2017 ENERGY REPORT CARD MONTSERRAT

This document presents Montserrat's Energy Report Card (ERC) for 2017 and was prepared using multiple online resources (see list of References), as the Member State did not submit any data/information in support of the ERC. The ERC provides an overview of energy sector performance in Montserrat by focusing on two priority sub-sectors: Electricity and Transportation. The ERC also includes energy efficiency, climate change, energy sector workforce, training and capacity building information, subject to the availability of data.

December 2018

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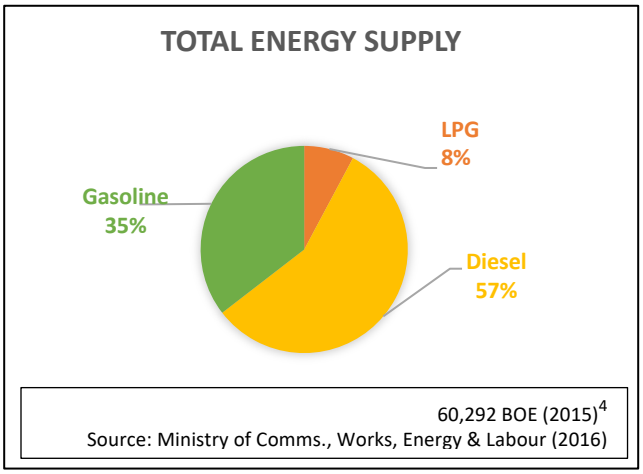
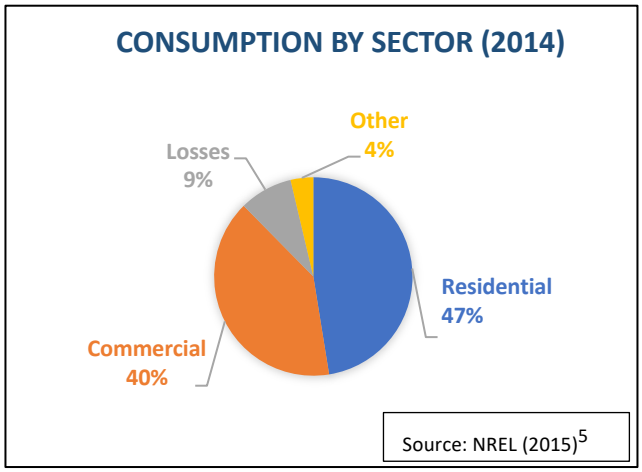
"AT-A-GLANCE" SUMMARY OF MONTSERRAT'S ENERGY SECTOR

KEY DATA & INFORMATION – ENERGY SECTOR	
Population	5,292 (2017)[1]
GDP (USD) Per Capita	$12,044(2016)[2]
Debt: GDP Ratio	
Human Development Index	Not ranked[3]
National Development Plan/ Overall Country Development Strategy	
National Energy Policy	Yes (2016)[4]
Renewable Energy (RE) Policy	
RE Target	100% Renewable Electricity by 2020[4]
Energy Performance Standards/Appliance Labelling	
Number of Persons Employed in Energy Sector	
Total Oil Import (BOE) per day	
Total Oil Export (BOE) per day	
Total Installed Capacity (MW)	5.44 MW (2015)[4]
Total Installed RE (MW)	0 MW (2015)[5]
Electricity System Losses (%)	12.3% (Technical losses 2015) [4]
Energy Use (kWh) Per Capita	2,321[6]
Energy Intensity (BTU/$)	5,486[7]
Fuel & Oil Imports as % of GDP	24.9%[5]
Climate Change Policy	
National Determined Contributions (NDC)	None [8,9]
National Repository for Energy Data	





MONTSERRAT'S ENERGY SECTOR PERFORMANCE AGAINST TARGETS

Indicator	Base /Current Performance (Year)	National Target	National Target (Proposed by CARICOM – CSERMS Report) [10]
RE as % of Installed Capacity	0% (2015)[10]	100% Renewable Electricity by 2020[4]	34% by 2027
*Energy Intensity (BTU/US$1 Unit of output)			
% Reduction in Energy Sector Emissions (NDC)			

Indicative RE Oil Displacement[11,12] Potential Annually*

- *1 MW wind displaces 1,760 barrels of oil equivalent (BOE)*
- *1 MW hydro displaces 3,300 BOE*
- *1 MW solar displaces 1,210 BOE*

Energy Intensity (EI)[13]:

- *EI measures how energy benefits the economy and is calculated by taking the ratio of total primary energy use (all of the fuels and flows that a country uses to get energy) to GDP (the total money made in a country). EI indicates how effectively an economy uses their fuels and flows.*

*The energy efficiency target for CARICOM is 33% reduction in energy intensity by 2027, compared to a reference of Average Annual Energy Intensity of ~13,000 BTU per USD of GDP in 2015.

**Based on capacity factors of 0.32 for wind. 0.6 for hydro and 0.22 for solar.[11]

KEY ENERGY SECTOR STAKEHOLDERS: MONTSERRAT

Key electricity stakeholders include:

GOVERNMENT MINISTRIES, DEPARTMENTS AND AGENCIES[14]:	Ministry of Communications, Works, Energy and Labour Ministry of Finance, Economic Development, Tourism & Culture
ELECTRIC UTILITY(IES):	Montserrat Utilities Limited
INDEPENDENT POWER PRODUCER(S):	
REGULATOR:	Ministry of Communications, Works, Energy and Labour[5]

Key Stakeholders: Road Transportation Sub-sector

Other key energy sector stakeholders include[4]:

- Delta Petroleum Limited
- Montserrat Chamber of Commerce & Industry Inc.
- Montserrat Hospitality Association
- Montserrat National Trust
- Montserrat Farmers Association
- Montserrat Boaters & Fishers Association

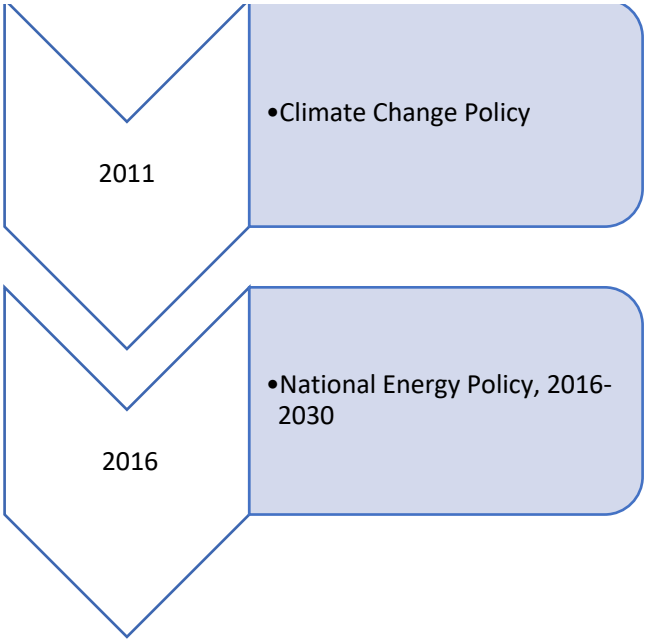
POLICY, LEGAL AND REGULATORY FRAMEWORK: MONTSERRAT

Electricity Sector: Policy, Legal and Regulatory (PLR) Framework

✓ Energy Policy[4] and Energy Action Plan	
✓ RE Target[4]	
✓ EE Target	
✓ Electricity Regulator	
✓ Net billing/Net metering[5]	
✓ Interconnection Policy/Standards	
× Feed-in-tariff	
× RE/EE Act	

Completed/ In place | In progress/ In Development | Not yet started/ Not established

Key Achievements: PLR Framework Timeline for the Electricity Sector



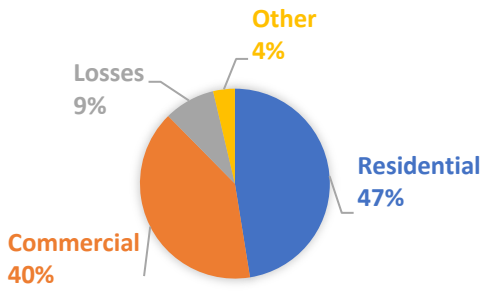
Policies and Legislation Relevant to the Transportation Sector	
Policies	National Energy Policy
Legislation & Regulation	

Climate Change Framework - Montserrat	
Climate Change Policy	Yes[5]
National Determined Contributions	None[8]
Emissions Reduction Target	
Priority Sectors for NDC	
National Communications (NC) to the UNFCCC	None listed for Montserrat[15]
Greenhouse Gas (GHG) Inventory	

ELECTRICITY SUBSECTOR & ENERGY EFFICIENCY: MONTSERRAT

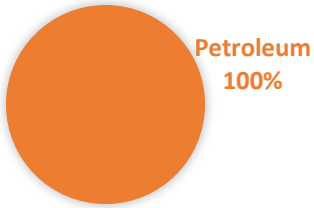
KEY DATA & INFORMATION	
CONVENTIONAL ENERGY	
1. Total Fuel Use – Electricity Subsector (barrels)	
2. Total Installed Capacity (MW)	5.44 MW [4]
3. Installed Conventional Capacity – Electric Utility (MW)	
4. Installed Conventional Capacity – IPPs (MW)	
5. Base Load (MW)	
6. System Peak Demand (MW)	2.1 MW (2015)[4]
7. Total Generation (MWh)	12,282 (2015)[4]
8. Total Sales (MWh)	11,557 (2015)[4]
9. Total Number of Customers	3,590 (2015)[4]
RENEWABLE ENERGY	
10. Total Installed RE Capacity (MW)	0 MW[4,5]
11. RE Capacity – Electric Utility (MW)	
12. RE Capacity – IPPs (MW)	
13. RE as % of Total Installed Generating Capacity	0%
14. RE Target	
TARIFFS	
15. Residential Tariff (US$/kWh)	$0.50–$0.52 (2015)[4]
16. Commercial (US$/kWh)	$0.54 (2015)[4]
17. Industrial/Large Power (US$/kWh)	$0.51(2015)[4]
18. Street Lights (US$/kWh)	
EFFICIENCY	
19. Electricity System Heat Rate	
20. Electricity System Losses (%)	8.7% (T&D losses 2012)[5]
21. Energy Use (kWh) Per Capita	2,321[6]
22. Energy intensity index (EII) BTU/US$1 Unit of output	5,486[7]
23. EE Target	
MANAGEMENT OF ENERGY DATA/KNOWLEDGE	
24. Name of Energy Knowledge Management System	
25. Name of Energy Data Management System	

FUEL USE BY SECTOR (2014)



Source: NREL (2015)

ENERGY GENERATION



Source: NREL (2015)

RE Resource	Installed Capacity (MW)	Year Commissioned
Wind		
Solar		
Hydro		
Geothermal		
Biomass/ WTE		
Total	0	

RE as % of installed Power Capacity = 0%

RE Resource Potentials	Potential Capacity (MW)	Assessment Conducted?
Wind		
Solar	1.5[10]	
Hydro		
Geothermal	940[10]	
Biomass/ WTE		
Total	941.5	

TRANSPORTATION SUBSECTOR: MONTSERRAT

Key Transportation Data and Information	
Fuel Consumption, Transportation (BOE)	
Energy-related transportation targets?	
Sustainable /Alternative fuels used?	
Total Imports for Alternative Fuels	
Conventional Vehicle Stock/Vehicle Registration	2,652 (2015)[4]
Trucks	
Cars	1028 (2015)[4]
Buses	
SUVs	
Hybrid vehicle stock	
Electric vehicle stock	
Fuel Quality Standards?	

Breakdown of Fuel Use in the Transportation Sector		
Type of Fuel/s	**Quantity (BOE)**	**Purpose** (Road, Railway, Aviation, Marine)
Diesel	7,714[4]	Transport (Vehicles & Ferry)
Gasoline	13,766[4]	Transport (Vehicles)

WORKFORCE: ENERGY SECTOR, MONTSERRAT

Number of Persons Employed in the Energy Sector

NAME OF ENTITY	PRIVATE OR PUBLIC?	NUMBER OF PERSONS EMPLOYED	BREAKDOWN BY GENDER AND EMPLOYMENT LEVEL	
			Females: Managerial Level: Supervisor: Technical: Administrative:	**Males:** Managerial Level: Supervisor: Technical: Administrative:

Number of Persons Trained in the Energy Sector in 2017

NAME OF ENTITY	PRIVATE OR PUBLIC?	NUMBER OF PERSONS TRAINED	BREAKDOWN BY GENDER AND EMPLOYMENT LEVEL	
			Females: Managerial Level: Supervisor: Technical: Administrative:	**Males:** Managerial Level: Supervisor: Technical: Administrative:

Indicative Number and Type of Tertiary level and vocational training SE Programmes Offered in Montserrat

Name of Education Programme Provider	Name of Programme	Number of persons enrolled	Type of Programme			
			Certificate	B.Sc	M.Sc	Ph.D

References

[1]Central Intelligence Agency. (2018). *The World Factbook 2017.* Retrieved from https://www.cia.gov/library/publications/download/download-2017/index.html

[2] United Nations Statistics Division. (2017). National Accounts Main Aggregates Database. Country Profile: Montserrat. Retrieved from https://unstats.un.org/unsd/snaama/resCountry.asp

[3] United Nations Development Programme. (2018). *Human Development Reports: Table 2. Human Development Index Trends, 1990-2017.* Retrieved from http://hdr.undp.org/en/composite/trends

[4] Ministry of Communications, Works, Energy & Labour. (2016). *The Montserrat Energy Policy 2016 – 2030.* Retrieved from http://www.gov.ms/wp-content/uploads/2016/02/The-Power-to-Change-MNEP-Cabinet-Approved.pdf

[5] National Renewable Energy Laboratory. (2015). *Energy Transition Initiative: Islands Energy Snapshot - Montserrat*. Retrieved from https://www.nrel.gov/docs/fy15osti/64126.pdf

[6] Calculated using 2015 generation and 2017 population figures.

[7] Calculated using total energy supply an GDP.

[8] As a British Overseas Territory, Monserrat is not a Party to the Paris Agreement and therefore did not submit an INDC (https://www.energimyndigheten.se/globalassets/klimat--miljo/internationella-klimatinsatser/policy-brief-on-ndc-mitigation-targets-of-the-caricom-member-states---final.pdf).

[9] https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx Not listed

[10] Worldwatch Institute. (2015). *Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) Baseline Report and Assessment.* Retrieved from http://www.worldwatch.org/system/files/C-SERMS_Full_PDF.pdf

[11]Ministry of Science, Energy, Technology and Mining. (2013). Grid Impact Analysis and Assessment for Increased Penetration of Renewable Energy into the Jamaican Electricity Grid. Retrieved from https://www.mset.gov.jm/sites/default/files/pdf/Grid%20Impact%20Analysis%20for%20Renewable%20Energy%20Penetration_2.pdf

[12] Sustainable Energy Ireland – Renewable Energy Information Office. (2011). Energy Unit Conversion Tool. Retrieved from https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/make-it-be_energy_unit_conversion_tool.xlsx

[13] J.M.K.C. Donev et al. (2018). *Energy Education - Energy intensity*. Retrieved from https://energyeducation.ca/encyclopedia/Energy_intensity.

[14] Government of Montserrat. (2018). *Government of Montserrat Ministry Portfolios.* Retrieved fromhttp://www.gov.ms/ministries-and-departments/

[15] United Nations Framework Convention on Climate Change. (2018). *Process and Meetings: National Communication submissions from Non-Annex I Parties.* Retrieved from https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-update-reports-non-annex-i-parties/national-communication-submissions-from-non-annex-i-parties