

ESTIMATED GAS SAVINGS

ThermWise® Appliance Rebates

SINGLE FAMILY

Measure	Annual Savings	Source
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 th Power Plan (RTF)
Direct Vent natural gas fireplace	10.8 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Smart Thermostat	8.6 Dth/unit	2014 PECI Energy Model Estimate

MULTIFAMILY

Measure	Annual Savings	Source
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

*See Cadmus Phase II Evaluation

98% AFUE natural gas furnace with ECM	12.2 Dth/unit	2013 PECE 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	1.2 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Tankless Gas Water Heater Tier 2	1.8 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	12.08 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	16.11 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECE Energy Model Estimate
Clothes Washer	1.74 Dth/unit	6 th Power Plan (RTF)
Direct Vent natural gas fireplace	4.1 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Smart Thermostat	4.0 Dth/unit	2014 PECE Energy Model Estimate
ThermWise® Business Rebates		
Measure	Annual Savings	Source
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 PECE Energy Model Estimate

*See Cadmus Phase II Evaluation

95% AFUE natural gas furnace (with & without ECM)	18.1 Dth/unit	ENERGY STAR® Furnace Calculator
98% AFUE natural gas furnace with ECM	21.8 Dth/unit	2013 PECO Energy Model Estimate
Gas Boiler (Hot Water) Tier 1	0.18 Dth/unit	ENERGY STAR® Boiler Calculator
Gas Boiler (Hot Water) Tier 2 ≥ 300,000 < 2,500,000	0.34 Dth/unit	ENERGY STAR® Boiler Calculator
Gas Boiler (Hot Water) ≥ 2,500,000 BTU/h	0..27 Dth/unit	ENERGY STAR® Boiler Calculator
Gas Boiler (steam) Tier 1	0.18 Dth/unit	ENERGY STAR® Boiler Calculator
Gas Boiler(Steam) (Except Natural Draft) ≥ 300,000 Btu/h	0.11 Dth/unit	ENERGY STAR® Boiler Calculator
Gas Boiler (Steam) (Natural Draft) ≥ 300,000 Btu/h	0.18 Dth/unit	ENERGY STAR® Boiler Calculator
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	PECO Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECO Energy Model (REM/Design v. 12.61)
Combined Space / Water Heater	18.7 Dth/unit	2014 Nexant Engineering Estimate
Residential Clothes Washers Tier 1 (MEF2.2)	.67 Dth/unit	2014 Nexant Engineering Estimate
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
Modulating Infrared Heaters (NC or Replacing Non IR)	.55 Dth/unit	2014 Nexant Engineering Estimate
Modulating Infrared Heaters (Replacing Non IR)	.07 Dth/unit	2014 Nexant Engineering Estimate
Condensing RTU's	.41 Dth/unit	2014 Nexant Engineering Estimate

*See Cadmus Phase II Evaluation

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
Smart Thermostat	10.0 Dth/unit	2014 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
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
ThermWise® Builder Rebates		
SINGLE FAMILY		
Measure	Annual Savings	Source
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 10% better than code	13.3 Dth/unit	2014 PECI Energy Model Estimate
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)

*See Cadmus Phase II Evaluation

98% AFUE natural gas furnace with ECM	12.4 Dth/unit	2013 PECE 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	PECE Energy Model (REM/Design v. 12.61)
Tankless Water Heater Tier 2	9.6 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	9.2 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	10.2 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 1	12.08 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Gas Boiler Tier 2	16.11 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (domestic)	17.5 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Solar Assisted Gas Water Heating (pool)	68.9 Dth/unit	2012 PECE Engineering Estimate
2X6 R-20 Walls	12.8 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
Windows R-5	0.029 Dth/per sq. ft.	PECE Energy Model (REM/Design v. 12.61)
Smart Thermostat	4.3 Dth/unit	2014 PECE Energy Model Estimate
MULTIFAMILY		
Measure	Annual Savings	Source
ENERGY STAR® 3.0	14.70 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
High Performance Home	20.70 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
ThermWise 10% better than code	8.05 Dth/unit	2014 PECE Energy Model Estimate
92% AFUE natural gas furnace	5.6 Dth/unit	2013 PECE Energy Model Estimate
95% AFUE natural gas furnace	6.5 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
95% AFUE natural gas furnace with ECM	6.5 Dth/unit	PECE Energy Model (REM/Design v. 12.61)
98% AFUE natural gas furnace with ECM	7.1 Dth/unit	2013 PECE Energy Model Estimate
Gas Storage Water Heater Tier 1	1.40 Dth/unit	2010 Deemed savings reduced by realization rate*
Gas Storage Water Heater Tier 2	2.10 Dth/unit	2010 Deemed savings reduced by realization rate*
Tankless Water Heater Tier 1	1.0 Dth/unit	PECE Energy Model (REM/Design v. 12.61)

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Tankless Water Heater Tier 2	1.6 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Condensing Storage Water Heater	6.2 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
Hybrid Water Heater	6.2 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)
Smart Thermostat	1.7 Dth/unit	2014 PECI Energy Model Estimate
ThermWise® Home Energy Plan		
Measure	Annual Savings	Source
Kitchen Sink Aerator	1.32 Dth/unit	2010 Nexant Engineering Calculation
Pipe Insulation	1.4 Dth/system	DOE Rebuild America Reenergize Energy Efficiency Guidebook
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
ThermWise® Weatherization Rebates		
SINGLE FAMILY		
Measure	Annual Savings	Source
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*

*See Cadmus Phase II Evaluation

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
MULTIFAMILY		
Measure	Annual Savings	Source
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	8 Dth/ system	Nexant 2011 Engineering Calculation
Low Income Assistance Program		
Measure	Annual Savings	Source
95% AFUE natural gas furnace (with & without ECM)	20.50 Dth/unit	PECI Energy Model (REM/Design v. 12.61)
<p>Note: An approved non-profit or governmental organization may apply for rebates under the ThermWise® Appliance and Weatherization programs for qualifying measures listed in sections 2.10 and 2.14 of the Tariff.</p>		

*See Cadmus Phase II Evaluation

ThermWise® Business Custom Rebates		
Measure	Annual Savings	Source
Program Measures	1150 Dth/project	2014 Nexant Engineering Estimate
ThermWise® Energy Comparison Report		
Measure	Annual Savings	Source
Energy Comparison Report	0.53 Dth/report	2014 Questar Gas Model Estimate

*See Cadmus Phase II Evaluation

MEASURE LIFE

ThermWise® Appliance Rebates		
SINGLE FAMILY		
Measure	Lifetime	Source
92% AFUE natural gas furnace	18	2013 PECE estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECE estimate
98% AFUE natural gas furnace with ECM	18	2013 PECE estimate
Gas Storage Water Heaters	13	2011 PECE estimate
Tankless Water Heaters	20	2011 PECE estimate
Condensing Storage Water Heater	13	2011 PECE estimate
Hybrid Water Heater	15	2011 PECE estimate
Gas Boilers	20	2011 PECE estimate
Solar Assisted Gas Water Heaters	20	2011 PECE estimate
Clothes Washer	14	2011 PECE estimate
Direct Vent Natural Gas Fireplace	20	2011 PECE estimate
Smart Thermostat	15	2014 PECE estimate
MULTIFAMILY		
Measure	Lifetime	Source
92% AFUE natural gas furnace	18	2013 PECE estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECE estimate
98% AFUE natural gas furnace with ECM	18	2013 PECE estimate
Gas Storage Water Heaters	13	2011 PECE estimate
Tankless Water Heaters	20	2011 PECE estimate
Condensing Storage Water Heater	13	2011 PECE estimate
Hybrid Water Heater	15	2011 PECE estimate
Gas Boilers	20	2011 PECE estimate

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Solar Assisted Gas Water Heaters	20	2011 PECE estimate
Clothes Washer	14	2011 PECE estimate
Direct Vent Natural Gas Fireplace	20	2011 PECE estimate
Smart Thermostat	15	2014 PECE estimate
ThermWise® Business Rebates		
Measure	Lifetime	Source
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
Gas Boiler (hot water) ≥ 2,500,000 Btu/h	15	2014 Nexant estimate
Boilers (steam)	20	ENERGY STAR Boiler Calculator
Gas Boiler (Steam) Except Natural Draft	15	2014 Nexant estimate
Gas Boiler (Steam) Natural Draft	15	2014 Nexant estimate
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)
Combined Space / Water Heater	10	2014 Nexant estimate
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

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Modulating Infrared Heaters (NC or Replacing Non IR)	17	2014 Nexant estimate
Modulating Infrared Heaters (Replacing Non IR)	17	2014 Nexant estimate
Condensing RTU's	15	2014 Nexant estimate
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
Smart Thermostat	15	2014 PECE estimate
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
Windows (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
ThermWise® Builder Rebates		
SINGLE FAMILY		
Measure	Lifetime	Source
ENERGY STAR® 3.0	30	2011 PECE estimate
High Performance Home	30	2011 PECE estimate
ThermWise 10% or Better Than Code	18	2014 PECE estimate
92% AFUE natural gas furnace	18	2013 PECE estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECE estimate
98% AFUE natural gas furnace with ECM	18	2013 PECE estimate
Gas Storage Water Heaters	13	2011 PECE estimate
Tankless Water Heaters	20	2011 PECE estimate
Condensing Storage Water Heater	13	2011 PECE estimate
Hybrid Water Heater	15	2011 PECE estimate

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Residential Gas Boilers	20	2011 PECE estimate
Solar Assisted Gas Water Heaters	20	2011 PECE estimate
2X6 R-20 Walls	30	2011 PECE estimate
Windows – R-5	30	2011 Nexant estimate
Smart Thermostat	15	2014 PECE estimate
MULTIFAMILY		
Measure	Lifetime	Source
ENERGY STAR® 3.0	30	2011 PECE estimate
High Performance Home	30	2011 PECE estimate
ThermWise 10% or Better Than Code	18	2014 PECE estimate
92% AFUE natural gas furnace	18	2013 PECE estimate
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECE estimate
98% AFUE natural gas furnace with ECM	18	2013 PECE estimate
Gas Storage Water Heaters	13	2011 PECE estimate
Tankless Water Heaters	20	2011 PECE estimate
Condensing Storage Water Heater	13	2011 PECE estimate
Hybrid Water Heater	15	2011 PECE estimate
Gas Boilers	20	2011 PECE estimate
Solar Assisted Gas Water Heaters	20	2011 PECE estimate
2X6 R-20 Walls	30	2011 PECE estimate
Windows – R-5	30	2011 Nexant estimate
Smart Thermostat	15	2014 PECE estimate
ThermWise® Home Energy Plan		
Measure	Lifetime	Source
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
ThermWise® Weatherization Rebates		

*See Cadmus Phase II Evaluation

SINGLE FAMILY		
Measure	Lifetime	Source
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
MULTIFAMILY		
Measure	Lifetime	Source
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
Low Income Assistance Program		
Measure	Lifetime	Source
95% AFUE natural gas furnace (with & without ECM)	18	2011 PECEI estimate
ThermWise® Business Custom Rebates		
Measure	Lifetime	Source
Program Measures	15	Database for Energy Efficient Resources, Revised/Updated EULs Based on Retention and Persistence Studies Results, SERA July 2005
ThermWise® Energy Comparison Report		
Measure	Lifetime	Source
Program Measures	1	2014 Questar Gas Energy Comparison Report estimate

*See Cadmus Phase II Evaluation

INCREMENTAL COST

ThermWise® Appliance Rebates		
SINGLE FAMILY		
Measure	Incremental Cost	Source
92% AFUE natural gas furnace	\$238/unit	2014 PECEI estimate
95% AFUE natural gas furnace	\$182/unit	2014 PECEI estimate
95% AFUE natural gas furnace with ECM	\$873/unit	2014 PECEI estimate
98% AFUE natural gas furnace with ECM	\$1,105/unit	2014 PECEI estimate
Gas Storage Water Heater Tier 1	\$130/unit	2014 PECEI estimate
Gas Storage Water Heater Tier 2	\$161/unit	2014 PECEI estimate
Tankless Gas Water Heater Tier 1	\$350/unit	2014 PECEI estimate
Tankless Gas Water Heater Tier 2	\$601/unit	2014 PECEI estimate
Condensing Storage Water Heater	\$1,082/unit	2014 PECEI estimate
Hybrid Water Heater	\$1,413/unit	2014 PECEI estimate
Gas Boiler Tier 1	\$452/unit	2014 PECEI estimate
Gas Boiler Tier 2	\$1,123/unit	2014 PECEI estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2014 PECEI estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2014 PECEI estimate
Clothes Washer	\$68/unit	2014 PECEI estimate
Direct Vent natural gas fireplace	\$500/unit	2014 PECEI estimate
Smart Thermostat	\$220/unit	2014 PECEI estimate
MULTIFAMILY		
Measure	Incremental Cost	Source
92% AFUE natural gas furnace	\$238/unit	2014 PECEI estimate
95% AFUE natural gas furnace	\$182/unit	2014 PECEI estimate
95% AFUE natural gas furnace with ECM	\$873/unit	2014 PECEI estimate
98% AFUE natural gas furnace with ECM	\$1,328/unit	2014 PECEI estimate

*See Cadmus Phase II Evaluation

Gas Storage Water Heater Tier 1	\$130/unit	2014 PECE estimate
Gas Storage Water Heater Tier 2	\$161/unit	2014 PECE estimate
Tankless Water Heater Tier 1	\$350/unit	2014 PECE estimate
Tankless Water Heater Tier 2	\$6025/unit	2014 PECE estimate
Condensing Storage Water Heater	\$1,082/unit	2014 PECE estimate
Hybrid Water Heater	\$1,413/unit	2014 PECE estimate
Gas Boiler Tier 1	\$452/unit	2014 PECE estimate
Gas Boiler Tier 2	\$1,123/unit	2014 PECE estimate
Solar Assisted Gas Water Heating (domestic)	\$4,500/unit	2014 PECE estimate
Solar Assisted Gas Water Heating (pool)	\$2,250/unit	2014 PECE estimate
Clothes Washer	\$68/unit	2014 PECE estimate
Direct Vent natural gas fireplace	\$500/unit	2014 PECE estimate
Smart Thermostat	\$220/unit	2014 PECE estimate
ThermWise® Business Rebates		
Measure	Incremental Cost	Source
Gas Storage Water Heater Tier 1	\$100/unit	GDS Report 2004
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	\$200/unit	2014 Nexant Engineering Estimate
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

*See Cadmus Phase II Evaluation

Boilers (hot water)	\$5.08/kBTU	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
	\$6.50/kBTU	
Boilers (steam)	\$4.22/kBTU	2014 Nexant Engineering Estimate
	\$5.08/kBTU	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
	\$5.39/kBTU	2014 Nexant Engineering Estimate
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)
Combined Space / Water Heater	\$4,645/unit	2014 Nexant Engineering Estimate
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)
Modulating Infrared	\$25/unit	2014 Nexant Engineering Estimate
	\$75/unit	
Condensing RTU's	\$25/unit	2014 Nexant Engineering Estimate
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
Smart Thermostat	\$225/unit	2014 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 Program
Windows (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.
	\$0.20 sq. ft.	

*See Cadmus Phase II Evaluation

ThermWise® Builder Rebates		
SINGLE FAMILY		
Measure	Incremental Cost	Source
ENERGY STAR® 3.0	\$1,920/unit	2014 PECl estimate
High Performance Home	\$4,230/unit	2014 PECl estimate
ThermWise 10% better than code	\$500/unit	2014 PECl estimate
92% AFUE natural gas furnace	\$238/unit	2014 PECl estimate
95% AFUE natural gas furnace	\$182/unit	2014 PECl estimate
95% AFUE natural gas furnace with ECM	\$873/unit	2014 PECl estimate
98% AFUE natural gas furnace with ECM	\$1,328/unit	2014 PECl estimate
Gas Storage Water Heater Tier 1	\$130/unit	2014 PECl estimate
Gas Storage Water Heater Tier 2	\$161/unit	
Tankless Gas Water Heater Tier 1	\$750/unit	2014 PECl estimate
Tankless Gas Water Heater Tier 2	\$1,345/unit	
Condensing Storage Water Heater	\$1,082/unit	2014 PECl estimate
Hybrid Water Heater	\$1,413/unit	2014 PECl estimate
Gas Boiler Tier 1	\$452/unit	2014 PECl estimate
Gas Boiler Tier 2	\$161/unit	2014 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	\$1,000/unit	2011 PECl estimate
Windows – R-5	\$6/ sq. ft.	2011 Nexant estimate
Smart Thermostat	\$220/unit	2014 Nexant estimate
MULTIFAMILY		
Measure	Incremental Cost	Source
ENERGY STAR® 3.0	\$1,920/unit	2014 PECl estimate
High Performance Home	\$4,230/unit	2014 PECl estimate

*See Cadmus Phase II Evaluation

ThermWise 10% better than code	\$300/unit	2014 PEI Estimate
92% AFUE natural gas furnace	\$238/unit	2014 PEI Estimate
95% AFUE natural gas furnace	\$182/unit	2014 PEI Estimate
95% AFUE natural gas furnace with ECM	\$873/unit	2014 PEI Estimate
98% AFUE natural gas furnace with ECM	\$1,105/unit	2014 PEI Estimate
Gas Storage Water Heater Tier 1	\$130/unit	2014 PEI estimate
Gas Storage Water Heater Tier 2	\$161/unit	
Tankless Gas Water Heater Tier 1	\$350/unit	2014 PEI estimate
Tankless Gas Water Heater Tier 2	\$601/unit	
Condensing Storage Water Heater	\$1,082/unit	2014 PEI estimate
Hybrid Water Heater	\$1,413/unit	2014 PEI estimate
Gas Boiler Tier 1	\$452/unit	2014 PEI estimate
Gas Boiler Tier 2	\$1,123/unit	2014 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
2X6 R-20 Walls	\$600/unit	2011 PEI estimate
Windows – R-5	\$6/ sq. ft.	2011 Nexant estimate
Smart Thermostat	\$220/unit	2014 PEI estimate
ThermWise® Home Energy Plan		
Measure	Incremental Cost	Source
Kitchen Sink Aerator	\$3/unit	Niagara Conservation
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
ThermWise® Weatherization Rebates		
SINGLE FAMILY		

*See Cadmus Phase II Evaluation

Measure	Incremental Cost	Source
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
MULTIFAMILY		
Measure	Incremental Cost	Source
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)
Low Income Assistance Program		
Measure	Incremental Cost	Source
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
ThermWise® Business Custom Rebates		
Measure	Incremental Cost	Source
Program Measures	\$10,000/project	2012 estimate
ThermWise® Energy Comparison Report		
Measure	Incremental Cost	Source
Program Measures	\$1.57/project	2014 Questar Gas Energy Comparison Report estimate

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