United Nations Development Programme

Certification of Payment

1. For Personnel use only

Name:	Paul Stefan Hattle	**Contract No.:**	BRB_ICC_2020_055134
Project Number:	00091623	**Contract Total:**	USD $50,000
Project Title:	Low Carbon Development Path	**Contract Duration:**	
Start Date:	April 14, 2020	**End Date:**	March 24, 2021
Nationality:	Austrian	**Expected number of work days per week:**	Intermittent
Purchase Order No:	P0000015506	**Vendor No.:**	0000005930

2. To be completed by the Contractor:

Please type or print and **mail original and first and second copies**, along with your travel claim upon completion of travel, to: United Nations Development Programme, One United Nations Plaza, New York, NY 10017.

Attention: *(Finance Officer)* Perry Parris **Room No.:**

I certify that the deliverables indicated below are an accurate account of the services and duties performed under the terms of this contract.

Deliverable Description	Amount Payable USD
Deliverable 3: Review and finalization of documents: - TOR for verification of EE lighting specifications - TOR for consultant for providing technical support for the establishment of a Trust Fund	2,500
Deliverable 4: Review and provide recommendations for the institutional arrangements of the Department of Environment	10,000
Deliverable 7: Feasibility study for financial mechanisms and costed action plan and project concepts for scaling up RE and EE investment, with a feasible financial mechanism for implementation; provide support in developing publication materials	7,500
TOTAL: ---- USD-TWENTY-THOUSAND-DOLLARS-00/100---	**$20,000**

Please note that payment will be made in the currency of the subscriber's usual residence, unless otherwise indicated in Article 3 of the Individual Contract, or paragraph 3 of the Reimbursable Loan Agreement. Payments in currency other than the US dollar will be made at the UN operational rate of exchange in effect at the time payment is made. Bank charges related to payment will be borne by the subscriber.

Signature: Date: 16 December 2020

Paul Stefan HATTLE

3. To be completed by Area/Requesting Officer

Please check appropriate box	Interim report accepted	☒	Assessment sheet attached:	☐
	Final report accepted	☐	Second Assessment to be added:	☐

I certify that the work was satisfactorily performed.

Signature: K. Thomas Date: 17 Dec 2020

Name: Kimisha Thomas ***PO Receipt No.*** 0000011800

4. To be completed by the Certifying Officer

Please process the payment of US $20000.00 to the subscriber in accordance with the payment instructions given above.

Signature: _____ Date: 25-Jan-2021

Name: Mohammad Nagdee

INVOICE FOR CONSULTANCY SERVICES

CLIENT: UNITED NATIONS DEVELOPMENT PROGRAMME, BARBADOS AND EASTERN CARIBBEAN

From (Name):	Paul Stefan HATTLE
Street Address:	zk. Gotse Delchev Block-50E. Entrance B. Apartment 20-B
Zip; City; Country:	1404 Sofia, Bulgaria
Vendor Number:	5930
Purchase Order:	P0000015506
Contract Number:	BRB_ICC_2020_055134
Project Name:	Low Carbon Development Path
Invoice Number:	002-2020
Invoice Date:	16.Dez.20
Contractual Point of Contact of the Client:	Mrs. KIMISHA THOMAS (UNDP's PROJECT OFFICER)
Task or Activity:	Deliverables 3; 4; and 7 (Three Deliverables)

Payment Instructions		
○ PAYMENT BY CHECK	◉ PAYMENT BY ELECTRONIC TRANSFER	
Bank Name:	CITI BANK SINGAPORE LTD. INTERNATIONAL PERSONAL BANK	
Address:	23 CHURCH STREET. No. 07-01 CAPITAL SQUARE	
City; Zip; Country:	SINGAPORE 049481. SINGAPORE	
Transfer Through:	Credit Citibank New York, USA. For account of Citibank Singapore. No. 36072698, ATTN: IPB.	
Account Holder's Name:	Paul Stefan HATTLE	
Bank Data Singapore:	Bank Code: 7214	Branch Code: 11
US-Dollar Account Number:	304249438	
Swift Code:	CITISGSGGCB	
	CURRENCY OF THE INVOICE IS:	US-DOLLAR [$]

I. CONSULTANT: LEVEL OF EFFORT (LOE)	Contractual Amount [$]	Task Name [No.]	Current LOE [$]			A: Previous Labor Cost [$]	B: Current Labor Cost [$]	C: Cumulative Labor Cost (A+B) [$]
	$ -			Deliverable 1+2		$ 5 000,00	$ -	$ 5 000,00
	$ -	Deliverable 3	$ 2 500,00				$ 2 500,00	$ 2 500,00
	$ -	Deliverable 4	$ 10 000,00			$ -	$ 10 000,00	$ 10 000,00
	$ -					$ -	$ -	$ -
	$ -	Deliverable 7	$ 7 500,00			$ -	$ 7 500,00	$ 7 500,00
Subtotal Services	$ 50 000,00	Deliverable 3+4+7	$ 20 000,00			$ 5 000,00	$ 20 000,00	$ 25 000,00

II. OTHER DIRECT COSTS (ODC)	Description	Amount in [$]			Receipt #	Previous ODC's	Current ODC's	Cumulative ODC's
Airfares-round-trips (Oanda rate of the day)	Airfares:	$ -			N/A	$ -	$ -	$ -
Per Diem Meal (Oanda rate of invoice day)	Per-Diem:	$ -			N/A	$ -	$ -	$ -
Lodging (Oanda rate of invoice day)	Hotel:	$ -			N/A	$ -	$ -	$ -
Transport (Oanda rate of invoice day)	Taxi+public transport	$ -			N/A	$ -	$ -	$ -
Miscellaneous/ communication (Oanda rate of invoice day)	Other:	$ -			N/A	$ -	$ -	$ -
Subtotal Other Direct Costs						$ -	$ -	$ -

TOTAL LABOR (I)		$ 20 000,00	$ 25 000,00
TOTAL OTHER DIRECT COSTS (II)		$ -	$ -
TOTAL COSTS (I + II)		$ 20 000,00	$ 25 000,00

	Labor in [$]	ODC in [$]		Total in [$]
CONTRACT AUTHORIZED BUDGET:	$ 50 000,00	$ -		$ 50 000,00
CONTRACT CUMULATIVE EXPENSES:	$ 25 000,00	$ -		$ 5 000,00
CONTRACT AMOUNT REMAINING:	$ 25 000,00	$ -		$ 25 000,00
CONTRACT'S PERCENTAGE SPENT:	50,00%			10,00%
FOR PAYMENT:	**€ 20 000,00**	**€ -**		**$ 20 000,00**
PAYMENT CLAIMED:	**IN-WORDS:---US-DOLLARS-TWENTY-THOUSAND-00/100---**			

LOE = level of effort, ODC = other direct costs

SIGNATURE: 

DATE 16.12.2020

Name: Paul Stefan HATTLE **Position: International Lead Power Sector Expert**

Purchase Order

Dispatch via Print

PO Number	Date	Revision	Page
BRB10-0000015506	27/04/2020		1

Payment Terms	Freight / INCOTERMS	Ship Via
Immediate	DES	Common

Buyer	Phone	Currency
Greta PUCKERIN	Tel:	USD
greta.puckerin@undp.org	Fax:	

Approver
Ugo BLANCO

Barbados

UNDP Office in Barbados
UN House, Marine Gardens
Christ Church 01
Barbados
Tel:
Fax:

Vendor: 0000005930
PAUL STEFAN HATTLE
zk."Goce Delchev",block 50E
dob : 31.05.1965
SOFIA 1404
Austria

Ship To: UNDP Office in Barbados
UN House, Marine Gardens
Christ Church 01
Barbados

Tel:
Fax:

Bill To: UNDP Office in Barbados
UN House, Marine Gardens
Christ Church 01
Barbados

Tel:
Fax:

Ln-Sch	Item	Description	Quantity	UOM	Due Date	Unit Price	Line Total
1-1	80161903S	Work plan developed and submitted	1.00	EA	21/04/2020	2,500.00	2,500.00
	Contract ID:	BRB_ICC_2020_055134					
2-1	80161903S	Review and finalization of Tender Documents for Solar PV Design, Purchase, Install and EE lighting Purchase and Install	1.00	EA	28/04/2020	2,500.00	2,500.00
3-1	80161903S	Review and finalization of documents: - TOR for verification of EE lighting specifications - TOR for consultant for providing technical support for the establishment of a Trust Fund	1.00	EA	09/06/2020	2,500.00	2,500.00
4-1	80161903S	Review and provide recommendations for the institutional arrangements of the Department of Environment	1.00	EA	07/07/2020	10,000.00	10,000.00
5-1	80161903S	Review and provide recommendations for the design of climate change trust					

This PO is subject to UNDP General terms and conditions.

Authorized Signature

This Purchase Order is Electronically Approved by Ugo BLANCO and does not require Signature.

Purchase Order

Dispatch via Print

PO Number	Date	Revision	Page
BRB10-0000015506	27/04/2020		2

Payment Terms	Freight / INCOTERMS	Ship Via
Immediate	DES	Common

Buyer	Phone	Currency
Greta PUCKERIN	Tel:	USD
greta.puckerin@undp.org	Fax:	

Approver
Ugo BLANCO

Barbados

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Bill To: UNDP Office in Barbados
UN House, Marine Gardens
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Barbados

Tel:
Fax:

Ln-Sch	Item	Description	Quantity	UOM	Due Date	Unit Price	Line Total
		Final report format	1.00	EA	27/04/2020	5,000.00	5,000.00
6-1	80161903S	Compile Training Manual in Code of Good Solar PV Installation Practices for Technicians; Provide support in developing training workshop	1.00	EA	28/07/2020	5,000.00	5,000.00
7-1	80161903S	Feasibility study for financial mechanisms and costed action plan and project concepts for scaling up RE and EE investment, with a feasible financial mechanism for implementation; provide support in developing publication materials	1.00	EA	18/08/2020	7,500.00	7,500.00

This PO is subject to UNDP General terms and conditions.

Authorized Signature

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Purchase Order

Dispatch via Print

PO Number	Date	Revision	Page
BRB10-0000015506	27/04/2020		3

Payment Terms	Freight / INCOTERMS	Ship Via
Immediate	DES	Common

Buyer	Phone	Currency
Greta PUCKERIN	Tel:	USD
greta.puckerin@undp.org	Fax:	

Approver
Ugo BLANCO

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Christ Church 01
Barbados

Tel:
Fax:

Ln-Sch	Item	Description	Quantity	UOM	Due Date	Unit Price	Line Total
8-1	80161903S	Design and conduct training seminar for decision makers on opportunities, risks, policies that will catalyse low carbon transition; provide support in developing publication materials for the seminar	1.00	EA	08/09/2020	5,000.00	5,000.00
9-1	80161903S	Provide support with Terminal Evaluation and/or Extension Request, as needed	1.00	EA	13/10/2020	5,000.00	5,000.00
10-1	80161903S	Provide direct technical and strategic assistance to the NPC and other counterparts in areas of project planning, management and implementation of the technical assistance components of the project.	1.00	EA	13/10/2020	5,000.00	5,000.00

Total PO Amount **USD** **50,000.00**

This PO is subject to UNDP General terms and conditions.

Authorized Signature

This Purchase Order is Electronically Approved by Ugo BLANCO and does not require Signature.

United Nations Development Programme

Empowered lives.
Resilient nations.

Contract for the services of an Individual Contractor

No: BRB_ICC_2020_055134
Project: 00091623

This Contract is entered into on 13-Apr-2020 between the United Nations Development Programme (hereinafter referred to as "UNDP") and PAUL STEFAN HATTLE (hereinafter referred to as " The Individual Contractor ") whose address is : zk."Goce Delchev",block 50E , SOFIA 1404 AUT .

Whereas UNDP desires to engage the services of the Individual Contractor on the terms and conditions hereinafter set forth, and:

Whereas the Individual Contractor is ready and willing to accept this Contract with UNDP on the said terms and conditions,

Now therefore, the Parties hereby agree as follows:

1. **Nature of services**

The Individual Contractor shall perform the services as described in the Terms of References which form an integral part of this Contract and are attached here to as Annex I in the following Duty Station(s): Dominica - Home Based .

2. **Duration**

This Individual Contract shall commence on 14-Apr-2020, and shall expire upon satisfactory completion of the services described in the Terms of Reference mentioned above, but not later than 13-Nov-2020, unless sooner terminated in accordance with the terms of this Contract. This Contract is subject to the General Conditions of Contract for Individual contractors which are available on UNDP website at www.undp.org/procurement and are attached below.

3. **Consideration**

As full consideration for the services performed by the Individual Contractor under the terms of this Contract, including, unless otherwise specified, his/her travel to and from the Duty Station(s), any other travel required in the fulfillment of the Terms of Reference in Annex I, and living expenses in the Duty Station(s), UNDP shall pay the Individual Contractor a total of [USD] 50,000.00 USD in accordance with the table set forth below For payments which are not output-based lump sum, indicate the maximum number of working days/hours/units, any out of pocket expense (travel, per diem…) and the corresponding fee/cost in the Deliverable (s) table.. Payments shall be made following certification by UNDP that the services related to each Deliverable, as described below, have been satisfactorily performed and the Deliverables have been achieved by or before the due dates specified below, if any.

DELIVERABLE	DUE DATE	AMOUNT IN [CURRENCY]
Deliverable 1: Work plan developed and submitted	2020-04-21	2,500.00 USD

Deliverable 2: Review and finalization of Tender Documents for Solar PV Design, Purchase, Install and EE lighting Purchase and Install	2020-04-21	2,500.00 USD
Deliverable 3: Review and finalization of documents: - TOR for verification of EE lighting specifications - TOR for consultant for providing technical support for the establishment of a Trust Fund - Criteria for scholarships awardees for vocational courses in solar PV - Criteria for scholarships awardees for courses in RE and EE policy	2020-04-28	2,500.00 USD
Deliverable 4: Review and provide recommendations for the institutional arrangements of the Department of Environment	2020-06-09	10,000.00 USD
Deliverable 5: Provide recommendations for the design of a Climate Change Trust Fund in report format, include references to similar existing funds	2020-07-07	5,000.00 USD
Deliverable 6: Compile Training Manual in Code of Good Solar PV Installation Practices for Technicians; Provide support in developing training workshop	2020-07-28	5,000.00 USD
Deliverable 7: Feasibility study for financial mechanisms and costed action plan and project concepts for scaling up RE and EE investment, with a feasible financial mechanism for implementation; provide support in developing publication materials	2020-08-18	7,500.00 USD
Deliverable 8: Design and conduct training seminar for decision makers on opportunities, risks, policies that will catalyse low carbon transition; provide support in developing publication materials for the seminar	2020-09-08	5,000.00 USD
Deliverable 9: Provide support with Terminal Evaluation and/or Extension Request, as needed	2020-10-13	5,000.00 USD
Deliverable 10: Provide direct technical and strategic assistance to the NPC and other counterparts in areas of project planning, management and implementation of the technical assistance components of the project.	2020-10-13	5,000.00 USD

If unforeseen travel outside the Duty Station not required by the Terms of Reference is requested by UNDP, and upon prior written agreement, such travel shall be at UNDP's expense and the Individual Contractor shall receive a *per diem* not to exceed United Nations daily subsistence allowance rate in such other location(s).

Where two currencies are involved, the rate of exchange shall be the official rate applied by the United Nations on the day the UNDP instructs its bank to effect the payment(s).

4. **Rights and Obligations of the Individual contractor**

The rights and obligations of the Individual Contractor are strictly limited to the terms and conditions of this Contract, including its Annexes. Accordingly, the Individual Contractor shall not be entitled to any benefit, payment, subsidy, compensation or entitlement, except as expressly provided in this Contract. The Individual Contractor shall be solely liable for claims by third parties arising from the Individual Contractor's own acts or omissions in the course of performing this Contract, and under no circumstances shall UNDP be held liable for such claims by third parties.

5. **Beneficiary**

The Individual Contractor selects NEVENA KUSHEVA-HATTLE as beneficiary of any amounts owed under this Contract in the event of death of the Individual Contractor while performing services hereunder. This includes the payment of any service-incurred liability insurance attributable to the performance of the services for UNDP.

Mailing address, email address and phone number of beneficiary:

MOTOPISTA-AREA: zk. Gotse Delchev
Block-50E-Apartment.20B
SOFIA,BULGARIA
+359 88 916 5925
venchebg@yahoo.com

Mailing address, email address and phone number of emergency contact (if different from beneficiary):

In witness whereof, the Parties hereto have executed this Contract.

By signing below, I, the Individual Contractor, acknowledge and agree that I have read and accept the terms of this Contract, including the General Conditions of Contracts for Individual contractors available on UNDP website at www.undp.org/procurement **and attached hereto in Annex II which form an integral part of this Contract, and that I have read and understood, and agree to abide by the standards of conduct set forth in the Secretary-General's bulletins ST/SGB/2003/13 of 9 October 2003, entitled "Special Measures for Protection from Sexual Exploitation and Sexual Abuse" and ST/SGB/2002/9 of 18 June 2002, entitled "Regulations Governing the Status, Basic Rights and Duties of Officials other than Secretariat Officials, and Experts on Mission".**

□ The Individual Contractor has submitted a Statement of Good Health and confirmation of immunization.

AUTHORIZING OFFICER: **United Nations Development Programme**		**INDIVIDUAL CONTRACTOR:** [alchimiaSolaris]	
Signature:		Signature:	
Name:	UGO BLANCO	Name:	Paul Stefan HATTLE
Title:	Deputy Resident Representative	Title:	Chief Technical Advisor (Low Carbon Develop. Path Project Dominica/ Barbados)
Date:	2020-04-14	Date:	14 April 2020

United Nations Development Programme

Empowered lives.
Resilient nations.

GENERAL CONDITIONS OF CONTRACT

FOR THE SERVICES OF INDIVIDUAL CONTRACTORS

1. **LEGAL STATUS:** The Individual contractor shall have the legal status of an independent contractor vis-à-vis the United Nations Development Programme (UNDP), and shall not be regarded, for any purposes, as being either a "staff member" of UNDP, under the UN Staff Regulations and Rules, or an "official" of UNDP, for purposes of the Convention on the Privileges and Immunities of the United Nations, adopted by the General Assembly of the United Nations on 13 February 1946. Accordingly, nothing within or relating to the Contract shall establish the relationship of employer and employee, or of principal and agent, between UNDP and the Individual contractor. The officials, representatives, employees or subcontractors of UNDP and of the Individual contractor, if any, shall not be considered in any respect as being the employees or agents of the other, and UNDP and the Individual contractor shall be solely responsible for all claims arising out of or relating to their engagement of such persons or entities.

2. **STANDARDS OF CONDUCT: In General**: The Individual contractor shall neither seek nor accept instructions from any authority external to UNDP in connection with the performance of his or her obligations under the Contract. Should any authority external to UNDP seek to impose any instructions regarding the Individual contractor's performance under the Contract, the Individual contractor shall promptly notify UNDP and shall provide all reasonable assistance required by UNDP. The Individual contractor shall not take any action in respect of his or her performance of the Contract or otherwise related to his or her obligations under the Contract that may adversely affect the interests of UNDP. The Individual contractor shall perform his or her obligations under the Contract with the fullest regard to the interests of UNDP. The Individual contractor warrants that she or he has not and shall not offer any direct or indirect benefit arising from or related to the performance of the Contract or the award thereof to any representative, official, employee or other agent of UNDP. The Individual contractor shall comply with all laws, ordinances, rules and regulations bearing upon the performance of his or her obligations under the Contract. In the performance of the Contract the Individual contractor shall comply with the standards of conduct set in the Secretary General's Bulletin ST/SGB/2002/9 of 18 June 2002, entitled "Regulations Governing the Status, Basic Rights and Duties of Officials other than Secretariat Officials, and Expert on Mission". The Individual contractor must comply with all security directives issued by UNDP.

Prohibition of Sexual Exploitation and Abuse: In the performance of the Contract, the Individual contractor shall comply with the standards of conduct set forth in the Secretary-General's bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse". In particular, the Individual contractor shall not engage in any conduct that would constitute sexual exploitation or sexual abuse, as defined in that bulletin.

The Individual contractor acknowledges and agrees that any breach of any of the provisions hereof shall constitute a breach of an essential term of the Contract, and, in addition to any other legal rights or remedies available to any person, shall give rise to grounds for suspension or termination of the Contract. In addition, nothing herein shall limit the right of UNDP to refer any alleged breach of the foregoing standards of conduct or any other terms of the Contract to the relevant national authorities for appropriate legal action.

3. **TITLE RIGHTS, COPYRIGHTS, PATENTS AND OTHER PROPRIETARY RIGHTS:** Title to any equipment and supplies that may be furnished by UNDP to the Individual contractor for the performance of any obligations under the Contract shall rest with UNDP, and any such equipment and supplies shall be returned to UNDP at the conclusion of the Contract or when no longer needed by the Individual contractor. Such equipment and supplies, when returned to UNDP, shall be in the same condition as when delivered to the Individual contractor, subject to normal wear and tear, and the Individual contractor shall be liable to compensate UNDP for any damage or degradation of the equipment and supplies that is beyond normal wear and tear.

UNDP shall be entitled to all intellectual property and other proprietary rights, including, but not limited to, patents, copyrights and trademarks, with regard to products, processes, inventions, ideas, know-how or documents and other materials which the Individual contractor has developed for UNDP under the Contract and which bear a direct relation to, or are produced or prepared or collected in consequence of, or during the course of, the performance of the Contract, and the Individual contractor acknowledges and agrees that such products, documents and other materials constitute works made for hire for UNDP. However, to the extent that any such intellectual property or other proprietary rights consist of any intellectual property or other proprietary rights of the Individual contractor: (a) that pre-existed the performance by the Individual contractor of his or her obligations under the Contract, or (b) that the Individual contractor may develop or acquire, or may have developed or acquired, independently of the performance of his or her obligations under the Contract, UNDP does not and shall not claim any ownership interest thereto, and the Individual contractor grants to UNDP a perpetual license to use such intellectual property or other proprietary right solely for the purposes of and in accordance with the requirements of the Contract. At the request of UNDP, the Individual contractor shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring or licensing them to UNDP in compliance with the requirements of the applicable law and of the Contract. Subject to the foregoing provisions, all maps, drawings, photographs, mosaics, plans, reports, estimates, recommendations, documents and all other data compiled by or received by the Individual contractor under the Contract shall be the property of UNDP, shall be made available for use or inspection by UNDP at reasonable times and in reasonable places, shall be treated as confidential and shall be delivered only to UNDP authorized officials on completion of services under the Contract

4. **CONFIDENTIAL NATURE OF DOCUMENTS AND INFORMATION:** Information and data that are considered proprietary by either UNDP or the Individual contractor or that are delivered or disclosed by one of them ("Discloser") to the other ("Recipient") during the course of performance of the Contract, and that are designated as confidential ("Information"), shall be held in confidence and shall be handled as follows. The Recipient of such Information shall use the same care and discretion to avoid disclosure, publication or dissemination of the Discloser's Information as it uses with its own similar information that it does not wish to disclose, publish or disseminate, and the Recipient may otherwise use the Discloser's Information solely for the purpose for which it was disclosed. The Recipient may disclose confidential Information to any other party with the Discloser's prior written consent, as well as to the Recipient's officials, representatives, employees, subcontractors and agents who have a need to know such confidential Information solely for purposes of performing obligations under the Contract. Subject to and without any waiver of the privileges and immunities of UNDP, the Individual contractor may disclose Information to the extent required by law, *provided that* the Individual contractor will give UNDP sufficient prior notice of a request for the disclosure of Information in order to allow UNDP to have a reasonable opportunity to take protective measures or such other action as may be appropriate before any such disclosure is made. UNDP may disclose Information to the extent required pursuant to the Charter of the United Nations, resolutions or regulations of the General Assembly or its other governing bodies, or rules promulgated by the Secretary-General. The Recipient shall not be precluded from disclosing Information that is obtained by the Recipient from a third party without restriction, is disclosed by the Discloser to a third party without any obligation of confidentiality, is previously known by the Recipient, or at any time is developed by the Recipient completely independently of any disclosures hereunder. These obligations and restrictions of confidentiality shall be effective during the term of the Contract, including any extension thereof, and, unless otherwise provided in the Contract, shall remain effective following any termination of the Contract. Notwithstanding the foregoing, the Individual contractor acknowledges that UNDP may, in its sole discretion, disclose the purpose, type, scope, duration and value of the Contract, the name of the Individual contractor, and any relevant information related to the award of the Contract.

5. **TRAVEL, MEDICAL CLEARANCE AND SERVICE INCURRED DEATH, INJURY OR ILLNESS:** If the Individual contractor is required by UNDP to travel beyond commuting distance from the Individual contractor's usual place of residence, and upon prior written agreement, such travel shall be at the expense of UNDP. Such travel shall be at economy fare when by air.

UNDP may require the Individual contractor to submit a "statement of good health" from a recognized physician prior to commencement of services in any offices or premises of UNDP, or before engaging in any travel required by UNDP, or connected with the performance of the Contract. The Individual contractor shall provide such a statement as soon as practicable following such request, and prior to engaging in any such travel, and the Individual contractor warrants the accuracy of any such statement, including, but not limited to, confirmation that the Individual contractor has been fully informed regarding the requirements for inoculations for the country or countries to which travel may be authorized.

In the event of death, injury or illness of the Individual contractor which is attributable to the performance of services on behalf of UNDP under the terms of the Contract while the Individual contractor is traveling at UNDP expense or is

performing any services under the Contract in any offices or premises of UNDP, the Individual contractor or the Individual contractor's dependents, as appropriate, shall be entitled to compensation equivalent to that provided under the UNDP insurance policy, available upon request.

6. **PROHIBITION ON ASSIGNMENT; MODIFICATIONS:** The Individual contractor may not assign, delegate, transfer, pledge or make any other disposition of the Contract, of any part thereof, or of any of the rights, claims or obligations under the Contract except with the prior written authorization of UNDP, and any attempt to do so shall be null and void. The terms or conditions of any supplemental undertakings, licenses or other forms of Contract concerning any goods or services to be provided under the Contract shall not be valid and enforceable against UNDP nor in any way shall constitute a contract by UNDP thereto, unless any such undertakings, licenses or other forms of contract are the subject of a valid written undertaking by UNDP. No modification or change in the Contract shall be valid and enforceable against UNDP unless provided by means of a valid written amendment to the Contract signed by the Individual contractor and an authorized official or appropriate contracting authority of UNDP.

7. **SUBCONTRACTORS:** In the event that the Individual contractor requires the services of subcontractors to perform any obligations under the Contract, the Individual contractor shall obtain the prior written approval of UNDP for any such subcontractors. UNDP may, in its sole discretion, reject any proposed subcontractor or require such subcontractor's removal without having to give any justification therefore, and such rejection shall not entitle the Individual contractor to claim any delays in the performance, or to assert any excuses for the non-performance, of any of his or her obligations under the Contract. The Individual contractor shall be solely responsible for all services and obligations performed by his or her subcontractors. The terms of any subcontract shall be subject to, and shall be construed in a manner that is fully in accordance with, all of the terms and conditions of the Contract.

8. **USE OF NAME, EMBLEM OR OFFICIAL SEAL OF THE UNITED NATIONS**: The Individual contractor shall not advertise or otherwise make public for purposes of commercial advantage or goodwill that it has a contractual relationship with UNDP, nor shall the Individual contractor, in any manner whatsoever, use the name, emblem or official seal of UNDP, or any abbreviation of the name of UNDP, in connection with his or her business or otherwise without the written permission of UNDP.

9. **INDEMNIFICATION**: The Individual contractor shall indemnify, defend, and hold and save harmless UNDP, and its officials, agents and employees, from and against all suits, proceedings, claims, demands, losses and liability of any kind or nature, including, but not limited to, all litigation costs and expenses, attorney's fees, settlement payments and damages, based on, arising from, or relating to: (a) allegations or claims that the use by UNDP of any patented device, any copyrighted material or any other goods or services provided to UNDP for its use under the terms of the Contract, in whole or in part, separately or in combination, constitutes an infringement of any patent, copyright, trademark or other intellectual property right of any third party; or (b) any acts or omissions of the Individual contractor, or of any subcontractor or anyone directly or indirectly employed by them in the performance of the Contract, which give rise to legal liability to anyone not a party to the Contract, including, without limitation, claims and liability in the nature of a claim for workers' compensation.

10. **INSURANCE**: The Individual contractor shall pay UNDP promptly for all loss, destruction or damage to the property of UNDP caused by the Individual contractor, or of any subcontractor, or anyone directly or indirectly employed by them in the performance of the Contract. The Individual contractor shall be solely responsible for taking out and for maintaining adequate insurance required to meet any of his or her obligations under the Contract, as well as for arranging, at the Individual contractor's sole expense, such life, health and other forms of insurance as the Individual contractor may consider to be appropriate to cover the period during which the Individual contractor provides services under the Contract. The Individual contractor acknowledges and agrees that none of the insurance arrangements the Individual contractor shall, in any way, be construed to limit the Individual contractor's liability arising under or relating to the Contract.

11. **ENCUMBRANCES AND LIENS:** The Individual contractor shall not cause or permit any lien, attachment or other encumbrance by any person to be placed on file or to remain on file in any public office or on file with UNDP against any monies due to the Individual contractor or to become due for any work donor or against any goods supplied or materials furnished under the Contract, or by reason of any other claim or demand against the Individual contractor.

12. **FORCE MAJEURE; OTHER CHANGES IN CONDITIONS:** In the event of and as soon as possible after the occurrence of any cause constituting *force majeure*, the Individual contractor shall give notice and full particulars in writing to UNDP of such occurrence or cause if the Individual contractor is thereby rendered unable, wholly or in part, to perform his or her obligations and meet his or her responsibilities under the Contract. The Individual contractor shall also notify UNDP of any other changes in conditions or the occurrence of any event, which interferes or threatens to interfere with the performance of the Contract. Not more than fifteen (15) days following the provision of such notice of *force majeure* or other changes in conditions or occurrence, the Individual contractor shall also submit a statement to UNDP of estimated expenditures that will likely be incurred for the duration of the change in conditions or the event. On receipt of the notice or notices required hereunder, UNDP shall take such action as it considers, in its sole discretion, to be appropriate or necessary in the circumstances, including the granting to the Individual contractor of a reasonable extension of time in which to perform any obligations under the Contract or suspension thereof.

Force majeure as used herein means any unforeseeable and irresistible act of nature, any act of war (whether declared or not), invasion, revolution, insurrection, or any other acts of a similar nature or force, *provided that* such acts arise from causes beyond the control and without the fault or negligence of the Individual contractor. The Individual contractor acknowledges and agrees that, with respect to any obligations under the Contract that the Individual contractor must perform in or for any areas in which UNDP is engaged in, preparing to engage in, or disengaging from any peacekeeping, humanitarian or similar operations, any delay or failure to perform such obligations arising from or relating to harsh conditions within such areas or to any incidents of civil unrest occurring in such areas shall not, in and of itself, constitute *force majeure* under the Contract

13. **TERMINATION**: Either party may terminate the Contract, in whole or in part, upon giving written notice to the other party. The period of notice shall be five (5) days in the case of contracts for a total period of less than two (2) months and fourteen (14) days in the case of contracts for a longer period. The initiation of conciliation or arbitral proceedings, as provided below, shall not be deemed to be a "cause" for or otherwise to be in itself a termination of the Contract. UNDP may, without prejudice to any other right or remedy available to it, terminate the Contract forthwith in the event that: (a) the Individual contractor is adjudged bankrupt, or is liquidated, or becomes insolvent, applies for moratorium or stay on any payment or repayment obligations, or applies to be declared insolvent; (b) the Individual contractor is granted a moratorium or a stay or is declared insolvent; (c) the Individual contractor makes an assignment for the benefit of one or more of his or her creditors; (d) a Receiver is appointed on account of the insolvency of the Individual contractor; (e) the Individual contractor offers a settlement in lieu of bankruptcy or receivership; or (f) UNDP reasonably determines that the Individual contractor has become subject to a materially adverse change in financial condition that threatens to endanger or otherwise substantially affect the ability of the Individual contractor to perform any of the obligations under the Contract.

In the event of any termination of the Contract, upon receipt of notice of termination by UNDP, the Individual contractor shall, except as may be directed by UNDP in the notice of termination or otherwise in writing: (a) take immediate steps to bring the performance of any obligations under the Contract to a close in a prompt and orderly manner, and in doing so, reduce expenses to a minimum; (b) refrain from undertaking any further or additional commitments under the Contract as of and following the date of receipt of such notice; (c) deliver all completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to UNDP thereunder; (d) complete performance of the services not terminated; and (e) take any other action that may be necessary, or that UNDP may direct in writing, for the protection and preservation of any property, whether tangible or intangible, related to the Contract that is in the possession of the Individual contractor and in which UNDP has or may be reasonably expected to acquire an interest.

In the event of any termination of the Contract, UNDP shall only be liable to pay the Individual contractor compensation on a pro rata basis for no more than the actual amount of work performed to the satisfaction of UNDP in accordance with the requirements of the Contract. Additional costs incurred by UNDP as a result of termination of the Contract by the Individual contractor may be withheld from any amount otherwise due to the Individual contractor by UNDP.

14. **NON-EXCLUSIVITY**: UNDP shall have no obligation respecting, and no limitations on, its right to obtain goods of the same kind, quality and quantity, or to obtain any services of the kind described in the Contract, from any other source at any time.

15. **TAXATION:** Article II, section 7, of the Convention on the Privileges and Immunities of the United Nations provides, *inter alia*, that the United Nations, including its subsidiary organs, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties and charges of a similar nature in respect of articles imported or exported for its official use. In the event any governmental authority refuses to recognize the exemptions of the United Nations from such taxes, restrictions, duties or charges, the Individual contractor shall immediately consult with UNDP to determine a mutually acceptable procedure. UNDP shall have no liability for taxes, duties or other similar charges payable by the Individual contractor in respect of any amounts paid to the Individual contractor under this Contract, and the Individual contractor acknowledges that UNDP will not issue any statements of earnings to the Individual contractor in respect of any such payments.

16. **AUDITS AND INVESTIGATIONS**: Each invoice paid by UNDP shall be subject to a post-payment audit by auditors, whether internal or external, of UNDP or by other authorized and qualified agents of UNDP. The Individual contractor acknowledges and agrees that UNDP may conduct investigations relating to any aspect of the Contract or the award thereof, and the obligations performed thereunder.

The Individual contractor shall provide full and timely cooperation with any post-payment audits or investigations hereunder. Such cooperation shall include, but shall not be limited to, the Individual contractor's obligation to make available any relevant documentation and information for the purposes of a post-payment audit or an investigation at reasonable times and on reasonable conditions. The Individual contractor shall require his or her employees, subcontractors and agents, if any, including, but not limited to, the Individual contractor's attorneys, accountants or other advisers, to reasonably cooperate with any post-payment audits or investigations carried out by UNDP hereunder.

If the findings or circumstances of a post-payment audit or investigation so warrant, UNDP may, in its sole discretion, take any measures that may be appropriate or necessary, including, but not limited to, suspension of the Contract, with no liability whatsoever to UNDP.

The Individual contractor shall refund to UNDP any amounts shown by a post-payment audit or investigation to have been paid by UNDP other than in accordance with the terms and conditions of the Contract. Such amount may be deducted by UNDP from any payment due to the Individual contractor under the Contract.

The right of UNDP to conduct a post-payment audit or an investigation and the Individual contractor's obligation to comply with such shall not lapse upon expiration or prior termination of the Contract.

17. **SETTLEMENT OF DISPUTES**:

AMICABLE SETTLEMENT: UNDP and the Individual contractor shall use their best efforts to amicably settle any dispute, controversy or claim arising out of the Contract or the breach, termination or invalidity thereof. Where the parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the Conciliation Rules then obtaining of the United Nations Commission on International Trade Law ("UNCITRAL"), or according to such other procedure as may be agreed between the parties in writing.

ARBITRATION: Any dispute, controversy or claim between the parties arising out of the Contract, or the breach, termination, or invalidity thereof, unless settled amicably, as provided above, shall be referred by either of the parties to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The decisions of the arbitral tribunal shall be based on general principles of international commercial law. For all evidentiary questions, the arbitral tribunal shall be guided by the Supplementary Rules Governing the Presentation and Reception of Evidence in International Commercial Arbitration of the International Bar Association, 28 May 1983 edition. The arbitral tribunal shall be empowered to order the return or destruction of goods or any property, whether tangible or intangible, or of any confidential information provided under the Contract, order the termination of the Contract, or order that any other protective measures be taken with respect to the goods, services or any other property, whether tangible or intangible, or of any confidential information provided under the Contract, as appropriate, all in accordance with the authority of the arbitral tribunal pursuant to Article 26 ("Interim Measures of Protection") and Article 32 ("Form and Effect of the Award") of the UNCITRAL Arbitration Rules. The arbitral tribunal shall have no authority to award punitive damages. In addition, unless otherwise expressly provided in the Contract, the arbitral tribunal shall have no authority to award interest in excess of the London Inter-Bank Offered Rate ("LIBOR") then prevailing, and any such interest shall be simple interest only. The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such dispute, controversy or claim.

18. **LIMITATION ON ACTIONS**: Except with respect to any indemnification obligations in Article 9, above, or as are otherwise set forth in the Contract, any arbitral proceedings in accordance with Article 17, above, arising out of the Contract must be commenced within three (3) years after the cause of action has accrued.

The Parties further acknowledge and agree that, for these purposes, a cause of action shall accrue when the breach actually occurs, or, in the case of latent defects, when the injured Party knew or should have known all of the essential elements of the cause of action, or in the case of a breach of warranty, when tender of delivery is made, except that, if a warranty extends to future performance of the goods or any process or system and the discovery of the breach consequently must await the time when such goods or other process or system is ready to perform in accordance with the requirements of the Contract, the cause of action accrues when such time of future performance actually begins,

19. **PRIVILEGES AND IMMUNITIES**: Nothing in or relating to the Contract shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including its subsidiary organs.

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Amendment to the Individual Contract

IC No.: BRB_ICC_2020_055134

Reference is hereby made to the Individual Contract Number **BRB_ICC_2020_055134** (hereinafter referred to as "*the Contract")* signed on **13-Apr-2020** between the UNITED NATIONS DEVELOPMENT PROGRAMME (hereinafter referred to as "*UNDP*"), and **PAUL STEFAN HATTLE** (hereinafter referred to as "*the Individual Contractor*"), UNDP and the Individual Contractor collectively referred to as the "Parties", with respect to the performance of the assignment of **Chief Technical Adviser for the Low Carbon Development Path Project**.

WHEREAS *PAUL STEFAN HATTLE* and UNDP have agreed *to extend the contract date from 15 November 2020 to 24 March 2021 to complete the deliverables*.

NOW THEREFORE, the relevant Contract is hereby being amended to read as follows:

Deliverable	Original Due Date	Amended Due Date
Deliverable 6: Compile Training Manual in Code of Good Solar PV Installation Practices for Technicians; Provide support in developing training workshop	28 July 2020	29 January 2021
Deliverable 8: Design and conduct training seminar for decision makers on opportunities, risks, policies that will catalyse low carbon transition; provide support in developing publication materials for the seminar	8 September 2020	19 January 2021
Deliverable 9: Provide support with Terminal Evaluation and/or Extension Request, as needed	13 October 2020	24 March 2021
Deliverable 10: Provide direct technical and strategic assistance to the NPC and other counterparts in areas of project planning, management and implementation of the technical assistance components of the project.	13 October 2020	20 March 2021
Mission 1: Mission to conduct WS/seminars, finalize deliverables with project stakeholders in Government	01 September 2020 30 September 2020	05 January 2021 30 January 2021

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Mission 2: Mission to conduct WS/seminars, finalize deliverables with project stakeholders in Government	20 October 2020 30 November 2020	1 March 2021 20 March 2021

NEVERTHELESS, all other terms and conditions of the Contract, except as amended herein, shall remain unchanged and shall continue to be in effect.

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment to the Contract.

AUTHORIZING OFFICER: **United Nations Development Programme**		**INDIVIDUAL CONTRACTOR**:	
Signature:		Signature:	
Name:	UGO BLANCO	Name:	PAUL STEFAN HATTLE
Title:	Resident representative, a.i	Title:	Consultant
Date:	2020-11-27	Date:	15 December 2020

Paul Hattle **21 April 2020**

Dear Kimisha, kindly note my comments as follows:

1. Comments on the Document TOR for CCTF

1. The TOR seeks to hire a Finance Expert (expert 1).

Referring to paragraph 1 page 2, please confirm team:

NPC is Kimisha;
CTA is Paul
National project Director is Dani Evanson
Energy Finance Expert (expert 2): please advice

Comment 1:
-kindly let me know the role of those 2 financial experts (1+2) within the project context, please

2. Cutting items between the TOR and my deliverables
- Task II; Task III; and Task IV
- Table "project Expected Deliverables" Stage 3: Feasibility phase, detailed feasibility report.
- Table "project Expected Deliverables" Stage 5: Establish the Trust Fund, Formalization of the Fund.

The above-mentioned items are very similar to my deliverables.

Comment 2: How are going to be those items separated among the individual finance expert and CTA?

Comment 3: Is going the Finance individual to work under my guidance, and support me to prepare and deliver the above-mentioned products?

Kindly confirm on Comments 2+3.

2. Comments on the Document AWP

Please, let's discuss the budget situation, and how to make good use of remaining resources until end of the project

3. Comments on the Document RFQ solar

Comment 1: kindly arrange invite to the bidder's conference for me on 23 April, 16:00 CET, please.

Comment 2: bidding conditions are missing as follows:
2.1-bidder's responsiveness criteria
2.2-bidder's specific experience
2.3-specific project references related to the TOR of the RFQ.

Comment 3: local partner engagement shall be open also to individuals as well. Only requesting mandatory partnership with local companies, will create a speculative and unfair competitive environment in a such small market.

Comment 4: the technical content of the RFQ is misleading, unfortunately.
4.1-It lacks on precise technical description and standards for all items.
4.2-Since Annex 3 is weak and poorly elaborated (sub-standard), getting a realistic offer out of this documentation from serious bidders is adventurous.

Comment 5: hybrid system basic viability model (UNDP own reference product) is missing.
Without this, the bidders won't be able to create a decent and realistic financial and technical quotation.

Comment 6: net metering regime is mentioned (paragraph 1 page 8).
Please include the net metering-regime's latest version of policy and applicable regulation as an annex. This will definitely help to draft the financial model of the engagement from the bidder's side.

Comment 7: internal (in-house) UNDP-performance ratio and specific energy yield assessment estimates is missing.
-Without an internal baseline (i.e. own UNDP simulation assessment) every bidder will just play with over-optimistic and therefore misleading assumptions.

Comment 8: standardization
Request for standards provided is too generic and not applicable.
Each component has own baseline standards to follow. List of standards shall be included.

4. Comments on Annex 3:
Unfortunately, as a whole the assessment is weak, lacks useful parameters, and cannot be used for designing any system. Following fundamental items are missing as follows:

(i) weather assessment is missing and shall be included:
it is very important to have it for designing the resilience of the civil structures of the systems. Parameters missing are as i.e., humidity, wind velocity, including hurricane/tornado season, solar radiation yearly table, annual precipitation (rains) level in tabular format, etc.

(ii) electricity demand curve during the day is missing and shall be included:
This is paramount to show how much electricity is consumed at what time of the day. This curve is important to design the size of the system and shall be obtained by measuring the site over at least 2 week days over a period of 24h. Also measurement over weekends if activities are there.

NOTES:
-Is in each project site any regular activity during weekends?
If not, the sizing of the equipment will be different.
If yes, then it shall be mentioned and measured.
-Both scenarios will have a big influence in the budget and technical sustainability of the system as a whole
-it is only showed an "average consumption of electricity" there, which is not useful when sizing and designing the roof-top system (it serves only as a high-level reference for having an idea of the electrical size of the site).

(iii) how was the storage size without the load-curve calculated?
Without a load curve it is technically odd to provide a design, since the system is dynamic (it consumes different loads across the each hour of week days, while on weekends and holidays perhaps it is closed -if no use is given to the facility- and if not well designed, the storage system will suffer.

NOTE:
For a solar home-system (which is not the case here) a load curve is not needed, just a list of equipment and consumption (what the author of the report did), which is fine for a static system, but a disaster for a dynamic system.

(iv) area of roof-tops is missing and shall be included:
-therefore, how was the PV capacity (kWp) estimated?

(v) distance to the connection point is missing and shall be added:
-this is needed to estimate the size and quantity of the cabling.

(vi) power distribution indicators are missing and shall be included:
-plate-data of the distribution transformer of each grid connected school,
-electrical data of electrical low voltage cabinet.
-for the off-grid system, electrical data panel/cabinet.

(vii) Issue with Salybia primary school:
I do not agree with putting the school out of the program. From the reputational point of view, it is harmful to have a PV system not working.

My strong suggestion is that the program shall rescue the existing PV panels, by re-designing and re-sizing the systems. It is really not complicated and it will save a lot of funding.

COSTING.
(viii) before going for installing the PV systems, it is very cost-efficient to include change of fluorescent lighting by LED and AC-fans by DC fans (or new efficient ones). This will safe a lot of CAPEX and later on OPEX.

(ix) Please, it is important to know the source of the cost estimation, which according to the market development for PV and storage it is way too much exaggerated and not realistic:

"**the price per kWp used was $7,000-USD for battery installed systems"

(x) Risk assessment:
The risk matrix for project implementation and operational phase is missing, and shall be added.

(xi) Site Visits:
Due to the Corona situation, site visits have been suspended.
Annex 3 which is the basis of the RFQ, in addition to the RFQ document itself shall contain accurate information based on my comments above, instead.

Kind regards,
Paul

2020

Establishing an Environmental Protection and Climate Change Department at the Ministry of Environment in Dominica

UNITED NATIONS DEVELOPMENT PROGRAMME:
LOW CARBON PATH PROJECT FOR DOMINICA

PAUL STEFAN HATTLE

Abstract

The need to creating the Environmental and Climate Change Department (EPCCD) in Dominica is supported by political commitment, and a common sense of responsibility among key stakeholders.

In the national context, the need for an inclusive, systemic, and comprehensive national institutional action to addressing environmental impacts caused by human interventions and responding to the effects of climate change.

Dominica is facing an unprecedented, and multi-sectoral challenge to pursuing its Sustainable Development Goals, in lieu with the country's national development strategies.

Recognizing this challenge, the government of Dominica has kick-started the process to develop an institutional response strategy, including consequent policy frameworks under the guidance and lead of the Ministry of Environment, Rural Modernization and Kalinago Upliftment. This decision gives a clear indication of the government's political will to effectively deal with environmental issues and climate change on a timely manner, following regionally learnt best practices.

To carry out efficiently and effectively the above-mentioned functions, it is proposed that the EPCCD will initially be staffed by a General Director and two Division Managers, for the Environmental Protection, and Climate Change Adaptation Divisions.

In the medium to long term additional Senior Officers would be added to the specialist national and international core staff.

The role of the EPCCD will be leading, providing strategic support, while coordinating and monitoring the transformational change towards achieving the creation of an environmental-friendly and climate resilient low carbon society for Dominica, having as main functions:

- Coordination of policy development;
- As implementing agency, lead international cooperation;
- Creation of strategic environmental and climate adaptation programs;
- Management of information and data, and public awareness;
- Capacity building, knowledge sharing, and scientific research and development;
- Mobilization of innovative climate finance, donor resources, and private sector funding;
- Mobilization of environmental services; and
- Act as inter-governmental thematic anchor.

Table of Contents

Executive Summary

The need to create an the Environmental and Climate Change Department (EPCCD) at the Ministry of Environment Rural Modernization and Kalinago Upliftment in Dominica, addresses the efforts to respond to unavoidable challenges of environmental sensitivity due to adverse impacts of human (anthropogenic) activities in addition to its vulnerability to adverse impacts caused by climate change effects, and the need of an integrated environmental protection and climate change strategy and plan of action, nationwide.

The quality of responses to those issues, will influence the quality and coherence of chosen transformational instruments, for eventually showcasing Dominica as a good case to follow of a small island development state functioning under environmental and climate security within a low carbon path and circular economy.

The 1st part of this report, deals with the background of environmental and climate related impacts, including natural disasters and existing governance. The 2nd part, deals with the need for an adequate strategy for coping with environment and climate change issues.

The 3rd part, deals with the appraisal of a conductive institutional landscape to create a secure and save scenario for coping with environmental and climate adaptation issues, while the 4th part, deals with the description of the terms of reference of the EPCCD.

Finally, the 5th part, provides recommendations on the way forward.

1. Environmental Impacts caused by Human Activities and by the Effects of Climate Change

1.1 Background of Impacts

Environmental impacts caused by human actions in addition to climate change issues exposes Dominica to an unprecedented and a multi-dimensional challenge for achievement of its Sustainable Development Goals (SDGs).

As a small island developing state (SIDS), the adverse environmental impacts caused by, and because of society, and climate change effects poses serious obstacles to reach a sustainably developed society.

The efforts to address following development challenges are key:

- Environmental sensitivity due to adverse impacts of human activities;
- Vulnerability to adverse impacts of climate change;
- An integrated environmental protection and climate change response strategy;
- Trigger transformational instruments to categorize Dominica as a template of a sustainable, resilient and a resource efficient SIDS under a low carbon path; and
- Circular economy.

1.2 Natural Disasters as a Recurrent Factor

On an average, Dominica is been affected by extreme weather disaster events every year, increasing significantly social, economic and development vulnerabilities.

Marginalized members of the most vulnerable population, especially women and girls, carry the highest burdens in terms of loss of their assets and livelihoods, as they suffer the greatest impacts.

In the absence of effective and adequate measures to address climate change and its adverse environmental and socio-economic impacts, the result is poor economic growth, lost revenues and increased unemployment.

In combination with a constrained fiscal landscape, this additionally affects Dominica's preparedness for mitigation of environmental impacts, prevention of natural disasters, thereby resulting in a substandard allocation of limited resources to address relief, reconstruction, and eventually climate adaptation.

1.3 The Governance Scenario in Dominica Facing Environmental and Climate Issues

The absence of a coherent interinstitutional framework for environmental and climate change response in Dominica is a major constraint to the planning process for sustainable development.

There is a need for a holistic and coordinated institutional and governance arrangements at a national policy level in Dominica for effectively dealing with environmental protection correlated with impacts caused by both, society (anthropogenic) and climate change.

The reasoning, is that national policies, sector-wide priorities and development plans, as well as preparedness for disasters, do not realistically address mitigation of environmental impacts, climate change risk reduction and resilience building, including the related risk assessments, while its needed data management shall be strengthened.

Another issue is the lack of capacity of public sector agencies and civil society to understand that environment and climate are an integral element of action plans and strategies.

2. Need for a Robust National Environmental and Climate Based Response Strategy

Anthropogenic environmental impacts, climate change and their related environmental issues are a cross-cutting development burden, while hampering sustainable growth of society.

Thus, an integrated response approach is needed for triggering an effective holistic strategy to combat environment-climate change related impacts, which should be achieved by addressing issues of management of environmental impact mitigation, climate adaptation and adaptive capacity, management of the cross-sectoral risk matrix on a timely manner, building stress-resilience against physical, social and natural shocks, in addition to putting in place low carbon mitigation options to create sustainable livelihoods on a long term basis.

These facts, also highlights the critical need to have a robust national policy and strategy to effectively respond to environment-climate change risks, both at municipal and national levels. An eclectic national environment-climate change policy will definitely support coordination of all multi-sector related activities and align them with national priorities.

An implementation norm to an integrated climate change strategy requires the following:

- A focal point Ministry of Environment Rural Modernization and Kalinago Upliftment with a clearly defined mandate, responsibility and professional capacity to oversee the integrated implementation of the national environment-climate change strategy;
- A practical and efficient strategy of coordination, monitoring, facilitation, scientific-based decisions; and

- Empowering collective actions at national level to trigger payment for environmental services, and mobilize donor-based blended climate finance resources.

Given the environment-climate change- development (poverty) nexus and the potential of obtaining climate change related financing, in addition to placing monetary charging for environmental services, it is paramount that the Ministry of Environment, Rural Modernization and Kalinago Upliftment as sector lead, coordinates all related interventions with other institutions i.e. finance, planning, agriculture, forestry, fisheries, energy, industry and commerce.

2.1 The Strategic Action

In recognition of the significant effort required to protect the environment and need of coping with climate change issues, Dominica in _____ 20xx established the Ministry of Environment Rural Modernization and Kalinago Upliftment. The national government is now aiming to initiating the process to establish the EPCCD by early 2021 as a priority.

These actions are a clear demonstration of the Government´s recognition, ownership and political support to effectively address environment-climate change responses effectively and in a timely manner into Dominica's sustainable development processes.

2.1.1 Objectives of the Strategic Action

The main objective of Dominica to achieve its full potential should be to implement concerted actions to build an environmentally sound and climate resilient SIDS, promote a fair transition to a low carbon and climate resilient economy, in the context of a secure, cohesive and fair society living on a healthy natural environment, and powered by a diversified energy matrix.

To achieve these objectives, Dominica will strengthen national capacity to face climate change and coordinate climate actions. The EPCCD will play a key role in optimizing national efforts as follows:

- Manage climate risks and build adaptive capacities, to enhance social, economic, and environmental resilience as well as disaster risk management.
- Reinforce coordination efforts to access, allocate, effectively use and account for climate finance.
- Contribute to global cooperation initiatives to mitigate climate change, on the basis of the agreed principles.
- Ensure that climate actions are designed, implemented and monitored in a participatory manner.
- Policy design, and development, leading to review of legislation and development of a legislative framework and agenda, including policy and regulatory alignment.

- Review existing legislation, national policies, and strategies, towards identifying the environment-climate change dimensions to ensure consistency and Integrated planning.
- Mainstreaming of climate change considerations and responses into all relevant sectors and planning bodies.
- Climate Change monitoring and evaluation, science & technology and research & development
- Informed decision-making and planning based on scientific information. Prioritize research, systematic observation, knowledge generation, information management and strengthen early warning systems.
- Climate Change database development, project development, management and coordination as one of the key functions of the Climate Change Department.
- Renewable energy generation, including efficient power infrastructure.
- National strategic education plan and its implementation, including fiscal and financial incentives and disincentives to facilitate behavioral change and awareness raising to contribute to a climate resilient society and a low emissions economy.
- Resource mobilization, through strengthening capacity to access, apply, and account for the use of climate finance; create enabling environment for investment, engage the national financial system and expand capacity to prepare and implement cooperation projects and technology transfer.
- Technology deployment, by fostering development that addresses low emission path development priorities

Further actions and initiatives may include: Risk reduction, mitigation, management and enhancing adaptive capacity of cross-sectoral topics related to environmental impact mitigation and climate change adaptation response; sustainable tourism; food security; soil conservation; watershed management; agriculture and fish farming; rehabilitation of aquifers and saline groundwater resources; coastal resource management; prevention and remediation of health impacts; afforestation and reforestation for economic production; and supporting Dominica's greenhouse gas reduction capacity, among other initiatives.

3. Environmental and Climate Change Institutional Landscape

As discussed earlier, building resilience to environmental protection and climate change adaptation requires a new generation government agency able to bring congregate key- actors to work as an integrated team.

This requires a coherent and functional institutional structure and a consistence governance framework able to follow a multi-sectoral mandate.

The starting point is the availability of a robust national environment-climate change strategy, as it provides the guidelines of rules, procedures, and an accountability (management) framework, which includes tools to monitor, control, evaluate and enforce guidance to ensure that the governance (policy, legal-regulatory frameworks) mandate is being followed up by all national actors and development partners.

3.1 Current Roles in the Performance of Environmental and Climate Change Related Actions

Since becoming a Party to the United Nations Framework Convention on Climate Change (UNFCCC) in 1995, Dominica has implemented climate change activities at the national level and actively participated at the regional and international levels. Dominica ratified the Kyoto Protocol on 25 January 2005, and ratified the Paris agreement on 21 September 2016.

3.1.1 International and Regional Levels

Dominica actively participates in climate change negotiations, as members of executive boards and committees of different international bodies within the negotiating arena, and in different regional forums.

The Ministry of Environment, Rural Modernization and Kalinago Upliftment has the mandate of policy formulation and legal-regulatory responsibility for climate change issues as well as for water, land and air related environmental issues. It will lead the climate change work at national, regional and global levels and will be related to a number of divisions and executive agencies.

3.1.2 National Level

List of institutions relevant to environment and climate change actions

- Blue and Green Economy, Agriculture and National Food Security
- Education, Human resource Planning, Vocational Training and National Excellence
- Finance, Economic Affairs, Investment, Planning, Resilience, Sustainable Development, Telecommunications and Broadcasting
- Foreign Affairs, International Business and Diaspora Relations
- Governance, Public Service Reform, Citizen Empowerment, Social Justice and Ecclesiastical Affairs
- Housing and Urban Development
- Public Works and The Digital Economy
- Tourism, International Transport and Maritime Initiatives
- Trade, Commerce, Entrepreneurship, Innovation, Business and Export Development

3.2 Institutional Gaps

The discussion below defines the basis for an effective governance system to implement an environment-climate change response strategy as an integral component of inclusive development.

The commitment of Dominica's government through the creation of the Ministry for Environment Rural Modernization and Kalinago Upliftment provides an enabling environment to establish a national strategy-based institution.

3.2.1 Systemic gaps

There are major gaps and constraints in the environment-climate change governance system in Dominica, as follows:

- A lack of clear identification of environmental issues and climate change as a high priority development issue, absence of a national strategy and its incorporation into national priorities for implementation;
- An absence of a single focal agency with core mandate for coordinating environment-climate change issues in Dominica;
- An absence of inter- and intra-Ministerial collaboration on critical issues relating to reduction of environmental vulnerability and resilience building of marginalized population;
- Unclear long-term commitment to institutional changes required for ensuring an environmental and climate change strategy implementation as a sustainable development issue;
- Frequent overlapping or duplication of mandates and functions among Ministries, agencies, and departments;
- A lack of clarity on responsible parties for implementing environmental and climate adaptation projects and initiatives.

3.2.2 Governance Gaps

- Absence of a holistic and integrated policy framework;
- Unclear policy guidance; fragmented and often inconsistent policy approaches;
- Absence of an overarching legal framework;
- A fragmented structure for management integrated strategies, with a limited scope and a mandate still in the development phase, including a weak organizational structure with limited accountability;
- Capacity constraints, staff with low technical capacity; lack of financial resources

3.2.3 An Enabling Environment

An institutional environment will be enabled by the existence of broad-based institutions and professionals with rich experience in understanding, formulating and implementing environmental and climate change response strategies along with knowledge networking and exchange experience at regional and global levels.

In addition to negotiators, authoritative scientists and knowledge practitioners to ensure evidence based and informed decision-making to facilitate the creation and implementation of an effective climate change response strategy; also existence of a vibrant and participative civil society.

The creation of a sustainable institutional mechanism to implement an integrated environmental and climate change strategy would provide Dominica with leadership among the SIDS countries as well as the possibility of mobilizing donors' interest in effectively addressing climate change responses.

4. The Environmental Protection and Climate Change Department

The main outcome of the EPCCD is to facilitate an integrated and inclusive development of an adaptive and climate resilient society functioning within a low carbon economy, living in healthy natural environment, and in line with Dominica's vision for sustainable development.

The key role of the EPCCD within the Ministry of Environment, Rural Modernization and Kalinago Upliftment will be to put in place a series of instruments, and mechanism to enforce the integration of protection of the environment linked to appropriate climate change responses within national development policies and action plans.

This fact will be strengthening the governance of the Ministry of Environment, Rural Modernization and Kalinago Upliftment on the long term, towards materializing the national strategy to adapt to climate change.

The operationality of the EPCCD would lie in its level of flexibility to smoothly lead, coordinate, and facilitate communication, consensus, and actions across national Ministries, government agencies, and other stakeholders. Such interaction will build strategic bridges and partnerships to ensure integrated and systematic implementation of the national environmental protection and climate change response endeavors.

An important tool for success is the effective and efficient management of relevant data needed for taking quick decisions, allowing allocation of resources and exchange of timely and relevant information.

4.1 Mission and Strategic Objectives

The EPCCD will ensure that policies, systems, institutions, including established monitoring, controlling, and evaluation mechanisms are in working to undertake environmental protection and climate change adaptation as an inclusive development priority to strengthen resilience, especially in the most vulnerable sectors of society.

The EPCCD's ability to lead, facilitate and coordinate strategic support, advance resource mobilization and develop innovative partnerships to effectively address climate change at national and local levels will lead Dominica's transformation to a climate resilient society.

The EPCCD will lead the process and put in place, as a matter of priority, a national environmental and climate change response policy in a participative manner.

The process will fill-in gaps as i.e. policy coordination, and integrated cross-sectoral implementation to ensure resilient communities with abilities to anticipate adapt, and mitigate adverse environmental impacts of climate change.

While the strategy should look at both adaptation and mitigation options, it is clear that for a small island country that occupies the most vulnerable status with other island states and with very small contribution to the global carbon regime, the mitigation activities should also prioritize an adaptation framework and contribute to strengthening livelihoods, creating jobs, building resilience and sustaining the island economy.

The EPCCD will mobilize resources in close collaboration with relevant agencies and institutions and ensuring that the country meets optimal requirements and has a vision and adequate capacity and good governance mechanisms in place to generate confidence among international donors, funding agencies and private sector partners in Dominica's ability to efficiently and transparently deliver.

The EPCCD will in addition, lead the formulation and implementation of a national resource mobilization strategy. It also will manage the institutionalization of a mechanism with accountability to make tangible the resource mobilization strategy an "on-the- ground reality".

Such a strategy will require clear political guidance to access the diverse and multiple sources of funding. There is a need to define clear criteria for prioritizing issues and areas, ensure seamless coordination between different government agencies, and establish the existence of adequate human, institutional and system-wide capacities to prepare and implement a pipeline of programs with clear outcomes and accountabilities.

Despite protracted agreements on future commitments in the international climate change negotiations led by the Conference of Parties (CoPs) to the United Nations Framework Convention on Climate Change (UNFCCC), there are positive indications and signs of an increasing flow of financial resources from different sources to address climate change responses, especially in the vulnerable countries, i.e. the Green Climate Fund.

The sources would include multilateral, bilateral, public funding sources, ethical private funds, business funding, among others.

While the EPCCD will play a key role in this process, it is vital that it puts in place a coherent process to empower existing institutions with comparative strength in strategic agreed focal areas of intervention, in line with the policies of diverse actors and institutions.

4.1.1 Strategic Objectives

The EPCCD would be guided by the following strategic objectives:

- Coordinate national environment-climate efforts at local, national, regional and global levels, including Ministries, Executive Agencies, Departments, and non-governmental agencies, including the private sector.
- Lead the formation of a viable National Environmental Protection and Climate Change Response Strategy in lieu with Dominica's National Plan.
- Steer cross-sectoral actors towards common objectives and rules of coordination and constitutional ability to enforce decisions and actions.
- Lead a participatory policy formulation process.
- Coordinate and facilitate Dominica's strategic and unified position in global and regional climate change negotiations thereby making the country a recognized leader in the SIDS community.

- Coordinate, guide and monitor activities at local and national levels to strengthen adaptive capacities, reduce vulnerabilities to the adverse environmental impacts of climate change and enhance climate resilience, including through low carbon development.
- Facilitate partnerships across Ministries and departments, civil society and the private sector, including public awareness, education and training related to anthropogenic environmental impacts and related climate change issues.
- Coordinate, support and enhance national level information and knowledge generation, analysis and dissemination in collaboration with research institutions, and creation of communities of practice.
- Establish a proactive donor resource mobilization strategy with clear identification of a low carbon project pipeline while also having a clear monitoring and evaluation network in place.

4.2 Institutional Arrangements: Horizontal and Vertical Collaboration

The complexity, severity and interconnectedness of environmental and climate change impacts, needs an innovative administrative structure and processes that integrates environmental protection and climate adaptation responses within the overall inclusive development framework.

Such responses require deliberate and high-level coordination and collaboration with a multitude of line ministries and diverse stakeholders. From both efficiency and effectiveness purposes, it becomes necessary to leverage competent and experienced specialized agencies and professionals to formulate and implement strategies and policies, while avoiding overlap and duplication.

In addition, climate change requires an active engagement of the private sector and civil society in the formulation and implementation of a fair governance framework and plans of action.

Therefore, horizontal collaboration capacities with line ministries, leveraging vertical collaboration capacities with specialized agencies, and strengthening partnerships with non-state actors, such as private businesses, academia and NGO's is requested.

4.2.1 Horizontal Collaboration with Relevant Line Ministries

Horizontal institutional collaboration contributes to aligning the policies and operations of the relevant line ministries with the national climate change strategy thereby integrating responses to combat the adverse impacts of climate change, while also enhancing low carbon development across related sectors.

The EPCCD member must have strong political, managerial and collaborative skills and experience to ensure that successful horizontal collaboration also leads to strengthened teamwork within the policy makers and Dominican Civil Service.

Effective collaboration mechanisms are to be embedded in a clear political vision underlying the commitment towards integrated climate change responses based on an inclusive national climate change policy and a common timeframe for measurable results.

Operating processes underlying horizontal collaboration mechanisms include:

- Establishing high-level inter-ministerial committees on priority environmental mitigation and climate adaptation responses and related issues;
- Appointing environmental and climate change focal points (at mid-senior decision-making levels) in relevant line ministries;
- Incentivizing through fiscal mechanisms to encourage an integrated response to environmental mitigation and climate adaptation, including available resources;
- Scheduling regular networking meetings led by EPCCD with relevant line ministries to discuss new ideas, monitor the progress of on-going activities, status of and opportunities for resource mobilization;
- Keeping a holistic political leadership, including a coherent communication strategy providing updates to civil society, sharing knowledge, and strengthening advocacy, as timely and regular information sharing assists in building ownership of all stakeholders.

Operating processes with the Ministry of Finance:

The Ministry of Finance (MOF) plays a key role in ensuring successful implementation of environmental programs and climate change responses in the country and therefore on the effectiveness of national climate change institutions.

This vital role emanates from its responsibilities relating to fiduciary management of international climate funds, setting national priorities along with allocation of resources that also includes budget allocation for EPCCD and related activities.

The EPCCD should keep the MOF closely involved in all strategic decisions including policy planning, results of its activities, and resource mobilization opportunities. In fact, it is recommended to have a designated focal point in the MOF for communication with the EPCCD.

4.2.2 Vertical Collaboration with Relevant Executive Agencies

Dominica has a grid of specialized Executive Agencies, Departments and Divisions with significant capacities including that of outreach, experience, knowledge and specific implementation mandates. This will provide the opportunity for the EPCCD to coordinate and add value to effectively implement national strategies in an integrated manner.

As in the case of horizontal collaboration the vertical collaboration opportunity can be maximized by the EPCCD through:

(i) Working closely with these entities to include responses to environmental and climate adaptation issues as an integral component of their mandates, and

(ii) Enhancing efficiency of their operations by these entities, for instance through the removal of barriers to integrated implementation, resource mobilization for implementation of strategic climate change responses, in the framework provided by the national climate change strategy.

The coordination and facilitation role of the EPCCD would be instrumental in building a national team to effectively face environmental issues and deal with climate adaptation locally and nationally while meeting the global mandates.

Vertical Collaboration

Standard operating processes underlying vertical collaboration mechanisms include:

- Appointing environmental and climate change focal points (specialists) in relevant executive agencies, divisions and departments;
- High-level participation of the EPCCD in existing platforms and taskforces;
- Ensuring the participation of the significant executive agencies and other entities in the scheduled regular meetings led by EPCCD with relevant line ministries to discuss new ideas, monitor the progress of on-going activities, status of and opportunities for resource mobilization, etc.;
- Effective, inclusive and participatory communication strategies and procedures that are common for all actors and institutions that contribute to the relevant national strategies.

4.2.3 Engagement with non-state actors

The uniqueness of the threat of climate change and their environmental impacts makes it an imperative,

(i) To foster an integrated approach to inclusive development that ensures the inclusion of mitigation, adaptation and resilience building elements in the strategy;

(ii) All development actors as i.e. civil society, public and private sectors are actively engaged with the public institutions in implementing a strategy to combat and alleviate such challenge.

The effective implementation of climate change responses requires a widespread understanding of the severity of the situation; a strategy and sense of responsibility for ensuring accountability of leadership and other actors, and the need to demonstrate the willingness to act.

It is increasingly becoming clear that the traditional divide between ‘public’ and ‘private’ is evolving and the formulation and implementation of effective environmental and climate change related policies requires an emphasis on good governance that incorporates both, the “demand side” and “supply side” of inclusive governance, while including the principles of social audit and accountability.

Sustainable development should inherently be equitable and inclusive and require ownership of all stakeholders, in particular of the private sector that should be incentivized to invest in low carbon growth while creating resilient jobs.

The role of the EPCCD here, is ensuring an effective participation of multidisciplinary actors in all aspects of climate change response at the local and national levels. Possible actions could include:

- Strengthening working relations with the private sector including with the Dominica Chamber of Commerce, by engaging them in strategic discussions with the appropriate government agencies to encourage public private partnerships;
- Establish citizens' platforms for participation in environmental and climate change discussions;
- Working with non-public actors to identify equitable incentives and enabling environment to encourage private sector investments in strategic areas of environmental protection, climate adaptation, low-carbon development and resilience building;
- Organizing national awareness raising and education campaigns jointly with non- public actors, especially the education and communication sectors;
- Creating formal links with academic institutions and scientific academia for translating cutting edge research on climate change responses into tangible on-the-ground activities.

Consultations with these organizations would lead to additional ideas for effective implementation of climate change responses.

4.3 Validating Effectiveness of the EPCCD

The EPCCD performance will reflect the effectiveness with which the government would be able to achieve its vision and strategy to protect the environment and face climate change adaptation, while making Dominica resilient to its adverse impacts and pursuing low-carbon development.

Based on the rationale above, it is clear that the EPCCD has to be staffed with a small team of high caliber and competent professionals who should be well versed with environmental and climate change impacts locally, nationally, and best, at regional and global levels.

Those professionals will trigger the department's objectives of:

(i) Coordination of all significant government and non-state actors who are involved in addressing environment and climate change issues;

(ii) Facilitate smooth operations of their activities as an integrated part of inclusive development, including coordination of participatory strategy and policy development and implementation of integrated program;

(iii) Facilitate cutting edge knowledge and management of data (digitalization);

(iv) Coordinating Dominica's participation at international and regional forums;

(v) Facilitate access to a consensual national vision and their thematic decisions;

(vi) Coordinate development of a resource mobilization strategy and mobilization of climate finance from diverse sources including the private sector;

4.4 Institutional Settings & Climate Governance: Global Experience

Global good practices in integrating environmental and climate change issues into national development plans and efficient operations of departments similar to EPCCD should be followed, however, in fact institutional responses to environment and climate adaptation are led by country specific criteria including the structure and procedures of civil service and instruments of non-state actors.

While the lessons learnt highlight the intricacy of the situation, they support the methodology of a focused EPCCD working closely with a high-level advisory group that determines various operating clusters to ensure priorities are addressed in an integrated manner.

Some of the barriers that can constrain efficient working of similar type of departments may include:

- Lack of common environmental and climate change policy and gaps in the national policy;
- Narrowly defined institutional mandates and a lack of specialized institutional frameworks;
- Weak coordination mechanisms with little or no accountability;
- Lack of leadership, commitment, capabilities and resources and issues of sustainability.

The existence of effective leadership and political vision and commitment at the highest levels that translates into enforceable policies and decisions to enable implementation of integrated programs by competent professionals are critical elements of a good governance system.

Accordingly, the EPCCD must be able to demonstrate strategic vision, capacity to deliver, participatory approaches and procedural legitimacy and ability to prudently manage resources.

4.4.1 Environmental and Climate Change Governance

The approaches to environmental and climate change governance reflect national circumstances including commitment and vision of the government, awareness of social actors and civil society to environmental and climate change impacts and mitigation solutions, budgetary constraints, division of responsibilities among various ministries and their adaptive flexibilities to meet national priorities.

Developing countries are increasingly putting in place mechanisms and strategies to support environmental and climate action at local and national levels. It is clear that whilst the establishment of a dedicated entity to coordinate such activities is paramount.

A successful implementation of environmental and climate change related activities into national development planning requires appropriate policies, legal and institutional framework, adequate technical capacity, funding and continued support from the highest level of the government. The following section describes the structure of the initial governance structure of the EPCCD.

4.5 Proposed Governance Structure for the EPCCD

Keeping in view the national circumstances, size of the country and needs, as well as the existing institutional context; and key aspects of sustainability, it is recommended that the EPCCD should be initially staffed by following professionals as follows:

Overall Department Staffing:

- **Director General as the Head of Department** with overall responsibility for the EPCCD with ability to institute a smooth coordination and facilitation mechanism including close cooperation with the Advisory Committee. The Director General will be under the supervision of the Minister.
- **Senior Specialist Governance**, under the Director General, for resource mobilization with competence in managing of governance aspects of environment and climate change, including policy formulation, legal-regulatory frameworks, and its interaction with the private sector, public sector, civil society and international donor partners. Will serve the General Direction and the Divisions of Environment and Climate Change.
- **Senior Specialist Sustainable Finance**, under the Director General, for resource mobilization with competence in the identification of financial aspect and other founding resources. Knowledge of the private sector, public sector, civil society and international donor partners, with a demonstrated ability to mobilize and secure blended resources. Will serve the General Direction and the Divisions of Environment and Climate Change.

  - **Senior Specialist International Cooperation**, under the Director General, with competence for international cooperation, including information and data management, public awareness, knowledge-sharing, outreach and co-ordination with multisectoral donors, including exposure to international negotiations. Will serve the General Direction and the Divisions of Environment and Climate Change.

  - **The Advisory Committee:** it will be composed by a delegated of academia and science of technology; representative of civil society (chamber of commerce, NGO, etc.); a representative of the Ministry of Finance; a representative of Development Partners (as observer); and a team of external technical experts (international). The purpose of the Advisory Committee is to provide a balance and technical guidance on the decision taking process of the Managing body of the EPCCD.

Environmental Division Staffing:

- **Director of the Environmental Division**, a Senior Technical Officer for environmental issues related to anthropogenic activities and climate change related environmental impacts, with competence and ability to facilitate and coordinate integrated programs in strengthening environmental protection including natural disasters. The Director will be under the supervision of the Director General.
- **Senior Specialist Environment**, under the Director Environment, with competence in environmental design, environmental impact assessment related to soil, air, and water, environmental management systems and plans with solid exposure to international cooperation and negotiations aspects.
- **Senior Specialist Energy**, under the Director Environment with competence in carbon mitigation including renewable energy sources and demand side management of energy, with solid exposure to international cooperation and negotiations aspects.
- **Senior Specialist Water**, under the Director Environment with competence in water management and sanitation, management of hydrology, and related environmental impact and social assessment. In addition to management of coastal protection systems with solid exposure to international cooperation and negotiations aspects.

Climate Change Division Staffing:

- **Director of the Climate Change Division**, a Senior Technical Officer for adaptation and resilience building with competence and ability to facilitate and coordinate integrated programs in strengthening adaptive capacity and resilience. The Director will be under the supervision of the Director General.
- **Senior Specialist Climate Adaptation**, under the Director Climate Change with competence in the formulation of national adaptation plans, including climate related governance frameworks, with exposure to climate related risk assessment matrixes and identification of climate sensitivities and vulnerabilities including low carbon path related technologies for application, and able to support the development of a climate resilient SIDS.
- **Senior Specialist Circular Economy and Research and Development**, under the Director Climate Change with competence in the identification of novel, relevant and/or appropriate technologies for application, and able to support the development of a climate resilient SIDS.

The responsibility for coordination of information and data management, public advocacy awareness, education, research and science extends to all positions in their respective areas of focus.

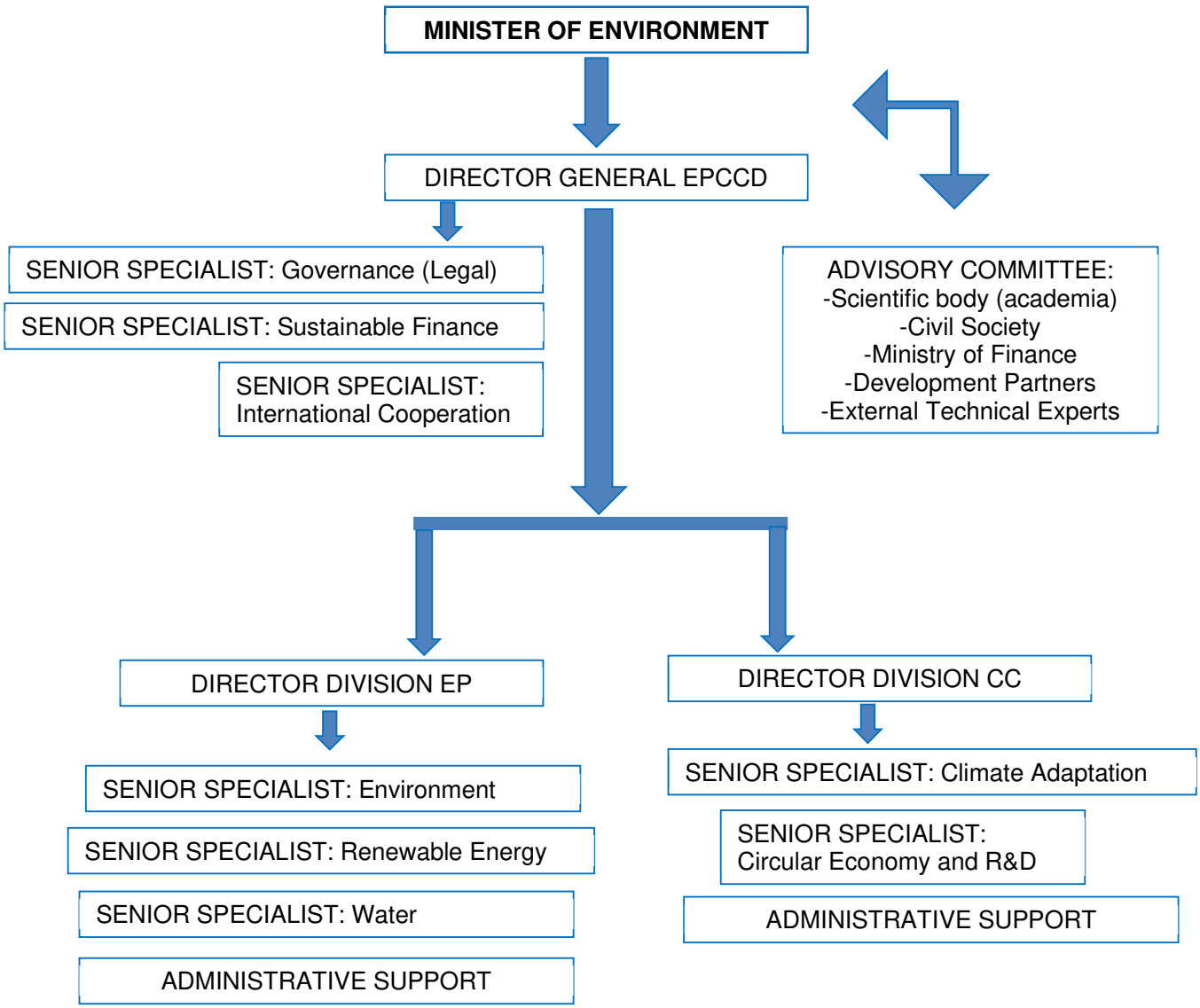
The competence and ability of the EPCCD staff would be an important factor for its success.

It is critical that the EPCCD should start small and carefully document lessons learnt as they proceed to operationalize an integrated approach to climate change response. Also, a phased approach will itself highlight issues related to financial and operational sustainability.

Otherwise a lack of resources may lead to a scenario whereby the department exists in name only without having the ability to fulfil its mission. The draft Terms of Reference for the main management positions, and the EPCCD itself, are given in the Annex Section.

The structural organigram proposed for the EPCCD, is shown in Figure 1.

Figure 1: Proposed Structural Organigram for the EPCCD



4.6 Proposed Plan of Action for the EPCCD

This section outlines a recommended course of action to make the EPCCD operational expedite by putting in place institutional mechanisms identifying, resources and defining priorities while ensuring its sustainability through an iterative process.

The need for effective leadership, a coherent vision and an efficient strategy, with clearly identified responsibilities and accountability, and ensuring that there is timely and tangible delivery cannot be over emphasized.

The leadership would ensure the ownership of the EPCCD's visions and objectives by all stakeholders; set a strategic direction for assuring an integrated approach while building a strong team across stakeholders; have the ability to enforce agreed upon decisions transparently and in the framework of accountability; build upon bipartisan political momentum; facilitate strengthening of institutional capabilities; and make sure that the EPCCD is sustainable.

The strategic perspective would aim to leverage incentives and remove barriers that safeguard a synergistic and an integrated approach to implementing climate change responses in line with the national strategy.

While the measured outputs and outcomes to implement the national climate strategy would be a gauge of progress, its success would be defined by the ability of the EPCCD to empower its stakeholders to deliver on agreed upon vision and strategy. This in turn would be determined by its ability to foster a common purpose and ownership and build creative partnerships.

In addition to the above, effective delivery of results would be contingent on explicitly defined priorities, clearly defined roles, responsibilities and modes of delivery, well-directed plans of action and clear and transparent accountabilities.

4.6.1 Short Term Actions

To be completed between 3 and 6 month-period, including:

- Completion of all political and public agreements including approval by the Cabinet and respective authority of the mandate to establish the EPCCD;
- Deliberated and agreed upon decision on the governance structure of the EPCCD;
- Deliberated and agreed upon decision on the governance structure of the Advisory Committee;
- Budget structure and earmarking of resources to ensure delivery of the work- plan objectives for the first year. It is foreseen that the EPCCD will leverage external resources to supplement national commitment in the subsequent years based on its ability to showcase concrete results.

- Selection of the three competent managers (Director General, Division Director Environment, and Division Director Climate Change) to shape the EPCCD, as their competence and ability of the EPCCD staff would be an important factor for its success.
- Ensure the promotion of the Environmental governance and of the action plan of the National Climate Change Adaptation Plan that has the ownership of national stakeholders as a starting point. It would be helpful for the EPCCD to count on the advisory guidance of the Advisory Committee to supervise the process lead by the EPCCD's Director General.
- Coordinate the access to databases of current activities and on-going projects and project proposals in the pipeline. This would be an important component in the preparation of an effective resource mobilization strategy.

4.6.2 Long Term Actions

- Set standards for the monitoring, reporting and evaluation of integrated climate change programs and activities and ensure their timely completion;
- Foster and coordinate cutting edge knowledge building initiatives and research activities;
- Coordinate, facilitate and ensure the creation of integrated policies in various priority areas, i.e. a comprehensive disaster management policy, strategy and plan of action; integrated water resources management and master plan; agriculture sector plan; clean energy plan of action under the low carbon path initiative, among others. These actions will be guided by Dominica's country action and socio-economic frameworks;
- Create an effective resources mobilization strategy with clear responsibilities and well-defined delivery mechanisms;
- Ensure an effective communication, advocacy, and awareness raising and outreach, as well as education strategies.

4.6.3 Resource Mobilization

The existence of an efficiently functioning EPCCD would be a catalyst to mobilize resources from existing and new sources.

These sources range from the Green Climate Change Fund, Adaptation Fund, other funds created by the existing and post-2020 climate change agreements, from the private sector and foundations as well as through south-south and north-south cooperation.

The shift from projects to programs, sectors or budgetary allocations will require enhanced monitoring, validation and reporting.

It is anticipated that the EPCCD would have to work with MOF to facilitate access to direct budget support and establish transparent systems to track development financing.

National coordination for resource mobilization would identify and track financing opportunities, establish a system for coordinating donor and UNFCCC financing, take stock of existing knowledge, resources, and initiatives, and leverage capacity development initiatives including for proposal preparation and program oversight, quality control, and developing criteria for the eligibility of programs.

4.6.4 Access to Additional Resources

The existing and post-2020 (Paris) climate change agreements are creating and likely to confirm new funding arrangements that could significantly scale up financing for developing countries, especially vulnerable developing countries.

These agreements are anticipated to support national entities to access funds directly under agreed processes standards, i.e. as established under climate adaptation funding, which would therefore be allocated for programs, sectors or designated project-portfolio budgets.

Expertise therefore is required in the areas of budget support, integrated policy and development frameworks, while establishing systems to track development financing.

A coherent national climate change response strategy will serve as a framework for leveraging funds for climate change programs. The interaction and management with project programs, sectors, and budgetary allocations requires precise monitoring, validation and reporting.

National coordination for resource mobilization would identify and track financing opportunities, establish a system for coordinating donor and UNFCCC financing, take stock of existing knowledge, resources, and initiatives, and leverage capacity development initiatives.

To access and channel funds for adaptation and mitigation, and technology acquisition, the EPCCD will enhance capacity in weaker areas, including developing criteria for program eligibility, proposal preparation and oversight, as well as quality control.

The EPCCD will also identify barriers and strengths to low emissions and climate- resilient development, promote the implementation of baseline and needs assessment for data and monitoring systems, including vulnerability indicators for adaptation.

Additionally, the EPCCD will foster private sector participation, by means of investment in key economic sectors and activities, in the context of climate resilience and low emissions economic development (circular economy), and engage national financial institutions.

The EPCCD will play its key role in the national coordination of climate change and environmental related issues context, programmatic framework for development, and accessing resources for environmental protection, climate adaptation, and clean technology leapfrogging.

5. Conclusions

This document comprises a proposal to establish an operational EPCCD within the Ministry of Environment, Rural Modernization and Kalinago Upliftment defines an approach to outline its structure, provides guidance for action and emphasizes the high quality of staff and a good governance system as essential to its success. It is presented to the leadership of the Ministry for consideration and follow-up.

UNDP stands ready to assist the Government in advancing the proposal and efficient operation of EPCCD to its final conclusion and in an iterative manner. The analytical conclusions that substantiate the draft proposal are:

1. A shared sense of the necessity for a comprehensive, unified climate change mandate is clearly perceived and needs to be addressed comprehensively;
2. Currently only ad hoc arrangements cover some of the coordination space. There is an unmet demand to institutionalize cross-sectoral cooperation and a coordination mechanism around climate change responses.
3. Dominica has the leadership, political will and knowledge base to effectively integrate the climate change strategy into inclusive development priorities. It presents a fertile and enabling environment for the inception of a national climate change response strategy and a climate change governance structure;
4. There is a broad spectrum of organizations with rich climate change related experience, understanding and knowledge as well as a rich informal network facilitating knowledge exchange;
5. There is a multitude of climate change related activities, with an emphasis on adaptation in key sectors and in capacity building;
6. There is a wealth of seasoned negotiators, authoritative scientists and knowledgeable practitioners;
7. Political momentum, leadership and expertise exists in Dominica and those positive elements need to be harnessed towards a common goal;
8. Budgetary and financial constrains limit the scope for national actions, as the EPCCD could enhance capacity to access international climate finance through a coordinated approach;
9. The institutional landscape for implementing actions and initiatives requires an *integrated* national framework for coordination, policy and strategy. Consistency and effectiveness would be ensured by a comprehensive national policy and strategy;
10. There is a vast body of data, information and scientific knowledge that requires a sound knowledge management system to optimize its use and avoid duplication;
11. The EPCCD could help the national strategy to access external financial resources that are being made available through the climate change negotiations by leveraging the national climate change strategy and a coordinated approach to achieve the same.

ANNEX 1: Terms of Reference of the Environmental Protection and Climate Change Department

Environmental Protection and Climate Change Department of the Ministry of Environment, Rural Modernization and Kalinago Upliftment

The Prime Minister of Dominica mandated the Ministry of Environment, Rural Modernization and Kalinago Upliftment with an integrated Environmental Protection and Climate Change portfolio.

Further, the Prime Minister announced the plan of establishing a Environmental Protection and Climate Change Department (EPCCD) by year 2021.

The purpose of establishing a EPCCD is to ensure a climate change resilient society and to promote sustainable development in Dominica by enhancing the coordination and monitoring of progresses among existing state and non-state actors.

The EPCCD will be responsible for co-ordination and monitoring of:

i. Policy formulation, and development of Regulatory-Legal Frameworks

ii. Information and data management, and scientific research and development

iii. Public awareness, education, and knowledge sharing

iv. International representation and negotiations

v. Resource mobilization for environmental and climate financing, and other resources

Functions

A. Coordination and Monitoring

i. Establish an appropriate procedure for the coordination of all relevant institutions and stakeholders involved in climate change resilience building.

ii. Coordinate monitoring, reporting and evaluation of the National Environmental, and Climate Change Adaptation Policies, including mitigation of environmental and climate change impacts and outreach inter-governmental multi-sectoral programs and initiatives.

iii. Coordinate the preparation and validation of environmental protection and climate change related national regulatory and legal frameworks and acts.

iv. Act as the focal point for CDM and other market mechanisms.

v. Work with Executive Agencies to monitor implementation of environmental protection and climate change related projects that are aimed at protecting biodiversity and other ecosystems, within a circular economy.

vi. Lead the process of consultation with key sectors for the development of the Government's strategy and programs on environmental protection, climate adaptation and lead their effective implementation.

ii. Coordinate and prioritize adaptation programs in different sectors and systems, identify priority adaptation actions, assess the resource needs, monitor and evaluate performance of programs, projects and adaptation activities, develop procedures for evaluating adaptation actions, analyze and determine incremental costs of environmental and adaptation actions.

iii. Coordinate the preparation and prioritization of mitigation actions, locus of the Designated National Authority, facilitate the elaboration of baselines and methodologies, facilitate access to funding for mitigation actions in renewable energy and energy efficiency initiatives.

B. Policy Formulation:

i. Lead the process for strengthening the process of materializing Dominica's National Climate Change Adaptation Policy, in addition to Dominica's Environmental Legislation, while guiding its implementation in collaboration with other Ministries and Executive Agencies.

ii. Facilitate the integration of environmental and climate change adaptation issues into key sectoral policies related to agriculture, tourism, infrastructure, coastal protection, health, energy, and transport among others.

iii. Provide technical support to the Ministry of Environment, Rural Modernization and Kalinago Upliftment, by reviewing and appraising all Environmental and Climate Change related policies, before the Ministry's approval.

iv. Prepare a comprehensive and coherent environmental mitigation, and climate change response strategy.

C. Information and Data Management and Research and Development

i. Coordinate environmental and climate change research activities and contribute to the determination of research priorities, promote the use of evidenced based planning by encouraging research centers and universities engaged in

environmental and climate change research, facilitate the functioning and access to resources of existing research institutions, vulnerability and risk assessments, develop infrastructure for research activities.

ii. Facilitate national participation in the activities of the Intergovernmental Panel on Climate Change (IPCC), promote scientific and technical cooperation on matters related to environmental systems, climate systems and climate change.

iii. Oversee the collection of climate change information and data. Create and maintain a database for on-going and pipeline projects on Environmental Protection and Climate Change by state and non-state and facilitate access to and use of information. Develop protocols to standardize information gathering and exchange.

D. Public Awareness and Education

i. Coordinate awareness raising education and outreach activities, set national communication goals, develop programs for communication of climate change information and tools for effective outreach, training and capacity building on climate change, pursue partnerships with appropriate information and education agencies of government, NGOs and the private sector to ensure sustained and targeted education and awareness.

E. International negotiations

i. Play a key role in coordinating Dominica's representation for international climate change negotiations, analyzing and articulating national positions, leading the process of preparing national positions for multilateral negotiations and regional for a, including as a Party to the United Nations Framework Convention on Climate Change, its Kyoto Protocol and any new instrument(s) that is ratified in the future (post Paris 2020).

F. Resource Mobilization

i. Identify sources of climate finance, establish relation with donor agencies and funding sources –multilateral, regional, and national.

ii. Elaborate allocation criteria, contribute to prioritize amongst proposed actions, and monitor and evaluate implementation. Elaborate an investment guidance.

Reporting Relationships

The EPCCD reports to the Ministry of Environment Rural Modernization and Kalinago Upliftment through its Minister.

The EPCCD works closely with the Advisory Committee in order to advance environmental and climate change policies, legal-regulatory frameworks, and strategies.

The Advisory Committee will guide the EPCCD in fulfilling its mandate of coordination, facilitation and partnership building, towards integrating environmental and climate change responses in the national planning priorities and processes.

Periodic reports on the work of the unit will be prepared and presented to different main Thematic Working Groups i.e., but not limited to,

- Environmental Protection;
- Natural Resources Management;
- Sustainable Urban and Rural Development;
- National Climate Change Adaptation Plan; among others

END OF DOCUMENT

ANNEX 2: Terms of Reference for The Director General

Environmental Protection and Climate Change Department of the Ministry of Environment, Rural Modernization and Kalinago Upliftment

The Ministry of Environment Rural Modernization and Kalinago Upliftment will be establishing an Environmental Protection and Climate Change Department (EPCCD) within the Ministry.

The purpose of establishing the EPCCD is to ensure a climate change resilient society and to promote sustainable development in Dominica by enhancing the coordination and monitoring of progresses among existing state and non-state actors.

The EPCCD will be responsible for co-ordination and monitoring of:

i. Policy formulation, and development of legal-regulatory frameworks

ii. Information and data management/research and development

iii. Public awareness and education

iv. International negotiations

v. Resource mobilization of climate financing and other resources

Functions of the Director General

The Director General of the EPCCD will have overall responsibility for the Department with gravitas and the ability to institute an impeccable coordination and facilitation mechanism including, close cooperation with the Advisory Committee.

In particular, the Director General will be required to:

i. Establish an appropriate procedure for the coordination of all relevant institutions and stakeholders involved in environmental protection and climate change resilience building.

ii. Coordinate monitoring, reporting and evaluation of the National Climate Change Policy and the implementation of adaptation, mitigation and outreach programs across the Government.

iii. Coordinate the preparation and validation of environmental and climate change related national regulatory frameworks.

iv. Work with Executive Agencies to monitor implementation of climate change projects for adaptation and mitigation.

v. Lead the process of consultation with key sectors for the development of the Government's strategy and programs on adaptation to climate change and guide their effective implementation

vi. Lead the process for the development of Dominica's National Climate Change Policy and enforcement of the existing environmental legislation, guide its implementation in collaboration with other Ministries and Executive Agencies.

vii. Facilitate the integration of environmental and climate change issues into key sectoral policies related to agriculture, tourism, infrastructure, health, energy, and transport among others.

viii. Provide technical support to the Minister of Environment, Rural Development and Kalinago Uplifting, by reviewing and appraising all Climate Change related policies, before the Ministry's approval.

ix. Prepare a comprehensive climate change response strategy.

x. Coordinate climate change research activities and contribute to the determination of research priorities, promote the use of evidenced based planning by encouraging research centers and universities engaged in climate change research, facilitate the functioning and access to resources of existing research institutions, vulnerability and risk assessments, develop infrastructure for research activities, facilitate national participation in the activities of the Intergovernmental Panel on Climate Change (IPCC), promote scientific and technical cooperation on matters related to climate systems and climate change.

xi. Oversee the collection of climate change information and data in the areas of adaptation and mitigation.

xii. Coordinate awareness raising education and outreach activities, set national communication goals, develop programs for communication of climate change information and tools for effective outreach, training and capacity building on climate change, pursue partnerships with appropriate information and education agencies of government, NGOs and the private sector to ensure sustained and targeted education and awareness.

xiii. Play a key role in coordinating Dominica's representation for international climate change negotiations, analyzing and articulating national positions, leading the process of preparing national positions for multilateral negotiations and regional for a, including as a Party to the United Nations Framework Convention on Climate Change, its Kyoto Protocol and any new instrument(s) that is ratified in the future.

xiv. Identify sources of climate finance, establish relation with donor agencies and funding sources –multilateral, regional, and national.

xv. Elaborate allocation criteria, contribute to prioritize amongst proposed actions, and monitor and evaluate implementation.

xvi. Elaborate investment guidance.

xvii. Submit required reports and documentation to the Minister, and the Advisory Committee.

Reporting Relationships

The EPCCD to the Ministry of Environment, Rural Development and Kalinago Uplifting. The Director General will report directly to the Minister. The Director General will supervise the Directors of Environment, and Climate Change.

The EPCCD works closely with the Advisory Committee (AC) in order to advance environmental and climate change policies, strategies and regulatory frameworks. The AC should guide the EPCCD in fulfilling its mandate of coordination, facilitation and partnership building, towards integrating climate change responses in the national planning priorities and processes.

Qualifications

1. Master's Technical Degree or equivalent in Environmental Sciences, Natural Sciences, Engineering, or a related discipline
2. Minimum of fifteen (15) years of relevant experience at the national or international level, with significant managerial experience and involvement in design, monitoring and/or evaluation in the areas of climate change adaptation and mitigation
3. Experience in standard software applications and in handling web-based management systems
4. Demonstrated excellence in written and oral English
5. Demonstrated skills in strategically leading and chairing meetings
6. Proven ability to work effectively with diverse stakeholders at all levels, including private sector, public sector, civil society, academia and the international donor community

END OF DOCUMENT

ANNEX 3: Terms of Reference for The Director of Environment

Environmental Protection and Climate Change Department of the Ministry of Environment, Rural Modernization and Kalinago Upliftment

The Ministry of Environment, Rural Development and Kalinago Upliftment will be establishing an Environmental Protection and Climate Change Department (EPCCD) within the Ministry. The purpose of establishing the EPCCD is to ensure an environmental-friendly and climate change resilient society, while promoting sustainable development in Dominica by enhancing the coordination and monitoring of progresses among existing state and non-state actors.

The EPCCD will be responsible for co-ordination and monitoring of:

i. Policy formulation, and development of legal-regulatory frameworks

ii. Information and data management/research and development

iii. Public awareness and education

iv. International negotiations

v. Resource mobilization of climate financing and other resources

Functions of the Director of Environment

The Director of Environment will coordinate and monitor activities related to environmental issues caused by anthropogenic and climate change effects. The Director will report directly to the Director General EPCCD and will support the Director General in meeting the Terms of Reference of the EPCCD in the area of environmental protection.

In particular, the Director will be required to:

i. Establish an appropriate procedure for the coordination of all relevant institutions and stakeholders involved in environmental protection

ii. Coordinate monitoring, reporting and evaluation of the national environmental legislation and regulation, as well as the implementation of environmental protection programs across the Government.

iii. Work with Executive Agencies to monitor implementation of climate change adaptation projects that are aimed at protecting biodiversity and other ecosystems.

iv. Participate in the process of consultation with key sectors for the development of the Government's strategy and programs on environmental protection and guide their effective implementation.

v. Coordinate and prioritize environmental programs in different sectors and systems, identify priority adaptation actions, assess the resource needs, monitor and evaluate performance of programs, projects and environmental protection activities, develop procedures for evaluating adaptation actions, analyze and determine incremental costs of environmental protection actions.

vi. Introduce the concept of charging for environmental services.

vii. Participate in the process for the implementation of Dominica's national environmental legislation in collaboration with other Ministries and Executive Agencies.

viii. Participate in the preparation of a comprehensive environmental protection strategy.

ix. Oversee the collection of environmental related data, including data related to climate change adaptation

x. Create and maintain a public database for on-going and pipeline projects on environmental protection.

xi. Develop protocols to standardize information gathering and exchange.

xii. Coordinate awareness raising education and outreach activities, and pursue partnerships with appropriate information and education agencies of government, NGOs and the private sector to ensure sustained and targeted education and awareness.

xiii. Identify sources of climate finance establish relationships with donor agencies and funding sources –multilateral, regional, and national.

xiv. Prepare reports, documentation of meetings and make presentations as required.

Reporting Relationships

The Director of Environment will report directly to the Director General, EPCCD and work closely with the Director of Climate Change.

The EPCCD reports to the Ministry of Environment, Rural Modernization and Kalinago Upliftment through its Minister.

The EPCCD works closely with the Advisory Committee (AC) in order to advance environmental and climate change policies, strategies and regulatory frameworks. The AC should guide the EPCCD in fulfilling its mandate of coordination, facilitation and partnership building, towards integrating climate change responses in the national planning priorities and processes.

Qualifications

1. Master's Degree or equivalent in Geography, Environmental Sciences, Natural Sciences or a related discipline
2. Minimum of ten (10) years of relevant experience at the national or international level, with hands-on /practical experience in design, monitoring and/or evaluation in the area of environmental protection and climate change adaptation
3. Experience in standard software applications and in handling web-based management systems
4. Demonstrated excellence in written and oral English
5. Demonstrated skills in strategically leading and chairing meetings
6. Proven ability to work effectively with diverse stakeholders

END OF DOCUMENT

ANNEX 4: Terms of Reference for The Director of Climate Change

Environmental Protection and Climate Change Department of the Ministry of Environment, Rural Modernization and Kalinago Upliftment

The Ministry of Environment, Rural Development and Kalinago Upliftment will be establishing an Environmental Protection and Climate Change Department (EPCCD) within the Ministry. The purpose of establishing the EPCCD is to ensure an environmental-friendly and climate change resilient society, while promoting sustainable development in Dominica by enhancing the coordination and monitoring of progresses among existing state and non-state actors.

The EPCCD will be responsible for co-ordination and monitoring of:

vi. Policy formulation, and development of legal-regulatory frameworks

vii. Information and data management/research and development

viii. Public awareness and education

ix. International negotiations

x. Resource mobilization of climate financing and other resources

Functions of the Director of Climate Change

The Director of Climate Change will coordinate and monitor activities related to climate change adaptation issues and effects. The Director will report directly to the Director General EPCCD and will support the Director General in meeting the Terms of Reference of the EPCCD in the area of climate change.

In particular, the Director will be required to:

xv. Establish an appropriate procedure for the coordination of all relevant institutions and stakeholders involved in climate change adaptation.

xvi. Coordinate monitoring, reporting and evaluation of the national climate change legislation and regulation, as well as the implementation of climate change programs across the Government.

xvii. Work with Executive Agencies to monitor implementation of climate change adaptation projects that are aimed at protecting biodiversity and other ecosystems.

xviii. Participate in the process of consultation with key sectors for the development of the Government's strategy and programs on climate change adaptation and guide their effective implementation.

xix. Coordinate and prioritize climate change programs in different sectors and systems, identify priority adaptation actions, assess the resource needs, monitor and evaluate performance of programs, projects and climate change adaptation activities, develop procedures for evaluating adaptation actions, analyze and determine incremental costs of climate change adaptation actions.

xx. Participate in the process for the implementation of Dominica's national climate change legislation in collaboration with other Ministries and Executive Agencies.

xxi. Participate in the preparation of a comprehensive climate change adaptation strategy.

xxii. Oversee the collection of climate change adaptation related data, including data related to environmental protection.

xxiii. Create and maintain a public database for on-going and pipeline projects on climate change adaptation.

xxiv. Develop protocols to standardize information gathering and exchange.

xxv. Coordinate awareness raising education and outreach activities, and pursue partnerships with appropriate information and education agencies of government, NGOs and the private sector to ensure sustained and targeted education and awareness.

xxvi. Identify sources of climate finance establish relationships with donor agencies and funding sources –multilateral, regional, and national.

xxvii. Prepare reports, documentation of meetings and make presentations as required.

Reporting Relationships

The Director of Environment will report directly to the Director General, EPCCD and work closely with the Director of Climate Change.

The EPCCD reports to the Ministry of Environment, Rural Modernization and Kalinago Upliftment through its Minister.

The EPCCD works closely with the Advisory Committee (AC) in order to advance environmental and climate change policies, strategies and regulatory frameworks. The AC should guide the EPCCD in fulfilling its mandate of coordination, facilitation and partnership building, towards integrating climate change responses in the national planning priorities and processes.

Qualifications

7. Master's Degree or equivalent in Geography, Environmental Sciences, Natural Sciences or a related discipline
8. Minimum of ten (10) years of relevant experience at the national or international level, with hands-on /practical experience in design, monitoring and/or evaluation in the area of environmental protection and climate change adaptation
9. Experience in standard software applications and in handling web-based management systems
10. Demonstrated excellence in written and oral English
11. Demonstrated skills in strategically leading and chairing meetings
12. Proven ability to work effectively with diverse stakeholders

END OF DOCUMENT

Establishing an Environmental Protection and Climate Change Department – EPCCD at the Ministry of Environment in Dominica

CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE FOR DOMINICA

Paul Stefan HATTLE
Chief Technical Advisor
alchimiaSolaris

The Context

The EPCCD will focus on leading, providing strategic support, while coordinating and monitoring the transformational change, towards achieving the creation of an environmental- friendly and climate resilient low carbon society for Dominica.

The expected main functions of the EPCC are:

- Coordination of policy development;
- As implementing agency, lead international cooperation;
- Creation of strategic environmental and climate adaptation programs;
- Management of information and data, and public awareness

The Context

The expected main functions of the EPCCD are:

- Capacity building, knowledge sharing, and scientific R&D;
- Mobilization of innovative climate finance, donor resources, and private sector funding;
- Mobilization of environmental services; and
- Act as the inter-governmental thematic anchor in Dominica

Environmental Impacts

In Dominica, the adverse environmental impacts caused by, and because of society, and climate change-effects poses serious obstacles to reach a sustainably developed society. The following development challenges are key:

- Environmental sensitivity due to adverse impacts of human activities;
- Vulnerability to adverse impacts of climate change;
- An integrated environmental protection and climate change response strategy;
- Trigger transformational instruments to categorize Dominica as a template of sustainable, resilient and a resource efficient Small Island Development State under a low carbon path, under a circular economy regime.

Implementation to an Integrated Climate Change Strategy: R&D

Needed is:

- A focal point Ministry of Environment Rural Modernization and Kalinago Upliftment with a clearly defined mandate, responsibility and professional capacity to oversee the integrated implementation of the national environment-climate change strategy;

- A practical and efficient strategy of coordination, monitoring, facilitation, scientific-based decisions; and

- Empowering collective actions at national level to trigger payment for environmental services, and mobilize donor-based blended climate finance resources.

Implementation to an Integrated Climate Change Strategy: R&D

To achieve these objectives, Dominica will strengthen national capacity to face climate change and coordinate climate actions.

The EPCCD will play a key role in optimizing national efforts as follows:

- Manage climate risks and build adaptive capacities, to enhance social, economic, and environmental resilience as well as disaster risk management.

- Reinforce coordination efforts to access, allocate, effectively use and account for climate finance.

Implementation to an Integrated Climate Change Strategy: R&D

- Contribute to global cooperation initiatives to mitigate climate change, on the basis of the agreed principles.

- Ensure that climate actions are designed, implemented and monitored in a participatory manner.

- Policy design, and development, leading to review of legislation and development of a legislative framework and agenda, including policy and regulatory alignment.

Implementation to an Integrated Climate Change Strategy: R&D

- Review existing legislation, national policies, and strategies, identifying the environment-climate change dimensions to ensure consistency and Integrated planning.

- Mainstreaming of climate change considerations and responses into all relevant sectors and planning bodies.

- Climate Change monitoring and evaluation, science & technology and research & development Informed decision-making and planning based on scientific information.

Implementation to an Integrated Climate Change Strategy: R&D

- Prioritize research, systematic observation, knowledge generation, information management and strengthen early warning systems.

- Climate Change database development, project development, management and coordination as one of the key functions of the EPCCD.

- Renewable energy generation, including efficient power infrastructure.

- National strategic education plan, including fiscal and financial incentives and disincentives to facilitate behavioral change and awareness raising to contribute to a climate resilient society and a low emissions economy.

Implementation to an Integrated Climate Change Strategy: R&D

- Resource mobilization, through strengthening capacity to access, apply, and account for the use of climate finance;

- Create an enabling environment for investment, engaging the national financial system and expanding capacities to prepare and implement cooperation projects and technology transfer.

- Technology deployment, by fostering development that addresses low emission path development priorities

The Institutional Gaps

Systemic Gaps

There are major gaps and constraints in the environment-climate change governance system in Dominica, as follows:

- A lack of clear identification of environmental issues and climate change as a high priority development issue, absence of a national strategy and its incorporation into national priorities for implementation;

- An absence of a single focal agency with core mandate for coordinating environment-climate change issues in Dominica;

The Institutional Gaps

Systemic Gaps

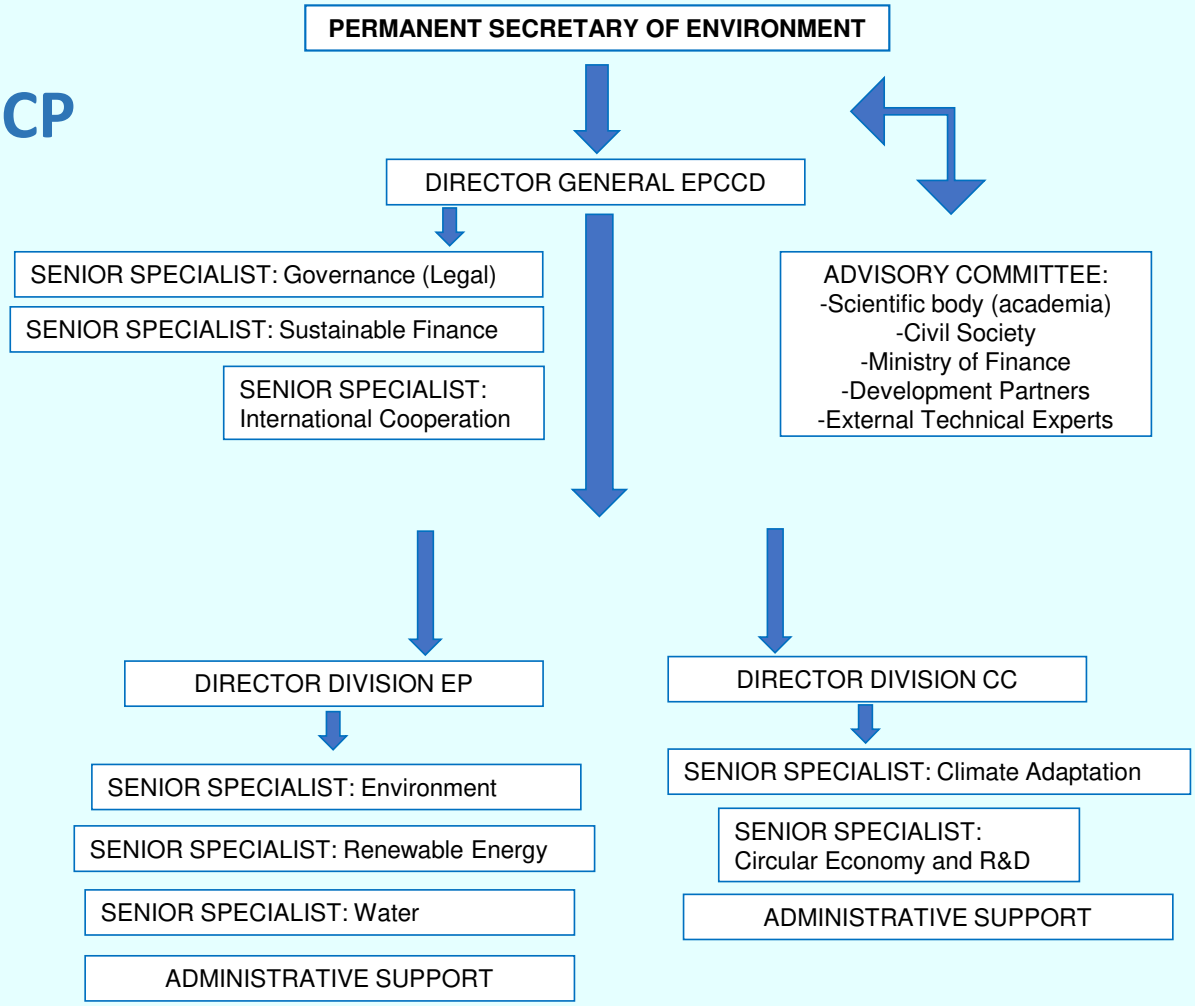
- Absence of inter- and intra-Ministerial collaboration on critical issues relating to reduction of environmental vulnerability and resilience building;
- Long-term vision to create institutional changes is needed for ensuring environmental and CC strategy implementation;
- Frequent overlapping or duplication of mandates and functions among Ministries, agencies, and departments;
- Lack of clarity on responsible parties for implementing environmental and climate adaptation projects and initiatives

The Institutional Gaps

Governance Gaps

- Need for a holistic and integrated policy and legal framework;
- Need for a clearly defined policy guidance; not fragmented and with a consistent approach;
- Need for a solid organizational structure for managing integrated strategies;
- Staff with enough technical capacity are needed; and with adequate financial resources

Proposed Structural Organigram of the EPCCP



The Institutional Validation of the EPCCD

The EPCCD performance will reflect the effectiveness with which the government would be able to achieve its vision and strategy to protect the environment and face climate change adaptation, while making Dominica resilient to its adverse impacts and pursuing low-carbon development.

The EPCCD has to be staffed with a small team of high caliber and competent professionals who should be well versed with environmental and climate change impacts locally, nationally, and best, at regional and global levels.

The Institutional Validation of the EPCCD

Results:

Ability to triggering the department's objectives of:

(i) Coordination of all significant government and non-state actors who are involved in addressing environment and climate change issues;

(ii) Facilitate smooth operations of their activities as an integrated part of inclusive development, including coordination of participatory strategy and policy development and implementation of integrated program

The Institutional Validation of the EPCCD

Results:

Ability to triggering the department's objectives of:

(i) Facilitate cutting edge knowledge and management of data (digitalization);

(ii)Coordinating Dominica's participation at international and regional forums;

The Institutional Validation of the EPCCD

Results:

Ability to triggering the department's objectives of:

(i) Facilitate access to a consensual national vision and thematic decisions;

(ii) Coordinate development of resource mobilization strategy and mobilization of climate finance from diverse sources and private sector;

The way forward

Policy reforms will make markets work effectively and efficiently by:

- Restructuring the Environmental and Climate sector
- Attracting private capital for needed investments
- Phasing out subsidies and phasing in payments for environmental and climate related services
- Internalizing environmental impacts(i.e. taxes, or compensation) and climate externalities (i.e. carbon credits, or circular economy) in society to achieve sustainability

The way forward

Policy reforms will make markets work effectively and efficiently by:

- Strengthening regulations and laws
- Supporting sector innovation
- Accelerating the deployment of sustainable energy technologies
- Promoting energy efficiency
- Building institutional and human capacity
- Improving international cooperation and linkages for climate issues (adaptation) and the environment

The way forward

Barriers in the environmental and climate sector, provide a window of opportunity for simultaneously introducing reforms that facilitate the introduction of innovative sustainability in DOMINICA.

Conclusions

Practical, efficient, and effective policy, legal-regulatory reforms should be able to eventually trigger the creation of the EPCCD

Thank you!

NIRAS

Feasibility study of financial mechanisms for scaling up RE investments in Dominica

Provide recommendations for Energy Performance Contracting and/or other viable arrangements

17. OKTOBER 2020

Indhold/Contents

Projekt nr.: Kimisha Thomas, Project Manager UNDP Dominica
Dokument nr.:
Version 3
Revision

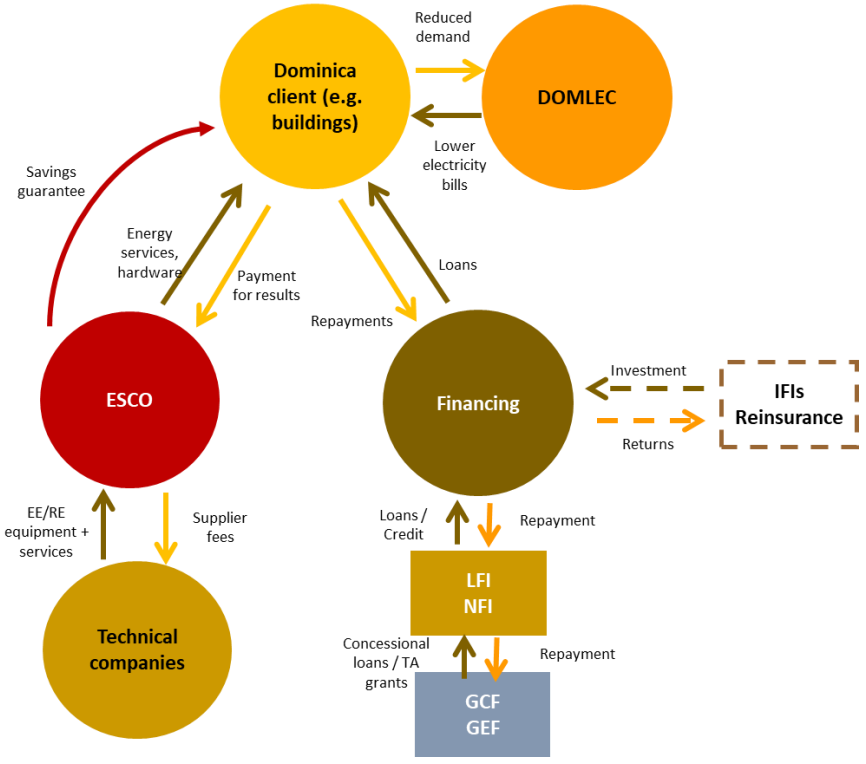
Udarbejdet af Thom Thorsch Krader
Kontrolleret af Jan Gellert (MSc Engineering)
Godkendt af Thom Thorsch Krader

1 Overview

This feasibility study, prepared for UNDP Dominica, analyses energy performance contracting and related financing solutions for the Commonwealth of Dominica. The analysis considers energy efficiency and renewable energy solutions for the public sector including existing and new buildings and technologies, particularly solar photovoltaic installations. In addition to key findings, the report includes comparative assessments and guidelines for a methodology and recommendations.

The report shows that a shared savings energy performance contract model appears to be an especially good fit for the Dominica context with strong potential for attracting financing and maximising impact. The contents are intended to foster activity in energy performance contracting in the Commonwealth and catalyse baseline financing, including from international finance institutions such as the Inter-American Development Bank, Caribbean Development Bank, the Green Climate Fund, the Global Environment Facility and domestic, regional and international commercial sources.

Figure: Dominica energy performance contracting network (prospective)[1]



2 Introduction

Clean energy and energy efficiency projects carry inherent risks to the customer—that savings do not materialize. Energy performance contracts provide a guarantee that a level of savings will be achieved. In effect, they transfer the performance risk to service providers, contractors and suppliers. An important principle of energy performance contracting is that the investments are paid for over time

[1] NIRAS, adapted from UNDP Environmental Finance Services and EU Towards Transparent Energy Performance Contracting Markets (Transparense), 2015

and factored by the value of energy savings attained. Further, such savings (or revenue generation in the case of rooftop solar installations) can cover the upfront costs of clean energy investments, typically seen as a fundamental barrier to green transactions.

Under an energy performance contract (EPC), a service provider such as an energy service company (ESCO) implements a project to deliver energy efficiency, or a renewable energy, and uses the stream of income from the cost savings, or the renewable energy produced, to repay the costs of the project, including the costs of the investment. Essentially the ESCO will not receive its payment unless the project delivers energy savings as expected.

Dominica is targeting the implementation of energy efficiency mechanisms in government and commercial buildings. The Commonwealth's Draft National Energy Policy references energy efficiency capacity measures include public education programs; encouraging consumers to use energy-efficient appliances; encouraging appliance suppliers to import reliable and energy-efficient appliances; requiring energy labelling on appliances; establishing building efficiency standards; encouraging energy audits (for hotels and households); encouraging equipment retrofits in homes and commercial buildings; developing an energy-efficiency equipment-retrofit plan for public buildings and streetlights.[2]

Key elements:

- An energy service company undertakes the project
- A contract between the service provider and the property owner is structure such that the compensation is contingent on demonstrated performance
- There is an agreed method for measuring and verifying energy generation (e.g. solar photovoltaic) or energy savings

The approach is based on the transfer of technical risks from the client to the ESCO based on performance guarantees given by the ESCO. Under an energy performance contract, the service provider's (i.e. ESCO) remuneration is based on demonstrated performance; a measure of performance is the level of energy savings or energy service. EPC is a means to deliver infrastructure improvements to facilities that lack energy engineering skills, manpower or management time, capital funding, understanding of risk, or technology information. Cash-poor, yet creditworthy customers are therefore good potential clients for EPC.[3]

The main emphasis is on implementing EE investments aimed at reducing the energy consumption in physical terms as opposed to simply trying to decrease the energy bill in financial terms (e.g. through renegotiating the energy supply conditions). The integration of Renewable Energy Sources often features in such investments; and savings-based EE services are delivered. Performance risks are transferred to the private sector partner through adequate financing mechanisms that ensure a guaranteed level of energy savings.

2.1 Energy performance contracts

Most agreements between customers and ESCOs are underpinned by energy performance contracts. The EPC commits the ESCO to installing the necessary equipment, provides a performance guarantee

[2] Swedish Energy Agency, Best practice in utilizing energy and climate policies to develop NDC mitigation targets in the Caribbean, 2018

[3] Energy Performance Contracting, Joint Research Centre, European Commission, updated Sept 2020

and establishes the terms of any upfront or ongoing payments, which are intended to be less than the financial savings realized by the project. The two most common types of EPCs are referred to as a (1) shared savings or (2) guaranteed savings model.[4]

Under an EPC, the owner of a facility engages a contractor to design and deliver energy efficiency measures. EPCs usually require the contractor to perform all necessary works to implement the identified efficiency measures. Such works may involve investment, such as a capital expenditure, in construction or equipment, the provision of necessary funding and the delivery of related services. EPCs can contain elements of rental, service, leasing, purchase and loan arrangements, which makes them inherently complex.[5]

In the context of an EPC, the contractor (ESCO) generally finances and undertakes an initial capital investment in order to improve the energy efficiency of an existing facility. Energy efficiency measures can concern new and/or upgraded equipment as well as other improvements. The capital investment undertaken can be in removable assets and/or nonremovable assets. The remuneration of the EPC-contractor is linked to the energy savings achieved through the upgraded equipment and structures and through the other measures carried out.[6]

The capital expenditure undertaken by the EPC contractor is repaid from the revenues it realizes over the duration of the EPC contract. Furthermore, the contractor (ESCO) decides which assets are to be installed and when they should be replaced or changed during the term of the contract. In the case where the necessary savings were not achieved as contracted, the service provider (e.g. ESCO) is on the hook to cover loss. After the contract ends, all benefits related to the cost savings accrue to the client (in Dominica, this would be the government or commercial property owner).[7]

2.2 Key characteristics of energy performance contracting projects[8]

- Turnkey service: The EPC provider delivers all the services required to design and implement a comprehensive energy saving project at the customer‘s facility, from initial energy audit to measurement and verification of savings.
- No need for up-front capital: Energy efficiency investments are repaid directly from energy savings and related financial savings, so there is no need for upfront capital from the customer.
- Risks for customers minimised: The EPC provider assumes the contractually agreed performance risks of the project.
- Savings guaranteed: The EPC provider guarantees the achievement of the contractually agreed level of savings and is obliged to compensate savings shortfalls.
- Support in securing financing: The capital to finance the EPC project can either be supplied out of the client‘s own funds or by the EPC provider or a third party.
- Financing by the EPC provider is an option, not a necessary part of the EPC project.

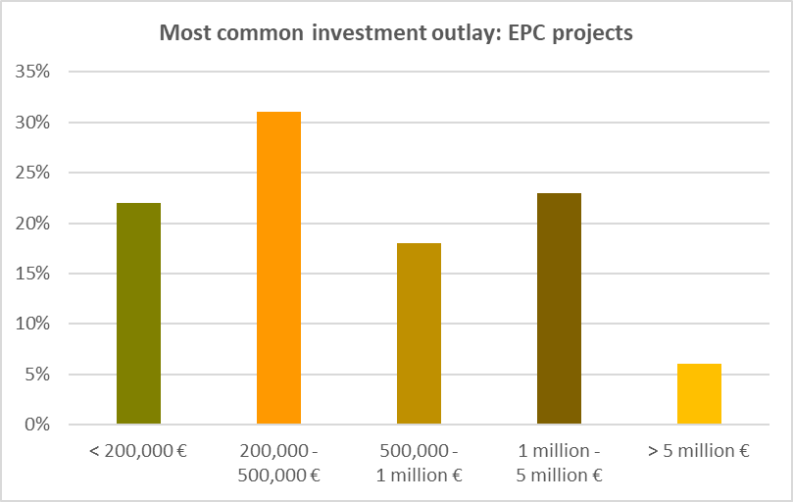
[4] International Energy Agency (IEA), Energy service companies (ESCOs), 2018
[5] Winther, T., et al. Journal of Energy Efficiency. Energy performance contracting (EPC): a suitable mechanism for achieving energy savings in housing cooperatives? Results from a Norwegian pilot project
[6] Sustainable Energy Authority of Ireland, A Guide to Energy Performance Contracts and Guarantees
[7] The Statistical Treatment of Energy Performance Contracts, European Commission, Dec 2019
[8] EU, Energy Performance Contracting Manual, Transparense, 2013

2.3 Energy efficiency EPC

Energy performance contracting is most common as a market solution for energy efficiency in buildings. In addition to delivering energy savings, EPCs have inherent economic benefits such as fostering public private partnerships, transferring project risks to the private sector, use of innovative financing solutions.

Note that energy efficiency projects for buildings or facilities are not necessarily 'big ticket' projects as compared to large-scale renewable energy installations like wind, hydro or concentrating solar arrays. In fact, the most common size of energy efficiency projects (lighting, insulation, window upgrades) in Europe is between €200,000 to €500,000.

Figure: EPC project sizes (in Euros)[9]



2.4 Solar PV EPC

There are several options for financing a photovoltaic system. These include (1) purchasing, owning and operating the system where the Dominica client would be responsible for all elements of operation and takes on all the risk, while reaping all benefits; (2) leasing the system where the Dominica client is responsible for system performance while paying a monthly fee to the owner; and (3) the Dominica client contracts with an energy service company. The ESCO develops and owns the system and is responsible for its design, installation, operation and performance—the client buys the generated energy from the ESCO under contracted terms and timelines.

In the third option above, an ESCO owns the PV system and is responsible for its acquisition, installation, operation and maintenance. The system is installed with the objective to supply sufficient generated energy to the client, which pays the ESCO for each generated unit (measured in kWh). If the generated energy exceeds client demand, it can be sold into the power grid, assuming such connection is in place.[10]

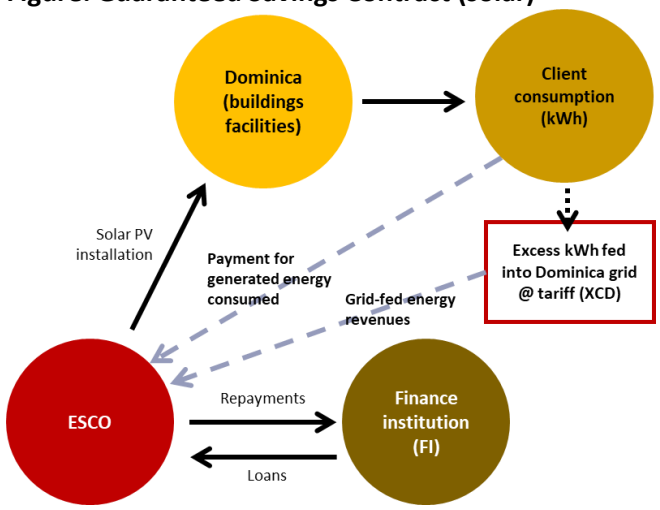
Advantages of the photovoltaic ESCO model to the Dominica client:

- No (or low) initial investment.

[9] NIRAS, via EU Towards Transparent Energy Performance Contracting Markets (Transparense), 2015
[10] ESCO Business Model: For the creation of photovoltaic (PV) energy for self-consumption and injection of the excess energy into the grid in accordance with Chilean law, GIZ, 2016

- Low overhead since ESCO is responsible for the system's operation and maintenance.
- Risk management transferred to the ESCO.
- Client only pays for the generated energy.
- An additional advantage is that the expertise and scale of the ESCO can equate to better, more efficient management of the PV system than if the client managed it directly.

Figure: Guaranteed Savings Contract (solar)[11]



3 The clean energy context in Dominica

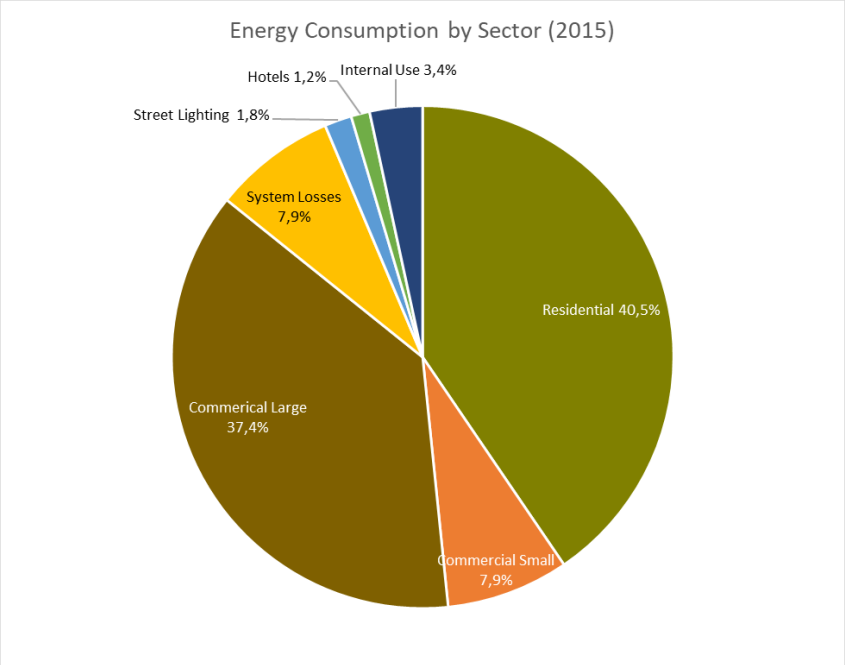
Like much of the Caribbean Community, Dominica is heavily reliant on imported fossil fuels, especially for use in transportation. The Commonwealth has an installed capacity of 26.74 MW (2017) consisting of 6.64MW of hydropower and 20.1 MW of diesel powered units (more than 70% of total). The annual cost of its imported diesel has been estimated at EC$116.65 million (US$43.39 million)—nearly 12% of GDP.[12]

Its high electricity costs (the highest in the Caribbean) constitute a real obstacle for numerous sectors, with the direct and indirect consequence of curtailing growth and parallel activities linked to the country's sustainable development.[13] The 2015 electricity rates in Dominica were $0.39 per kilowatt-hour (kWh), higher than the Caribbean regional average of $0.33/kWh. Like many island nations, Dominica is reliant on imported fossil fuels, leaving it vulnerable to global oil price fluctuations that directly impact the cost of electricity.

However, Dominica is not as reliant on imported fossil fuels as other islands in the region with approximately 28% of its installed capacity covered by renewables (mainly hydropower). And in addition to hydropower, the country possesses significant potential in geothermal, solar photovoltaic and wind.

[11] ESCO Business Model: For the creation of photovoltaic (PV) energy for self-consumption and injection of the excess energy into the grid in accordance with Chilean law, GIZ, 2016
[12] World Bank, 2014
[13] Ministry of Environment, Rural Modernisation and Kalinago Upliftment, Third National Communication to the United Nations Framework Convention on Climate Change, 2020

Figure: Energy Consumption in Dominica[14]



Dominica has implemented several energy efficiency and renewable energy projects to date, including:[15]

- 2007: A program sponsored by Cuba replaced 280,000 incandescent light bulbs with compact fluorescent bulbs in Dominican households.
- 2008: Rosalie Bay Resort installed a 225-kilowatt (kW) wind turbine that produces 596 megawatt-hours (MWh) annually. This was the first renewable energy project to be interconnected to the DOMLEC grid. An additional 1-kW turbine is in operation, but is not connected to the grid.
- 2009: DOMLEC installed 26,000 smart meters as part of its Automated Meter Infrastructure (AMI) project.
- 2013 and 2014: A government-led initiative installed LED streetlights.

Dominica has high solar potential with a solar resource of 5.6 kWh per square meter per day and also has approximately 30 MW of wind power potential, some of which is under development. After reviewing nine wind studies, DOMLEC concluded that Crompton Point, located in Saint Andrew, has a potential of 10 MW of wind power and that an additional 20 MW of wind potential is available elsewhere in the country.

Geothermal potential in Dominica is also robust, with estimates ranging from 300 MW to 1,390 MW. The country is expected to develop more than 100 MW of geothermal power and has secured funding for early-stage investment through the World Bank's Geothermal Development Plan. The island may be able to secure additional international and private sector funding for these projects. Additionally, the staff of Dominica's Ministry of Public Works, Energy, and Ports participated in an intensive geothermal training program administered by the Energy and Climate Partnership of the Americas, whose goal is to train technicians to build capacity in geothermal development.

[14] National Renewable Energy Lab, Energy Transition Initiative: Islands, 2015
[15] National Renewable Energy Lab, Energy Transition Initiative: Islands, 2015

3.1 Dominica's Nationally Determined Contributions (NDC)

Dominica's emission-reduction target is considered detailed and ambitious compared with other Caribbean Community countries because its NDC is expressed as a reduction compared to a base year (2014) emissions (as opposed to business-as-usual emissions for 2030).[16] Dominica's NDC indicates that it was developed based on several national assessments and strategies, including its Low Carbon Climate Resilient Development Strategy.

Setting the emissions reduction target compared to 2014 emissions means that any growth in energy consumption between 2014 and 2030 will essentially be GHG emissions-free (i.e. entirely renewable). The overall target is broken down in detail, attributing specific absolute reductions (in gigagrams) resulting from ten identified measures, including solar PV and energy efficiency. Further, each of the measures has been assigned an individual timeline for implementation.

The priority of the Government of Dominica is to implement the comprehensive Strategic Program for Climate Resilience contained in the Dominica Low Carbon Climate Resilient Strategy (2012). Taking into account its common but differentiated responsibility and limited capabilities to address climate change, Dominica's NDC committed to reduce gross greenhouse gas (GHG) emissions below 2014 levels (164.5 gigagrams) by 39.2% by 2025; and 44.7% by 2030.

By 2030, total emission reductions per sector (according to the NDC) are:

- Energy industries – 98.6% (principally from harnessing of geothermal resources);
- Transport – 16.9%;
- Manufacturing and construction – 8.8%;
- Commercial/institutional, residential, agriculture, forestry, fishing – 8.1%;
- Solid waste – 78.6%.

3.2 Energy efficiency in the NDC

With respect to energy efficiency, the actions targeted in Dominica's NDC are:

- An Energy Efficiency programme that will include the Manufacturing, Commercial and Institutional sectors. Market-based mechanisms are to be introduced to enhance the uptake of these programmes. The EE programme for Dominica will be designed and implemented to address the specific issues of this country and shall focus on retrofitting of energy efficient lighting, air-conditioning, appliances and a vigorous education and awareness drive.

  Estimated installation costs and factors of Dominica's energy efficiency strategy, defined in its NDC, were based on audits of similar experiences in the Latin America region. Parameters include:

  - Program Timing: 2016-2025
  - Forecasted Emissions Reduction: 5.2 Gigagrams (Gg)
  - Cost Estimate: US$2.3 million

- Dominica's NDC also references a streetlighting project

  Replace Streetlights in Portsmouth with Off-grid Light Emitting Diode (LED) Fixtures:

  - 368,100W HPS streetlights in Portsmouth

[16] Swedish Energy Agency, Best practice in utilizing energy and climate policies to develop NDC mitigation targets in the Caribbean, 2018

- project targets the replacement off-grid LED streetlights
- Program Timing: 2016-2025
- Forecasted Emission Reductions: 0.36 Gg
- Installation Cost Estimate: US$1.2 million

3.3 Solar PV and other renewables in the NDC

- Solar photovoltaic conversion program for the hotel and hospitality sector. The solar PV programme will comprise the installation of solar PV panels and related equipment on the roofs (and in some cases, the grounds) of buildings in this sector.
  - Program Timing: 2016-2025
  - Forecasted Emissions Reductions: 0.24 Gg
  - Capital Cost Estimate: US$1 million
- Solar PV conversion program for Commercial, Institutional and Manufacturing Facilities. This program will include: schools, universities, hospitals, commercial buildings, manufacturing plants, government buildings, municipal facilities, etc. Estimates have been made to derive anticipated GHG reductions based on lessons learned from similar conversions undertaken in the region.
  - Program Timing: 2017-2025
  - Forecasted Emission Reductions: 0.86Gg
  - Capital Cost Estimate: US$2.7 million
- Another project identified in the NDC is the Off-Grid Hybrid Wind, Solar, Biodiesel Generator Back-up in Off-grid Mini-Grid Configuration for South-East and East Coast of Dominica (three separate projects). In order to increase power system reliability and reduce energy costs for the residents in these locations, off-grid mini-grids, powered with hybrid wind and solar PV power plants (and hydro if available), with bio-diesel generator back-up, are proposed as a possible viable alternative. Three separate mini-grids, estimated at 500kW each, comprising 500kW of wind energy and 200kW of PV, with bio-diesel generator back-up for each, are proposed.
  - Program Timing: 2017-2025;
  - Forecasted Emission Reductions: 2.92Gg;
  - Capital Cost Estimate: US$9,000,000.

4 Rationale for pursuing an EPC for implementing EE applications and RE installations in public areas (without drawing from public operating or capital expenditure budgets)[17]

As countries' energy markets shift away from subsidized clean energy solutions, governments, municipalities and property owners need to identify new models to underwrite their energy transitions. Energy Performance Contracting (EPC) is such a mechanism, offering an integrated solution to the final user, including planning, financing, installation and monitoring of RES systems, helping to overcome barriers such as access to financing for project developers, lack of certification schemes, insufficient public support.

[17] Frangou, M., et al. Journal of Renewable Energy. Renewable energy performance contracting in the tertiary sector, 2018

Energy performance contracts are used in the context of a public-private partnership where a fee-for-service model is applied. The Government of the Commonwealth of Dominica (through the Ministry of Environment, Rural Modernisation and Kalinago Upliftment and potentially other agencies such as the Ministry of Housing and Urban Development and the Ministry of Finance and Investment) defines and provides incentives to building owners to identify and install renewable energy systems. However, the responsibility of installation and maintenance is allocated to service providers from the private sector. EPCs create the opportunity to the end-user to install energy efficiency and renewable energy measures in their facilities without having to structure and make an upfront investment in hardware, technology and equipment.

There are myriad advantages for end-users: energy saving tasks are outsourced to external service providers, who are remunerated based on their performance; long-term, guaranteed cost savings with zero or minimal investment are provided; technical risks and responsibilities are covered by the energy services provider; the planning process is coordinated by the services provider; energy consumption is reduced; refurbishment of buildings and facilities; asset value of the premises is increased; the end-user's climate impact is reduced in line with mandates, etc.

4.1 Energy performance contract benefits

Among the fundamental advantages of EPCs is that they enable the engagement of clean energy expertise for government agencies, municipalities, commercial building owners, etc. that are otherwise not sufficiently aware of potential energy efficiency (EE) or renewable energy (RE) opportunities. “Therefore, a partnership between public building owners or managers and a qualified company with the necessary expertise (and possibly a large range of additional services such as maintenance, finance and/or guarantees) is an attractive solution.”[18]

EPC benefits include:[19]

- avoidance of upfront costs through third-party financing or on-bill repayment schemes;
- payments based on results, allowing the transfer of technical risk from Dominica’s public partners to energy service providers;
- Dominica’s energy security is strengthened, through the replacement of fossil-fuel energy and reduction in demand;
- economic efficiency, through the installation of more energy efficient systems and controls, reducing utility bill costs and providing a funding source for building renewal projects;
- economic development through increased building and renovation activity;
- environmental stewardship due to significant reductions in energy use;
- improvements of indoor air quality which may not otherwise have been possible due to funding constraints;
- access to life cycle energy services, including marketing, design capability, installation, financing, maintenance and measurement of energy management technologies;
- access to shared-savings contracts, where clients effectively pay for energy services from a portion of the actual energy bill savings.

[18] European Investment Bank, Guidance on Energy Efficiency in Public Buildings, 2013
[19] European Investment Bank, Guidance on Energy Efficiency in Public Buildings, 2013

4.2 Energy performance contract finance

A standard EPC engagement provides a comprehensive set of energy efficiency, renewable energy and distributed generation measures. Service offerings include an energy audits, the installation of solutions that fit the needs of a select facility and long-term monitoring to verify project savings.

Clean energy projects depend on significant upfront investment and face a long payback period through energy bill savings. Municipalities and governments do, however, have access to an array of funding solutions offered through banks and other third-party financial institutions.[20]

- Tax-exempt lease-purchase (TELP) agreement – combines energy savings and the cost of the hardware lease payments into alignment over the life of the EPC contract. Can be defined as an operating or capital expense which has implications for whether it is claimed as debt.
- Capital lease – energy equipment acquisition through instalment payments with little or no upfront capital required. Here, the capital equipment is owned by the financing organisation and leased to the government/client. At contract termination, ownership transfers to the government/client.
- Revolving loan pool – by bundling projects over multiple sites, these pools offer lower interest rates than for a single project site.
- Power purchase agreements – install energy efficiency or onsite renewable energy systems without investment upfront. The energy efficiency or renewable energy assets are legally owned by a separate entity. In another example, a third party could install a solar photovoltaic system on a government or commercial property in Dominica and agree to buy the resulting energy at a set price for a specific term (e.g. 15–20 years).

4.3 Energy performance contract challenges[21]

While there are unmistakable benefits from energy performance contracts, clients and energy service providers or companies (ESCOs) face complexities in undertaking EPC projects. This is especially the case on the client side. The complexity of the EPC concept and the baseline calculations that are required are seen as the biggest challenges in the process. ESCOs are obviously more familiar with the concept of EPCs than clients, but encounter challenges as well (at different points in the transaction curve).

4.3.1 Types of EPC challenges

Technical challenge: Public building owners or users often lack the technical background and expertise to understand EE methods and technologies for reducing energy consumption and/or replacing the consumption of fossil fuels with renewable energy sources. The first challenge is to ensure that public building managers are conscious that there is a gap between the level of energy consumption of the facility they are administering and the level which could be achieved if a specific energy conservation effort were to be employed and its financial value.

This lack of awareness can usually be explained by the absence of methods for monitoring energy consumption and physical energy parameter regulations. A further technical challenge is to demonstrate that there are proven technologies, methods and services that can be used to

[20] J.P. Morgan, Energy Performance Contract, Financing as a Strategy, 2013
[21] European Investment Bank, Guidance on Energy Efficiency in Public Buildings, 2013

substantially reduce energy consumption or substitute the energy consumed with other forms that could be less expensive and/or less polluting.

ESCOs, when implementing EPCs, will install a measurement system with a twofold objective: it will help the energy manager of the building to reduce energy consumption and it will create the measurement and verification ("M&V") framework that the ESCO needs to estimate the level of savings achieved.

Economic challenge: Demonstrating the cost effectiveness of EE projects can be problematic. Because of fluctuating energy prices, there may be no incentive to save when budgets are allocated on an annual basis—it may be difficult to convince managers to undertake projects which might become uneconomic when energy prices decline. And if operating costs are matched by the government's operating budget, public authorities may have little incentive to reduce building or property costs. Therefore, guarantees regarding the profitability of energy investments are key, from a technical (physical savings) and economic (financial savings) standpoint.

Finance challenge: Public agencies can encounter difficulties in raising finance for energy investments. In particular, energy efficiency investments can sometimes be overlooked. Additionally, the capacity of public entities to access forms of financing, such as debt, can be limited, especially for smaller economies and smaller projects.

4.4 Barrier analysis

Energy performance contracts can be effectively used to accelerate the implementation of energy efficiency (and renewable energy) solutions. There are several significant barriers that could hamper the development of these types of energy access projects, including:

Barrier	Description	Strategy
Lack of trust by investors and financiers in the returns of projects (energy savings or energy generation)	Energy performance contracts include assurance clauses or a **guarantee**. If the level of energy savings is not met, then the service provider (ESCO) reimburses the difference to the client or investor, using pre-determined utility rate calculations or contracted amounts.[22]	Establish viable performance criteria in the contract. And institute vigorous performance measurement.
Lack of information i.e. insufficient information on the components (for EE or RE) and a lack of independent performance information on service providers and their projects.	Monitoring and verification information is a key component in energy performance contracts. Information on service provider experience can be solicited in the tender stage.	Intervention begins with a baseline measuring energy that would have been used if an energy performance contract hadn't implemented. • This is generally informed by detailed analyses of historical trends. • Then it's compared with the amount of energy that has actually been used.
Low energy prices	If Dominica's energy prices are low (i.e. from diesel or hydro sources)	The commitment to clean energy in Dominica is a climate priority –

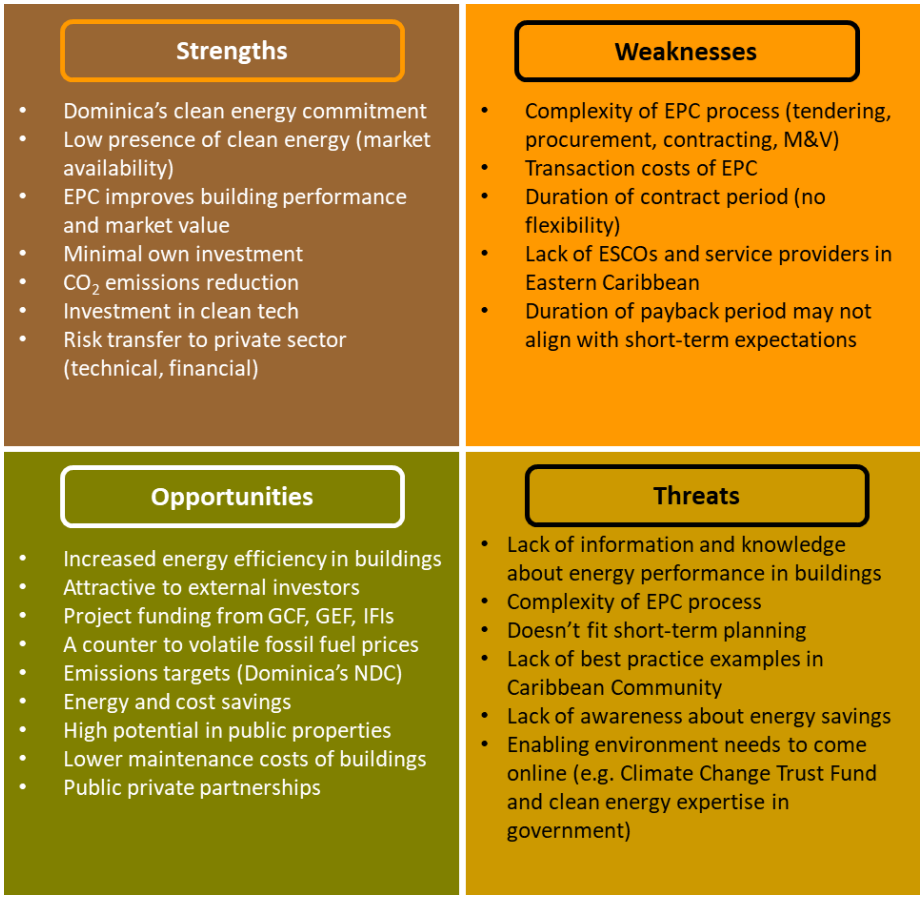
[22] EURACTIV, *Lack of trust* hampers energy efficiency services industry, 2020

	then energy savings become less of a priority. However, this has less of an impact on solar PV investments.	supported by the Commonwealth's nationally determined contributions (NDC) and its low-carbon development strategy.
Access to finance[23]	Local financial institutions may not have necessary technical background and capacities to properly assess an EPC project. And local ESCOs may not have sufficient credit-worthiness.	Finance solutions may come from international sources e.g. international finance institutions such as the Green Climate Fund, IADB or Caribbean Development Bank. And foreign ESCOs may be the EPC provider.

4.5 SWOT analysis

The business case for energy performance contracting in Dominica is assessed through the review of its strengths, weaknesses, opportunities and threats—conventionally known as a SWOT analysis. A SWOT provides a snapshot of market conditions in Dominica with respect to EPC uptake, taking into account internal factors such as resources and external factors such as trends. The key elements in Dominica include the need for supportive government policy, an engaged investment landscape and the availability of technical service providers, locally and regionally.

Figure: Guaranteed Savings Contract[24]



[23] QualitEE (EU Horizon 2020), Country Report on the Energy Efficiency Services Market and Quality: Italy, 2018
[24] Adapted by NIRAS from European Markets in Transition, Capacity Building On Energy Performance Contracting

5 Energy performance contract delivery structures

There are several models of energy performance contracting which reflect different levels of responsibility, risk and the amount of capital required.[25] The main EPC delivery options for Dominica to consider are:

- **Guaranteed Energy Savings Contracts**

  In a performance-based, guaranteed energy savings contract, an entity such as an Energy Service Company (ESCO) guarantees a specific reduction in energy use if required operations and maintenance procedures are adapted and operating schedules are adhered to, not necessarily tied to cost savings as utility rates and building operations may change over a defined length of time. If the guarantee is not met due to the failure of equipment, hardware and software specified by the responsible ESCO, then the ESCO pays the owner the difference based on agreed-upon contractual utility rates—for the annual performance period.

  How it works:[26]

  a. The customer (e.g. a Dominica Government or commercial building owner) contracts an ESCO to implement the work; and the ESCO guarantees the energy savings (or generated energy, in the case of solar PV).

  b. ESCO assumes performance risk through its savings guarantee.

  c. Customer may pay for certain installations while withholding a portion of payables until savings have been verified.

  d. Customer may also pay an ongoing fee to ESCO to verify savings annually (or for equipment maintenance); if this is stipulated in the contract.

  e. If the savings < than what was contracted, the ESCO pays the customer the difference between what was achieved and what was guaranteed.

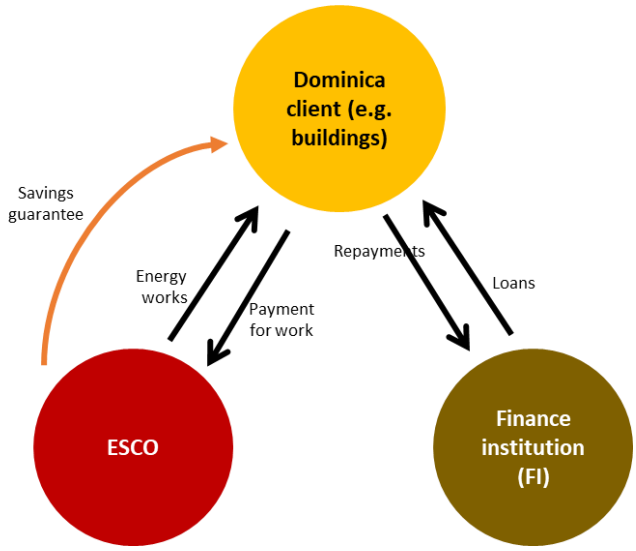
     The savings are valued on a fixed energy price agreed at the contracting outset.

  f. Risk: A guaranteed energy savings contract means the ESCO assumes the performance risk and the customer takes the energy price risk. The financing party (finance institution, bank or public investment fund (i.e. the CCTF)) assumes the credit risk.

[25] Government of Hawaii, Pros and Cons of Guaranteed vs. Shared energy savings, 2013 (https://energy.hawaii.gov/wp-content/uploads/2012/06/Pros-and-Cons-of-guaranteed-vs.-shared-energy-savings-2013.pdf)

[26] Adapted by NIRAS from: A Guide to Energy Performance Contracts and Guarantees, SEAI

Figure: Guaranteed Savings Contract[27]



II Shared Savings Contracts

Under the shared savings contract model, an ESCO provides financing as well as project development and implementation costs. The ESCO also defines a payment structure where its compensation is a share of the utility cost savings, based on an agreed percentage split. The ESCO receives the largest share in the beginning stages of the project due to its upfront investment. However, the ESCO share may decrease over time depending on several factors including the terms of the agreement and changes in the utility rates which occur during the project period. The central advantage of this model is that sharing savings incentivizes the client to—in the case of improved efficiency contracts—minimize energy use.

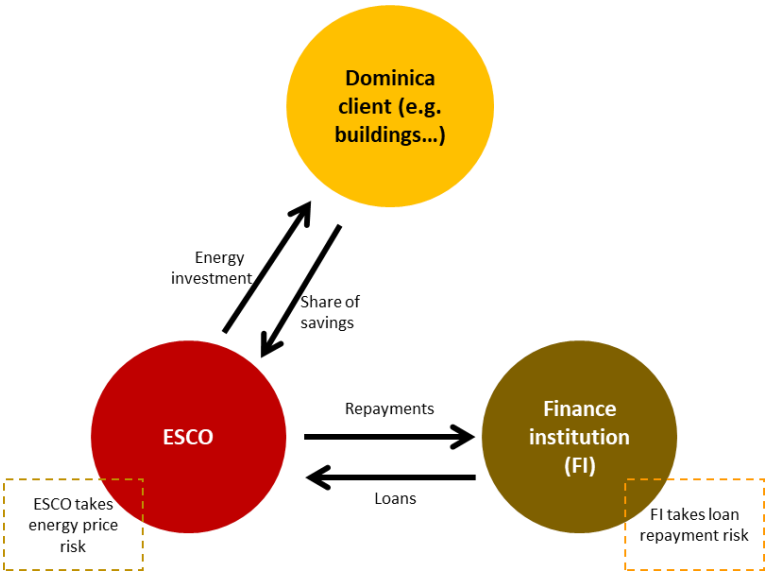
How it works: [28]

a ESCO and project owner agree upon the targeted (guaranteed) consumption savings.
b The two parties also agree upon an estimated increase in future utility costs over the term of the contract.
c ESCO finances directly or gets financing to purchase hardware (e.g. efficiency upgrades or, in the instance of solar PV, modules, batteries, inverters, etc.).
d Savings from improved performance are used by ESCO to repay loan or its debt for financing the project.
e The monetary value is the measured consumption savings times actual utility rates (using utility bill reconstruction). This may revert to the ESCO or be shared, e.g. 85% to ESCO and 15% to project/facility owner.
f ESCO typically retains ownership of the asset.
g Risk: the financial institution carries risk that the ESCO cannot repay the loan.
Risk: the ESCO carries risk based on prevailing energy prices, i.e. energy price risk.

[27] Adapted by NIRAS from: A Guide to Energy Performance Contracts and Guarantees, SEAI
[28] A Guide to Energy Performance Contracts and Guarantees, SEAI

h Assumption: This model requires the ESCO to have the capacity to borrow and to have projects with revenue streams that will ensure the loans can be repaid. Therefore, the ESCO should be large enough to have access to affordable financing (equity or debt).[29]

Figure: Shared Savings Contract[30]



III **Comparison of EPC Guaranteed Savings and Shared Savings models[31]**

Under a **guaranteed savings contract** the ESCO takes over the entire performance and design risk; for this reason it is unlikely to be willing to further assume credit risk. The customer is financed directly by banks or financial institutions; an advantage of this model is that finance institutions are better equipped to assess and handle customer's credit risk than ESCOs. The customer repays the loan and assumes the investment repayment risk. If the savings are not enough to cover debt service, then the ESCO has to cover the difference. If savings exceed the guaranteed level, then the customer pays an agreed upon percentage of the savings to the ESCO. Usually the contract also contains a provision that the guarantee is only good, i.e. the value of the energy saved will be enough to meet the customer debt obligation, provided that the price of energy does not go below a stipulated floor price.

Given that guaranteed savings schemes are designed to function in countries with a well-established banking structure, high degree of familiarity with project financing and sufficient technical energy expertise within the banking sector, it is not certain that this model is applicable in Dominica. In addition, the guaranteed savings concept is difficult to use in introducing the ESCO concept in **developing markets** because it requires customers to assume investment repayment risk. However, it fosters long-term growth of ESCO and finance industries: newly-established ESCOs with no credit history and limited own resources would be unable to invest in the project they recommend and may only enter the market if they guarantee the savings and the client secures the financing on its own.

[29] International Energy Agency (IEA), Energy Service Companies (ESCOs), 2018
[30] NIRAS adaptation from: A Guide to Energy Performance Contracts and Guarantees, SEAI
[31] European Commission, European Energy Efficiency Platform, 2003 (https://e3p.jrc.ec.europa.eu/articles/energy-performance-contracting)

Conversely a **shared savings model** means that the client takes over some performance risk as opposed to credit or finance risk like in the guaranteed model. This ESCO repays the loan and takes over the credit risk. The ESCO therefore assumes both performance and the underlying customer credit risk. In addition such contractual arrangement may give rise to leveraging problems for ESCOs, because ESCOs become too indebted and at some point financial institutions may refuse lending to an ESCO due to high debt ratio. The ESCO is essentially collateralizing the loan with anticipated savings payments from the customer, based on a share of the energy cost savings. The financing in this case goes off the customer's balance sheet.

A situation where savings exceed expectations should be taken into account in a shared savings contract. This setting may create an adversarial relationship between the ESCO and customer, whereby the ESCO may attempts to under-estimate the energy savings potential and then receive more from the 'excess savings'.

Furthermore, to avoid the risk of energy price changes, it is possible to stipulate in the contract a single energy price. In this situation the customer and the ESCO agree on the value of the service upfront and neither side gains from changes in energy prices: if the actual prices are lower than the stipulated floor value, then the consumer has a windfall profit, which compensates the lower return of the project; conversely if the actual prices are higher than the stipulated ceiling, then the return on the project is higher than projected, but the consumer pays no more for the project. In effect this variation sets performance in physical terms with fixed energy prices, which makes the approach resemble guaranteed savings approach.

The shared savings concept is considered a good introductory model in developing markets because the client assumes no financial risk—this is especially relevant for Dominica. From the ESCO's perspective, the shared savings approach has the added value of the financing service. However this model does not tend to suit small ESCOs because projects based on shared savings rapidly become too highly leveraged and unable to contract further debt for subsequent projects. Therefore, the shared savings concept has the potential to limit long-term market growth, i.e. small or new ESCOs are unlikely to enter the market if such agreements dominate. At the same time, to market opportunities will focus on small, short-payback period projects.

Table: EPC Guaranteed Savings compared with Shared Savings[32]

	Guaranteed Savings model	Shared Savings model
Service provider	ESCO	ESCO
Key elements	Implementation of energy saving measures (ESM) with ongoing monitoring & verification services to provide guaranteed energy savings.	Implementation of ESM to provide cost savings associated with the overall energy bill.
Complexity		Shared savings contracts are more complicated than guaranteed savings contracts.
Energy savings potential	High - comprehensive and detailed approach covering both supply and demand side.	High - ESCO's primary focus and incentive is for energy cost savings with technical operation requirements as secondary.

[32] Table source: Eu.ESCO, 2011

	Guaranteed Savings model	Shared Savings model
Guarantees	The ESCO guarantees performance related to the level of energy saved throughout the contract life (i.e. to energy cost savings in constant prices).	Not necessarily applicable. But the ESCO may guarantee a minimum performance related to cost of energy saved in current prices throughout the contract life.
Payment	Payment derived from the energy savings achieved in constant prices of the base year.	Payment linked to the current energy prices.
Risk	Assumes technical design, implementation and performance guarantee risks.	Assumes performance risk, risk of energy price change (depends on current prices) and customer credit risk.
Energy savings	Based on measurements before and after implementation. And also on the measurement and verification system applied, where the more, the better.	Depends on quality of measurement. In general, the more independent the measurement, the more transparent are the energy savings.

IV Managed Energy Savings Agreement

In a MESA, a fund pays a facility's utility bill directly and charges the building owner a fixed monthly fee. In another scenario, an ESCO sells a portfolio of improvements to a third-party ownership company. The Owner receives utility cost savings, remits a set percentage back to third party, and retains the balance. The project may be off balance sheet. The ESCO operates and maintains the improvements under a separate contract. OR The equipment is financed and owned by the ESCO. The Owner continues to pay the utility bills and pays the ESCO a portion of the savings. Due to the large up-front investment, a greater percentage of savings goes to the ESCO.

V Energy as a service[33]

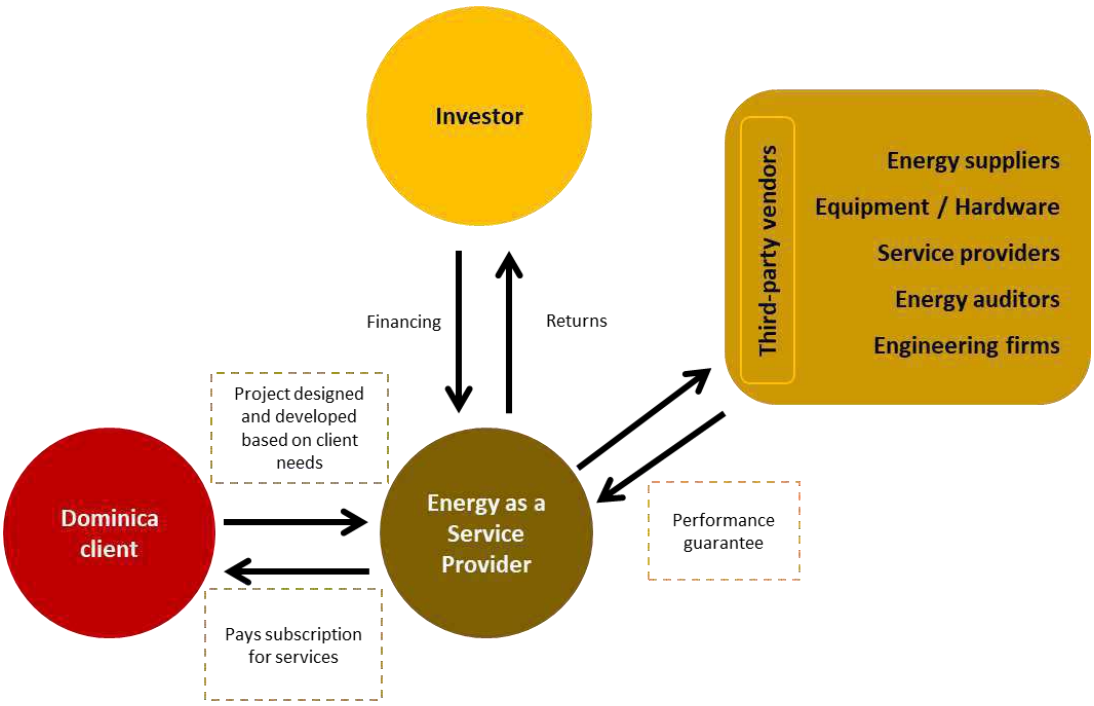
Energy-as-a-service is a model where customers pay for an energy intervention without having to make any upfront capital investment. This can take the form of a subscription for lighting, cooling or management of energy usage to deliver the desired energy service. In the electricity sector, this model provides customers with energy services, such as lighting, in exchange for a recurring fee. The customer benefits from avoiding upfront costs for electrical equipment or software, or device management while still benefiting from the use of the device.

In addition, the energy-as-a-service model enables access to better technologies and innovative services.[34] Further, the customer pay for the output of the asset as opposed to purchasing the asset itself. Features of this model include:

- No upfront investment required by Dominica client
- Financing (from investor) through loans, capital leases or bonds
- No ownership of equipment
- No performance risk responsibility
- Term of contract in the range of 5 to 20 years

[33] Deloitte, Energy-as-a-service: The lights are on. Is anyone home?, 2019
[34] For an example of this model, please see: Light as a service: green performance in Schiphol Airport

Figure: Energy as a Service Model[35]



VI Energy-as-a-service: solar[36]

Residential solar panels provide community benefits by reducing the need for electricity from the power grid (energy that is typically produced using carbon-emitting resources), for transmission and distribution line upgrades, and for additional generation capacity. Residential rooftop solar installations can also reduce customers' electric bills however the upfront costs, combined with uncertainties about future energy prices and concerns about technology maintenance, can inhibit customers.

The energy-as-a-service model for solar can overcome those barriers while providing advantages—electricity cost savings and environmental benefits—without having to purchase or maintain the system. Under a solar lease or power purchase agreement, a solar services company installs and maintains a solar system on a homeowner's roof, at no upfront cost, that supplies the household with electricity for the duration of the contract, typically 15 or more years. The solar provider retains ownership of the system and charges the customer for the service, through either a monthly lease for the system or a PPA for the power the system produces. These rates typically offer either cost savings or cost certainty for the consumer relative to retail electricity rates. The solar provider receives monthly revenue and also benefits from policy incentives e.g. an investment tax credit for the system's generation. Because its

[35] Adopted by NIRAS from: Deloitte, Energy-as-a-service: The lights are on. Is anyone home?, 2019

[36] Resources for the Future, Energy-as-a-Service: A business model for Expanding Deployment of Low-Carbon Technologies, 2019

revenue depends on system performance, the provider has an incentive to design and install the best possible system for each customer, and thus incentives between the customer and the provider align.

The solar lease involves a fixed monthly payment for use of the panels, and a solar power purchase agreement is payment for the electricity that the system generates at a predetermined price per kWh, which is lower than the utility's retail rate, yielding savings for the customer.

VII Other options

- **Energy supply contract** – An ESCO takes over operation and maintenance of the equipment and sells the output (e.g. cooling, lighting, etc.) to the customer. Costs for all equipment upgrades are covered by the ESCO. But ownership remains with the customer.
- **Equipment leasing** – supplier installs the equipment and maintains it with payments financed by verified savings.
- **Property assessed clean energy (PACE)** – a financing mechanism that enables low-cost, long-term funding for energy efficiency and renewable energy projects. PACE financing is repaid as an assessment on a property's tax bill and is processed the same way as other local public benefit assessments.
- **Green mortgages** – an energy efficient mortgage (or "green mortgage") is a loan product that allows borrowers to reduce their utility bill costs by allowing them to finance the cost of incorporating energy-efficient features into a new housing purchase or the refinancing of existing housing.

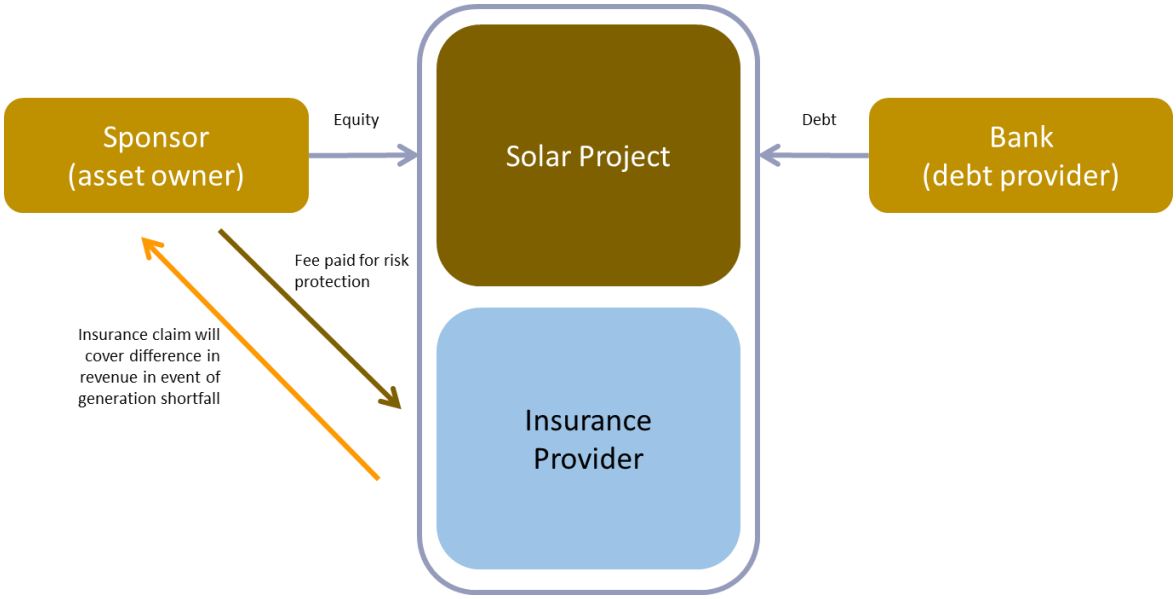
VIII Adjustments for models

Within these models there are options that adjust risk according to scenarios and where an ESCO's compensation is not 100% based on the level of savings achieved. These options include a **performance payment** arrangement might state that 80% of ESCO fees are fixed with 20% variable based on the extent to which savings are verified as contracted. Under a **gain-share agreement**, an ESCO receives a percentage of the value of the savings achieved. And in a **performance guarantee**, the final payment to an ESCO is made once savings reach a particular milestone.

Solar revenue 'put' insurance – this is an insurance product and credit enhancement that guarantees a contracted percentage (e.g. 90%) of a solar project's energy generation. It takes into account intermittence caused by weather (clouds) and other risks.[37]

[37] World Bank, Enabling Institutional Investment in Climate Smart Infrastructure, 2020

Figure: Insurance – Solar revenue put structure[38]



6 Preliminary action

When considering a project on energy savings in buildings/facilities or for renewable energy generation, it is critical to first determine the initial situation. Based on such analysis, energy saving measures to improve the energy efficiency (or RE installation) of the building are codified and proposed. The final combination of energy efficiency or clean energy measures that will be implemented depends on the financial or economic analysis of the available options.

Based on the primary information or possibly inspection of buildings, the initial draft solution is prepared. The solution includes list of the measures to be taken into account together with volume of necessary investments and energy consumption cost reduction potential (calculated based on the reference energy consumption scenario). On the basis of this information the customer makes a decision as to whether further procedures are acceptable for him. The initial draft solution is usually prepared by the ESCO or EPC process facilitator.[39]

7 Governance structure for the EPC concept (Dominica)

An energy performance contract is a market-based mechanism. Therefore its governance structure should be intentionally light but efficient. The balance of responsibility should be placed with the ESCO, which takes on project risk in exchange for its revenue share.

[38] Adapted from kWh Analytics and the World Bank, Enabling Institutional Investment in Climate Smart Infrastructure, 2020
[39] EU Transparense, EPC Manual for Beginner Markets, 2013

7.1 Roles and responsibilities of relevant government departments and agencies to provide oversight and manage the financial mechanism

A network of Dominica entities is necessary to establish and manage the energy performance contracting mechanism. This network should include governmental, policy, technical and financial knowledge and insight within the context of the Commonwealth.

The following is an indicative and intended to be iterative and further defined and developed:

DOMLEC – responsible for procuring a service provider e.g. an energy service company (ESCO). The public procurement procedure should be prepared in cooperation with an energy performance contracting (EPC) process facilitator, who is able to define the appropriate procurement criteria and prepare the contract specification documentation and who will help to evaluate the tenders received.[40]
Suggested responsibility: overseeing procurement of energy service provider

Ministry of Environment, Rural Modernization and Kalinago Upliftment – should serve as the focal point for EPC development. This should include responsibility to approve project origination and development (if that falls to another ministry or agency, the Ministry of Environment should at least retain responsibility to provide counsel. This includes for energy efficiency and renewable energy projects that will pursue energy performance contracts. Other agencies or ministries may need to be consulted on policy or technical feasibility for given contexts (e.g. Ministry of Blue and Green Economy or the Ministry of Housing and Urban Development).
Suggested responsibility: focal point for EPC development and implementation roadmap

Ministry of Finance – fiduciary responsibility for EPC contracting, transfers and transactions.
Suggested responsibility: enable and ensure transactions i.e. work with banks on risk guarantees, etc.

Independent Regulatory Commission (IRC) – Commonwealth of Dominica's electricity regulator covering licensing, rates, policy, standards and services.
Suggested responsibility: establish rules and guidelines for EPC and provide transparent guidance on transactions.

EMS Limited – a Roseau-based ESCO (working with both energy efficiency and solar projects) in Dominica and the Eastern Caribbean region.[41]
Suggested role: EMS could serve as project facilitator but this would potentially eliminate it as a project bidder.

Funding agencies – Dominica's emerging Climate Change Trust Fund can help to connect EPC project to other initiatives that, as a bundle, will be of interest to international finance institutions and funds, e.g. Inter-American Development Bank (IADB), Caribbean Development Bank, Green Climate Fund and the Global Environment Facility.
Suggested role: finance or fund transactions.

Note: The Green Climate Fund made a US$ 20 million concessional loan (plus technical assistance grant) in Salvador (through a national finance institution and the Inter-American Development Bank) to develop its energy efficiency and ESCO ecosystem. The 15-year project is ongoing and includes

[40] EU Transparense, EPC Manual for Beginner Markets, 2013
[41] EMS Ltd Homepage

US$ 20 million in co-financing (also structured in loans). The loan will contribute to a credit line (and revolving fund) available for local banks to fund small and medium-sized energy efficiency projects at concessional rates, to be repaid through future energy savings, i.e. energy performance contracting.

8 Procurement

Once an energy efficiency (or renewable energy) project has been identified and approved for development in Dominica, a decision must be made to use an energy performance contract. When that has been decided favourably, the procurement of an EPC provider is the subsequent step in the process. The public procurement procedure should prepared in cooperation with an EPC process facilitator, who is able to define the appropriate procurement criteria and prepare the contract specification documentation and who will help to evaluate the tenders received.

The EPC procurement procedure in the private sector is less demanding and time consuming. However, some essential parts of the public procurement procedure may be used to obtain the best tender (e.g. tender evaluation, demand definition, etc.) also for private companies.[42]

Please see figure below for steps in the procedure.

8.1 Procurement procedure

The procurement procedure in Dominica should begin with the consent of the building or facility owner for the EPC project. From the perspective of the ESCO, it is necessary to have a certain guarantee on the future manner of the utilization of the building or facility accepted by the owner with respect to approval of future commitments to clean energy or energy efficiency.

As Dominica is developing this project for the public sector, the energy performance contract provider (e.g. an ESCO) procurement procedure must comply with the Commonwealth's national public procurement regulations.[43] The purposes of this legislation are to "require competition" and ensure transparency in the public procurement process and make proceedings transparent. In Dominica, it may be covered under one of the following:

- Public supply contract
- Public works contract

8.1.1 Public service contract

EPC projects can be complex so open procedures may not be suitable. Therefore a procurement procedure that is amendable is recommended "when the nature of the works, supplies, or services or the risks attaching thereto do not permit prior overall pricing."[44] Tenders (i.e. bids) can be adjusted during the negotiations with tenderers (i.e. bidders) within the award procedure. However, if the project is straightforward and there is no expectation that content will need to be adjusted after submission of tenders, an open

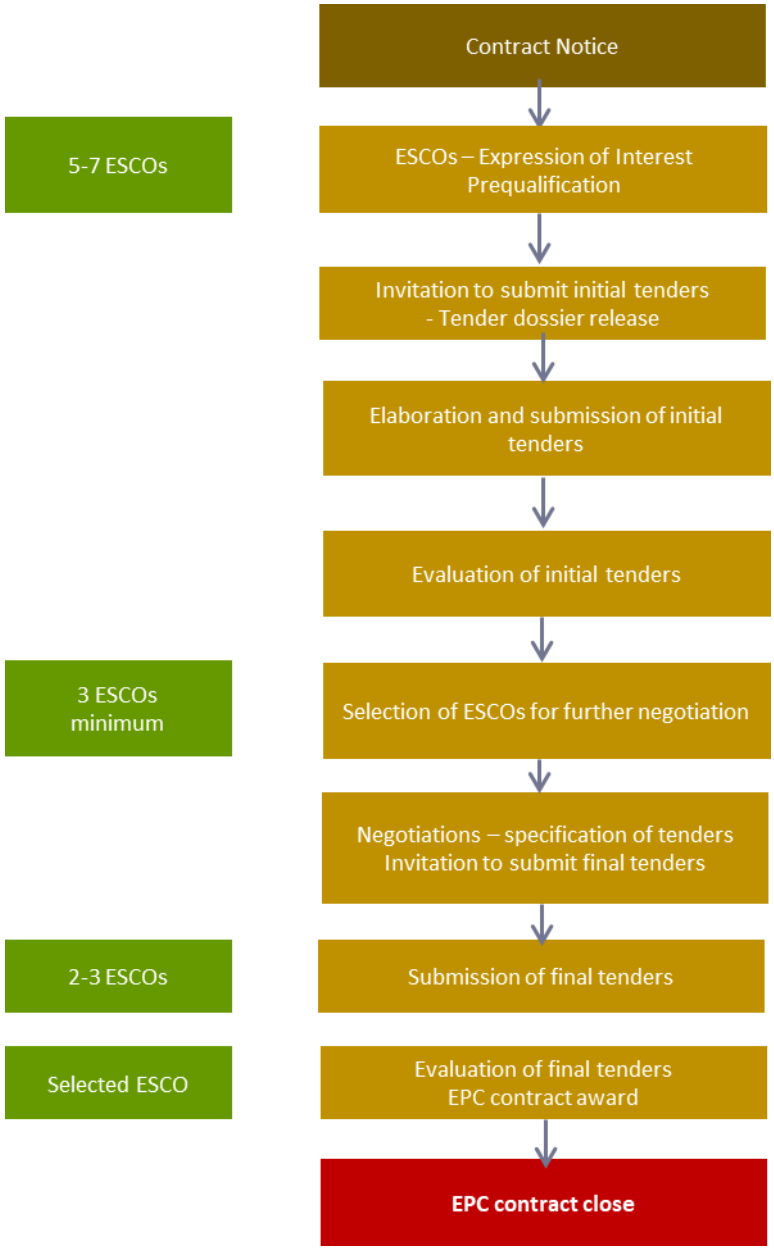
[42] EU Transparense, EPC Manual for Beginner Markets, 2013
[43] Commonwealth of Dominica, Public Procurement and Contract Administration, Act 11, 2012
[44] European Union, EPC Manual for Beginner Markets, 2013

procedure can be applied. The type of tender may also be dependent on total expected price of procurement and the authorization that requires in Dominica.

8.1.2 Publication of a contract notice

The public procurement procedure has to be officially announced. This publication of a contract notice serves as preliminary notification to potentially interested energy service companies. The announcement should contain general information on the type of procurement as well as required qualifications of the potential applicants. If foreign energy service companies are invited to bid, this should be communicated in the notice. The requesting entity, as the contracting authority, must publish this contract notice in a local public procurement bulletin, including tendering procedures and an indication of the price above the threshold value.

Figure: Potential EPC public procurement procedure:[45]



* Number of ESCOs recommended for consideration may not be available in Dominica or the Caribbean Community.

[45] European Union, EPC Manual for Beginner Markets, 2013

8.2 ESCO expression of interest

The expression of interest in the EPC opportunity from energy service companies should contain the following information:

- Fundamental prequalification criteria (proof of legal incorporation, etc.)
- Professional criteria (certificate evidencing corporate registration, trade authorisations necessary for performing the public contract, additional certifications issued by professional organisations, etc.
- Financial and economic and financial criteria (applicant's recent financial performance e.g. turnover, profit and loss statement, evidence of insurance, etc.).
- Technical criteria (a list of substantial analogous contracts concluded recently, a description of technical facilities available to the applicant, and other documents demonstrating the technical capabilities of the applicant such as quality certification (e.g. ISO 14000)).

These documents will need to be checked and verified by the Dominica client (potentially represented by the facilitator). Only the applicants meeting all defined criteria should be invited to submit initial tender.

8.3 Contents of tenders

ESCOs that provide and meet the initial requirements (see 6.2) should be provided with a tender dossier from the Dominica project owner (potentially through a facilitator) containing the following content:

- a pre-intervention energy audit, assuming it has been completed;
- technical underlying materials comprising project documentation, technical and revision reports;
- information about energy consumption at the site and about the integrity of respective facilities and buildings;
- calculation of reference energy consumption, i.e. comparable baseline information;
- specification of the mandatory measures demanded by the client;
- specification of detailed terms and conditions of the contract (place of public contract performance, onsite inspection of the place of performance, the deadline for submission of tenders, the method of tender price calculation, specification of contractual terms and conditions, etc.);

Within the dossier some of the fundamentals of the project should also be requested. This information should be requested from the bidders:

- proposal of energy saving measures including technical description;
- all related procurement and instalment that is expected;
- expected method of financing of the energy investments;
- expected guaranteed energy savings;
- measurement and verification in agreed periods.

For solar PV-related tenders, any initial information on theoretical generation capacity, tariff rates, etc. should be included.

8.4 Evaluation of tenders[46]

Evaluation methodology and criteria can be developed by the client but should be informed by expertise, potentially provided by a bid facilitator, who may be retained by the client. The evaluation criteria as well as the weights of the criteria should be the same for all tenderers and should be specified in the tender dossier. The criteria must include quantitative criteria (e.g. energy or emission savings), qualitative criteria (e.g. energy management level, quality of energy and efficiency technology equipment) and bids' financial criteria.

- **Quantitative criteria**

  Quantitative should the special preferences of the client or the environmental benefits of the project, such as emissions savings or energy savings in the physical units. If a specific volume of energy savings in physical units is required (as opposed to cost savings), it can be set as a minimum requirement. For a solar PV performance contract, a minimum target of generation should be noted.

  Note that the service lifetime of technical equipment within energy systems in buildings is conventionally approximated at 15 years. Solar PV panels and accompanying hardware is generally assumed at 20 years. The length of the evaluation period, which should be the same for all tenderers, needs to be articulated carefully.

  In addition, a tender dossier should require that applicants specify the amount of energy savings to be achieved as well as warranties of attainment and the time period of such warranties.[47] Subsequently, attained energy savings are evaluated annually, and if the specified amount is not reached, the ESCO is obliged to reimburse the respective amount to the customer. This auditing process needs to be undertaken by a third party with technical enegy expertise, e.g., the facilitating entity that advised on the procurement administration.

- **Qualitative criteria**

  Some criteria are not easy to measure. Those criteria that are more difficult to measure can be used in an assessment but must be employed carefully in order to eliminate any subjectivity in assessing them. Potential metrics include:
  - energy management level (proposal of system measuring and monitoring);
  - compatibility of the proposed energy savings measures with the existing system;
  - quality of the technology hardware, service life, etc.;
  - method of problem-solving and maintenance level;
  - proposed system or curriculum for training of staff;
  - project organization; and
  - company references and qualification of the personnel (CVs).

- **Financial criteria**

  The financial profile is the most critical feature of a tender submission—and its evaluation. Bids need to include an aggregate of the present value of all the monetary benefits and all the

[46] European Union, EPC Manual for Beginner Markets, 2013
[47] QualitEE Project, Guidelines of European Technical Quality Criteria for Energy Efficiency Services, 2020

costs incurred by the EPC project. This is expected to be in the form of the net present value (NPV) of the project.

In this circumstance, the NPV reflects the sum of all the discounted incoming cashflows (for an energy efficiency project, this is operational cost savings) and outgoing cashflows which is effectively payments to the energy service company, including costs of equipment installed, financial services and M&V. For a solar PV contract, NPV can be measured as guaranteed generation achievement (and capital expenditures(CAPEX), operational expenditures (OPEX)), aggregated over the project lifecycle.

Other financial metrics—as opposed to NPV—could be used, such as internal rate of return (IRR) of the EPC project. Some assumptions also need to be made for the financial case and included in bids. These include:

- The discount rate that should reflect the financial situation of the client.
- The period for which the criteria will be applied – only contract duration, or as otherwise specified (e.g. post-contract).
- Scenario management e.g. if achieved savings exceed contracted or guaranteed levels between the client and the EPC provider (ESCO), how will such a dividend be divided?
- Or for the case of solar PV, how will the monetized returns from technology overperformance, e.g. returns from generation in excess of the targeted threshold, be divided?

8.4.1 Evaluation criteria

A tender dossier should explicitly spell out the weights that will be used to calculate bids and need to reflect their importance.

Figure: Example of weighting criteria:[48]

Criteria	Weights
Financial: payback period | cost breakdown | IRR	25%
Technical: completeness of energy savings (or generation) estimate | engineering approach	25%
Implementation: plan for making improvements | monitoring savings	20%
Operation and maintenance: approach | risk management	10%
Project management: qualifications of personnel	10%
Training: capacity building model	10%

8.5 How an ESCO (energy service company) can be formally engaged[49]

Energy service companies (ESCOs) develop, design, build and finance (or arrange financing for) projects that save energy, reduce energy costs and decrease operations and maintenance costs at their customers' facilities. In general, ESCOs act as project developers for an extensive range of energy conservation measures and assume the technical and performance risks associated with a project.

[48] Danish Chamber of Commerce, 2013
[49] US Department of Energy https://www.energy.gov/eere/femp/energy-service-companies-0

ESCOs are distinguished from other firms that offer energy-efficiency improvements in that they use the performance-based contracting methodology. When an ESCO implements a project, the company's compensation is directly linked to the actual energy cost savings.

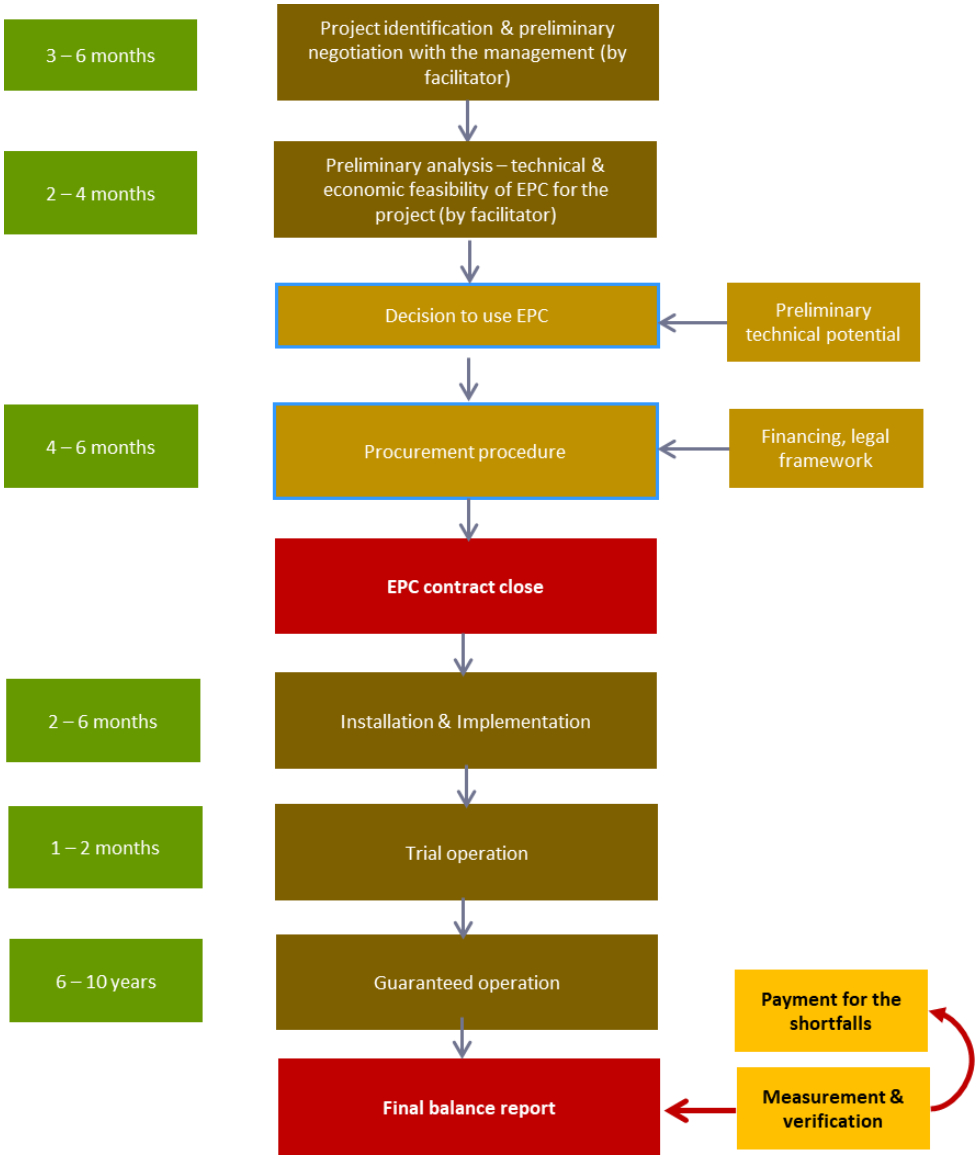
The substantial energy-efficiency retrofits and renewable energy technologies inherent in energy savings performance contract projects typically require a large initial capital investment and may have a relatively long payback period. The size of the Dominica project may not require a large scale of investment.

If there are debt payments, they will be tied to the energy cost savings guaranteed for the project, so the agency pays for the capital improvements of the EPC project with the money saved by the project (i.e., the difference between pre-installation and post-installation energy use and other related costs).

8.5.1 The EPC Process

The EPC procedure can require time and planning, from preliminary negotiations to handing over of the energy saving (or RET) hardware/equipment, trial operation and final balancing of the energy saving results of the project. The timing of the procedure will vary among the projects depending on Dominica’s particular governance of energy performance contracts.

Figure: Indicative EPC process[50]



[50] EU Energy Performance Contract Manual for Beginner Markets, 2013

8.6 How an ESCO will complete detailed audits and assessments of public buildings (where interventions are conducted)

Detailed energy audits (in the case of buildings and facilities) should include the collection or development of the following:[51]

- Building or facility plans
- Data about the building's materials
- Energy bills (electricity, oil, gas, biomass etc.)

In addition, the following should be undertaken by the energy service company:

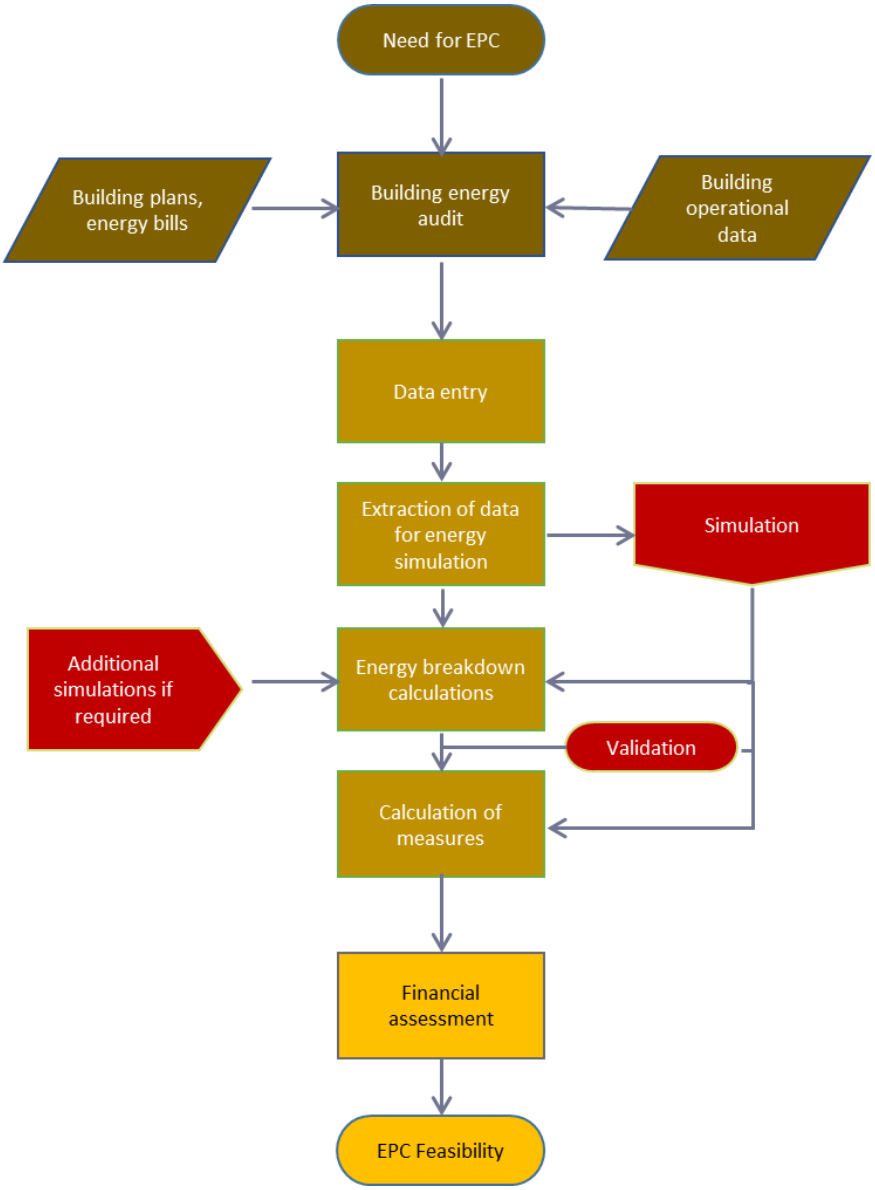
- Perform technical equipment inventory
- Collect building operational data, such as operation times and schedules, occupancy patterns, control systems (e.g. heating and cooling set-points) and occupancy levels
- Thermal simulation of the building (using appropriate simulation software)[52]
- Calculate the energy breakdown, the savings achieved by standardized RES measures applied in the building and eventually to perform the financial assessment, resulting in a feasibility rating potential for EPC.

A central element of this methodology is the qualification of the person who conducts the energy audits, data collection, thermal simulation and prepares the data for use. In addition, the energy auditor should have the experience and capacity to define and recommend the proper energy interventions for each case. The qualified professional in energy efficiency and renewable energy systems will have the ability to be properly trained for the optional tool use in order to investigate the EPC feasibility of each case.

Further, there should be an independent investigation of interest of the owner/operator of the building for energy efficiency and renewable energy investments.

[51] Frangou, M., et al. Journal of Renewable Energy. Renewable energy performance contracting in the tertiary sector, 2018
[52] This is the application of a standardization and benchmarking framework

Figure: Standardization and benchmarking methodology[53]



8.7 A system that will be used for measuring and monitoring energy saved, to be used as a basis for remuneration for ESCOs engaged, taking into account existing systems which may be adopted e.g. RETscreen as applicable

After a trial operation, a professional supervision and check of the running and functionality of the measures should be undertaken to confirm that at least the agreed level of energy savings (or generation) is being achieved. Subsequently, typically after each year of operation, the attained energy savings are evaluated and if the declared level is not reached, the ESCO is contracted and required to reimburse the relevant amount to the customer. The review and assessment process should be delegated to a specialised

[53] Frangou, M., et al. Renewable energy performance contracting in the tertiary sector, Renewable Energy Journal, 2018

consulting firm. This can be (and often is) the EPC process facilitator who advised on organization and execution of the procurement.

8.7.1 Measurement and verification

The transparency of the savings achieved will depend on the quality of measurement and verification (M&V) provided in the Dominica context. In general the more independent M&V on the ESCO, the more transparent are the energy savings.

The guarantee of savings is set in the contract and the energy service company guarantees attainment of a specific metric. For instance:

- the annual volume of energy savings in physical units (e.g. kWh or MWh)

If savings are smaller than the guaranteed volume of savings, the corresponding amount is Expected to be fully reimbursed by the ESCO to the client according to the contract. If the savings are higher than the guaranteed volume, excess savings are to be divided between ESCO and client according to the methodology established in the parties' contract.

During the contract period, the energy service company is expected to continuously supervise the functioning of the energy system it is responsible for. It is further expected to monitor energy consumption and to intervene in the case of undesirable action. Measurement and verification practices allow **project performance risks** to be categorised, managed and allocated among the parties.[54] Performance-based projects in Dominica should be subject to international protocols such as the International Performance Measurement and Verification Protocol (IPMVP). [55][56]

Once the contract is terminated, the client is fully responsible for operation. For Dominica, it may be important to include in the contract with the ESCO sequences of technical assistance and capacity building to ensure that the operation can be technically and effectively managed, post-contract.

Good measurement practices and verifiability are some of the important elements in providing the confidence needed to secure funding for projects. Securing financing requires confidence that energy efficiency investments will result in a savings stream sufficient to make debt payments.

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[54] European Commission, European Energy Efficiency Platform, ESCO Monitoring and Verification

[55] The International Performance Measurement and Verification Protocol (IPMVP) can provide an overview of current best practice techniques available for verifying results of energy efficiency projects. The IPMVP is not intended to prescribe contractual terms between the customer and ESCO, although it provides guidance on some of these issues. Once other contractual issues are decided, this document can help in the selection of the measurement & verification (M&V) approach that best matches:

- the project costs and savings magnitude
- technology-specific requirements
- risk allocation between the client and ESCO

[56] http://www.ipmvp.org

8.7.2 Non-compliance

If the achieved and confirmed energy savings are lower than the guaranteed and contracted savings (or generation) after re-calculation for average climate conditions, weather events, etc., then a specific protocol will need to be followed. The missing revenues/cost savings that were contracted will need to be paid by the ESCO to the client.

8.7.3 Final balance

At the end of the contractual period, the retained ESCO completes the project and fulfils all its contractual obligations. The ESCO will, according to its contract, submit a final report that details the fulfilment of all requirements according to the contract.

8.7.4 RETScreen

The Government of Canada's RETScreen site offers qualified bidders lists for ESCOs. The lists adhere to qualification protocols with tiers of experts based on experience with energy performance-based contracts. RETScreen's Qualified Bidders List is the initial component of the Canadian Government's evaluation process for EPC procurements. Further analysis and evaluation would need to be conducted in relation to the Dominica project and the potential call for international bids.

9 Develop resources such as template agreements: Contracts[57]

The EPC contract between the ESCO and the Dominica client should contain guarantees of savings and also regulate allocation of financial and technical risks for implementation and operation during the duration of the project. Note that duration of an EPC project (for energy efficiency for buildings) is typically 10 years.[58] Key elements, which should be included in the EPC contract, are the following:[59]

- Guaranteed savings – the ESCO guarantees a certain amount of yearly savings to be achieved throughout the duration of the contract. The contract has to clearly define what happens if the guaranteed savings are not achieved, i.e. there has to be a clear description of how the ESCO settles the negative difference between guaranteed savings and actual achieved savings. Further, it has to clearly define the procedure for the case of exceeding the guaranteed level of savings, which sets a method of distribution of access savings between the client and the ESCO.
- Length of the contract.
- Volume of investment to bring the guaranteed savings and a commitment by the client to pay the investment after its installation.
- Clear definition of a reference scenario (baseline) of the future energy consumption that is to be set in physical units. For all financial and economic purposes the reference scenario is calculated in

[57] Additional contract information provided as an Appendix
[58] According to an European Union survey 71% of ESCOs reported up to 10 years (and 54% between 5-10 years) as the most common length of their EPC contracts – see European EPC market overview, Garnier (2013)
[59] EU Energy Performance Contract Manual for Beginner Markets, 2013

current prices. The contract specifies a rate of inflation to be used for the reference scenario calculation.

- Obligation of the ESCO to provide a report on yearly savings evaluation that documents the actual amount of achieved savings in the respective year – in both physical and monetary units.
- Responsibility of the ESCO to design and implement the energy saving measures correctly.
- Obligation of the client to provide pre-agreed conditions for implementation of the energy saving measures.
- Planned duration of installation of the investment.
- Ownership transfer of the installed energy saving technologies to the client.
- Means of payment for the services and savings. Usually these are paid as a monthly fixed advanced payment agreed by both parties. At the end of each year of the contract, after the savings evaluation documented in the report on yearly savings, the payments are settled.
- Declaration of the purpose of operation of the facility on which the Energy Performance Contract is effectuated.
- Method of recalculation of the guaranteed savings in case any of the input parameters differs from the presumptions defined in the reference (baseline) energy consumption scenario.
- Final report – prior to the end of the paying-off period the ESCO hands over to the client the final report including the total amount of cost savings, guaranteed savings, given reduction in the price and bonuses calculated for the entire paying-off period, etc.

10 Indicators, plans and procedures for testing, monitoring and managing the performance and impact of the pilot financing mechanism with a view to its potential to scale up investments in the public sector

The development of standard procedures for measurement and verification (M&V) of savings is a critical aspect of energy performance contracts and particularly applicable to energy efficiency solutions (as opposed to generation technologies). Strong measurement practices and verifiability are necessary in order to attract financing, which requires evidence that energy efficiency investments will result in a savings stream sufficient to make debt payments. At the same time, viable measurement and verification practices allow project performance risks to be understood, managed and allocated among the parties.[60]

Note that savings cannot be directly measured, since they represent the absence of energy use. Instead, savings are determined by comparing measured use before and after implementation of a project, making appropriate adjustments for changes in conditions.

M&V activities consist of some or all of the following:

- meter installation calibration and maintenance,
- data gathering and screening,
- development of a computation method and acceptable estimates,

[60] European Energy Efficiency Platform, ESCO Monitoring and Verification, 2020

- computations with measured data, and
- reporting, quality assurance, and third party verification of reports.

Verifying (initially and repeatedly) is essential to guaranteeing that the installed equipment is able to produce the expected savings. Verification of the potential to achieve savings is referred to as **operational verification**, which may involve inspection, commissioning of equipment, functional performance testing and/or data trending. International Performance Measurement and Verification Protocol (IPMVP)-aligned M&V includes both operational verification and an accounting of savings based on specific site energy measurements before and after implementation of a project; and also any related adjustments.[61]

M&V is not just a collection of tasks conducted to help a project meet international performance measurement and verification protocol requirements. Properly integrated, each M&V task builds upon the other and helps to enhance and improve facility operation and maintenance of savings → and this serves the purpose of capturing impact and establishing a template for other investments to leverage and scale. M&V activities overlap (and should integrate) with other project efforts e.g. collecting data to both identify energy-saving measures and establish performance baselines, commissioning and operational verification of installed energy efficiency measures, and installing monitoring systems to track and maintain savings continuity. Identifying such project synergies and establishing roles and responsibilities of involved parties during project planning helps to establish a coordinated effort. This can leverage complementary scopes while also controlling M&V-related costs.

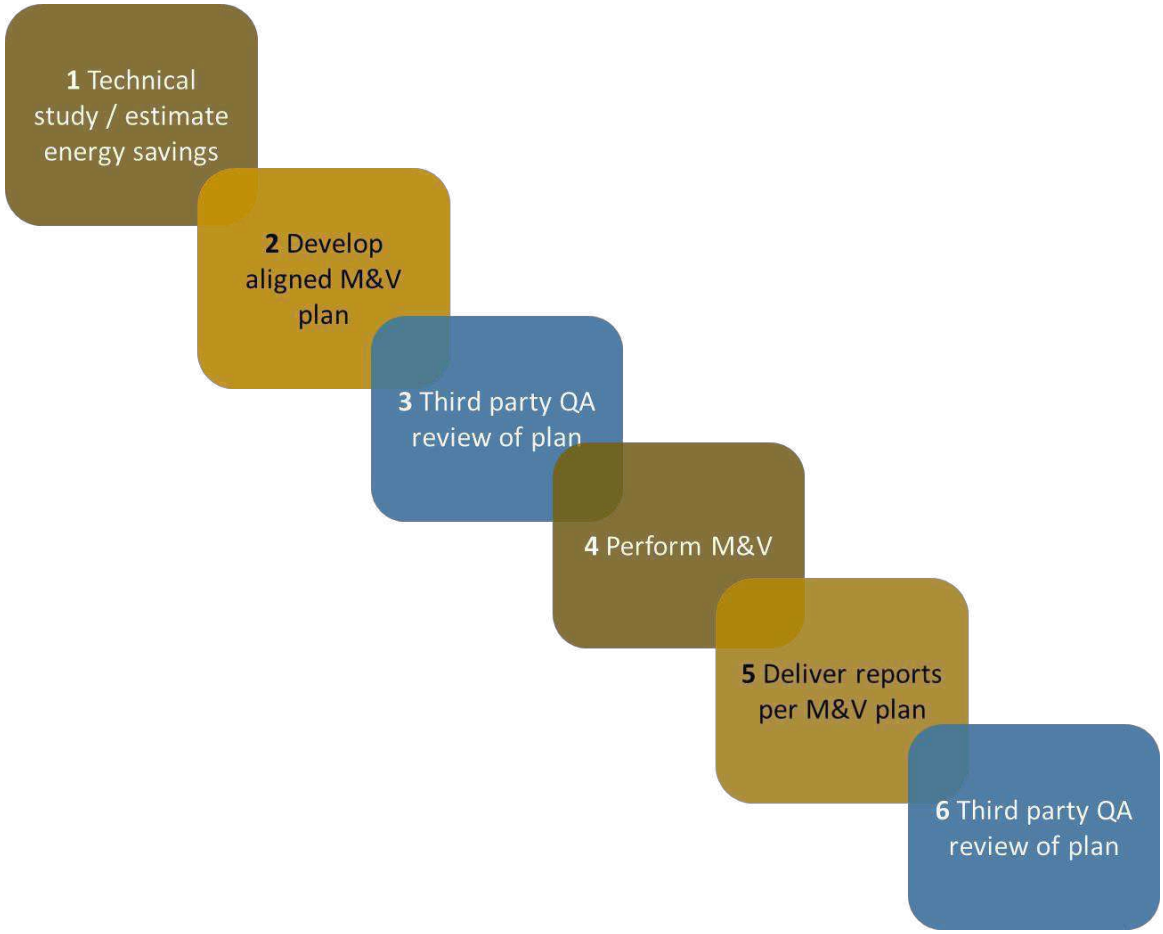
10.1 M&V and Impact

- Accurate determination of energy savings gives Dominica clients valuable feedback on their energy conservation measures
- Energy efficiency savings are the basis for performance-based financial payments or a guarantee in a performance contracts—this contributes to attracting finance for new projects and enhancing transparency
- Documenting impact and enhancing financing – an M&V plan increases the transparency and credibility of reports on the outcome of efficiency investments. Again this supports impact and transparency.
- M&V helps to impact and improve operations design. And it can help to improve emissions reporting—a critical element for international finance.
- Scalability – The Dominica Government can leverage M&V techniques to evaluate the savings at selected energy user facilities; and the savings determined by M&V activities at selected individual facilities can help predict savings at unmeasured sites in order to understand performance of other sites in Dominica and help to create scale.

The following figure shows the sequence of monitoring and verification activities that can play an important role in providing impact measurement integrity—an essential tool for attracting finance.

[61] Efficiency Valuation Organisation, 2020

Figure: Monitoring activities for impact[62]



[62] Efficiency Valuation Organisation, 2020

Appendix 1: Contract Template

These are the key elements to be considered for inclusion in an energy performance contract. They need to be adjusted or expanded upon to fit project, client and service provider contexts.

Contract Sections	Descriptions (where applicable)
Agreement	**Parties**
Commencement date	
Schedule	Confirm full project timeline and deliverable dates
Budget	Proposed by service provider or project owner
Approval	Dominica agency
Project financing	Loan or otherwise
Funding assistance	Government or 3rd party
Monitoring & Verification	Energy use records and data
Installation, implementation and construction services	Preliminary evaluation, full evaluation, all specifications, parameters • Based on agreed terms
Solicitation documents to secure proposals from qualified contractors	Parties
Bid solicitation	Programme and process for bids
Permits and approvals	Including certifications
Design of the project	
Construction or installation contracts	Including certifications
Responsibility waivers	E.g. workers compensation where applicable
Performance bonds	Service provider
Construction or installation	
Project schedule	
Location and access	
Adherence and accordance to requirements of construction	
Review of performance and Review of requests for change	
Monitor compliance	
Waiver (lien)	
Warranty (e.g. 1-year)	
Maintenance training	
Compensation	
Fee amount	
Interim payments	
Final payment	
Termination fees	
Fees for additional services	
Reimbursements for costs	
Cash flow	
Debt service and energy payments	Client
Annual Reconciliation Period	For each year during the term of this Agreement, the Total Energy Cost Savings, the Excess Energy Cost Savings, and the Annual Project Benefits will be calculated on a calendar–year basis. The "Annual Reconciliation Date" shall be the first day of the following February, at which time the calculation of the Total Energy Cost Savings, the Excess Energy Cost Savings, and the Annual Project Benefits shall take place. The first reconciliation will be for a partial year from the Commencement Date through the following

	year. Partial year reconciliations shall be prorated over the period for which energy savings are calculated.
Energy bills	The CLIENT agrees to provide, each month, consumption and billing data for electric and gas utilities and all other energy suppliers to PPESCO. Copies of energy bills shall be provided to PPESCO within seven days of their receipt by the CLIENT.
Calculation of energy and cost savings	Energy and Cost Savings shall be calculated as provided in respective schedule (i.e. Energy and cost savings guarantee)
Adjustments to base energy use	
Adjustments Resulting from Material or Operational Changes in Condition or Use of Facilities	1. manner or frequency of use of the Facilities; 2. hours of operation of any equipment contained in the Facilities; 3. occupancy; 4. structure of the Facilities; 5. types of equipment used on the premises; 6. conditions affecting energy use in the Facilities, other than those caused by the installation of measures set forth in this Agreement, which reasonably could be expected to change the amount of energy used at the Facilities
Adjustments Resulting from Failure to Perform Adequate Maintenance	
CLIENT and SERVICE PROVIDER acknowledge that proper maintenance of the equipment is essential for achieving the projected energy savings. Should CLIENT fail to perform Proper Maintenance and Servicing, and should such failure reduce the level of utility savings during the loan repayment period, SERVICE PROVIDER shall, in consultation with CLIENT, adjust the Fixed Base Year Energy Use accordingly	
Energy and cost savings guarantee	
Guaranteed savings	
Annual review and reimbursement	
In recognition that an insufficiency in savings as described in the preceding paragraph for a given year may be a transient condition, such payments from Service Provider will be considered a no-interest loan. Service Provider shall be repaid any sums paid under Section (…) to the extent Total Energy Cost Savings in subsequent years produce an excess of savings that allows such repayment	
Service provider account for the benefit of client	Service Provider maintains line of credit with a financial institution with sufficient funds to cover (X%) of current year's projected annual project benefits.
Energy management services	
Monitoring and calculation of savings	
Routine review of equipment	
Energy training	
Assessment of maintenance needs	
Performance contract service fee	
Distribution of excess energy cost savings	
Insurance coverage	
Additional services	

Access to project records	
Hold Harmless Clause	
Hazardous materials	
Applicable laws	Parties insert
Severability	
Arbitration	
Index of schedules	Schedule A – Scope of the Project: Description of the scope of the energy conservation and related work to be performed at [PROJECT LOCATION] Schedule B – Additional Maintenance and Service Activities Schedule C – Fixed Base Year Energy Use Schedule D – Energy and Cost Savings Guarantee Schedule E – Methods of Savings Measurement Verification Schedule F – Energy Rates for Savings Calculations Schedule G – Cash Flow Projection Schedule H – Service Provider Fee Schedule Schedule J – Service Provider Hourly Billing Rates Schedule K – Standards of Comfort

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