Initiative for Climate Action Transparency

Phase 2

The Transport Assessment Model Planning Meeting and The Transport Assessment Model Capabilities Session Report

6th March 2024

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The Government of Antigua & Barbuda, Department of the Environment

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The Transport Assessment Model Planning Meeting and The Transport Assessment Model Capabilities Session Report

Initiative for Climate Action Transparency – ICAT

Deliverable #19 (S)

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6th March 2024

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Acronyms

ABTB	Antigua and Barbuda Transport Board
ANB	Antigua and Barbuda
APUA	Antigua Public Utilities Authority
BEV	Battery Electric Vehicle
CA	Climate Analytics
CCMRVH	Caribbean, Cooperative, Measurement, Reporting and Verification Hub
CSI	Climate Smart Initiative
DOE	Department of Environment
EV	Electric Vehicle
GEF	Global Environment Facility
GHG	Greenhouse Gas
GHGMI	Greenhouse Gas Management Institute
ICAT	Initiative for Climate Action Transparency
ICE	Internal Combustion Engine
LEAP	Low-Emissions Analysis Platform
NDC	National Determined Contributions
NODS	National Office of Disaster Services
SLIM	Sustainable Low Emission Island Mobility
TAC	Technical Advisory Committee
TraCAD	Transport Climate Action Data
WIOC	West Indies Oil Company

1 Executive Summary

Activity 6: Integrate and inform electric mobility implementation projects in Antigua and Barbuda.

Outputs Q (Transport Assessment Model Planning Meeting) **and R** (Transport Assessment Model Capabilities) **under ICAT Phase II were completed.**

The Transport Assessment Model Planning Meeting was completed on the 20th February 2024. This workshop involved experts directly involved in implementing electric mobility projects. Therefore, discussions were had concerning the different project activities and how the analytical capabilities achieved under ICAT can inform current and future initiatives. The stakeholders involved were members of the Department of the Environment, Caribbean Cooperative Measurement Reporting and Verification Hub (CCMRVH), Greenhouse Gas Management Institute (GHGMI) and Climate Analytics (CA).

The Transport Assessment Model Capabilities session was completed under the Technical Advisory Committee (TAC) on the 21st February 2024. The TAC served as a collaborative platform where private and public sectors and NGOs offered technical expertise and policy advice. It allowed for communication and cooperation among stakeholders throughout ICAT's project phases. Engaging with the TAC facilitated wider information sharing and addressed challenges/concerns encountered during project execution. The presentation for ICAT PII project is summarized below incorporating the discussion segment conducted under both outputs.

2 ICAT PII Transport Assessment Model Planning

2.1 Introduction:

Oraine Nurse opened the session, explaining that the aim of the meeting involves highlighting the Electric Vehicle (EV) transition efforts in A&B and having a clearer understanding of the status of what is being implemented and what is about to be implemented. He stated that after the meeting the attendees should have an understanding on how to support each project/activity effectively and efficiently if needed.

There was then a round of introductions. The list of participants would be provided in **Annex 1.**

2.2 Project Overview:

Benise Joseph then had the floor to begin her presentation on capabilities, results, and planning. She stated that as part of the ICAT project, one of the objectives was to ensure the modelling capabilities were maintained, used, and improved in various projects. She gave an overview of the modelling tools, Transport Climate Action Data (TraCAD) and Low Emissions Analysis Platform (LEAP), the training capacity sessions conducted, the data that was used for each model, assumptions made and some of the results. Benise highlighted that the final reports, the Electric Power Mitigation Scenario Analysis Report, and the Electric Mobility Transition Scenario Impact Assessment Report would be shared at the end of the month, due to edits being made after the recent validation workshop. The final reports can be found in **Annex 3**.

Benise then presented on the justification for selecting/using the two modelling tools LEAP and TraCAD. She went through, briefly, the evaluation criteria and explained that the above models had the capacity to complete the work under the ICAT PII project based on the in-country needs and objectives.

One of the main aspects of the project was to build capacity. There were two training sessions for the two tools. The TraCAD training session was four days long where 14 persons from varying sectors (Antigua and Barbuda Transport Board (ABTB), Statistics Division, etc.) were trained virtually. Next, a three-day training session focused on LEAP was completed in person with the same stakeholders. These sessions looked at demand analysis, transformation, key assumptions among others.

Under this project two assessments were completed: the electric mobility transition scenario impact assessment and the electric power mitigation analysis scenario assessment. The electric mobility transition looked at the NDCs specifically for the transport sector utilising both tools. The power mitigation analysis assessed the power/electricity requirements solely to support the transition.

Three NDC targets identified by the project team associated with their completion dates were:

1. *Change fiscal policies on fossil fuel by 2025 to enable the transition to 100% renewable energy generation in the transportation sector (2025)*
2. *Ban on the importation of new internal combustion engine vehicles (with an indicative start year of 2025) (2030)*
3. *100% of government vehicles will be electric vehicles (2035)*

Benise explained that the second listed NDC above, addresses the ban on sales of ICE vehicles and based on analysis from expert judgment and the Sustainable Low-Emission Island Mobility (SLIM) project there was an indication that this transition would likely to occur within the years 2040 to 2045, therefore, the latter year was chosen.

She then delved into the different Data Assumptions. She indicated that most of the datasets came from in country specifically ABTB, Antigua Public Utilities Authority (APUA) and West Indies Oil Company (WIOC) to name a few. Sales and costing data were also procured from various car dealerships and information was gathered from previous reports, regional sources and expert judgement. One of the assumptions was that hybrid vehicles would be disposed of in addition to ICE vehicles to ensure that all vehicles do not use fossil fuels.

In addition to data assumptions, proposals were provided geared towards achieving a full transition of the transport fleet by 2045. Some of the proposals were as follows:

1. The development of a government vehicle age limit policy which proposes that once government vehicles reach the age of seven years, they should either be sold or disposed of.
2. There is a significant increase in the social costs of switching ICE vehicles to EV vehicles.
3. Given that all vehicles transitioned by 2045, it is estimated that 3,000 ICE vehicles would need to be decommissioned per year from 2025.

Benise continued with the modelled results from LEAP. One model represented the GHG emission projections in the baseline scenario and another model representing the vehicle stock projections. See **Figure 1**. Both models looked at the years 2010 to 2050. She explained that the data received was categorized by vehicle type (buses, cars, trucks etc) and by categorical usage (government, private, commercial). These datasets were obtained from the ABTB. The results are further explained in the Electric Power Mitigation Scenario Analysis Report, and the Electric Mobility Transition Scenario Impact Assessment Report. She briefly touched on the modelling results for scenarios modelled for ban on ICE vehicles. She stated that the commercial vehicles transition to EV was the highest emitters due to large consumption of power and the mileage obtained from stakeholders. She also compared the LEAP and TraCAD results and stated that both tools generated significant differences in the total emission reductions.

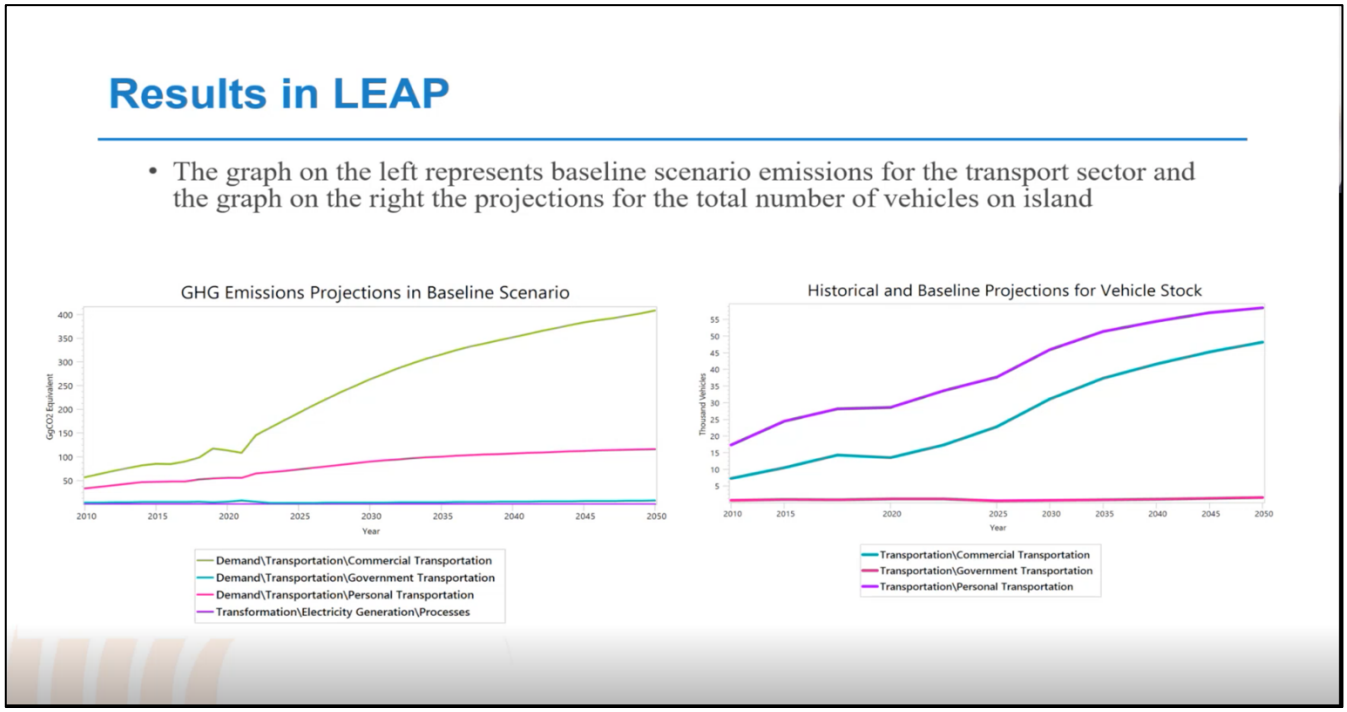


Figure 1. Illustrating LEAP results for GHG emission projections and Historical and Baseline Projections for Vehicle Stock

2.3 Conclusions:

Benise ended her presentation by providing a few conclusions. Some of these findings are as follows:

1. The modelling analysis indicates that the full EV transition in Antigua and Barbuda will result in GHG emissions reductions and even further reductions with the introduction of renewable energy.
2. Antigua and Barbuda have trained personnel who can conduct modelling assessments, but modelling requires constant practice and use of the tools.

2.4 Discussion 1

After Benise's presentation, Bob Brecha from Climate Analytics (CA) queried about the projections for commercial vehicles, as it represented the highest in the demand for power and he wondered why that was the case. He had another question concerning the mileage driven per vehicle and whether the team procured those datasets. Benise responded by stating that the projections that they used were tied to 20% GDP growth of the country. Personal vehicles were tied to the increase in households. In terms of mileage, the dataset was received from the SLIM project and then expert judgement was used but during the validation workshop, participants indicated that the values were too low hence the values were addressed based on in-country knowledge.

Rodrigo Narvaez from CA then sought clarification on the Nationally Determined Contributions (NDCs) implementation plan specifically the target of transitioning the governmental fleet and by which time and why the ICAT project team indicated a transitional year by 2035. Benise clarified that 2035 was taken from the NDCs and that the completion of the government fleet transition would take place in 2035. By 2040, based on the NDC there should be a transition of all vehicles. Based on the SLIM project presentation they stated the complete transition would take place from 2040 to 2045, therefore, the modelling team used the later date of 2045 as the transition of all vehicles would take some time to find suitable replacements for the different types of vehicles, this was also discussed and validated with the different stakeholders within A&B.

Jan Sindt from CA, then presented his query on the outcomes on the emission reductions of the different tools used and its varying results. Benise explained that the methodologies used were quite different. For example, the TraCAD tool developed by Climate Smart Initiatives (CSI) used specific modelling methodologies and based on time constraints, the team was not able to take a deeper look into other methods of analysis to suit the region. Also, with LEAP tool the team was able to input the mileage for each vehicle type and category as opposed to TraCAD where they were unable to indicate the specific mileage, creating inaccuracies.

2.5 Climate Analytics Presentation

Rodrigo then presented on the Electric Mobility Transition Project funded by the Global Environment Facility (GEF). This project is a scale up from the baseline results from the Sustainable Low-Emission Island Mobility project and aims to drive a transformative and sustainable shift to electric mobility in the transportation landscape. He indicated that the project is still in its development stage and the components are not fully defined. They are still receiving feedback from various stakeholders to aid in its development. He then looked at the five components of the project:

1. Replace government fleet with EVs by 2030
2. Concessional financing to reduce upfront cost of BEVs
3. Charging infrastructure development
4. Modernizing public transport infrastructure and services
5. Training, capacity building and public awareness

He further detailed each component. In component one, the intention is to scale up the SLIM project activity by transitioning 30% of the government fleet to electric. The intention is to stimulate the vehicle market to provide EV options which in turn will reduce the cost to purchase EVs. Component two would look at collaborating with financial actors to provide loans for the purchase of EVs and/or providing financial support through the project to purchase 15,000 Battery Electric Vehicles (BEVs). The third component looks at the charging infrastructure development for both public and private sectors and providing a second life application of used EV batteries as storage units. The fourth component seeks to modernize the public transport system by introducing advanced technologies and services that enhance user experience, efficiency, and attractiveness. The final component looks at building capacity in the operation, maintenance, and repair of BEVs and battery management. As well as supporting mechanics to transition repairing BEVs in the government fleet.

2.6 Discussion 2

Benise queried whether the waste sector would be incorporated into any of the projects being done in Antigua. Rodrigo then responded by indicating in Component 3 there is an activity looking at the reuse of the battery system. Frances Fuller, Director of Climate Analytics then added that it came up as a significant concern by stakeholders given that it is an ambitious transition towards EVs, what would then become of the ICE vehicle waste, especially since ICE vehicles are currently a hard waste to discard safely. She also noted that it didn't come up as a request to develop a new policy or approach to be included in the concept note. Oraine then indicated the same sentiments and added that currently in A&B, there are no projects or policies being developed to address this ambitious transition and it should be made a priority soon.

This conversation transitioned into the discussion of how best the projects/project teams can collaborate for their next steps and avoid discrepancies or duplications. Oraine suggested the sharing of data when needed and secondly under the ICAT project there would be reports and manuals developed to enable stakeholders to replicate the methodologies based on in country needs.

Oraine then addressed that he did not see anything pertaining to the use of tools in the CA presentation. Jan responded that currently there is no need to use these tools at the concept note stage, however, a rough assessment was done for the mitigation potential switch of mobility modes. He also mentioned an ongoing NDC Tech project that aims to help revise the NDCs which should require modelling capabilities. Fran then added they were contracted by the DOE to develop the concept note, the DOE would then proceed to develop the concept note into a project and then implementation. She indicated a month left to finalize the concept note and suggested opening the concept note for any additional comments/ideas to be added to the components. Oraine then asked if the documents can be shared. Michael Gillenwater, GHGMI, suggested that the concept note could explain that through the ICAT project, A&B would have the modelling capabilities to assess different scenarios or impact tracking and BTR reporting. Benise also added that they were able to get a discount on the cost of the LEAP software for A&B, so other components of different projects could benefit from the modelling

capabilities. Fran stated that part of the NDC Tech project is to look at energy and transport and they are using LEAP for that modelling. She indicated that they would be happy to collaborate with Antigua and CCMRVH using the capabilities. She stated there are budgets allocated for consultations that would embed a level of capacity building and training and would be happy to collaborate with us on those activities.

Benise stated there is a possibility for a third phase for an ICAT project and would be an opportunity to look at areas that have not been touched on. Oraine agreed that it would be great opportunity and would welcome an ICAT PIII. The national project team would have their internal discussions on what that area of interest would be and revert to the ICAT Secretariat. There were no further comments or queries, therefore, Oraine thanked the participants for their inputs/discussions and closed the session.

3 ICAT PII Transport Assessment Model Capabilities

3.1 Technical Advisory Committee (TAC) Discussion

The project overview was again presented by Benise Joseph with more focus on the project results and policies needed to support these results.

Sherrod James from the National Office of Disaster Services (NODS) had some concerns, one of them being the types of vehicles that were taken into consideration for emergency vehicles as well as the battery performance and how the current heat waves may affect the battery performance.

Benise responded that the project team, mainly analysed the potential for GHG emissions reduction based on the NDC targets. She continued to state that to analyse the charging stations and performance of these systems across the island would require a more detailed analysis of power on island. In terms of the battery performance, what was addressed under this project was a comparison of the ICE and EV vehicles, their different battery system, and suitable replacements for the common ICE vehicles on island and their charging capability and the charging requirement. She stated this was a one-year project that also incorporated training with the main focus being GHG emissions and the sustainable development impacts and these were chosen for further analysis based on stakeholder input from the inception workshop.

Sherrod reiterated his concerns stating that he was looking at the functionalities and feasibility of the transition with a reliable EV that can perform these duties under different climatic/ environmental conditions to save lives. Benise clarified that based on the NDC targets this transition would take place in 2040. However, based on the SLIM project and assessments done it was extended by 5 years to find suitable replacements for vehicles such as trucks/fire trucks. Currently, these EV types are not readily available in the Caribbean market. Therefore, common vehicles such as sedans, SUVs were analysed under the project. She then stated that there is potential for an ICAT phase 3 and these things can be taken into consideration under that project.

4 Annexes

4.1 Annex 1 Participants List

4.1.1 Transport Assessment Model Planning

Name	Department	Gender
Oraine Nurse	Department of Environment	M
Sherwyn Greenidge	Department of Environment	M
Aaliyah Tuitt	Department of Environment	F
Ezra Christopher	Department of Environment	F
Teneisha Smith	Department of Environment	F
Zariya Russell	Department of Environment	F
Lakeea Allen	Department of Environment	F
Pierre Briemel	Department of Environment	M
Benise Joseph	Caribbean, Cooperative Measurement Reporting and Verification Hub (CCMRVH)	F
Kalifa Phillip	Caribbean, Cooperative Measurement Reporting and Verification Hub (CCMRVH)	F
Michael Gillenwater	Greenhouse Gas Management Institute (GHGMI)	M
Jan Sindt	Climate Analytics	M
Rodrigo Narvaez	Climate Analytics	M
Fran Fuller	Climate Analytics	F
Bob Brecha	Climate Analytics	M

4.1.2 Transport Assessment Model Capabilities (Technical Advisory Committee)

Name	Department	Gender
Benise Joseph	Caribbean, Cooperative Measurement Reporting and Verification Hub (CCMRVH)	F
Kalifa Phillip	Caribbean, Cooperative Measurement Reporting and Verification Hub (CCMRVH)	F
Oraine Nurse	Department of Environment	M
Deborah Barnes	Statistics Division	F
Ato Lewis	Department of Environment	M
Dr. Janil Gore-Francis	Plant Protection Division	F
Arry Simon	Department of Environment	M
Morgen Halstead	Department of Environment	F
Sherwyn Greenidge	Department of Environment	M

Dr. Tricia Lovell	Fisheries Division	F
Aaliyah Tuitt	Department of Environment	F
Ruleo Camacho	National Parks Authority	M
Joshel Wilson	Environmental Awareness Group	M
Gem Reynolds	ABBS	
Johnella Bradshaw	Environmental Awareness Group	F
Ruth Spencer	MEPA Trust	F
Sherrel Charles	Environmental Awareness Group	F
Yolanda Joseph	MOF	F
Shanna Challenger	Environmental Awareness Group	F
Tracelyn Joseph	Statistics Division	F
Ariel Church	EAG	
Gita Gardner	Department of Environment	F
Bryttan Thomas	Department of Environment	M
Helena Browne	Department of Environment	F
Natalya Lawrence	GEF Small Grants Programme	F
Dkaboo Brann	Department of Environment	M
Teneisha Smith	Department of Environment	F
Sherrod James	National Office of Disaster Services	M
Junia Nibbs		
Zariya Russell	Department of Environment	F
June Jackson	GARD Centre	
Ezra Christopher	Department of Environment	F
Shanice Richards	Department of Environment	F
George de Berdt Romilly		M

4.2 Annex 2 Agenda

4.2.1 Transport Assessment Model Planning

Initiative for Climate Action Transparency Phase 2:
National Transport Electrification Impact Assessment

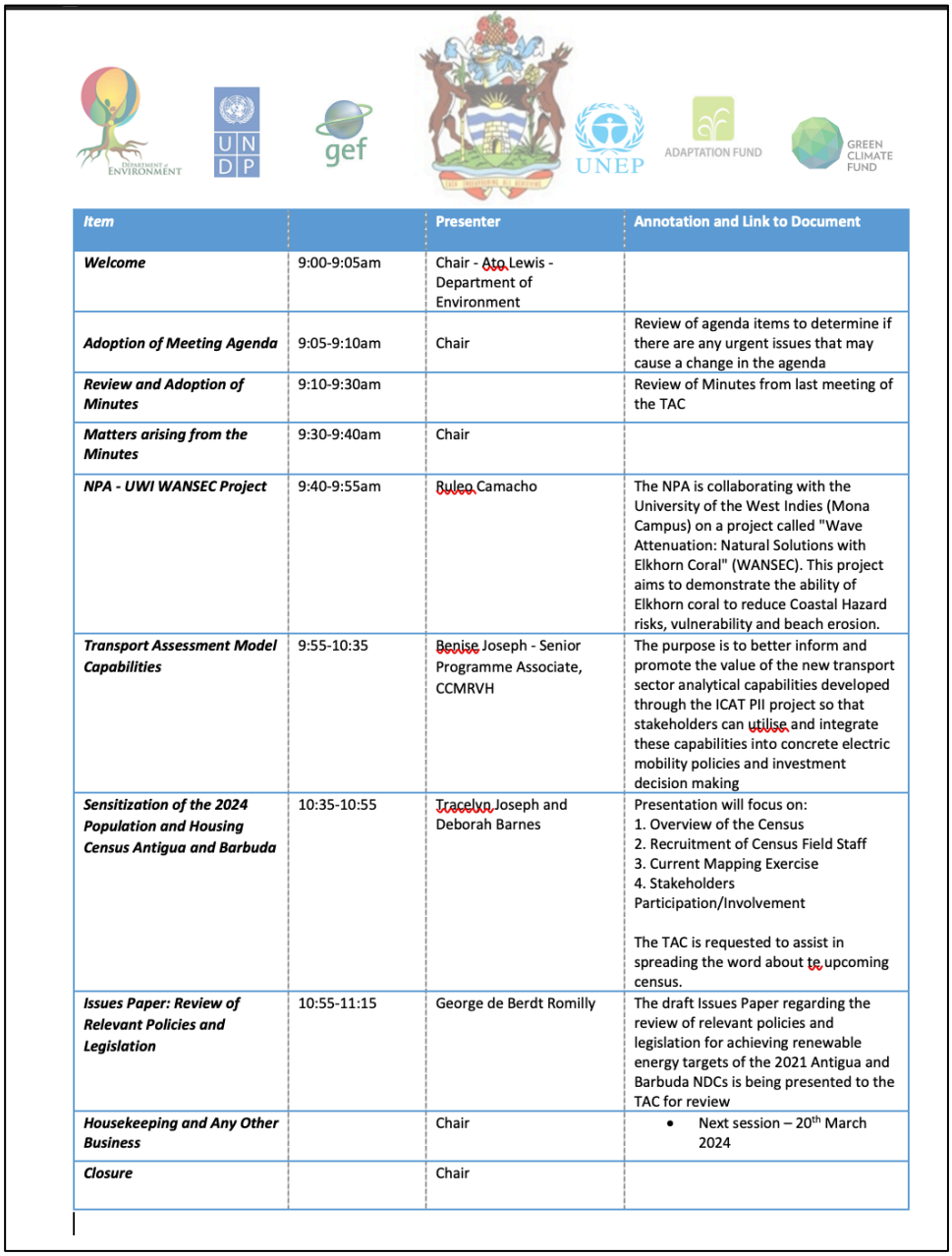
Transport Model Assessment Planning Workshop

Agenda

Date: Tuesday 20th February 2024
Time: 2:00 p.m. – 3:00 p.m. (AST)
Location: Microsoft Teams

Agenda Items		
2:00 - 2:05	Welcome & Round of Introductions	NCT
2:05 – 2:20	Electric Mobility Transition Scenario Assessment and Modelling Results	CCMRVH
2:20 – 2:35	NDC Partnership: Climate Analytics - E-mobility Concept Note and NDC-Tec	CA
2:35 - 3:00	Discussion on Synergies	All

4.2.2 Transport Assessment Model Capabilities



Item		Presenter	Annotation and Link to Document
Welcome	9:00-9:05am	Chair - Ato Lewis - Department of Environment	
Adoption of Meeting Agenda	9:05-9:10am	Chair	Review of agenda items to determine if there are any urgent issues that may cause a change in the agenda
Review and Adoption of Minutes	9:10-9:30am		Review of Minutes from last meeting of the TAC
Matters arising from the Minutes	9:30-9:40am	Chair	
NPA - UWI WANSEC Project	9:40-9:55am	Ruleo Camacho	The NPA is collaborating with the University of the West Indies (Mona Campus) on a project called "Wave Attenuation: Natural Solutions with Elkhorn Coral" (WANSEC). This project aims to demonstrate the ability of Elkhorn coral to reduce Coastal Hazard risks, vulnerability and beach erosion.
Transport Assessment Model Capabilities	9:55-10:35	Benise Joseph - Senior Programme Associate, CCMRVH	The purpose is to better inform and promote the value of the new transport sector analytical capabilities developed through the ICAT PII project so that stakeholders can utilise and integrate these capabilities into concrete electric mobility policies and investment decision making
Sensitization of the 2024 Population and Housing Census Antigua and Barbuda	10:35-10:55	Tracelyn Joseph and Deborah Barnes	Presentation will focus on: 1. Overview of the Census 2. Recruitment of Census Field Staff 3. Current Mapping Exercise 4. Stakeholders Participation/Involvement The TAC is requested to assist in spreading the word about te upcoming census.
Issues Paper: Review of Relevant Policies and Legislation	10:55-11:15	George de Berdt Romilly	The draft Issues Paper regarding the review of relevant policies and legislation for achieving renewable energy targets of the 2021 Antigua and Barbuda NDCs is being presented to the TAC for review
Housekeeping and Any Other Business		Chair	• Next session – 20th March 2024
Closure		Chair	

4.3 Annex 3 ICAT PII Analysis Reports

The Electric Mobility Transition Scenario Impact Assessment Report can be accessed here.

The Electric Power Mitigation Analysis Scenario Report can be accessed here.