Boiler Tune-up – Tier 1	\$300	2013 Nexant Engineering Estimate
Boiler Tune-up – Tier 2	\$600	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Boiler Tune-up – Tier 2	\$0.50/per kBtu	2013 Nexant Engineering Estimate
Gas Fryer	\$3,796/unit	ENERGY STAR® Gas Fryer Calculator
Steam Cooker	\$6,221/unit	ENERGY STAR Steam Cooker Calculator
Convection Oven	\$1,572/per vat	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Combination Oven	\$21,797/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Griddle	\$4,575/unit	PG&E -CPUC 2006-2008 / Single Family Rebate

\*See Cadmus Phase II Evaluation

		Program
Windows (new construction & retrofit)	\$0.55 sq. ft.	GDS 2004
Wall Insulation (new construction & retrofit)	\$0.06 sq. ft.	Database for Energy Efficient Resources (DEER), California Energy Commission (CEC), and California Public Utilities Commission (CPUC). 2006.
	\$0.64 sq. ft.	
Roof Insulation (new construction & retrofit)	\$0.07 sq. ft.	Database for Energy Efficient Resources (DEER), California Energy Commission (CEC), and California Public Utilities Commission (CPUC). 2006.
	\$0.34 sq. ft.	
<b>ThermWise® Builder Rebates</b>		
<b>SINGLE FAMILY</b>		
Measure	Incremental Cost	Source
ENERGY STAR® 3.0	\$2,700/unit	2011 PEI estimate
High Performance Home	\$5,180/unit	2011 PEI estimate
ThermWise® BOP 1 – (Builder Cert.)	\$800/unit	2011 PEI estimate
ThermWise® BOP 2 – (Rater Cert.)	\$1,000/unit	2011 PEI estimate
92% AFUE natural gas furnace	\$277/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
98% AFUE natural gas furnace with ECM	\$1,105/unit	2013 Questar Gas furnace survey
Gas Storage Water Heater Tier 1	\$100/unit	2011 PEI estimate
Gas Storage Water Heater Tier 2	\$400/unit	
Tankless Gas Water Heater Tier 1	\$750/unit	2011 PEI estimate
Tankless Gas Water Heater Tier 2	\$1,345/unit	
Condensing Storage Water Heater	\$1,150/unit	2011 PEI estimate
Hybrid Water Heater	\$1,238/unit	2011 PEI estimate
Gas Boiler Tier 1	\$550/unit	2011 PEI estimate
Gas Boiler Tier 2	\$1,550/unit	2011 PEI estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2011 PEI estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2012 PEI estimate

\*See Cadmus Phase II Evaluation

2X6 R-20 Walls	\$1,000/unit	2011 PECl estimate
Windows – R-5	\$6/ sq. ft.	2011 Nexant estimate
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
ENERGY STAR® 3.0	\$2,700/unit	2011 PECl estimate
High Performance Home	\$4,600/unit	2011 PECl estimate
ThermWise® BOP 1 – (Builder Cert.)	\$450/unit	2011 PECl estimate
ThermWise® BOP 2 – (Rater Cert.)	\$550/unit	2011 PECl estimate
92% AFUE natural gas furnace	\$277/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
98% AFUE natural gas furnace with ECM	\$1,105/unit	2013 Questar Gas furnace survey
Gas Storage Water Heater Tier 1	\$100/unit	2011 PECl estimate
Gas Storage Water Heater Tier 2	\$400/unit	
Tankless Gas Water Heater Tier 1	\$750/unit	2011 PECl estimate
Tankless Gas Water Heater Tier 2	\$1,345/unit	
Condensing Storage Water Heater	\$1,150/unit	2011 PECl estimate
Hybrid Water Heater	\$1,238/unit	2011 PECl estimate
Gas Boiler Tier 1	\$550/unit	2011 PECl estimate
Gas Boiler Tier 2	\$1,550/unit	2011 PECl estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2011 PECl estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2012 PECl estimate
2X6 R-20 Walls	\$600/unit	2011 PECl estimate
Windows – R-5	\$6/ sq. ft.	2011 Nexant estimate
<b>ThermWise® Home Energy Plan</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
Kitchen Sink Aerator	\$3/unit	Niagara Conservation

\*See Cadmus Phase II Evaluation

Pipe Insulation	\$4/unit	US Department of Energy's Rebuild America Reenergize Energy Efficiency Guidebook
Faucet Aerator	\$3/unit	Niagara Conservation
Low Flow Shower Head	\$6/unit	Nexant 2006 Market Study Report
Programmable Thermostat	\$39/unit	Nexant 2006 Market Study Report
<b>ThermWise® Weatherization Rebates</b>		
<b>SINGLE FAMILY</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
Windows	\$1.30/sq.ft.	RMP Home Energy Savings Program Filing 1
Windows – R-5	\$6.00/sq.ft.	2011 Nexant estimate
Wall Insulation	\$0.64/sq.ft .	RMP Home Energy Savings Program Filing 1
Attic Insulation	Tier 1 - \$0.34/sq.ft .	2009 Weatherization Participant Data and Insulation Vendor Estimates
	Tier 2 - \$0.11/sq.ft.	
Floor Insulation	\$0.42/sq.ft.	RMP Home Energy Savings Program Filing 1
Duct Sealing & Duct Insulation	\$657/system	RMP Home Energy Savings Program Filing 1 & Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Air Sealing	\$0.40/sq.ft.	2011 Nexant estimate
<b>MULTIFAMILY</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
Windows	\$1.30/sq.ft.	RMP Home Energy Savings Program Filing 1
Windows – R-5	\$6.00/sq.ft.	2011 Nexant estimate
Wall Insulation	\$0.64/sq.ft.	RMP Home Energy Savings Program Filing 1
Attic Insulation	Tier 1 - \$0.34/sq.ft.	2009 Weatherization Participant Data and Insulation Vendor Estimates
	Tier 2 - \$0.11/sq.ft.	
Floor Insulation	\$0.42/sq.ft.	RMP Home Energy Savings Program Filing 1
Duct Sealing & Duct Insulation	\$273/system	RMP Home Energy Savings Program Filing 1 & Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
<b>Low Income Assistance Program</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>
95% AFUE natural gas furnace	\$370/unit	2013 Questar Gas furnace survey
95% AFUE natural gas furnace with ECM	\$1,063/unit	2013 Questar Gas furnace survey
<b>ThermWise® Business Custom Rebates</b>		
<b>Measure</b>	<b>Incremental Cost</b>	<b>Source</b>

\*See Cadmus Phase II Evaluation

Program Measures	\$10,000/project	2012 estimate
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\*See Cadmus Phase II Evaluation