

ESTIMATED GAS SAVINGS

ThermWise Appliance Rebates		
Measure	Annual Savings	Source
Clothes Washer Tier 1	1.58 DTH/unit	Energy Trust of Oregon 2006
Clothes Washer Tier 2	2.04 DTH/unit	
Clothes Dryer	1.02 DTH/unit	GDS Report 2004
Standard Water Heater	1.90 DTH/unit	GDS Report 2004
Tankless Water Heater	10.20 DTH/unit	Pacific Gas & Electric Davis Energy Group 2004
High-Efficiency Furnace	14.20 DTH/unit	ENERGY STAR® Furnace Calculator http://energystar.gov/index.cfm?c=furnaces.pr_furnaces
Residential Gas Boiler	17.90 DTH/unit	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	15.00 DTH/unit	Utah Clean Energy "Introduction to Utah Clean Energy's Proposed Solar Water Heating Incentive"
ThermWise Business Rebates		
High-Efficiency Storage Gas Water Heater	1.23 DTH/unit	Calculation based upon difference between baseline and minimum efficiency energy factor
	13.13 DTH/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Tankless Gas Water Heater	10.58 DTH/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Clothes Washer	1.58 DTH/unit	Energy Trust of Oregon 2006
	2.04 DTH/unit	
	7.70 DTH/unit	ENERGY STAR Commercial Clothes Washer Calculator
Gas Clothes Dryer	1.02 DTH/unit	GDS Report 2004
Low Flow Pre-Rinse Spray Valve	33.60 DTH/unit	California Urban Water Conservation Council, Rinse & Save Program Evaluation 2005
High-Efficiency Gas Furnace	14.20 DTH/unit	ENERGY STAR Furnace Calculator
	16.20 DTH/unit	
	18.10 DTH/unit	
Boiler (hot water)	17.96 DTH/unit	ENERGY STAR Boiler Calculator
	101.79 DTH/unit	
Boiler (steam)	17.96 DTH/unit	ENERGY STAR Boiler Calculator
	22.34 DTH/unit	
Direct Contact Water Heater	1603.00 DTH/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program

High-Efficiency Unit Heater	12.14 DTH/unit	PG&E 2004 and ACEEE 2003 Reports
	37.32 DTH/unit	
Infrared Heating System	28.88 DTH/system	1) Gas Networks Savings Estimates 2) GDS Report 3) ASHRAE Research #4643
Programmable Thermostat	11.50 DTH/unit	DOE Study, located at: http://www.eere.energy.gov/consumer/your_home/space_heating_cooling/index.cfm/mytopic=12720
Boiler Outside Air Reset Control	74.10 DTH/unit	GDS Report 2004
Boiler Tune-up	48.86 DTH/unit	CA Statewide Gas Potential Study Kema-Xenergy 2003
Food Service – Gas Fryer	40.40 DTH/unit	ENERGY STAR® Gas Fryer Calculator
Food Service – Steam Cooker	35.30 DTH/unit	ENERGY STAR Steam Cooker Calculator
Food Service – High Efficiency Convection Oven	32.30 DTH/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Combination Oven	40.30 DTH/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Griddle	8.80 DTH/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Building Shell – Windows	85.80 DTH/unit	DOE2 modeling against ASHRAE 90.1 2004 Baseline
Building Shell – Wall Insulation	13.60 DTH /unit	DOE2 modeling against ASHRAE 90.1 2004 Baseline
Building Shell – Roof Insulation	19.50 DTH/unit	DOE2 modeling against ASHRAE 90.1 2004 Baseline
ThermWise Builder Rebates		
Standard Gas Water Heater	1.90 DTH/unit	GDS Report 2004
Tankless Gas Water Heater	10.2 DTH/unit	Pacific Gas & Electric by Davis Energy Group 2004
High-Efficiency Furnace	9.10 DTH/unit	ENERGY STAR Furnace Calculator
ENERGY STAR Home	23.42 DTH/home	RMP Cost Effective Inputs for ENERGY STAR Homes Program
High Performance Home	33.08 DTH/home	Estimate using REMrate modeling from Energy Inspectors
Residential Gas Boiler	17.90 DTH/unit	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	15.00 DTH/unit	Utah Clean Energy “Introduction to Utah Clean Energy’s Proposed Solar Water Heating Incentive”

ThermWise Home Energy Audits		
Water Heater Blanket	2.2 DTH/ system	Nexant 2006 Market Study Report
Pipe Insulation	1.40 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		
Windows	0.042 DTH/ sq. ft.	RESFEN V3.1.02 - Baseline window selection #301 vs. program minimum efficiency requirements for Salt Lake City
Wall Insulation	0.007 DTH/ sq. ft.	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Attic Insulation	0.007 DTH/ sq. ft.	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Floor Insulation	0.009 DTH/ sq. ft.	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Duct Sealing	5.700 DTH/ system	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Duct Insulation	8.950 DTH/ system	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Programmable Thermostat	2.66 DTH/unit	ENERGY STAR® with 20% persistence assumption
Low Income Weatherization Program		
High-Efficiency Gas Furnace	14.20 DTH/unit	ENERGY STAR Furnace Calculator
ThermWise Business Custom Rebates		
Program Measures	307.9 DTH/project	Extrapolated from GDS Report 2004 and weighted for anticipated participant mix from 2006 commercial GS usage.

ThermWise Multifamily Rebates		
Gas Storage Water Heater	1.90 DTH/unit	GDS Report 2004
ENERGY STAR® Clothes Washer	1.58 DTH/unit	Energy Trust of Oregon 2006
Gas Clothes Dryer	1.02 DTH/unit	DSM Market Characterization Report
Gas Furnace	6.77 DTH/unit	Calculation using baseline single-family home per unit savings of 14.2 Dth for 2,200 sq. ft. multiplied by 1,050 sq. ft. for a multi-family unit.
Gas Boiler	17.90 DTH/unit	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Wall Insulation	.007 DTH/ sq. ft.	DSM Market Characterization Report
Floor Insulation	.009 DTH/ sq. ft.	DSM Market Characterization Report
Attic Insulation	.007 DTH/ sq. ft.	DSM Market Characterization Report
Replacement Windows	.0420 DTH/ sq. ft.	DSM Market Characterization Report
ENERGY STAR Multifamily	10.65 DTH/unit	Rocky Mountain Power Cost Effectiveness Inputs for ENERGY STAR Homes Program

MEASURE LIFE

ThermWise Appliance Rebates		
Measure	Lifetime	Source
Clothes Washer Tier 1	14	"Colorado DSM Market Potential Assessment." Prepared for Xcel Energy by KEMA, Inc. and Quantum Consulting 2006
Clothes Washer Tier 2	14	"Colorado DSM Market Potential Assessment." Prepared for Xcel Energy by KEMA, Inc. and Quantum Consulting 2006
Clothes Dryer	12	Gas Deemed Savings Database, Nexant 2004
Standard Water Heater	15	GDS Report 2004
Tankless Water Heater	20	Pacific Gas & Electric by Davis Energy Group 2004
High-Efficiency Furnace	20	GDS Report 2004
Residential Gas Boiler	20	ENERGY STAR® Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	25	Utah Clean Energy "Introduction to Utah Clean Energy's Proposed Solar Water Heating Incentive"
ThermWise Business Rebates		
High-Efficiency Storage Gas Water Heater	15	GDS Report 2004
	15	
High-Efficiency Tankless Gas Water Heater	15	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Clothes Washer	10	ENERGY STAR Commercial Clothes Washer Calculator
	10	
	10	
Gas Clothes Dryer	12	Nexant Estimate
Low Flow Pre-Rinse Spray Valve	5	CEE
High-Efficiency Gas Furnace	20	GDS Report 2004
	20	
	20	
Boiler (hot water)	20	GDS Report 2004
	20	
Boiler (steam)	20	GDS Report 2004
	20	
Direct Contact Water Heater	20	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Unit Heater	18	Natural Gas Efficiency and Conservation Measure Resource Assessment (ETO, 2003)

	18	Natural Gas Efficiency and Conservation Measure Resource Assessment (ETO, 2003)
Infrared Heating System	17	GDS Report 2004
Programmable Thermostat	15	ENERGY STAR® Programmable Thermostat Calculator
Boiler Outside Air Reset Control	20	Measure life assumed to be same as EMS measure life from "California Statewide Commercial Natural Gas Energy Efficiency Potential Study" (Kema-Xenergy, 2003).
Boiler Tune-up	2	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Food Service – Gas Fryer	8	ENERGY STAR Gas Fryer Calculator
Food Service – Steam Cooker	10	ENERGY STAR Steam Cooker Calculator
Food Service – High Efficiency Convection Oven	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Combination Oven	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Griddle	12	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Building Shell – Windows	35	GDS Report 2004
Building Shell – Wall Insulation	35	GDS Report 2004
Building Shell – Roof Insulation	20	GDS Report 2004
ThermWise Builder Rebates		
Standard Water Heater	15	GDS Report 2004
Tankless Water Heater	20	Pacific Gas & Electric by Davis Energy Group 2004
High-Efficiency Furnace	20	GDS Report 2004
ENERGY STAR Home	44	Rocky Mountain Power Cost Effective Inputs for ENERGY STAR Homes Program 2006
High Performance Home	44	Rocky Mountain Power Cost Effective Inputs for ENERGY STAR Homes Program 2006
Residential Gas Boiler	20	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	25	Utah Clean Energy "Introduction to Utah Clean Energy's Proposed Solar Water Heating Incentive"
ThermWise Home Energy Audits		
Water Heater Blanket	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		
Windows	25	RMP Home Energy Savings Program Filing 2006
Wall Insulation	45	RMP Home Energy Savings Program Filing 2006
Attic Insulation	45	RMP Home Energy Savings Program Filing 2006
Floor Insulation	45	RMP Home Energy Savings Program Filing 2006
Duct Sealing	20	RMP Home Energy Savings Program Filing 2006
Duct Insulation	20	Based on Duct Sealing Lifecycle
Programmable Thermostat	15	Nexant 2006 Market Study Report
Low Income Weatherization Program		
High-Efficiency Furnace	20	GDS Report 2004
ThermWise Business Custom Rebates		
Program Measures	15	Database for Energy Efficient Resources, Revised/Updated EULs Based on Retention and Persistence Studies Results, SERA July 2005
ThermWise Multifamily Rebates		
Gas Storage Water Heater	15	GDS Report 2004
ENERGY STAR® Clothes Washer	14	Colorado DSM Market Potential Assessment 2006
Gas Clothes Dryer	12	Gas Deemed Savings Database, Nexant
Gas Furnace	20	GDS Report 2004
Gas Boiler	20	ENERGY STAR® Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Wall Insulation	45	Rocky Mountain Power Cost Effective Inputs for Home Energy Savings Program
Floor Insulation	45	Rocky Mountain Power Cost Effective Inputs for Home Energy Savings Program
Attic Insulation	45	Rocky Mountain Power Cost Effective Inputs for Home Energy Savings Program
Replacement Windows	25	Rocky Mountain Power Cost Effective Inputs for Home Energy Savings Program
ENERGY STAR Multifamily	44	Rocky Mountain Power Cost Effectiveness Inputs for ENERGY STAR Homes Program

INCREMENTAL COST

ThermWise Appliance Rebates		
Measure	Incremental Cost	Source
Clothes Washer Tier 1	\$108.45/unit	RMP Cost Effective Inputs for Home Energy Savings Program 2006
Clothes Washer Tier 2	\$130.58/unit	
Clothes Dryer	\$50/unit	Gas Deemed Savings Database, Nexant 2004
Standard Water Heater	\$100/unit	GDS Report 2004
Tankless Water Heater	\$800/unit	Energy Trust of Oregon 2006
High-Efficiency Furnace	\$675/unit	Database for Energy Efficient Resources (DEER). California Energy Commission and California Public Utilities Commission 2006
Residential Gas Boiler	\$1,300/unit	ENERGY STAR® Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	\$6,000/unit	Utah Clean Energy "Introduction to Utah Clean Energy's Proposed Solar Water Heating Incentive"
ThermWise Business Rebates		
High-Efficiency Storage Gas Water Heater	\$100/unit	GDS Report 2004
	\$509/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Tankless Gas Water Heater	\$318/unit	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
High-Efficiency Clothes Washer	\$98/unit	Aligned w/ Res Program
	\$120/unit	
	\$300/unit	Energy Star Commercial Clothes Washer Calculator, confirmed with CEE
Gas Clothes Dryer	\$50/unit	Nexant estimate
Low Flow Pre-Rinse Spray Valve	\$50/unit	California Urban Water Conservation Council, Rinse & Save Program Evaluation, 2005
High-Efficiency Gas Furnace	\$675/unit	2004-2005 California DEER Database
	\$777/unit	
	\$876/unit	
Boiler (hot water)	\$508/unit	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
	\$1,950/unit	
Boiler (steam)	\$508/unit	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)

	\$1,524/unit	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Direct Contact Water Heater	\$15,190/unit	PG&E -CPUC 2004-2005 / Single Family Rebate Program
High-Efficiency Unit Heater	\$550/unit	Analysis of Standard Options for Unit Heaters and Duct Furnaces (PG&E 2004)
	\$2,640/unit	Analysis of Standard Options for Unit Heaters and Duct Furnaces (PG&E 2004)
Infrared Heating System	\$686/unit	Cost review based upon Vendor Costs (Grainger)
Programmable Thermostat	\$52/unit	Cost based upon Deemed Customer Cost for RMP's FinAnswer Express Program
Boiler Outside Air Reset Control	\$835/unit	2004-2005 California DEER Database
Boiler Tune-up	\$600/unit	CA Statewide Gas Potential Study (Kema-Xenergy, 2003)
Food Service – Gas Fryer	\$3,796/unit	ENERGY STAR® Gas Fryer Calculator
Food Service – Steam Cooker	\$6,221/unit	ENERGY STAR Steam Cooker Calculator
Food Service – High Efficiency Convection Oven	\$3,144/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Combination Oven	\$21,797/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Food Service – High Efficiency Griddle	\$4,575/unit	PG&E -CPUC 2006-2008 / Single Family Rebate Program
Building Shell – Windows	\$3,314/installation	GDS Report 2004
Building Shell – Wall Insulation	\$595/installation	Database for Energy Efficient Resources (DEER). California Energy Commission (CEC) and California Public Utilities Commission (CPUC). 2006.
Building Shell – Roof Insulation	\$946/installation	Database for Energy Efficient Resources (DEER). California Energy Commission (CEC) and California Public Utilities Commission (CPUC). 2006.
ThermWise Builder Rebates		
Standard Water Heater	\$100/unit	GDS Report 2004
Tankless Water Heater	\$800/unit	Energy Trust of Oregon 2006.
High-Efficiency Furnace	\$675/unit	Database for Energy Efficient Resources (DEER). California Energy Commission (CEC) and California Public Utilities Commission (CPUC). 2006.
ENERGY STAR Home	\$1,265.97/unit	RMP Cost Effective Inputs for ENERGY STAR Homes Program
High Performance Home	\$3,000/unit	Rocky Mountain Power Cost Effective Inputs for ENERGY STAR Homes Program 2006

Residential Gas Boiler	\$1,300/unit	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers
Solar Assisted Gas Water Heating	\$6,000/unit	Utah Clean Energy "Introduction to Utah Clean Energy's Proposed Solar Water Heating Incentive"
ThermWise Home Energy Audits		
Water Heater Blanket	\$14/unit	Nexant 2006 Market Study Report
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	\$6.20/unit	Nexant 2006 Market Study Report
ThermWise Weatherization Rebates		
Windows	\$1.30/ sq. ft.	RMP Home Energy Savings Program Filing 1
Wall Insulation	\$0.64/sq. ft.	RMP Home Energy Savings Program Filing 1
Attic Insulation	\$0.50/sq. ft.	RMP Home Energy Savings Program Filing 1
Floor Insulation	\$0.42/sq. ft.	RMP Home Energy Savings Program Filing 1
Duct Sealing	\$310.12/unit	RMP Home Energy Savings Program Filing 1
Duct Insulation	\$347.27/unit	Lawrence Berkeley National Laboratory Home Energy Saver (Salt Lake City)
Programmable Thermostat	\$39.39/unit	Nexant 2006 Market Study Report
ThermWise Business Custom Rebates		
Program Measures	\$25/Dth saved	Nexant estimate extrapolated from GDS Report 2004
ThermWise Multifamily Rebates		
Gas Storage Water Heater	\$100/unit	GDS Report 2004
ENERGY STAR® Clothes Washer	\$108/unit	Rocky Mountain Cost Effective Inputs for Home Energy Savings Program
Gas Clothes Dryer	\$50/unit	Gas Deemed Savings Database, Nexant
Gas Furnace	\$675/unit	Database for Energy Efficient Resources (DEER)
Gas Boiler	\$1,300/unit	ENERGY STAR Boiler Savings Calculator http://energystar.gov/index.cfm?c=boilers.pr_boilers

Wall Insulation	\$0.64/sq. ft.	DSM Market Characterization Report
Floor Insulation	\$0.42/sq. ft.	DSM Market Characterization Report
Attic Insulation	\$0.50/sq. ft.	DSM Market Characterization Report
Replacement Windows	\$1.30/sq. ft.	DSM Market Characterization Report
ENERGY STAR® Multifamily	\$881/unit	Rocky Mountain Power Cost Effectiveness Inputs for ENERGY STAR Homes Program