

Metric	Data/	
	Calculations	Units
Typical Bay Area Home in Foreclosure		
Bay Area homes that went into foreclosure in the past 12 months	103,707	Units
Square footage of typical foreclosed home	1,730	Sq. Ft.
Square footage of typical single-family home built in 1960s and 1970s	1,575	Sq. Ft.
Electricity Consumption & GHG Savings		
Estimated Electricity Consumption per Sq. Ft. for typical Bay Area single-family home built 1960s, 1970s	51,500	BTU/Year/Sq. Ft.
conversion	3,412,141.63	BTU/MWh
Estimated Electricity Consumption of a typical Bay Area single-family home in foreclosure	26.12	MWh/Year/Unit
conversion	524	lbs CO2/MWh
conversion	2,204.62	lbs/metric tons
Estimated GHG emissions from electricity from a typical Bay Area single-family home in foreclosure	6.21	MtCO2e per year per unit
Estimated GHG emissions from electricity attributed to Bay Area foreclosed homes	643,742	MtCO2e per ye
Natural Gas Consumption & GHG Savings		
Estimated NG Consumption per per Sq. Ft. for typical Bay Area single-family home built 1960s, 1970s	95,000	BTU/Year/Sq. Ft.

conversion	100,000	BTU/Therm
Estimated NG Consumption of a typical Bay Area single-family home in foreclosure	1,644	Therm/Year/Ur
CO2 intensity of NG	13.446	lbs CO2/Therm
conversion	2,204.62	lbs/metric tons
Estimated GHG emissions from NG from a typical Bay Area single-family home in foreclosure	10.03	MtCO2e per year per unit
Estimated GHG emissions from NG attributed to Bay Area foreclosed homes	1,039,721	MtCO2e per ye
Estimated annual GHG emissions from a typical Bay Area single-family home in foreclosure	16.23	Metric tons of CO2e/Year/Unit
Estimated annual GHG emissions attributed to Bay Area foreclosed homes	1,683,463	Metric tons of CO2/Year
GHG Savings from "Basic Package" Energy Upgrades		
Typical Energy Savings from "Basic Package" Energy Upgrades	12.5%	
Estimated electricity savings per home	3.26	MWh/Year/Unit
Estimated NG savings per home	205	Therm/Year/Ur
Potential GHG savings per Bay Area single-family home in foreclosure	2.03	MtCO2e/Year/Unit
Projected units foreclosed in 2012	100,000	Units
Theoretical % upgraded	10.0%	
Theoretical units upgraded	10,000	Units
Estimated electricity savings	32,645	MWh/Year
Estimated NG savings	2,054,755	Therm/Year
Potential GHG savings	20,291	MtCO2e/Year

Cost of basic package upgrade per home	\$ 2,000	\$/unit
Estimated electricity savings for a typical Bay Area single-family home in foreclosure	3.26	MWh/Year/Unit
PG&E Electricity Rate	\$ 2.54	\$/MWh
Estimated electricity savings for a typical Bay Area single-family home in foreclosure	\$ 8.29	\$/Year/Unit
Estimated NG savings for a typical Bay Area single-family home in foreclosure	205.48	Therm/Year/Unit
PG&E NG Rate	\$ 0.06528	\$/Therm
Estimated NG savings for a typical Bay Area single-family home in foreclosure	\$ 13.41	\$/Year/Unit
Estimated cost savings for a typical Bay Area single-family home in foreclosure	\$ 21.71	\$/Year/Unit
Estimated payback (in years)	92.14	Years
Estimated cost savings for Bay Area foreclosed homes	\$ 217,053	\$/Year

Bay Area Climate Collaborative
 Bridge to the Clean Economy
www.BridgeToCleanEconomy.org
 May-12

Comments

Extrapolated from data.

According to a sample audit completed on www.foreclosureradar.com (see Bridge to Clean Economy v0.28 p.69), a typical foreclosed single family home is 1,730 square feet and was built nearly 50 years ago, making most of them ideal targets for energy upgrades having been built prior to Title 24 (implemented in California in 1978) and of a size making energy upgrades not especially difficult.

The closest comparison to a typical foreclosed home in California -- with average of 1,717 square footage and nearly 50 years ago (built around 1962) -- was extrapolated from averaging 1960s and 1970s data. For the purposes of this research, energy consumption (space heating and cooling and water heating) data from homes built in 1960s and 1970s will be used to represent the typical foreclosed home in the Bay Area.

Estimated using electricity consumption of single-family homes built in the 1960s and 1970s in Sacramento, CA, extrapolated from data. While Sacramento is warmer than the Bay Area on average, the climate difference is nominal compared to San Jose and some parts of East Bay (where many of the foreclosed properties are).

BTU to MWh conversion: 1 kWh = 3,412,141.63 BTU

California Public Utilities Commission (CPUC)-approved ClimateSmart electric emissions rate of 0.524 lbs CO₂ per kWh — This reasonable approximation is based on the average emissions rate for PG&E's electric portfolio

Conversion of lbs of CO₂e to MtCO₂e

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Estimated using NG consumption of single-family homes built in the 1960s and 1970s in Sacramento, CA, extrapolated from data. While Sacramento is warmer than the Bay Area on average, the climate difference is nominal compared to San Jose and some parts of East Bay (where many of the foreclosed properties are).

Conversion of BTU to therms: 1 Therm = 100,000 BTU

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PG&E emissions rate (natural gas): 13.446 lbs CO₂ per therm

Conversion of lbs of CO₂e to MtCO₂e

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Using the data from above (~100,000 homes went into foreclosure in the past 12 months).

The "modeled" energy savings for a basic package install are estimated at 10-15% This is based on research done both by the Dept of Energy and the CA Energy Commission. Please keep in mind that this is a software model and there is no accounting for changes in occupant behavior, and the size of the

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Assuming half of the foreclosed homes in the Bay Area in the past 12 months are upgraded (~100,000 homes went into foreclosure in the past 12 months), these are the potential GHG savings.

Basic package jobs tend to run around \$3-\$5K, but that really depends on the contractor, of course. The thing we have found is that no one is doing basic packages because people tend to want to maximize their rebate potential, and because the basic package is prescriptive, which disqualifies many homeowners who may have insulated their hot water pipes, or recently put in attic insulation, for example. Having these features already installed "bumps" people into the advanced pathway.

Calculated using estimated electricity consumption of a typical Bay Area single-family home in foreclosure and the typical energy savings (12.5%) from an energy upgrade

PG&E's ClimateSmart program, authorized by the California Public Utilities Commission in Decision 06-12-032, \$0.00254 per kWh

Calculated using estimated NG consumption of a typical Bay Area single-family home in foreclosure and the typical energy savings (12.5%) from an energy upgrade

PG&E's ClimateSmart program, authorized by the California Public Utilities Commission in Decision 06-12-032

Assuming of the foreclosed homes in the Bay Area in the past 12 months are upgraded, these are the estimated annual savings associated with electricity and NG savings.

Sources

<http://www.realtytrac.com/trendcenter/ca>

See "California Homes Energy Data" tab

See "California Homes Energy Data" tab

<http://www.asknumbers.com/mwh-to-btu.aspx>

<http://www.pge.com/about/environment/calculator/assumptions.shtml>

<https://www.google.com/search?sourceid=chrome&ie=UTF-8&q=metric+tons+to+lbs>

See "California Homes Energy Data" tab

<http://www.physics.uci.edu/~silverma/units.html>

<http://www.pge.com/about/environment/calculator/assumptions.shtml>

<https://www.google.com/search?sourceid=chrome&ie=UTF-8&q=metric+tons+to+lbs>

Ecology Action, February 2012

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<http://www.pge.com/about/environment/calculator/assumptions.shtml>

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