

Project documents



Ministry of Commerce
Science & Technology
Government of Jamaica

Renewable energies potential in Jamaica

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Prepared in collaboration with the Ministry of
Commerce, Science and Technology of Jamaica

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Contents

Abstract	7
Background	9
Introduction.....	11
I. Current energy situation in Jamaica.....	15
1. Energy balance	15
2. Public electricity sector	16
3. Supply of Liquefied Natural Gas (LNG)	20
4. Rural electrification	20
II. Renewable energy policy	21
1. Energy sector policy and strategy of 1995.....	21
2. Co-generation policy 1995-1998.....	22
3. Redesigning the jamaican energy policy	23
III. Wind energy.....	27
IV. Hydropower	31
V. Biomass energy.....	34
1. Sugar industry in Jamaica.....	34
2. Cogeneration from bagasse.....	36
3. Bioethanol perspectives	40
4. Fuelwood.....	45
5. Energy from organic waste	46
VI. Solar energy and other renewable energy technologies	52
1. Solar radiation in Jamaica.....	52
2. Solar water heating	53
3. Photovoltaics.....	55
4. Other renewable energy technologies	55
VII. Carbon market perspectives for Jamaica.....	57
1. Clean development mechanism under the Kyoto Protocol.....	57
2. Emission trading system in the European Union	58
3. Carbon market perspectives in Jamaica.....	60
VIII. Proposal for instruments & actions.....	63
Bibliography.....	67
Annexes	75
Box 1 Wigton wind farm	76
Box 2 Frome sugar factory.....	77

Box 3	Ethanol facts and figures	78
Box 4	Ethanol fuel programmes in different countries	79
Box 5	CDM procedures	80
Box 6	Small scale CDM (SSC) projects	81
Box 7	Outline of the CDM project cycle	82
Table A-1	Main stakeholders in Jamaica	83

Abbreviations

ACP	African, Caribbean, Pacific (states)
BTU	British Thermal Unit
CAF	Corporación Andina de Fomento
CARICOM	Caribbean Common Market
CBI	Caribbean Basin Initiative
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
GCT	General Consumption Tax
CREDP	Caribbean Renewable Energy Development Programme
DFP	Demonstration Fuelwood Project
DNA	Designated National Authority
DOE	Designated Operational Entity
DSM	Demand Side Management
EAU	European Allowance Unit
EIA	Environmental Impact Assessment
ETBE	Ethyl-Tertiary-Butyl-Ether
EU	European Union
EU-ETS	European Union – Emission Trading System
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEF	Global Environment Facility
GTZ	Gesellschaft für Technische Zusammenarbeit
GWP	Global Warming Potential
IEC	International Electrotechnical Commission
IPP	Independent Power Producer
JEP	Jamaica Energy Partners
JPPC	Jamaica Private Power Company
JPSCo	Jamaica Public Service Company Limited
LAC	Latin America and Caribbean
LCEP	Least Cost Expansion Plan
LNG	Liquid Natural Gas
LPG	Liquefied Petroleum Gas
MTBE	Methyl-Tertiary-Butyl-Ether
NAP	National Allocation Plan
NEPA	National Environment and Planning Agency
NSWMA	National Solid Waste Management Act
OTEC	Ocean Thermal Energy Conversion
OUR	Office of Utilities Regulation
PCJ	Petroleum Corporation of Jamaica
PDD	Project Design Document
PCF	Prototype Carbon Fund
PV	Photovoltaic
REP	Rural Electrification Programme Ltd.
RFS	Renewable Fuels Standard
SCJ	Sugar Company of Jamaica
SRC	Scientific Research Council

SSC	Small Scale CDM
SWH	Solar Water Heater
TCD	Tonnes of Cane per Day
TES	Total Energy Supply
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
UWI	University of the West Indies

Average exchange rate in 2004: 60 \$J for 1 US\$

Abstract

Jamaica has abundant renewable energy sources (RES), which have hardly been tapped in the past and could provide for large shares of the future energy requirements. In 2005, around 5% of the expected 4,020 GWh of electricity produced will be based on RES (wind and hydropower). With the new planned target of a share of 15% RES electricity by 2012, a combined renewable capacity of about 175 MW would need to be installed in that year.

There is further wind potential on Jamaica, even if no exact figures can be given on the magnitude of the exploitable wind potential. Nonetheless, it seems realistic that within the next years three more wind farms of about 20 MW each could be erected.

Several hydropower sites have been examined in the past with all but one being of minor scale. New hydropower plants can be economical under current conditions if generation costs do not exceed about 6 US-cents per kWh.

One of the largest renewable energy potentials for electricity generation is to be found in the sugar processing industry. With the installation of new high-pressure boilers and improvements in the energy efficiency of the sugar plants, more than 220 GWh/year of excess electricity could be supplied to the public grid.

Up to 10% of gasoline can be substituted by bioethanol or its derivate ETBE without modifications to the vehicle engines. Most favourable for bioethanol production in the case of Jamaica is the use of sugar cane.

Currently solar water heaters cover only about 1% of the domestic market (private houses). An estimated 75 to 100 GWh of electricity could be saved annually, if only the 45,000 residential homes with the highest electricity demand would use solar water heaters.

In order to achieve the long-term RES goals, the existing potentials will need to be better identified and located, using on-site assessments and long-term measurements if appropriate. Such pre-feasibility studies will require the involvement of private investors at an early stage.

To smooth administrative procedures and attract foreign investment, the establishment of a one-stop agency as central contact point is proposed. Financial and fiscal incentives (GCT waiver or reduced duty taxes) can lower the threshold for investments with high up-front costs.

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