



BARBADOS

COOL DOWN THE PLANET – HEAT UP YOUR ECONOMY

Energy efficiency improvement for cooling appliances

1

NATIONAL ANNUAL SAVINGS ACHIEVABLE WITH AN IMPROVED POLICY FRAMEWORK



Save electric energy worth **12 million US\$**



Reduce CO₂ emissions by **53 thousand tonnes**



Reduce electricity use

→ by over **68 GWh**

→ more than **6%** of current national electricity use

... equivalent to

29,000

passenger cars



... equivalent to

1 power plant

[10 MW]



2

SHARES IN SAVINGS FROM EACH PRODUCT



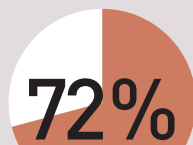
Domestic Refrigerators



20%



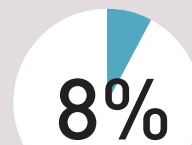
Room air Conditioners



72%



Ceiling Fans



8%

3

POTENTIAL ANNUAL SAVINGS PER HOUSEHOLD (assuming the use of one of each products)



Reduce electricity use

→ by over **1,380 kWh**



Save on electricity bills by **240 US\$**

THE PATHWAY TO ENERGY EFFICIENCY

Country Specific Data and Input Assumptions for Barbados



efficient appliances
& equipment

Global Partnership Programme




GENERAL INFORMATION

Population	283,221
GDP per capita	14,917 US\$
Electrification level	99 %

ELECTRICITY MARKET

Electricity tariff	0.176 US\$ / kWh
CO ₂ Emission Factor	0.65 kg / kWh
Transmission and distribution loss factor	16 %

BASELINE OF CURRENT PRODUCTS

Product	Price (USD)	Unit Energy Consumption (kWh / year)	Appliance Lifetime (years)	Type of Product
 Air conditioners	650	2,556	12	Window / wall air conditioner with 3.5 kW (12,000 Btu / hour or 1 ton) cooling capacity
 Fans	100	88	10	Ceiling fan
 Refrigerators	600	485	15	2-door top-mount 300-liter refrigerator-freezer

METHODOLOGY

The analysis uses CLASP's Policy Analysis Modeling System (PAMS) to forecast the impacts from implementing policies that improve the energy efficiency of new household air conditioners, refrigerators, and ceiling fans. It is assumed policies are implemented in 2020 and saving potentials are from 2030. The potential savings are based on a best-available technology scenario, including all expenditures associated with purchase and use of the product.

ASSUMPTIONS AND DATA SOURCES

- **Population and GDP per capita data** (2012) comes from the World Bank.
- **Electrification level** was provided by country representatives (when available) and the International Energy Agency (IEA).
- **Market size** was determined by data provided by country representatives (when available); industry partners; International Copper Association (ICA); UN Comtrade database; Inter-American Development Bank; household penetration forecasts generated by PAMS from population, climate, and macroeconomic indicators.
- **Baseline price, unit energy consumption (UEC), appliance lifetime** were provided by country representatives (when available); industry partners; ICA; and Lawrence Berkeley National Laboratory. The business-as-usual scenario assumes a 1 per cent annual improvement in UEC.
- **Electricity tariff** was provided by country representatives (when available); IEA; and internet research.
- **Transmission and distribution loss factor** is a regional average calculated from electricity production and consumption data published by the International Energy Agency (IEA).
- **CO₂ Emission Factor** was provided by UNEP and extrapolations were made by CLASP for seven small island nations.
- **Consumer discount rate** was derived from the Human Development Index, United Nations Development Programme (2012). The rate varies by country from 7% to 13%, with less developed countries having higher rates.



in support of

SUSTAINABLE
ENERGY FOR ALL



BARBADOS



ENERGY EFFICIENCY POLICY ASSESSMENT For cooling appliances



DOMESTIC REFRIGERATORS

	Policy in place	Policy type	Mandatory or voluntary	In force
Energy efficiency standards				
Supporting policies				
Monitoring, verification and enforcement				
Environmentally sound management				

Comment:

The government developed a public sector energy efficiency program in 2007 for public government buildings for efficient refrigeration.



ROOM AIR CONDITIONERS

	Policy in place	Policy type	Mandatory or voluntary	In force
Energy efficiency standards				
Supporting policies				
Monitoring, verification and enforcement				
Environmentally sound management				

Comment:

The government developed a public sector energy efficiency program in 2007 for public government buildings for efficient air conditioning.



CEILING FANS

	Policy in place	Policy type	Mandatory or voluntary	In force
Energy efficiency standards				
Supporting policies				
Monitoring, verification and enforcement				
Environmentally sound management				

Comment:

No information available.