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Low-Emission Growth

# REPORT ON SECOND NATIONAL ENERGY ACTION PLAN 2013–2016 (JAMAICA) THE AILEG PROJECT

CONTRACT NO. EEM-I-00-07-00004-00  
TASK ORDER: AID-OAA-TO-11-00041



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Prepared For  
Office of Economic Policy  
Office of Global Climate Change  
Bureau of Economic Growth, Education, and Environment  
U.S. Agency for International Development

Prepared by  
Abt Associates

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## DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States Government.



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# ACRONYMS

<b>AILEG</b>	Analysis and Investment for Low-Emission Growth
<b>AIM</b>	Action Impact Matrix
<b>BSJ</b>	Bureau of Standards Jamaica
<b>CFL</b>	Compact Fluorescent Light Bulb (or Lamp)
<b>DBJ</b>	Development Bank of Jamaica
<b>DLG</b>	Department of Local Government
<b>ECE</b>	Energy Conservation and Efficiency
<b>EC-LEDS</b>	Enhancing Capacity for Low Emissions Development Strategies
<b>EE</b>	Energy Efficiency
<b>ESCO</b>	Energy Services Company
<b>ESEEP</b>	Energy Security and Efficiency Enhancement Project
<b>GDP</b>	Gross Domestic Product
<b>GOJ</b>	Government of Jamaica
<b>HEART/NTA</b>	Human Employment and Resource Training Trust, National Training Agency
<b>IDB</b>	Inter-American Development Bank
<b>IMF</b>	International Monetary Fund
<b>IPP</b>	Independent Power Producer
<b>ISO</b>	International Standards Organization
<b>JPSCO</b>	Jamaica Public Service Company
<b>JTI</b>	Jamaica Trade & Invest
<b>KII</b>	Key Informant Interview
<b>kW</b>	Kilowatt
<b>LCEP</b>	Least-Cost Expansion Plan
<b>LGA</b>	Local Government Authority
<b>LNG</b>	Liquefied Natural Gas
<b>MDA</b>	Ministry/Department/Agency
<b>MOA</b>	Ministry of Agriculture
<b>MOE</b>	Ministry of Education
<b>MSTEM</b>	Ministry of Science, Technology, Energy and Mining
<b>MTF</b>	Medium Term Framework
<b>MTW</b>	Ministry of Transport and Works
<b>MW</b>	Megawatt
<b>NEP</b>	National Energy Policy
<b>NEPA</b>	National Environment and Planning Agency
<b>NHT</b>	National Housing Trust
<b>NSWMA</b>	National Solid Waste Management Authority
<b>NWC</b>	National Water Commission
<b>OLADE</b>	<i>Organización Latinoamericana de Energía</i> / Latin American Energy Organization Latin American Energy Organization

<b>OPM</b>	Office of the Prime Minister
<b>OUR</b>	Office of Utilities Regulation
<b>PCJ</b>	Petroleum Corporation of Jamaica
<b>PESTLE</b>	Political, Economic, Socio-cultural, Technological, Legal, and Environmental
<b>PMG</b>	Performance Measurement Grade
<b>RE</b>	Renewable Energy
<b>SRC</b>	Scientific Research Council
<b>TA</b>	Technical Assistance
<b>UNDP</b>	United Nations Development Programme
<b>UTech</b>	University of Technology Jamaica
<b>USAID</b>	United States Agency for International Development
<b>UWI</b>	University of the West Indies
<b>WASP</b>	Wien Automatic System Planning

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*Photos: Abt Associates, Inc.*

# EXECUTIVE SUMMARY

The preparation of the Draft Second National Energy Action Plan (NEAP) was facilitated under the Analysis and Investment for Low-Emission Growth (AILEG) Project, which is a component of the U.S. Government’s Enhancing Capacity for Low Emissions Development Strategies (EC-LEDS) program in Jamaica. AILEG is providing technical assistance to build the capacity of the Government of Jamaica and other stakeholders to analyze low-emission scenarios and integrate them into economic development strategic planning and implementation, as well as conducting economic analysis to promote investment in low-emission technologies and projects. The AILEG Project provides assistance in three priority areas: (1) climate finance analysis; (2) economic modeling for low-emission development; and, (3) integration of low-emission planning into national development Planning.

Starting with a preliminary list of 46 projects and ending with a list of 30, we used a mixed methods approach of quantitative and qualitative research to gather information and stakeholder feedback to identify potential projects for the Draft Second NEAP and to prioritize them. The process we used included a document review, key informant interviews (KIIs), a review of the First NEAP, stakeholder participation through workshops and a focus group, and analysis by the AILEG Energy Policy Expert. The workshops were a component of the Action Impact Matrix (AIM) approach, a quantitative scoring method to prioritize projects.

This report presents the process and selection of the Draft Second NEAP’s 16 priority projects and 14 additional projects for consideration that encapsulate all seven National Energy Policy (NEP) goals. Section 2 and 3 of the report provide the background and a detailed account of the prioritization process. Section 4 lists the findings on the 16 priority projects and the additional 14 to provide a total of 30 recommended projects. Section 5 concludes the report with recommendations for the Draft Second National Energy Action Plan (NEAP) for 2013–2016 and required next steps.

# I. INTRODUCTION

The Government of Jamaica (GOJ) began preparing its Second National Energy Action Plan (NEAP) 2013–2016 at a time when the energy sector has shown unprecedented dynamism in the country. The sector has experienced a marked increase in the renewable share in electricity production with a target of 30 percent by 2030 and changes in the regulatory framework to encourage more energy producers to supply the national electricity grid. The high cost of energy has also catalyzed the growth in off-grid solutions.<sup>1</sup> Nevertheless, a modern electricity infrastructure has become a top priority as the country grapples with becoming competitive while having one of the highest electricity rates in Latin America and the Caribbean. Reducing the cost of energy is a critical component of the Second NEAP, and this cost reduction will be driven by fuel diversification, a modernized infrastructure, increased renewable energy solutions, and improved energy management systems accompanied by energy efficiency and conservation. All these are within the framework of a country committed to a low-carbon development strategy.

Given the crucial role of energy in business competitiveness, it was important to identify the main investment projects of the GOJ. The establishment of Jamaica as a logistics hub—including expanding port, cargo, and maritime facilities and economic zones—is a key initiative that will involve the phased roll-out of several components targeted to be completed by 2015. These components include the development of the Caymanas Economic Zone, expansion (and privatization) of the Kingston Container Terminal, and the privatization and upgrading of the Norman Manley International Airport. A Logistics Master Plan is to be prepared by the middle of Financial Year 2013/14 and will seek to integrate all the elements of the project, including the establishment of a commodity port, a dry dock, and the Vernamfield air cargo and passenger facility.

The preliminary list of projects identified for consideration in the Second NEAP was informed by

- Global trends in the energy sector
- The priorities expressed by the Minister of Science, Technology, Energy and Mining (MSTEM) with responsibility for energy, Hon. Philip Paulwell, in his budget presentation to Parliament in April 2013
- Alignment with the Vision 2030 National Development Plan’s Medium Term Framework (MTF) 2012–2015
- Recommendations from a number of studies undertaken specifically for MSTEM
- The GOJ Fiscal Plan 2013–2016 expressed in the Letter of Intent to the International Monetary Fund (IMF), April 17, 2013
- The status of projects under the First NEAP.

The priority setting for the projects was influenced by stakeholder representatives from the public and private sectors, energy sector groups, professional associations, and civil society. The Action Impact Matrix (AIM) model was used to broaden the dialogue among stakeholders and with MSTEM (the principal owner of the NEAP). The objective of this exercise was to develop a sector plan that is actionable and that will receive the support of sector participants. Stakeholders used the AIM to score

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<sup>1</sup> Average residential rate of electricity during the study period is \$0.40/kWh.

the impact of a potential project on a range of development priorities. Based upon the AIM scores, the AILEG Energy Policy Expert's knowledge of the sector, and feedback from a final public and private sector focus group, the stakeholders selected 16 priority projects for the Draft Second NEAP.

This report presents the process and selection of the Draft Second NEAP's 16 priority projects and 14 additional projects for consideration that encapsulate all seven NEP goals. It was originally within the scope of this activity to provide a final Second NEAP, but the inclusion of wider stakeholder participation through the AIM workshops and focus group took up the available support time.. To complete the Second NEAP, a separate costing exercise and development of an implementation plan are needed.

## 2. BACKGROUND

In 2010, the Jamaican Parliament approved the National Energy Policy (NEP) 2009–2030. The NEP was prepared in response to the need for a “modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behavior on energy issues and an appropriate policy, regulatory and institutional framework.”

The policy articulates seven inter-related goals that aim at “the provision of more affordable energy supplies to Jamaican consumers, an improved competitive base for the country, as well as sustainable growth and development of the nation.” These goals are not listed in order of priority, but together their achievement is expected to result in significant improvement in the energy efficiency of the country, throughout the supply, storage, transportation, transmission, distribution, usage, and general handling of the energy resources within the country. The goals are:

- **Goal 1:** Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency. Goal 1 is aligned to the Energy Conservation and Efficiency priority area.
- **Goal 2:** Jamaica has a modernized and expanded energy infrastructure that enhances energy generation capacity and ensures that energy supplies are safely, reliably, and affordably transported to homes, communities, and the productive sectors on a sustainable basis. Goal 2 is aligned to the priority area of Modernizing the Country’s Energy Infrastructure.
- **Goal 3:** Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness and energy security while reducing its carbon footprint. Goal 3 is aligned to the priority area of Development of Renewable Energy Sources such as Solar and Hydro.
- **Goal 4:** Jamaica’s energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability. Goal 4 is aligned with the priority area of Security of Energy Supply through Diversification of Fuels as well as Development of Renewables.
- **Goal 5:** Jamaica has a well-defined and established governance, institutional, legal, and regulatory framework for the energy sector that facilitates stakeholder involvement and engagement. Goal 5 is aligned with the priority area of Development of a Comprehensive Governance/Regulatory Framework.
- **Goal 6:** Government ministries and agencies are models/leaders in energy conservation and environmental stewardship in Jamaica. Goal 6 is aligned with the priority area of Enabling Government Ministries, Departments, and Agencies to be Model/Leader for the Rest of Society in Terms of Energy Management.
- **Goal 7:** Jamaica’s industry structures embrace eco-efficiency for advancing international competitiveness and move toward building a green economy. Goal 7 is aligned with the priority area of Eco-efficiency in Industries.

The NEP recognizes the importance of linkages across sectors such as agriculture, transport, construction, bauxite, tourism, and finance to achieve policy coherence and achieve the country's stated development goals.

Jamaica's energy management framework and the National Energy Policy will support the implementation of Vision 2030 Jamaica – National Development Plan, particularly National Outcome #10, Energy Security and Efficiency. This energy management framework is therefore consistent with, and part of the overarching vision for achieving developed country status for Jamaica by 2030.

The implementation strategy of the Ministry of Science, Technology, Energy, and Mining (MSTEM) for the National Energy Policy 2009–2030 is to manage its outputs through a targeted approach of seven three-year National Energy Action Plans (NEAPs). These plans bring focus to GOJ priorities, taking into consideration the local social, economic, and political climate through the development and implementation of flagship projects and sub-projects. The First National Energy Action Plan was prepared for the period 2009–2012.

The First NEAP (2009–2012) had six areas of emphasis:

1. Introduction of Liquefied Natural Gas (LNG) as the country's main diversification fuel
2. Energy conservation and efficiency, with particular focus on improving efficiencies in the electricity and transportation sectors
3. Further development of the renewable energy potential of the country with emphasis on solar, wind, and hydro energy as well as biofuels
4. Modernization of the country's energy infrastructure
5. Improved energy efficiency in the public sector
6. Creation of a comprehensive governance framework by implementing appropriate policies, legislation, and other related instruments.

The identification of flagship projects that are in alignment with the seven policy goals for the First and subsequent NEAP periods is anchored in:

- The priority strategies and actions identified in the National Energy Policy 2009–2030;
- The key strategies and actions for the energy sector as enunciated in Vision 2030 Jamaica;
- National Development Plan and the Socio-Economic Policy MTF 2012–2015;
- Priorities expressed in the Corporate Plan of MSTEM and its departments and agencies; and,
- Development objectives of other ministries and agencies impacting energy production and use.

The preliminary list of projects consisted of 17 projects from the First NEAP that were not yet fully implemented but deemed important and 29 new projects to address development policies and priorities not covered under the First NEAP. Nine of the new projects are already in progress in the MSTEM implementation plan. The preliminary list of 46 projects was organized and categorized. The criteria used for identifying this initial list were:

- Energy affordability
- Security of supplies
- Accessibility
- Sustainability
- Economic growth
- Multi-stakeholder participation: individual, community, institutional, corporate
- Multilateral cooperation
- Private sector implementation
- Efficient public sector infrastructural support.

There were key achievements in policy and governance, and the conduct of studies in biofuels, energy efficiency (EE), and renewable energy (RE) during the first NEAP period. These successes included:

- An upswing in RE and EE development occurred due to regulatory changes in the Jamaica Public Service Company (JPSCO) license;
- The GOJ introduced the Net Billing regulation and in May 2012 issued licenses for the first 11 participants in the Net Billing initiative through the Standard Offer Contract between JPSCO and customer for sale of excess energy of up to 100 kW to the grid at the prevailing retail price;
- Removal of duties and taxes on EE and RE equipment
- Training and capacity building interventions;
- Increase in the Development Bank of Jamaica (DBJ) energy loan funds whereby the DBJ instituted a J\$100 million fund for residential energy loans to finance renewable energy solutions;
- The Energy Security and Efficiency Enhancement Project (ESEEP) was a key initiative to ensure the implementation of the NEAP, under which the GOJ provided resources for a US\$4.6 million line of credit through the Development Bank for Jamaica (DBJ) for businesses to implement renewable energy and efficiency-enhancement projects.;
- The National Housing Trust has introduced two loan facilities to facilitate the installation of solar water heaters and solar photovoltaic panels; and,
- The GOJ signing a loan agreement of US\$15M with the World Bank in May 2011 to provide financial, technical, and institutional support to promote renewables, energy efficiency and energy security (such as small wind turbines, solar panels, or biogas digesters) by reducing the cost of energy and improving competitiveness.

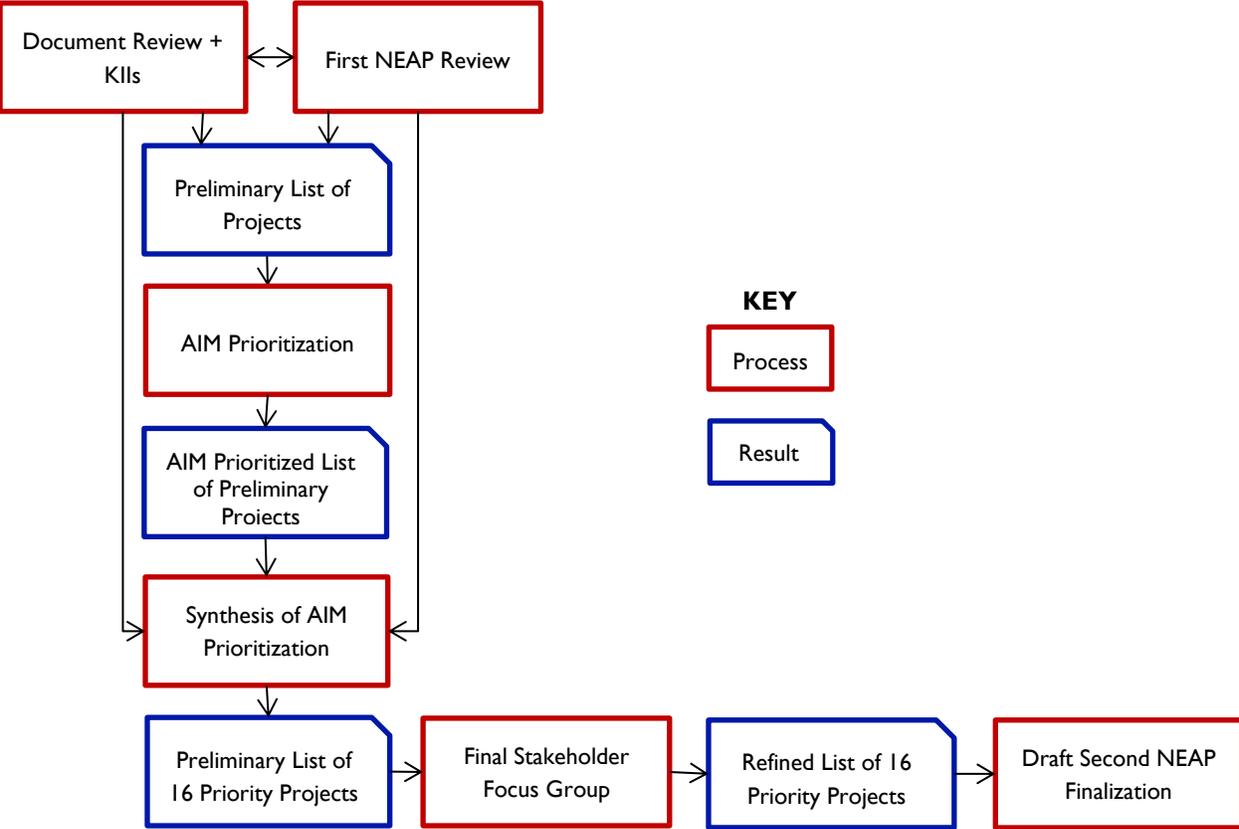
During the First NEAP, the success rate in plan implementation by the GOJ, however, also was negatively affected by a weakened global investment environment as well as some important local

structural challenges. The expected transformation in modernizing the energy infrastructure did not occur. Nevertheless, the GOJ made progress in establishing the regulatory frameworks to enable the markets in renewables to grow. The JPSCO All Island Electricity License was amended to establish a 25 MW ceiling (previously 15 MW) for renewable energy generation capacity to be installed and sold to the JPSCO grid without competitive tendering. Energy efficiency and conservation in the public sector, received substantial investment support through the multilateral lending agencies for the first time. The Energy Efficiency and Conservation Program financed by the Inter-American Development Bank (IDB) is slated for completion in 2015. Under this program, the GOJ is implementing energy efficiency and energy conservation cost-saving measures in the public sector through investments in renewable energy installations and the retrofitting of government facilities, including lighting, air conditioning, and building envelopes. A 20 percent reduction in energy use at government facilities is expected.

# 3. APPROACH

A mix of quantitative and qualitative research methods were used to gather information and stakeholder feedback to identify potential projects for the Draft Second NEAP and set priorities. Figure 1 illustrates the process. In addition to key informant interviews (KII), the process incorporated an unprecedented level of stakeholder involvement through use of an Action Impact Matrix (AIM) for quantitative scoring of projects. The AILEG Energy Policy Expert collaborated with MSTEM on the list of thirty preliminary projects; and scoring criteria; and AIM scores with the reviews and interviews to create the list of sixteen priority projects in the Draft Second NEAP. A focus group of experts from organizations responsible for implementation of NEAP projects provided a final check on the priorities for the 30 projects.

**FIGURE 1: PRIORITY PROJECT SELECTION PROCESS FOR THE DRAFT SECOND NEAP**



## 3.1. DOCUMENT REVIEW AND KEY INFORMANT INTERVIEWS

The Second NEAP needs to align with the GOJ’s economic growth and fiscal management strategies. The national debt-to-GDP ratio was 142 percent in 2011/2012 and growing. Development of the Second NEAP began with an extensive survey of available documentation on the NEP, the First NEAP and MSTEM reports to understand the status of projects and shifts in focus. Discussions with MSTEM

resulted in a performance measurement grade (PMG) assessment of the First NEAP; (section 3.2.1). In addition to the discussions with MSTEM, Key Informant Interviews assessed priorities and areas of interest in the energy sector. The following resources consulted:

- A strategic management scan using the Political, Economic, Socio-cultural, Technological, Legal, and Environmental (PESTLE) model of Local and Global Energy was conducted to an overview of the different micro-environmental factors that have to be taken into consideration;
- Priorities expressed in the 2013 Budget Debate Presentation by Hon. Phillip Paulwell, Minister, MSTEM;
- Vision 2030 National Development Plan's MTF (2012-2015);
- The GOJ's Fiscal Plan 2013–2016 contained a Letter of Intent to the International Monetary Fund (IMF) April 17, 2013;
- Priorities stated in MSTEMS's Energy Division's two main plans that set the strategic direction for its programs: (1) the Strategic Business Plan and Priority Programme 2013–2016, which set out priority policy issues, strategies, output performance measures/outcome indicators, targets, and costs for 2013-2016; and (2) the Operational Plan, which sets out Ministry policy, programs and projects, budget, objectives, strategies, outputs, performance measures, major tasks, targets, and resources for the four quarters in each year;
- Recommendations from studies done for GOJ/MSTEM (e.g., Energy Efficiency Potential, United Nations Economic Commission for Latin America and the Caribbean and the German international cooperation agency; biofuels study of the Organization of American States; and Worldwatch Institute, Roadmap to a Sustainable Electricity System: Harnessing Jamaica's Renewable Energy);
- Peer experts; and,
- Trends in the global arena.

## **3.2. FIRST NEAP REVIEW**

The 2009–2012 NEAP was the first of seven three-year NEAPs expected between 2009 and 2030. The First NEAP identified 31 projects (19 flagship projects and their sub-projects). While some flagship projects were not implemented, MSTEM had begun efforts toward their implementation. The Draft Second NEAP therefore is to be viewed as a continuum of actions that feed into the targeted objectives. One set of activities can impact the outcomes of others. For example, the Petrojam Oil Refinery Upgrade needs to occur before the Petcoke cogeneration project can begin.

The achievements of the First NEAP were assessed against the seven NEP goals to identify the best ways to move forward with the Draft Second NEAP. The time constraints limited the review to a rapid performance measurement assessment was possible.

### **3.2.1. PERFORMANCE MEASUREMENT ASSESSMENT OF THE FIRST NEAP**

To assessing the achievements of the First NEAP flagship projects and sub-projects, the team examined the performance measurements and strategies addressed against five criteria outlined in Table 1.

**TABLE 1: PERFORMANCE MEASUREMENT GRADE (PMG) CRITERIA**

<b>PMG (%)</b>	<b>Description</b>
85-100	Activities for project completed and expected output achieved
70-84	Project over 80% complete
60-69	Project on target; no significant issues or barriers
30-59	Barriers to progress exist but progress being made to overcome these barriers
1-29	Project off target; some problems and/or barriers affecting performance and/or implementation
0	Project not started; very little action or progress; significantly off target; serious problems adversely affecting implementation

The assessment of the First NEAP revealed that more than half of the flagship and sub-projects were off target, and problems or barriers affected their performance and/or implementation. Nevertheless, there were some clear accomplishments. Four projects were completed and approximately 22 percent had reached an advanced stage (annex A).

The First NEAP created opportunities for commercial entities and residential customers to increase use of RE and EE technologies, although this avenue is not being fully utilized. The DBJ and the National Housing Trust (NHT) provided loans and grant support for implementing RE and EE solutions. Results from the developments in RE and EE markets have included reduced imported petroleum use thereby improving the balance of trade, reducing carbon emissions and while decreasing air pollution. Initial efforts toward low-emission development include:

- Introduction of 10 percent ethanol blended gasoline;
- Expansion of the Wigton wind farm by 18 MW;
- Amendment of the electricity license to allow for up to 25 MW production without competitive tender by JPSCO;
- The Standard Offer Contract that allows renewable energy solutions to be connected to the power grid up to 2 percent of peak demand; and,
- Amendment of the Petroleum Act to remove the exclusive rights of the Petroleum Corporation of Jamaica to execute renewable energy projects and energy efficiency programs in the public sector.

Annex B provides a full list of initiatives and achievements under the First NEAP.

### **3.2.2. LESSONS LEARNED FROM THE FIRST NEAP**

The Performance Measurement Guide (PMG) assessment of the First NEAP identified several barriers that impeded the progress of energy policies and related initiatives:

- Projects not undertaken due to their initial costs without considering long-term life-cycle costs;
- Limited technical or management capabilities within the GOJ to develop, implement, enforce, and monitor initiatives;
- Lack of consumer awareness (particularly for DBJ and NHT loan facilities for solar power)  
Perception that commercially viable financing is not available to potential investors;

- Low GOJ priority where budgetary support is necessary;
- Insufficient “fiscal space” in the national budget;
- Inadequate legal and regulatory framework to protect stakeholders and enable enhanced infrastructural development; and,
- Failure to take into consideration the agendas of other ministries/departments/agencies (MDAs) and the general Socio-Economic Policy MTF of the country, resulting in overly optimistic implementation timelines.

To address these barriers, the following lessons learned were applied in the Second NEAP:

- Providing sufficient resources in the national budget to undertake the planned projects over the period;
- Ensuring the availability of human and technical capacity to undertake the tasks;
- Consistent monitoring and evaluation of regulatory and legislative proposals; and,
- Consideration of the agendas of other MDAs and the Socio-Economic Policy MTF.

Based on the document review, KIs, and First NEAP assessment, six areas of focus were used to create a preliminary list of projects for the Second NEAP:

1. Modernization of energy infrastructure;
2. Expansion of the number of renewable energy projects as part of fuel diversification and fuel import substitution;
3. Increased energy efficiency and conservation;
4. Review and promulgation of policy to support a modern energy infrastructure, including the use of natural gas and renewable energy;
5. Training, education, and information dissemination in support of renewable energy and energy efficiency and conservation; and,
6. Institutional strengthening to improve governance, increase inter-agency collaboration and partnerships, and improve performance monitoring and evaluation.

The six areas support the promotion of strategic investments that enhance the business environment through labor market reform; enhance access to credit and private sector financing (including an increase in wholesale financing for micro- and small-scale farmers through the DBJ); use public-private partnerships for developing and upgrading physical infrastructure and service delivery for fuel-source diversification and conservation; strengthen the country's resilience to natural disasters; and improve climate data and information management.

### 3.3. AIM PRIORITIZATION

The Action Impact Matrix (AIM), a quantitative scoring method, helps stakeholders set priorities the ability of potential projects to achieve a set of development priorities. A pilot AIM workshop was held on June 3, 2013 for a small group of energy policy implementers from the public sector (Annex contains the report on the first workshop). In the first workshop, the participants refined the potential projects and development priorities for a second workshop with a broader stakeholder group. The second workshop was held on June 13, 2013 (see Annex D for the second workshop report). Sectors represented at the second workshop included the public sector, private sector, and academia in areas related to the energy and environment. Participants at the second workshop scored projects individually using Turning Point polling software. The AIM scores for a project's potential impact range from 3 to -3:

- -3 = High negative (undesirable) impact/effect
- -2 = Medium negative (undesirable) impact/effect
- -1 = Low negative (undesirable) impact/effect
- 0 = No impact/effect
- 1 = Low positive (desirable) impact/effect
- 2 = Medium positive (desirable) impact/effect
- 3 = High positive (desirable) impact/effect

The AILEG Energy Policy Expert worked with MSTEM to develop a preliminary list of 46 projects based upon the document review, KIs, sector knowledge, and the First NEAP review. The projects are listed on the y axis and development priorities on the x-axis. Participants scored the expected impact of each on a single development priority. Then, the participant scores were averaged to derive a Annex E shows the score per project and development priority from the first and second workshops .

The team drafted development priorities for the AIM to set targets for the development goals in the Vision 2030 Jamaica National Development Plan. The team also rated the impacts of potential projects on the development priority of reducing emissions. Individual interviews, prior to developing the list of projects, found the GoJ development priority of emission reduction was lower than the development priority of reducing the cost of energy. Before the first Workshop, there were nine development priorities, but due to time constraints, removed "two development priorities -- reaching vulnerable communities and "creating job opportunities." In addition to the seven development priorities considered in the first workshop, the AIM included a column for participants to score projects based upon their "Overall Perception." This was scored first, and provided an opportunity to determine whether the development priorities addressed participants' perception of a project, or whether the participants' perceptions of a project changed after going through the scoring process.

Only a half-day was available for each workshop. Although not all 46 projects were scored during the first workshop, five of the six participants completed the AIM afterwards and sent in their results. We

selected a stratified random sampling for scoring at the second workshop; stratification was based on the seven NEP goals.

### 3.3.1. CHANGES BETWEEN FIRST AND SECOND AIM WORKSHOPS

Based on feedback from the first workshop, we added two projects to the preliminary list. Under the existing Project 23, “Increasing energy conservation and efficiency in the public sector”, we added Sub-project 23.4, “Development of Measurement Data and Applied Knowledge for Project Selection”. We also added Project 28, “Sustainable Energy Research Development and Innovation in Industry and Academia” and Sub-project 28.1, “Identify lessons learned and frameworks”. However, participants did not score these p because they were added at the end of the first workshop, and time was short at the second workshop.

Development Priority A was changed from “Reducing the price of energy” to “Reducing the cost of energy”. Development Priority E was changed from “Contribute to global efforts to combat climate change” to “Contribute to efforts to reduce carbon emissions locally.”

The “Overall Perception” step was not included in the second workshop due to time. Two more development priorities were removed from the second workshop -- “Government as leader in energy conservation,” and “Improving governance/regulatory framework to increase the energy sector’s efficiency and coverage.” Table 2 contains the final list of development policy goals used for the second AIM workshop Table 2.

**TABLE 2: AIM DEVELOPMENT PRIORITIES FOR THE SECOND WORKSHOP**

Priority	Description
A	Reduce the price of energy
B	Improve energy efficiency for competitiveness and savings for industry and consumers
C	Modernize and/or expand energy infrastructure to increase efficiency
D	Increase renewable energy to decrease petroleum energy dependence and price fluctuations
E	Contribute to efforts to reduce carbon emissions locally

### 3.3.2. AIM WORKSHOP FEEDBACK

At the beginning of the second AIM workshop, it became clear that the participants needed more information about the First NEAP. Participants also raised the issue that several of the recommended flagship projects have been under consideration for up to 15 years. They wanted to know what would make a difference under the Second NEAP. The MSTEM provided updates demonstrating that work is in progress to get these projects started. If selected, they would have a good chance for implementation. Although late in the First NEAP’s term, financing has been secured for some projects that are ready for implementation under the Second NEAP.

Only one participant provided written comments after the second workshop. This participant expressed a lack of confidence in the scores since they were difficult to arrive at and based on opinions rather than data analysis. While the Third NEAP will benefit from an increased use of data and modeling/analysis, the priorities obtained from the Second NEAP are valid since the participants have responsibility for the

energy portfolios in their agencies.. Furthermore, the workshop provided detailed information on each project as questions arose. However, in retrospect, the process would have been more effective with more time.

### **3.3.3. SYNTHESIS OF AIM RESULTS**

Feedback from the first AIM workshop resulted in the addition of two more projects: “Maintenance of Online Information Databases” for energy efficiency potential, and “Sustainable Energy Research Development and Innovation in Industry and Academia”

The AILEG Energy Policy Expert combined the results from the two workshops to identify the top 16 priority projects for the draft Second NEAP. These 16 projects were arranged in a logical, chronological order. One project, with a predecessor project, was placed lower on the list.

None of the projects on the preliminary list that would increase carbon emissions (such as Sub-project 18.1, “Petcoke Cogeneration,”) received a high enough score to qualify for the top 16. Nevertheless, the project proponents will be responsible for identifying any potential increases in emission levels and proposing mitigation measures. MSTEM will be involved in the approval process for projects that increase carbon emissions and mitigation measures would be approved and monitored by the National Planning and Environmental Agency (NEPA).

## **3.4. FINAL STAKEHOLDER FOCUS GROUP AND DRAFT SECOND NEAP**

AILEG convened a final stakeholder focus group to discuss the 16 priority projects (Annex F contains the report). The focus group participants were public and private sector representatives who had attended either the first or second workshop. The focus group participants suggested that Sub-project 18.2, “Waste-to-energy,” under Project 18, “Diversification of Jamaica’s Energy Supply,” should have been included in the 16 priority projects. However, based on the AIM scores and the views of the AILEG Energy Policy Expert, this was not beaded to the priority project list. The Scientific Research Council (SRC) and some stakeholders considered waste-to-energy a priority because of the perceived potential for other environmental benefits. The focus group also noted the omission of Project 9, “Petrojam Oil Refinery Upgrade”, due to low confidence in the ability to raise the necessary financing in the next three years. Nevertheless, Project 9 is included in a larger list of 30 projects for MSTEM consideration. Ultimately, the focus group agreed with the top 16 projects, but changed some of the priorities. MSTEM will develop an implementation schedule that reflects the order of implementation, which may be concurrent in some cases.

The revised priority list is included in the report on the Second NEAP. This report was presented to the Permanent Secretary and Chief Technical Directors of MSTEM and the participants at the end-of-project multi-stakeholder symposium on July 9-10, 2013. Projects that involve development of physical infrastructure will require feasibility studies. Establishment of a solar manufacturing facility is also recommended to support implementation of ministerial decisions on solar energy. One symposium participant noted the absence of the transport sector in the Draft Second NEAP. Although none of the 16 priority projects are in the transport sector, , “Energy Conservation in the Transport Sector” is in the list of the top 30 projects included in the draft Second NEAP.

## 4. RESULTS

Table 3 lists the top 16 priority projects for the Draft Second NEAP. These projects constitute a shift in focus from the First NEAP in their intensity of efforts to reduce energy costs, shift to renewables, support investments for small and medium-sized enterprises, and generate greater public buy-in.

**TABLE 3: THE 16 PRIORITY PROJECTS FOR THE DRAFT SECOND NEAP**

Priority No.	Project Title	Supporting NEP Goal
1	Power Sector Development and Capacity Replacement	2
2	Improvement of Electricity Distribution and Transmission Efficiency	2
3	Facilitating Private Investment in Sustainable Energy	6
4	Jamaica's Renewable Energy Programme: Increase in Wind Energy Generation Capacity	3
5	Engage the Ministry of Education and the Teaching Fraternity in the development of renewable energy and energy efficiency curriculum including practical demonstration	1
6	Energy Conservation and Renewable Energy and Efficiency Technology Training Programme	1
7	Jamaica's Renewable Energy Programme: Increased Application of Solar (Photovoltaic and Thermal) Technologies	3
8	Strengthening of the Legislative and Regulatory Framework	5
9	Promulgation of Energy Sector Policies	5
10	Comprehensive Review of Energy Pricing - Fuels and Electricity	5
11	Generation Expansion Plan & Long-term Planning in the Energy Sector	2
12	Energy Efficiency and Conservation Programme for the National Water Commission	1
13	Jamaica's Renewable Energy Programme: Implementation of Hydro Power Capacity	3
14	Development of Energy Services Companies (ESCOs)	1
15	Institutional Strengthening and Improved Governance in Rural Electrification Programme	5
16	Develop Smart Grid Road Map for Jamaica and Facilitate Its Implementation	2

Modernization of the electricity sector is of paramount importance as a prerequisite for the commercialization of renewable energy projects. In the AIM scoring, some projects received high scores but are not on the list of priority projects because they were already being implemented (e.g., Sub-project 1.2, "Enforcement of Jamaica Building Code" and Sub-project 1.3, "Implementation of Energy Efficiency Programmes for Street Lighting in Communities.") Annex # identifies these projects. In addition, the final stakeholder meeting participants concluded that two projects with lower priorities in the AIM process were important to include: Project 5, "Engage the Ministry of Education and the teaching fraternity in the development of renewable energy and energy efficiency curriculum including

practical demonstration” and Project 6, “Energy Conservation and Renewable Energy and Efficiency Technology Training Programme”.

The draft Second NEAP provides additional information on each priority project , including the main activities;, contribution to other NEP goals Vision 2030, and NEP strategies; expected outcomes; and key milestones and timelines. Some of these projects will go beyond the three-year period of the Second NEAP, especially those requiring major infrastructural inputs in electricity and fuel diversification. Successful implementation of the priority projects will require stakeholder commitment, financing, and alignment with the GOJ’s four-year economic program for Financial Years 2013/14 through 2016 /17.

# 5. CONCLUSIONS AND RECOMMENDATIONS

The projects selected for the Second NEAP reflect a shift from government-driven implementation to private sector implementation. The GOJ's primary role will shift to developing a supportive, enabling framework for NEAP implementation. The 16 priority projects for the Second NEAP are expected to contribute to the GOJ's goals for the energy sector by strengthening the private sector, applying renewable energy technologies, and supporting training and capacity building. The following recommendations are suggested for the GOJ's consideration:

- MSTEM should develop a preliminary implementation schedule subject to the ability to secure funding. The implementation schedule should be flexible to encompass the overlap and transition between NEAPs;
- After the preliminary implementation schedule has been set, the MSTEM should establish a monitoring and evaluation system;
- MSTEM will need to increase its human resource capacity and be more proactive in engaging the public on the progress in implementation of the NEP. There are many proposed short-term projects, but transformation of the energy sector will happen over the medium and long term. Progress should be publicized through a communication strategy with multiple channels, including, community meetings, MSTEM's website, and the Caribbean Energy Information System website;
- High technical losses and financial (theft) losses in electricity production and distribution have contributed to high costs and will require firm action to protect new investments;
- Modernization of energy infrastructure is critical to the sector transformation and cost, efficiency, security, and sustainability impacts. Achievement of the expected outcomes of the Second NEAP will need to be underpinned by:
  - The ability to raise both government and private sector funding
  - Alignment with the GOJ Letter of Intent, Memorandum of Economic and Financial Policies and Technical Memorandum of Understanding, April 17, 2013
  - Harmonization of policies, programs, and plans across other ministries, agencies, and departments and the private sector
  - Stronger coordination
  - Performance monitoring Documentation of lessons learned for subsequent action plans and sharing with other ministries, departments, and agencies.

- Despite some successes, several projects under the First NEAP have not started, while others have fallen behind the intended timeline. The timetables and underperforming projects need to be reviewed. The Petrojam Oil Refinery Upgrades one example. In addition, projects with low implementation potential may need to be postponed or cancelled to focus on other priorities (e.g., waste-to-energy proposals).
- MSTEM should reconvene discussions with key MDAs:
  - Further discussions with the Ministry of Education (MOE) are necessary to strengthen inclusion of energy conservation in the public school curriculum. MSTEM should reengage with the Ministry of Transport and Works (MTW) to boost energy efficiency and conservation in transport.
  - MSTEM should encourage the Office of Utilities Regulation (OUR) and JPSCO to pursue implementation of Sub-project 19.5, “The Liquefied Natural Gas Project” to reduce the very high commercial and residential electricity rates, the heat rate, average plant age, and generation costs.
- The GOJ should address the budgetary requirements of energy programs in its fiscal policies. The MSTEM should cost the planned projects and ensure availability of expected funding from the government’s consolidated fund.



# ANNEX A: FIRST NEAP PERFORMANCE MEASUREMENT ASSESSMENT

Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
<b>G01</b>						
<b>FP01.0</b>					<b>40%</b>	
<b>FP01.1</b>	BSJ, MSTEM, UWI, UTech		US\$1.03 million	<ul style="list-style-type: none"> <li>Increased capacity of BSJ, UTech, UWI to test appliances</li> <li>Increased use of energy-efficient appliances by consumers</li> </ul>	<b>35%</b>	<ul style="list-style-type: none"> <li>The World Bank Project Unit at MSTEM is currently the facilitator of this project.</li> <li>The project will expand the EE testing and labeling capability, and information program of the BSJ, including, extending the testing chambers to test refrigerators, freezers, and air conditioners.</li> </ul>
<b>FP01.2</b>	MSTEM, BSJ, Cabinet Office, OPM (DLG), Local Authorities, Town and Country Planning Authority			<ul style="list-style-type: none"> <li>Building Act promulgated</li> <li>Increased capacity among LGAs for enforcement of Building Code</li> <li>Energy-efficient lighting and cooling equipment used in new and retrofitted buildings<sup>1</sup></li> </ul>	<b>35%</b>	<ul style="list-style-type: none"> <li>Building Code currently under review.</li> <li>Anticipated promulgation date by March 2014.</li> </ul>
<b>FP01.3</b>	MSTEM		US\$2 million	<ul style="list-style-type: none"> <li>Installation of energy-efficient street lights</li> <li>Labs at universities, building and testing components</li> </ul>	<b>40%</b>	<ul style="list-style-type: none"> <li>Ministry of Local Government and Community Development currently pursuing pilot project with consulting firm Green RG – current status is unknown.</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
FP01.4	DBJ, MSTEM		US\$2.5 million	<ul style="list-style-type: none"> <li>Establishment of EE/RE Revolving Fund</li> <li>Encouragement of private sector uptake</li> </ul>	55%	<ul style="list-style-type: none"> <li>The PetroCaribe or Energy Funds were designed as revolving funds to support EE/RE projects. However, administration of these facilities has slowed. DBJ currently promotes loan facilities to encourage implementation of EE/RE projects.</li> <li>Uptake of loan facility is wavering.</li> </ul>
FP01.5	MSTEM		J\$11.7 & J\$6 million	<ul style="list-style-type: none"> <li>Distribution of the final 204,500 compact fluorescent light bulbs (CFLs) in major towns/population centers</li> <li>Introduction of research &amp; development in the selection of devices</li> </ul>	70%	<ul style="list-style-type: none"> <li>Second phase of Cuban light bulb project ended in 2011. Phase 3 is slated to commence in the short to medium term.</li> <li>Some RE and EE items can currently be imported duty free or exempt of GCT.</li> </ul>
FP02.0	MSTEM	2009-2011		<ul style="list-style-type: none"> <li>Online clearing house established and widely used</li> </ul>	100%	<ul style="list-style-type: none"> <li>NEICH launched on March 21, 2013 and currently operational (<a href="http://www.neich.gov.jm">www.neich.gov.jm</a>)</li> </ul>
FP03.0	MSTEM	2009-2011		<ul style="list-style-type: none"> <li>Training programme institutionalized</li> <li>Increased knowledge and skills for energy conservation among public sector officers</li> </ul>	65%	<ul style="list-style-type: none"> <li>Training programmes developed and public sector workers trained across the island.</li> <li>Further discussions necessary with MOE to include EE learning into the curriculum</li> </ul>
FP04.0	MSTEM, PCJ	2009-2012		<ul style="list-style-type: none"> <li>Increased awareness about energy conservation and energy-efficient equipment</li> <li>Increased use of energy-efficient equipment</li> </ul>	60%	<ul style="list-style-type: none"> <li>Energy intensity has fallen but primarily due to higher energy prices and the recessionary period which has spurred a reduction in energy demand.</li> <li>Citizens have become more aware of the need to conserve, especially on electricity usage.</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
<b>FP05.0</b>	MSTEM, MTW	2009-2011		<ul style="list-style-type: none"> <li>• Alignment of transport policy with National Energy Policy</li> <li>• Petrol taxed at a level to allow for road maintenance</li> <li>• Promotion of conservation measures e.g. walking (healthy lifestyle) car pooling</li> <li>• Increase in percent of fuel-efficient cars imported</li> <li>• Enforcement of maximum axle weight standards</li> <li>• Training Institutions teach conservation methods</li> </ul>	<b>25%</b>	<ul style="list-style-type: none"> <li>• Initial discussions were held with MTW. To date no further developments have occurred.</li> <li>• MTW are reviewing their draft transport policy.</li> <li>• Energy conservation and efficiency (ECE) materials have been issued by and are available at MSTEM</li> <li>• Reform needed in the Weights and Measures Act</li> <li>• Further discussions necessary with MOE to include EE learning into the curriculum</li> </ul>
<b>G02</b>						
<b>FP06.0</b>	PCJ, Petrojam	2010-2014	US\$1.2 million	<ul style="list-style-type: none"> <li>• An upgraded facility consistent with project plans</li> <li>• The refinery margins are optimized</li> <li>• The production of low sulphur diesel, a significant reduction in HFO at the end stage, and the production of petroleum coke</li> </ul>	<b>40%</b>	<ul style="list-style-type: none"> <li>• Fiscal constraints continue to hamper any progress for the Refinery Upgrade Programme (RUP).</li> </ul>
<b>FP07.0</b>	JPSCO	2009-2012	US\$65.1 million	<ul style="list-style-type: none"> <li>• Reduced theft of electricity</li> <li>• Reduced technical and non-technical losses</li> <li>• Upgraded billing system</li> </ul>	<b>45%</b>	<ul style="list-style-type: none"> <li>• JPSCO is currently undertaking a loss reduction exercise which will see a reduction in theft and an increase in the number of customers being regularized.</li> <li>• However, while net generation has declined between 2009 and 2012, total losses have climbed by approx. 5 percent during that period.</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
<b>FP08.0</b>	OUR, JPSCO, IPPs, MSTEM			<ul style="list-style-type: none"> <li>Reduction in average age of generation plant</li> <li>Reduction in power system heat rate</li> </ul>	<b>65%</b>	<ul style="list-style-type: none"> <li>65.5 MW capacity generation plant commissioned</li> <li>1.5 percent reduction in heat rate recorded for 2012</li> </ul>
<b>FP09.0</b>	MSTEM, OUR	2009-2012		<ul style="list-style-type: none"> <li>Improved long-term planning and forecasting for the energy sector</li> </ul>	<b>50%</b>	<ul style="list-style-type: none"> <li>Last Least Cost Expansion Plan (LCEP) done in 2009/2010</li> <li>The Wien Automatic System Planning (WASP) package and other analytical tools currently utilized</li> </ul>
<b>G03</b>						
<b>FP10.0</b>					<b>67%</b>	
<b>FP10.1</b>	PCJ, CERE, OUR, JPS, NWC	2009-2014	US\$28.5 million	<ul style="list-style-type: none"> <li>Increased hydroelectric capacity</li> <li>Increase in the renewable energy contribution to energy supply mix</li> <li>Increase in tradable CO<sub>2</sub> credits</li> </ul>	<b>35%</b>	<ul style="list-style-type: none"> <li>One aspect of World Bank project to procure services of a consulting firm to promote hydro site has been stalled.</li> <li>Change in PCJ exclusivity rights and lack of fiscal space in the government budget hamper chances of project progression.</li> <li>Constant Spring Plant rehabilitated in 2009 – additional 0.8 MW added to the grid.</li> </ul>
<b>FP10.2</b>	PCJ, CERE, JPSCO	2009-2014	US\$58 million	<ul style="list-style-type: none"> <li>Increased wind energy generation capacity<sup>2</sup></li> <li>Increase in the renewable energy contribution to energy supply mix</li> <li>Studies into wind energy generation potential conducted</li> </ul>	<b>100%</b>	<ul style="list-style-type: none"> <li>Wind power contribution to generation capacity on grid increased from 20.7MW to 41.7MW during the period.</li> <li>Tentative target of 87MW by 2014 may not be reached.</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
FP10.3	PCJ, CERE	2009-2014	US\$1.5 million	<ul style="list-style-type: none"> <li>Increase in solar's portion of Jamaica's energy mix</li> <li>Increase in solar power and water heating equipment used in housing schemes</li> <li>Increased local capacity in implementation of solar systems</li> </ul>	65%	<ul style="list-style-type: none"> <li>No adequate solar power consumption estimates exist.</li> <li>Majority of the housing units by developers include solar water heating and/or photovoltaic installations.</li> <li>Local capacity needs to be expanded for the solar market.</li> </ul>
FP11.0	PCJ, UWI	2009-2012	US\$1 million	<ul style="list-style-type: none"> <li>Recommendations regarding solar and wind energy projects in Jamaica</li> <li>Establishment of 20 wind measurement sites</li> </ul>	25%	<ul style="list-style-type: none"> <li>No adequate inventory exists</li> <li>Wind resource assessment of 20 sites across Jamaica continues</li> </ul>
FP12.0	MSTEM, MOE		€97,350	<ul style="list-style-type: none"> <li>Solar energy used in 34 schools</li> <li>Recommendations for national replication</li> </ul>	25%	<ul style="list-style-type: none"> <li>Over 50 schools audited under the Public Sector Energy Efficiency and Conservation Programme, which is funded by the IDB</li> </ul>
<b>G04</b>						
FP13.0					26%	
FP13.1	MSTEM, PCJ, CERE, MOA, SRC	2009-2014	US\$516,000 million	<ul style="list-style-type: none"> <li>Development and implementation of biofuel policy and programs</li> <li>Establishment of a strong legal and regulatory framework for liquid biofuels industry</li> <li>Increase in capacity for research and development (R &amp; D)</li> <li>Island-wide E10 distribution infrastructure</li> <li>Development of testing labs</li> </ul>	80%	<ul style="list-style-type: none"> <li>E10 was fully rolled out in 2010.</li> <li>10% ethanol was mandated in March 2010 for all grades of gasoline.</li> <li>Bodles, PCJ, and Ministry of Agriculture collaborated biodiesel pilot project is ongoing.</li> <li>Draft National RE and Biofuels Policy developed – to be finalized and submitted to cabinet for approval</li> </ul>
FP13.2	PCJ, JPSCO	2010-2016	US\$300 million	<ul style="list-style-type: none"> <li>Capacity for co-generation increased</li> </ul>	0%	<ul style="list-style-type: none"> <li>Petcoke cogeneration pinned to RUP</li> <li>RUP project stalled due to budgetary constraints</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
FP13.3	PCJ, CPDI, NSWMA, OPM	2009-2013	US\$350- US\$400 million	<ul style="list-style-type: none"> <li>• Generation of energy from waste</li> <li>• Avoided carbon emissions</li> <li>• Waste minimization</li> </ul>	0%	<ul style="list-style-type: none"> <li>• Individual companies operate wastewater management programmes, but no comprehensive national programme exists to generate energy from waste.</li> <li>• Draft Energy from Waste Policy developed – to be finalized and submitted to cabinet for approval.</li> </ul>
FP13.4	MSTEM, OUR	2009-2012	US\$450 million	<ul style="list-style-type: none"> <li>• Establishment of regulatory framework for the LNG sector</li> <li>• Construction of Floating Storage Regasification Unit and Gas Transmission System</li> </ul>	25%	<ul style="list-style-type: none"> <li>• General gas framework/guideline exists, but there is no legislative or regulatory framework to govern the sector if it were to be developed.</li> <li>• A committee now exists to develop framework for gas policy, regulation, and legislation.</li> <li>• No FSRU was constructed.</li> <li>• LNG Project now under the purview of JPSCO.</li> </ul>
FP13.5	PCJ, Private Investor(s)			<ul style="list-style-type: none"> <li>• Bid Rounds completed</li> </ul>	25%	<ul style="list-style-type: none"> <li>• Licenses were issued to prospective partners for drilling to commence, but no wells were drilled.</li> <li>• Seismic results show promising potential for commercially viable quantities being available in the future.</li> </ul>
<b>G05</b>						
FP14.0	MSTEM, MOA, NSWMA	2009-2011	J\$2.5 million	A coherent policy framework to support the implementation of the National Energy Policy	50%	<ul style="list-style-type: none"> <li>• Five draft sub-policies were developed (RE, biofuels, ECE, WTE, Trading in Carbon Emissions) - to be finalized and submitted to cabinet for approval</li> <li>• Electricity and gas policies to be drafted</li> </ul>
FP15.0	OUR			Extension of the mandate of the OUR for the regulation of new sub-sectors	10%	<ul style="list-style-type: none"> <li>• OUR Act has not changed and mandate remains the same</li> </ul>



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
FP16.0	MSTEM, OUR, JPSCO	2009-2012		Establishment of net metering and wheeling framework	50%	<ul style="list-style-type: none"> <li>Began conducting a “Cost of Service Study” to determine the rates for the usage of grid infrastructure by parties other than JPS to transmit power.</li> <li>Net metering framework is going through a consultative process.</li> <li>JPSCO license currently allows for wheeling.</li> </ul>
FP17.0	MSTEM	2010-2013		Regional Office established and operational	100%	<ul style="list-style-type: none"> <li>OLADE Sub-Regional Office of the Caribbean located in Jamaica was launched in August 2012</li> </ul>
<b>G06</b>						
FP18.0					62%	
FP18.1	MSTEM		US\$437,500	Analysis of energy in the public sector Recommendations for EE in the public sector Investment programme for Public Sector energy efficiency improvement	100%	<ul style="list-style-type: none"> <li>EEC TA completed and implementation program now underway</li> <li>Analysis done and recommendations made for EE initiatives in the public sector.</li> <li>EEC Program for the public sector currently implementing several projects across the sector.</li> </ul>
FP18.2	OPM, NEPA, all ministries and agencies			Environmental stewardship action plans developed and implemented by public sector agencies	60%	<ul style="list-style-type: none"> <li>Environmental stewardship programme exists but no policy.</li> <li>Programme is not fully operationalized in the public sector</li> </ul>
FP18.3	OPM (DLG), LGAs			Use of solar powered-street lights in areas not on the main grid	25%	<ul style="list-style-type: none"> <li>Ministry of Local Government and Community Development currently pursuing pilot project with consulting firm Green RG – current status is unknown.</li> <li>A limited number of solar street lights have been installed along highway infrastructure.</li> </ul>
<b>G07</b>						



Flagship Project Code	Responsible and Partnering Entities	Intended Timeline	Intended Cost	Targeted Outcome	Assessment of Outcome	Comments
FP19.0	PCJ, JTI, MIIC			<ul style="list-style-type: none"> <li>Checklist for project development</li> <li>Template for prefeasibility</li> </ul>	40%	<ul style="list-style-type: none"> <li>List of duty free and GCT excepted items created and currently being revised</li> <li>Depends on performance of G01, G03, G04</li> </ul>

Notes: <sup>1</sup>The Code mandates that 50 percent of lamps must use energy-efficient lighting. <sup>2</sup>Target: 87 MW of installed wind energy will be developed by 2014.  
 Legend: BSJ = Bureau of Standards Jamaica; DLG = Department of Local Government; IPP = Independent Power Producer; JTI = Jamaica Trade & Invest; LGA = Local Government Authority; MOA = Ministry of Agriculture; NEPA = National Environment and Planning Agency; NSWMA = National Solid Waste Management Authority; NWC = National Water Commission; OPM = Office of the Prime Minister; PCJ = Petroleum Corporation of Jamaica; UTech = University of Technology Jamaica; UWI = University of the West Indies.



# ANNEX B: INITIATIVES AND ACHIEVEMENTS UNDER THE FIRST NEAP

The initiatives and achievements realized under the First NEAP are listed below, in no particular order.

- 1) An island-wide roll out of E10 in the transport sector was completed in 2010, and ethanol blended gasoline was mandated.
- 2) The National Energy Policy 2009-2030 was promulgated.
- 3) Final drafts of the five sub-policies arising from the NEP 2009-2030 were prepared as follows:
  - a) National Renewable Energy Policy 2010-2030
  - b) National Biofuels Policy 2010-2030
  - c) National Policy for the Trading of Carbon Credits 2009-2030
  - d) National Energy-from-Waste Policy 2010-2030
  - e) National Energy Conservation & Efficiency Policy 2010-2030
- 4) The objective of the Public Sector Energy Efficiency and Conservation Technical Assistance (EEC TA) Programme is to support the GOJ in its efforts to improve Energy Efficiency (EE) within the public sector. This technical assistance (TA) is designed to support the development of an EEC Loan Programme and to secure financing for this undertaking. The TA financed by the IDB and the GOJ culminated with the achievement in its overall objective. The GOJ energy efficiency opportunities within the public sector were identified and a loan investment programme secured. Following the completion of energy audits of 36 public sector entities in 2011 and the successful negotiation of the EEC Loan Programme of US\$20M, which was signed in November 2011 between the GOJ and the IDB, implementation of the Loan Programme commenced in 2012. Several EEC retrofits were identified for immediate implementation, including air-conditioning, lighting, and building envelope insulations. The following specific activities were being conducted or were completed:
  - a) Cool Roof and Solar Film applications
  - b) Workshop conducted under the programme with the aim of influencing behavioral changes; the workshop allowed public and private sector employees to be aware of the programme and its objectives.
  - c) Cabinet approved a behavior change and operational code of conduct for public sector officials and facilities. This protocol document seeks to foster culture change and secure the long term sustainability of the investment in EEC in the public sector.
- 5) The Energy Security and Efficiency Enhancement Project (ESEEP) is one of the key initiatives to ensure the implementation of the NEP. As such, the GOJ signed a loan agreement of US\$15M with the World Bank in May 2011 to provide the appropriate financial, technical and institutional support to ensure that the NEP targets are achieved. This will promote energy efficiency and security while reducing the cost



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of energy and improving the competitiveness of the economy. MSTEM has the overall responsibility for the coordination, implementation, monitoring and evaluation of the project but is executing the project in close collaboration and with support from the Office of Utilities Regulation (OUR), Petroleum Corporation of Jamaica (PCJ), Bureau of Standards Jamaica (BSJ), and Development Bank of Jamaica (DBJ). The accomplishments of this project include:

- a) Reviewed the tariff structure for the addition of new generation capacity geared to support the sustainable development of the renewable energy sector. Resulting from the conclusion of this assessment, the OUR issued a Request for Proposals for 115MW of Renewable Energy.
  - b) Prepared a final report pertaining to the Study on the Tariffs for Renewable Energy, which was submitted July 4, 2012.
  - c) Evaluated technical proposals for the Electric Power Sector Policy Strategy & Lighting Act.
  - d) Developed a comprehensive and integrated Communication and Public Education Programme to promote the programmes/projects and their benefits arising from the National Energy Policy.
  - e) Completed the procurement for a consulting firm to undertake a hydropower feasibility study for five hydro sites.
  - f) Forged a partnership with the Energy and Climate Partnership of the Americas to conduct a feasibility study for the Wind Power for Irrigation Project. The aim of the project is to expand Jamaica's renewable energy portfolio and reduce the cost of water generated by the National Irrigation Commission.
  - g) Completed Phase 2 of the Cuban Light Bulb Project and distributed a total of 160,124 CFLs.
  - h) Hosted the CARICOM Energy Week during November 6-12, 2011, which was attended by representatives from the diplomatic core, private and public sector, academia, and the CARICOM Secretariat. This brought more awareness to initiatives in the energy sector.
  - i) Through the Organization of American States, completed the Feasibility Study and Action Plan on Biofuels Development and Policy Support in Jamaica.
  - j) With support from UN-ECLAC, completed the Energy Efficiency Potential in Jamaica: Challenges, Opportunities and Strategies for Implementation Study, and subsequently hosted the launch of the Study.
  - k) Completed the Position Paper on Generation Avoided Costs and Renewable Energy Tariff.
  - l) Through the PCJ, continued to advance oil and gas exploration initiatives. The promotion of the open acreage both onshore and offshore continued in 2011. Both FINDER Joint Venture and Sagres Energy (Rainville) continue efforts to seek equity parties for the drilling of one or more wells off Jamaica's southern coast.
- 6) The Capacity Development for Energy Efficiency and Security in Jamaica Project was developed through the United Nations Development Programme (UNDP). The project aims to continue advancing the objectives of the NEP. The main achievements included:
- 7) Delivery of three seven-day training programs in 2012 on Energy Conservation, Efficiency and Management and issuance of Certificates of Participation to 86 successful participants.
  - 8) The launch of the Sustainable Energy for All initiative in keeping with the thrust for establishing a Public-Private Dialogue Forum with stakeholders.
  - 9) Drafting of a Request for Proposals for Wind Mapping and Regulatory Review as part of the Technical Assistance for Small Scale Renewable Energy.



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- 10) Promoted programs to incentivize the private sector to retrofit facilities to improve ECE and to encourage eco-efficiency. With support from the UNDP, completed the Training Programme on Energy Conservation, Efficiency and Management. The course was designed for GOJ officers responsible for energy management. This training was conducted over a seven-day period and culminated with 41 officers representing GOJ MDAs receiving a Certificate of Participation.
- 11) The Jamaica Energy Council was established in March 2012 with the primary purpose of facilitating broad-based consultation among key energy sector stakeholders and expediting the implementation of Jamaica's NEP. Through the creation of this body, four sub-committees have been formed; namely the Energy Efficiency and Conservation (EEC), Renewable Energy, Public Engagement, and Petroleum Advisory sub-committees.
- 12) Through assistance from the Latin American Energy Organization (OLADE) under its Latin America and the Caribbean Energy Efficiency Program, a framework for establishing a National Energy Efficiency Institution has been developed. The Jamaica Energy Council has endorsed the need for the implementation of this institutional framework and will provide oversight for its implementation in order to:
  - a) Coordinate all EEC programs across all sectors while advancing and ensuring the institutionalization of EEC measures as a way of life.
  - b) Continue to communicate and promote public awareness programs on ECE.
  - c) Continue to promote programs to incentivize the private sector to retrofit their facilities to improve ECE and to encourage eco-efficiency.
- 13) The OLADE Sub-regional Office of the Caribbean located in Jamaica was launched in August 2012. The Office presents the Caribbean with additional technical expertise that will be integral to regional development and help to meet the goals of member countries, particularly within the areas of energy security and efficiency. The Office also serves to bridge the gap in terms of language and geological borders that sometimes seem to divide the region. It also plays a critical role in climate change initiatives across the region.
- 14) With support from the IDB, the Caribbean Hotel Energy Efficiency and Renewable Energy Action – Advanced Program (CHENACT-AP) was undertaken. CHENACT-AP is an Energy Efficiency Project geared toward improving the competitiveness of small and medium-sized hotels (<400 rooms) in the Caribbean Region through improved use of energy, with emphasis on renewable energy and micro-generation. The pilot project, which is already underway in Barbados, is now an initiative being pursued in the Jamaican hotel sector.
- 15) Cabinet approved the implementation of Mandatory Energy Efficiency, Energy Conservation Guidelines for the Public Sector.



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# ANNEX C: FIRST AIM WORKSHOP, JUNE 3, 2013



Ministry of  
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**ANALYSIS AND INVESTMENT IN LOW EMISSIONS GROWTH (AILEG) PROJECT**  
**Action Impact Matrix (AIM) Prioritization Workshop**  
**National Energy Action Plan – 2013 to 2016**  
**Monday, June 3, 2013 - 8:30 a.m. to 1:00 p.m.**  
**Environmental Foundation of Jamaica Boardroom**  
**1b Norwood Avenue, Kingston 5**

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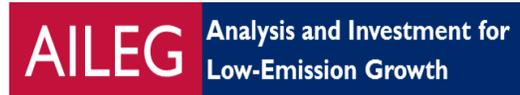
## 1.0 BACKGROUND AND CONTEXT

The AILEG project is the first initiative in a three year programme for enhancing capacity for low emissions development strategies (EC-LEDS) in Jamaica. AILEG is providing technical assistance to the Government of Jamaica and other stakeholders to analyze low emissions scenarios and integrate them into economic development strategic planning and implementation, as well as conducting economic analysis to promote investment in low emissions technologies and projects. AILEG is working in collaboration with the Ministry of Science, Technology, Energy & Mining (MSTEM), the Ministry of Water, Land, Environment and Climate Change (MWLECC) and the Planning Institute of Jamaica (PIOJ).

The development of the National Energy Action Plan (NEAP) 2013 to 2016 is one of the priority areas of support that the AILEG project is providing for the development of LEDS in Jamaica. In 2010 Parliament approved the National Energy Policy, and NEAP 2013 to 2016 is the second in the series of Action Plans that will be developed to support implementation of the Policy. The USAID and other International Development Partners (IDPs), including the Inter-American Development Bank (IDB), the World Bank (WB) and the United Nations Development Programme (UNDP), have provided support for the policy development and implementation process.



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## **2.0 RATIONALE**

The list of flagship projects identified for consideration for the second NEAP were developed through consultation with MSTEM, following a review of the implementation of NEAP 2009 to 2012. This aim of this workshop was to engage key stakeholders in the energy sector in the selection and prioritization of these projects for implementation, as well as to identify additional renewable energy (RE) and energy efficiency (EE) projects which they deemed to be of priority at this stage in Jamaica's development. In order to continue this participatory planning approach, consultations will also be held with a wider stakeholder grouping to finalize the list of projects that will be included in the Plan.

## **3.0 WORKSHOP OBJECTIVES**

1. Present the recommended flagship projects for NEAP 2013 to 2016
2. Obtain stakeholder feedback on the selection and prioritization of these projects using the Action Impact Matrix (AIM) methodology
3. Solicit ideas for any other project interventions deemed necessary for advancing the development of LEDS in Jamaica

## **4.0 PARTICIPANTS**

Participants were mainly a select group of government stakeholders to the NEAP. Twelve people were invited, and six were able to attend from MSTEM, Development Bank of Jamaica (DBJ), Rural Electrification Project (REP), Office of Utilities Regulation (OUR), PIOJ and Jamaica Productivity Centre, which is a private sector company. The participants were kept to a small number, as this was the first introduction of the forty-five recommended flagship projects for the second NEAP. It was determined that with a large number of projects, a smaller group would be able to prioritize them more efficiently. A larger workshop will be held on June 14<sup>th</sup> to open up the discussion on a tighter list of recommended flagship projects.

## **5.0 METHODOLOGY/APPROACH**

The AIM was developed using the list of forty-five recommended flagship projects on the X-axis and seven recommended development goals/policies for the Y-axis variables. These variables were developed by the AILEG Policy Development Expert and MSTEM, and are specifically targeted towards achieving the development goals outlined in the Vision 2030 Jamaica – National Development Plan. Eighteen of the forty-five recommended flagship projects are carried over from the first NEAP, and are in various stages of progress. Nine of the recommended flagship projects are new from the first NEAP, but are already within the MSTEM pipeline.

Participants were given a scoring rubric of three to negative three to rate the contribution that each flagship project would make to the achievement of the recommended development goals/policies. The prioritization activity was led by a facilitator, and the AILEG Policy Development Expert provided guidance as necessary. As a group activity, each project was given a score based on the participants' overall perception of its potential for impact. Due to the limited time available for the workshop, only flagship projects with overall perception scores of three were scored in detail for the seven goals/policies on the Y-axis. Participants were asked to complete the AIM by filling in scores off-site for projects that were not



reviewed in the workshop and sending it back so that their scores could be averaged for completion of the group matrix. The prioritization session was followed by an invitation to participants to provide suggestions for other flagship projects that they believe would have transformative potential for the industry. The scores developed by participants are indicated in the AIM presented in Attachment 1.

**6.0 COMMENTS MADE ON SPECIFIC FLAGSHIP PROJECTS**

The participants made the following comments on proposed flagship projects:

GOAL No.	PROJECT No.	PROJECT NAME	COMMENTS
1	1	Expanding Uptake by the DBJ of the Revolving Facility for EE and RE Financing in the Private Sector  (Modified from 1 <sup>st</sup> NEAP)	<p>The Development Bank of Jamaica (DBJ) lends money through private banks in order to increase the uptake of funds for RE and EE investments. The project should seek to stimulate further increases in borrowing for these investments.</p> <p>The National Housing Trust (NHT) should be added to this project title as they also offer financing (to mortgagors) for RE &amp; EE technologies.</p>
1	5	Expansion of the Energy Saving Compact Fluorescent Lamps (CFL) Project	<p>The Cuban Light Bulb Project has been completed and the Jamaica Public Service Company Ltd (JPS) has confirmed that 80MW of electricity was replaced. The proposed project will replace bulbs and also include an education component to increase sustainability. Concerns were raised about the sustainability of the project if the bulbs have to be replaced through project funding. It was agreed that the project is important and beneficial, therefore, it is recommended to proceed with implementation. However, the distribution process needs to be improved to ensure that the target beneficiaries receive the bulbs. The new project needs to be more efficiently implemented and the lessons learned from the Cuban Light Bulb Project must be used to inform this new project.</p> <p>Remove the word, “Expansion” from the project title as this would be a totally new project.</p>



GOAL No.	PROJECT No.	PROJECT NAME	COMMENTS
1	9	Energy Conservation and Renewable Energy and Efficiency Technology Training Programme	The project title should be changed to, "Development of a Curriculum and Certification for Use by Training Agencies e.g. HEART TRUST NTA and University of Technology, Jamaica (UTECH)".
1	10	Introduction of Energy Management Programme using ISO 50001	Delete this project from Goal 1 as it is captured in Goal 7.
1	12	Energy Conservation in the Transport Sector	There are energy solutions for the transport sector. However, they are long term ones.
2	14	Petrojam Oil Refinery Upgrade	If this project is implemented it would result in more efficient processing at the refinery, cleaner fuels and a reduction in imports.  This project should result in a reduction of prices for consumers.  The project should be linked to the development of more transparent pricing mechanisms. Energy Pricing is addressed in Goal 6.
2	18	Develop Smart Grid Road Map for Jamaica and Facilitate its Implementation	The Road Map is currently being developed.
2	19	Generation Expansion Plan & Long Term Planning in the Energy Sector	This is an ongoing process that has to be done, so the project has to remain on the list.
3	20	Implementation of Hydro Power Capacity	Five feasibility studies for hydro-electricity have been done, It is a relatively inexpensive source of energy and supplies would be consistent as hydro power plants have firm capacities. Therefore, the project is strongly recommended.
3	21	Increase in Commercial Wind Energy Generation Capacity and Wind Generated Electricity in Applicable Communities	Remove "Commercial" from the project title.  If the NIC's wind energy generation project is successful, it can be replicated. Also, the UNDP is setting up 4 demonstration sites for wind energy generation in rural communities. These solutions could benefit remote communities that are not on the grid



GOAL No.	PROJECT No.	PROJECT NAME	COMMENTS
3	22	Increased Application of Solar (Photovoltaic and Thermal) Technologies for Water Pumping	Remove “for Water Pumping” from the project title. However, in detailing this project, the National Water Commission has to be given consideration as it is the largest user of electricity.
3	23	Application of Bio-digestion for Methane Production in the Housing and Agricultural Sectors.	Delete this project as it is covered under project no.15
3	24	Application of Bio-digestion for Methane Production in the Housing, Health and Agricultural Sectors	This project needs to be discussed further as the Scientific Research Council (SRC) has been investigating this option for years. However, cultural mindsets have been a hindrance to uptake. The SRC, UTECH and DBJ are to be included in the discussion as UTECH already has projects in this area and the DBJ is willing to provide funding.
3	25	Biomass and Bio-fuels (cogeneration from bagasse and bio-diesel)	Bio-diesel standards have been developed but this energy option is not receiving the necessary support from the political directorate. Therefore, the decision was taken to split this flagship option into the following two sub-projects: a) Co-generation from biomass b) Development of bio-fuels industry
3	26	Reform the Primary, Secondary and Tertiary Curricula to Build Long-Term Technical Capacity in Sectors	Change the project title to, “Engage the Ministry of Education and Teaching Fraternity in the Development of an EE and RE Curriculum which Includes Practical Demonstrations”.
4	27	Petcoke Cogeneration	A contractual arrangement already exists between Petrojam and the JPS for sale of petcoke to them. This should result in lower electricity prices for consumers. This project is contingent on the upgrade of the refinery.
4	28	Waste-to-Energy Project	Jamaica does not generate enough waste to support a waste to energy plant. However, MSTEM has recommended that it remains on the list for further discussion.
4	29	Oil and Gas Exploration Programme	This is an ongoing process so the project will be kept.
5	31	Institutional Strengthening and Improved Governance in Rural Electrification Programme	This project is mandated by the government so it will be kept.



GOAL No.	PROJECT No.	PROJECT NAME	COMMENTS
5	33	Business Process Review of the Government Energy Inspectorate	This project has been done but there might be room for follow up activities. Y. Barrett Edwards is to discuss the way forward for this project with Fitzroy Vidal.
6	39	Energy Efficiency and Conservation Project Implementation	The project title is to be changed to, "Energy Efficiency and Conservation in Public Sector Project Implementation".
6	40	Environmental Stewardship Policy Accelerated	The project title is to be changed to, "Environmental Stewardship policy Implementation". This process is to be led by MWLECC.
6	41	Use of Green Technology in Local Government	The project title is to be changed to, "Develop a Framework for Energy Performance Contracting with the Public Sector to Mainstream ESCOs".
7	45	Advancing Clean Energy in MSMEs and CBOs	The project title is to be changed to, "Facilitate Clean Energy Projects in MSMEs and CBOs through Partner Agencies". The DBJ can provide support for energy audits and investments in clean energy systems.



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## 7.0 SUGGESTIONS MADE BY PARTICIPANTS FOR NEW FLAGSHIP PROJECTS

The participants made the following suggestions for inclusion in the list of flagship projects:

### Development Bank of Jamaica

- ◆ Develop an M&E framework that can be used by the DBJ to assist in the implementation of energy projects and the development of ESCOs.

### Jamaica Productivity Centre

- ◆ Establish a national energy information clearinghouse. This project should look at how best to capture data generated by projects and make that data available to stakeholders in the sector. Lessons learned should be a component of information shared.
- ◆ Conduct sustainable energy research through universities to enable development and innovation in the sector.

### Office of Utilities Regulation

- ◆ Develop a regulatory framework for liquid natural gas (LNG) and establish a land-based or offshore logistics hub for small scale LNG operations.

Y. Barrett Edwards added that MSTEM has stepped back from LNG sector development and is looking more at policy and regulations. However, she will mention the project concept to the Senior Legal Officer to see if it can be included in the National Gas Act which is currently being developed.

## 8.0 NEXT STEPS

- ◆ Participants were asked to complete the AIM by filling in scores for projects that were not reviewed in the workshop. They were also asked to complete the workshop evaluation off site. Both documents are to be returned by June 6.
- ◆ A second stakeholder workshop of 25 persons including wider public sector representation, the private sector and NGOs will be conducted within the next two weeks for continuing the prioritization process.
- ◆ A symposium will be held on July 9 & 10 to present the work of AILEG to stakeholders and determine the way forward for the government of Jamaica.



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## APPENDIX 1



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### **WORKSHOP: IDENTIFICATION AND SELECTION OF ENERGY FLAGSHIP PROJECTS, SECOND NEAP (2013-2016) June 3, 2013 - Kingston, Jamaica**

#### **Agenda**

Welcome and Opening Remarks

Mrs. Yvonne Barrett-Edwards  
Director of Energy Economics  
& Planning - MSTEM (Project  
Focal point)

Workshop Objectives and Approach used for Identifying Draft List of Flagship  
Projects

Dr. Ruth Potopsingh - AILEG Energy Expert

Discussion on AIM Approach and Methodology for Selecting Flagship Projects

Mrs. Karen McDonald Gayle - Facilitator

Workshop Activity

Presentation of Findings

Dr. Ruth Potopsingh - AILEG Energy Expert  
Ms. Diana Gillespie - AILEG Analyst

Any Other Business

Next Steps and Closure

APPENDIX 2

## Energy Action Plan 2013-2016 – Matrix of Flagship Projects

This section’s table below presents the second action plan for the period 2013 – 2016 by summarizing the descriptions of the flagship projects. These projects that will move towards the accomplishment of each goal in the National Energy Policy are listed along with the strategies identified in the National Energy Policy that are addressed by the project, and the expected outcome(s), responsible agencies, timeline and cost. Also, for each flagship project the other goals in the energy policy that will be supported are specified.

Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>Goal 1: Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency</b>							
<b>Flagship Project 1: Developing Energy Efficiency (EE) Potential</b>							
This flagship project is aimed at creating conditions that will support increased energy efficiency in Jamaica. It consists of six(6) sub-projects as follows:							
<ul style="list-style-type: none"> <li>• Sub-Project 1 – Expanding uptake by the DBJ of the revolving facility for EE and RE financing in the private sector</li> <li>• Sub-Project2 – Enforcement of Jamaica Building Code (carried forward from 1<sup>st</sup> NEAP)</li> <li>• Sub-Project 3 – Implementation of Energy Efficiency Programmes for Street Lighting in specific communities</li> <li>• Sub-Project 4 - Expansion of the Appliances Labelling and Testing Programme (carried forward from 1<sup>st</sup> NEAP)</li> <li>• Sub-Project 5 – Expansion of the Energy Saving Compact Fluorescent Lamps (CFL) Project</li> <li>• Sub-Project 6 – Maintenance of On Line Information Data Bases</li> </ul>							
<b>Sub-Projects</b>							
I - Expansion of the Appliances Labeling and Testing Programme	BSJ  Support: UTech, UWI		Facilitate the introduction of energy-saving devices e.g. LED, solar panels, solar street lighting  Develop and implement programmes to influence market behavior toward ... use of energy-efficient appliances		US\$ 1.03 million	Increased capacity of BSJ, UTech, UWI to test appliances  Increased use of energy efficient appliances by consumers	Testing facilities sufficient to test appliances  Data show increase in sales and import of energy-efficient appliances



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>2 - Enforcement of Jamaica Building Code</b>	MSTEM, BSJ, Cabinet Office, OPM (DLG), Local Authorities, TCPA  Support: UTech, JIA, JIE	Goal 7	Employ energy-saving approaches in building design and construction  Update, apply and enforce the Energy Efficiency Building Codes to support efficient use of energy in buildings  Create relevant legislation to support required investments in efficiency			Building Act promulgated  Increased capacity among LGAs for enforcement of Building Code  Energy efficient lighting and cooling equipment used in new and retrofitted buildings <sup>2</sup>	Building Act is legally in effect  Building inspections show at least >75% of lights are energy-efficient  Improve overall energy use index to include air conditioning, water heating, lighting, cooking and misc.
<b>3 – Implementation of Energy Efficiency Programmes for Street Lighting</b>	MSTEM  Support: REP, PCJ, JPSCo, DLG, UTech, UWI		Facilitate the expansion of use of energy-saving devices e.g. LED, solar panels, solar street lighting		US\$ 2 million	Installation of energy-efficient street lights  Labs at universities, building and testing components	Number of street lights and energy-saving devices installed  Net saving in J\$ as a result of intervention  Reports from labs on relative efficiencies of various components

<sup>2</sup> The Code mandates 50% lamps must use energy-efficient lighting



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>4</b> Expanding uptake by the DBJ of the revolving facility for EE and RE financing in the private sector	DBJ, MSTEM Support: PCJ, PC Banks	Goals 3, 7	Provide incentives/disincentives for the use of innovative technologies to improve energy efficiencies		US\$2.5 million	Establishment of EE/RE Revolving Fund loan mechanisms more attractive to investors  Private sector uptake facilitated and supplemented with technical advice	Evidence of aggressive promotion of facility  Number of active participants listed as a percentage of target group
<b>5 -</b> Energy Saving Compact Fluorescent Lamps (CFL) Project	MSTEM Support: UTech, UWI, BSJ		Facilitate the introduction of energy-saving devices e.g. LED, solar panels, solar street lighting			Installation of CFLs in households of 5 remaining constituencies Introduction of R&D in the selection of devices	Households in 5 target constituencies using CFLs
<b>6.</b> Maintenance of On Line Information Data Base	MSTEM Support: CIPORE, SRC, UTech, UWI, CITO, FSD	3,4,6	Develop and implement a relevant and sustained public energy information programme and information database with links to other Caribbean energy databases e.g., CIPORE, EUCARINET			Online clearing house established and widely used	Statistics recorded on the website show increasing use of the resource
<b>Flagship Project 3</b>							
Energy Efficiency and Conservation Programme for the NWC	NWC MSTEM	Goal 1, 2	Infuse energy conservation issues in sectoral policy development (e.g. in tourism policy, health policy, water policy etc.) Promote energy conservation in the public sector, particularly in the water supply systems	2013-2016			

Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>Flagship Project 4</b>							
Energy Conservation and Renewable Energy and Efficiency Technology Training Programme	MSTEM, HEART Trust UTech, UWI  Support: MOE, MOI, Public Sector,	Goal 6	Implement demand side management programmes that promote public awareness of the importance of responsible energy use  Develop and implement effective education and training programmes on energy conservation at all levels of the education system	2013-2016		Implement the Renewable Energy and Efficiency Technology Programme to prepare skilled workforce to design, install and maintain renewable energy systems  Increased knowledge and skills for energy conservation among Public sector officers	Agreement with training institution in place.  Training reports show increased numbers of public sector officials trained Water conservation
<b>Flagship Project 5</b>							
Introduction of Energy Management Programmes using ISO 50001	MSTEM BSJ UTech MOE Private Sector	Goal 2	Review quality standards for energy supplies	2013-2016		Energy management systems are adopted using ISO framework	At least three institutions are compliant with ISO 50001
<b>Flagship Project 6</b>							
Consumer-oriented Energy Efficiency and Conservation Campaign	PCJ  Support: BSJ, Private Sector, UTech, UWI	Goal 6, 7	Implement demand side management programmes that promote public awareness of the importance of responsible energy use  Develop and implement effective education and training programmes on energy conservation at all levels of the education system	2009 – 2012		Increased awareness about energy conservation and energy efficient equipment  Increased use of energy-efficient equipment	Increase use of energy efficient equipment and reduction in energy intensity



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>Flagship Project 7</b>							
<b>Energy Conservation in the Transport Sector</b>	MSTEM, MTW Support: MFPS, UTech, UWI	Goal 6	Promote energy conservation and efficiency in the transport sector (e.g. imports of more fuel efficient vehicles; transition to alternative energy vehicles; levying taxes on petrol to road maintenance  Implement appropriate tax and pricing structure for road users that reflect environmental costs and other externalities	2009 - 2011		Alignment of transport policy with National Energy Policy  Petrol taxed at a level to allow for road maintenance  Promotion of conservation measures e.g. walking (healthy lifestyle) car pooling  Increase in % of fuel-efficient cars imported  Enforcement of maximum axel weight standards  Training Institutions teach conservation methods	
<b>Flagship Project 8</b>							
Demand side Management by Public Utilities	JPSCo With support from: MSTEM DBJ PCJ Private Sector	Goal	Implement demand side management programmes that promote public awareness of the importance of responsible energy use Facilitate the introduction of energy-saving devices e.g. LED, solar panels, solar street lighting Develop and implement	2013-2016			



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			<p>programmes to influence market behaviour toward and promote efficient use of energy including the use of energy-efficient appliances, equipment, and building designs; setting and enforcing standards for public sector organizations; and public awareness and educational programmes</p> <p>Provide incentives for the installation of solar water heaters and solar lights installed where applicable, in the public and private sectors and in communities</p> <p>Develop institutional capacity to implement demand-side energy management programmes</p>				
<p><b>Goal 2: Jamaica has a modernized and expanded energy infrastructure that enhances energy generation capacity and ensures that energy supplies are safely, reliably, and affordably transported to homes, communities and the productive sectors on a sustainable basis</b></p>							
<p><b>Flagship Project 9</b></p>							
<b>Petrojam Oil Refinery Upgrade</b>	PCJ, Petrojam	Goal 7	<p>Upgrade the petroleum refinery (PETROJAM) to ensure that it functions as the least cost option for petroleum supplies to Jamaica, thereby increasing capacity utilization and output of lighter and higher-value refined petroleum products thus</p>	2010-2014	US\$1.2 billion	<p>An upgraded facility consistent with project plans</p> <p>The refinery margins are optimized</p> <p>The production of low sulphur diesel, a significant reduction in</p>	<p>The capacity to refine all fractions and the reliability of the plants is consistent with pre-construction projections</p>



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			replacing imports and compensating for the potential switch from oil-fired to petcoke and natural gas power plants			HFO at the end stage and the production of petroleum coke	~ 25 % reduction in the importation of refined products  Measurable environmental benefits
<b>Flagship Project 10</b>							
<b>Energy Management Programme in Refinery and Bauxite &amp; Alumina Sector</b>	Petrojam Ltd. Bauxite Companies	Goal 1	Facilitate greater energy efficiency and lower energy costs in the bauxite and alumina industry and in the manufacturing sector	2013-2016		Increased efficiencies in the use of energy Procurement of goods to target efficiency performance	ISO Energy Management System 50001 Framework Reduced consumption and increased profitability from savings
<b>Flagship Project 11</b>							
<b>Improvement of Electricity Distribution and Transmission Efficiency</b>	JPSCo  Support: OUR, MSTEM, UTech, UWI	Goal 1	Ensure continuity and consistency of energy supply and distribution  Strengthen the capacity of the government's electrical inspectorate and the petroleum safety inspectorate to adequately monitor and control incidences of illegal operations	20013 – 2016	US\$65.1 Million	Reduced theft of electricity Reduced technical losses Reduction in non-technical losses Upgraded billing system	Reduction in technical losses from 10% at present to 8.5% of net generation by 2014  Reduction in non-technical loss by 2.6% over the next five (5) years  Percentage increase



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
							in service reliability  Customer bills accurate
<b>Flagship Project 12</b>							
<b>Power Sector Development and Capacity Replacement</b>	OUR, JPSCo, IPPs, MSTEM	Goal 1	<p>Ensure continuity and consistency of energy supply and distribution</p> <p>Through a competitive basis, retire the old generation plants and replace them with modern plants to improve the conversion efficiency</p> <p>Establish a system to identify and replace old and inefficient units/plants with more fuel efficient and cost efficient technologies and plants</p>			<p>Reduction in average age of generation plant</p> <p>Reduction in power system heat rate</p>	<p>New plant - 360 megawatt fossil fuel based</p> <p>New Plant - 115 megawatt from Renewable energy</p> <p>Percentage reduction in generation cost (\$/Kwh)</p>
<b>Flagship Project 13</b>							
<b>Develop Smart Grid Road Map for Jamaica and Facilitate Its Implementation</b>	MSTEM		To ensure safe reliable and efficient supply and distribution of energy	2013-2016		monitoring framework to track energy targets and indicators to validate the performance of the supply and distribution systems	Gradual reduction in technical losses from 10%. Percentage increase in Service reliability
<b>Generation Expansion Plan &amp; Long-term Planning in the Energy Sector</b>	MSTEM, OUR Support: PCJ, JPSCo, UTech, UWI		Implement economic cost solutions for the supply of energy, including source, conversion and distribution Review and apply appropriate	2013-2016		Improved long-term planning and forecasting for the energy sector	Reduction in generation cost Economic dispatch of generators according to merit



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			models for production and development of potential oil and gas resources				order ranking Decision-making software tools utilized
<b>Goal 3: Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness, energy security whilst reducing its carbon footprint</b>							
<b>Flagship Project I4: Jamaica's Renewable Energy Programme</b>							
This flagship project includes three sub-projects as follows:							
<ul style="list-style-type: none"> <li>• Sub-Project 1 –Implementation of Hydro Power Capacity</li> <li>• Sub-project 2 - Increase in Commercial Wind Energy Generation Capacity and wind generated electricity in applicable communities</li> <li>• Sub-project 3 - Increased Application of Solar (Photovoltaic and Thermal) Technologies for water pumping</li> <li>• Sub-Project 4 - Application of bio digestion for methane production in the housing and agricultural sector</li> </ul>							
<b>Sub-projects</b>							
I - Implementation of Hydro Power Capacity	Private Sector With support from  PCJ, OUR, JPS, NWC  Support: WRA, NLA, UTech, UWI	Goal 4	<p>Prioritize renewable energy sources by economic feasibility criteria, environmental considerations including carbon abatement</p> <p>Promote the development of efficient and low cost renewable plants with a size of 15 MW or less through applications to the OUR.</p> <p>Comply with international conventions on climate change and global warming</p>	2013 - 2016		<p>Increased hydroelectric capacity</p> <p>Increase in the renewable energy contribution to energy supply mix</p> <p>Increase in tradable CO2 Credits</p>	<p>Development of hydroelectric power resources</p> <p>Defined CO2 reduction</p>



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>2</b> - Increase in Wind Energy Generation Capacity	PCJ, Wigton Wind Farm Ltd. JPSCo OUR Private Sector development  Support: UTech, UWI	Goal 4	Prioritize renewable energy sources by economic feasibility criteria, environmental considerations including carbon abatement  Promote the development of efficient and low cost renewable plants Strengthen R&D base  Comply with international conventions on climate change and global warming	2003 – 2016		Increased wind energy generation capacity <sup>3</sup>  Increase in the renewable energy contribution to energy supply mix  Wind mapping data made available to private sector  R&D carried out on the performance of the PV equipment	Wigton Wind Farm expanded  60 megawatts new installed capacity Defined CO2 reduction  At least one publication on Solar PV performance
<b>3</b> - Increased application of Solar (Photovoltaic, Solar Cooling and Thermal) Technologies	PCJ, SRC, ODPEM, SDC  Support: UTech, UWI	Goal 4	Prioritize renewable energy sources by economic feasibility criteria, environmental considerations including carbon abatement  Promote the development of efficient and low cost renewable plants with a size of 5 MW or less through applications to the OUR. Comply with international conventions on climate change and global warming	2013 – 2016		Increase in Solar PV in Jamaica's energy mix Increased grid connections from PV applications  Increase in solar power and water heating equipment used in housing schemes Solar applications introduced into community based organizations	Development of solar power resources JPSCo Target 100% satisfied Defined reduction in CO2  200 students a year trained in the design, installation and maintenance of

<sup>3</sup> Target: 87 MW of installed wind energy will be developed by 2016



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			<p>Develop the local capacity to implement and maintain the solar technology systems</p> <p>Encourage research, development and implementation of qualified renewable energy projects</p>				PV, solar thermal and solar cooling systems
<b>Flagship Project 15</b>							
<b>Application of bio digestion for methane production in the housing health and agricultural sectors</b>	MSTEM SRC UTech, UWI, RADA	Goal 4	<p>Implement incentives to encourage tertiary institutions to develop research programmes for the application and implementation of renewable energy technologies</p> <p>Encourage research, development and implementation of qualified renewable energy projects</p>			<p>Design and application of waste water and effluent streams for methane gas conversion</p> <p>The agricultural sector especially the pig and cattle farms convert wastes to gas for refrigeration, generators, water heating and sterilization</p>	<p>10 biodigesters operating in each sector</p> <p>R&amp;D Reports on design and systems performance</p>
<b>Flagship Project 16</b>							
<b>I - Biomass and Biofuels (Cogeneration from bagasse and biodiesel)</b>	MSTEM, PCJ, MOA, SRC  Support: UTech, UWI, BSJ		<p>Develop diversification priorities based on cost, efficiency, environmental considerations and appropriate technologies and competitiveness</p> <p>Prioritize renewable energy</p>	2013-2016		<p>Production of electricity from bagasse for sale to the electric grid</p> <p>Development of biodiesel industry</p>	<p>Sales of electricity to JPSCo</p> <p>At least one biodiesel plant in operation</p>

Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			sources by economic feasibility criteria, environmental considerations including carbon abatement				
<b>Flagship Project 17</b>							
Reform the primary, secondary and tertiary curricula to build long-term technical capacity in sectors	MSTEM, MOE, PCJ  Support: UTech, UWI	Goals 1, 4	Encourage research, development and implementation of qualified renewable energy projects			Solar energy used in 34 schools  Recommendations for national replication	Number of schools with solar systems installed and operational
<b>Goal 4: Jamaica's energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability</b>							
<b>Flagship Project 18 - Diversification of Jamaica's Energy Supply</b>							
This flagship project aims to develop the infrastructure and capacity to use alternative fuels such as Liquefied Natural Gas (LNG), petcoke and biofuels as part of the national efforts to reduce its dependence on oil. The strategies within the National Energy Policy addressed by this project are: This flagship project consists of five sub-projects as follows:							
<ul style="list-style-type: none"> <li>• Sub-project 1 - Petcoke Cogeneration</li> <li>• Sub-project 2 - Waste-to-energy project</li> <li>• Sub-project 3 - Oil and Gas Exploration Programme</li> </ul>							
<b>Sub-projects</b>							
<b>1</b> - Petcoke Cogeneration	PCJ, JPSCo  Support: Private Investors,		Identify and develop indigenous non-renewable sources of energy and necessary enabling environment to encourage private sector participation	2013 – 2017	US\$ 300 million	Capacity for co-generation increased Codependent on refinery upgrade	Construction of 120 MW cogeneration power plant
<b>2</b> - Waste-to-energy project	PCJ, NSWMA, OPM Private Sector	Goal 3	Identify and develop indigenous renewable sources of energy and necessary enabling environment	20013-2016	US\$ 350-400 million	Generation of energy from waste Avoided carbon emissions	Construction of one waste-to-energy plant



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
	Support: JPSCo, OUR, MFPS, NEPA, UTech, UWI		to encourage private sector participation			Waste minimization	
<b>3 - Oil and Gas Exploration Programme</b>	PCJ, Private Investor(s)		Undertake comprehensive oil and gas exploration programme			Bid for Blocks	Exploration wells drilled
<b>Goal 5: Jamaica has a well-defined and established governance, institutional, legal and regulatory framework for the energy sector, that facilitates stakeholder involvement and engagement</b>							
<b>Flagship Project 19 Improved regulatory and institutional governance of the sector</b>							
This flagship project is comprised of six sub-projects as follows:							
Sub Policy 1 - Promulgation of Energy Sector Policies							
Sub Policy 2 - Institutional strengthening and improved governance in Rural Electrification Programme							
Sub Policy 3 - Strengthening of the Legislative and Regulatory Framework in specific areas for enhanced efficiency and better governance							
Sub Policy 4. Business Process Review of the Government Energy Inspectorate							
Sub Policy 5. Regulatory Framework for Liquefied Natural Gas (LNG)							
Sub Project 6. Expansion of the regulatory mandate of OUR							
<b>Sub Projects</b>							
<b>1. Promulgation of Energy Sector policies</b>	MSTEM, OUR Support: BSJ, OPM, PCJ, UTech, UWI		Develop necessary regulatory framework for the introduction of diversification fuels like LNG Develop the institutional framework to coordinate policy with energy initiatives and provide integrated monitoring and enforcement of regulations	2013 – 2016		Second NEAP accepted to support the implementation of the Vision 2030 National Energy Policy and its sub policies	Policies promulgated for renewable energy, waste-to-energy, carbon emissions, energy conservation & efficiency, biofuels and electricity
<b>2 Institutional strengthening and</b>	JESL, MSTEM JPSCO, PIOJ,	Goals 1 2 3	Reduce system losses on the			REP transformed into an agency "Jamaica Energy Solutions Ltd"	Reduced electricity theft

Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
improved governance in Rural Electrification Programme (REP)	NHT, JSIF		<p>power system by introducing stiff penalties for power thefts and enhancing the enforcement powers of the regulatory agencies</p> <p>Review and complete rural electrification programme including use of alternative energy sources</p>			<p>Renewable energy solutions developed for those households further than three kilometers from the grid;</p> <p>Project management services for the design and implementation of energy solutions for major housing initiatives by agencies of the state, especially where low-income earners are the targeted population for those housing solutions.</p>	Off grid electricity supply expanded
3. Strengthening of the Legislative and Regulatory Framework			<p>Amend existing legislation and regulations or promulgate new ones where necessary to ensure responsible market behaviour and promote industrial harmony</p> <p>Remove inconsistencies in the legislative framework of the energy sector</p>			<p>Amendment of the JPSCo License.</p> <p>Revision of technical standards in the Petroleum Quality Control Act</p> <p>Revision the Petroleum Landing and Fuels Act</p> <p>Revision the Office of Regulations Act to get additional powers of monitoring, evaluation and enforcement, similar to those it has over the telecommunications sector.</p> <p>Revision of the Licensing of</p>	Legislation brought to Parliament 20013-2016



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
						Petroleum Filling Stations, Revision of the Electricity Act	
4. Business Process Review of the Government Energy Inspectorate	MSTEM Supported by BSJ	2	Strengthen the capacity of the government's electrical inspectorate and the petroleum safety inspectorate to adequately monitor and control incidences of illegal operations			Facilitating improvements in efficiency and transparency	A modern highly efficient GEI Business Unit
5. Regulatory Framework for Liquefied Natural Gas (LNG)	MSTEM, OUR Support: PCJ, MFPS, NEPA, JPSCo, UTech, UWI	Goals 2, 5, 7	Develop a framework for the introduction of natural gas	2013 - 2016		Establishment of regulatory framework for the LNG sector	Supply of natural gas to the power generation and bauxite/alumina sectors
6. Expansion of the regulatory mandate of OUR	OUR Support: Cabinet Office, Solicitor General's Office, MSTEM		Enhance the enforcement powers of the regulator to ensure compliance with established procedures and standards as well as the efficiency monitoring mechanisms on a continued basis  Review on an ongoing basis the existing legal framework for performance, strengths, weakness, and lessons learnt, to formulate and implement programmes of legal reforms			Extension of the mandate of the OUR for the regulation of new sub-sectors	



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
<b>Flagship Project 20</b>							
<b>Net Metering and Wheeling System</b>	MSTEM, OUR, JPSCo  Support: PCJ, CERE	Goals 3,4	Conduct studies to include net metering and wheeling in the tariff rates and introduce appropriate mechanisms for net metering and wheeling procedures and standards to encourage the development of renewable energy and cogeneration opportunities	2013-2016		Establishment of net metering and wheeling framework Wheeling facility is implemented	Regulations in place  Number Wheeling customers on system
<b>Flagship Project 21</b>							
<b>Comprehensive Review of Energy Pricing - Fuels and Electricity</b>	MSTEM OUR MIC		Develop regimes for pricing of electricity and petroleum products that will balance requirements for competitiveness with the long-term viability of the sector	2013-2016		Transparent pricing models	Equitable prices for electricity and fuels
<b>Flagship Project 22</b>							
<b>Establish a National Energy Efficiency Institution (NEEI) in Jamaica</b>	MSTEM		Establish energy conservation and efficiency (ECE) protocols for the operation of public sector facilities and entities including the appointment of an energy coordinator for each facility  Provide technical assistance for ECE initiatives in the public and	2013-2014		Cabinet's Approval for the <b>establishment of the NEEI</b>	Energy Efficiency is practiced nationally



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			private sectors.				
<b>Goal 6: Government ministries and agencies are a model/leader in energy conservation and environmental stewardship in Jamaica</b>							
<b>Flagship Project 23 - Increasing energy conservation and efficiency in the public sector</b>							
This flagship project is comprised of three sub-projects as follows:							
<ul style="list-style-type: none"> <li>• Sub-project 1 – Energy Efficiency and Conservation Project Implementation</li> <li>• Sub-project 2 - Environmental Stewardship Policy</li> <li>• Sub-project 3 - Use of Green Technology in Local Government</li> </ul>							
<b>Sub-projects</b>							
1 - Energy Efficiency and Conservation Technical Assistance	MSTEM	Goal 1	Establish ECE protocols for the operation of public sector facilities and entities including the appointment of an energy coordinator for each facility ECE Education Awareness Programme conducted.		US\$437,500	Implement Public Sector Programme on Energy Conservation and Efficiency Institutional Strengthening in place. Investments in Energy Efficiency EE and Energy Conservation (EC). Energy Conservation and Efficiency (ECE) Education Awareness Programme in place. Building envelopes measures implemented. Technologies for EE Standards & Norms developed. Five EE Studies/Audits completed. Two Workshops and seminars on EE procurement and	Investment programme for Public Sector energy efficiency improvement to be completed in 2014 Energy Savings of 22,609,713 kWh in the public sector by 2015 is realized.  Energy expenses reduction of US\$6.7M by 2015 is realized.  CO2 emissions of 19,150 tones/year in the public sector



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
						management conducted.	are reduced by 2015. A reduction of 13,886/year barrels of oils is reduced by 2015. Number of Installation and retrofits carried out in keeping with established targets  Proposal for EE & EC incentives mechanisms developed.
<b>2 - Environmental Stewardship Policy</b>	OPM, NEPA, all Ministries and agencies	Goal 1	Implement Government of Jamaica Policy on Environmental Stewardship (2008)  MDAs develop and implement environmental stewardship action plans, with special emphasis on energy and fleet management			Environmental stewardship action plans developed and implemented by public sector agencies	Reduction in energy and materials used and pollution/waste generated by public sector agencies



Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
3 - Use of Green Technology in Local Government	OPM - DLG, LGAs Support: UTech, UWI	Goals 1, 3				Use of solar powered-street lights and LED Lamps	Solar street lights installed
<b>Goal 7: Jamaica's industry structures embrace eco-efficiency for advancing international competitiveness and moves towards building a green economy</b>							
<b>Flagship Project 24</b>							
<b>Facilitating private investment in industry</b>							
Development of Investment Packages in Sustainable Energy							
1. Development of Investment Packages in Sustainable Energy	PCJ, MOF, Jampro, UDC, NEPA, Factories Corporation	Goals 1, 4	Provide incentives for the development and use of innovative technologies to improve energy efficiencies	2013-2016		Checklist for project development Investment Packages in Energy RE and EE for private investment Technical support given on request  Template for Prefeasibility	Projects identified and incubated Increased FDI and local private investment in EE and RE
<b>Flagship Project 25</b>							
<b>Conduct Study on Green Business Opportunities in Jamaica</b>	MSTEM, MIC, JAMPRO UTech, UWI	Goals1, 4	Develop "green jobs" based on renewable energy resources	2014-2016		Green Jobs Identified	Action Plan for green jobs roll out
<b>Flagship Project 26</b>							
Promotion of ISO 14001 and ISO 50001 in Industry	MSTEM BSJ NEPA	Goals 1.4	Promote the development and implementation of environmental management systems in the manufacturing sector (ISO 14001)  Develop the capacity of local	2013-2016		Training interventions in ISO 14001 and 50001 Technical support given to the private sector to facilitate their transition to eco-efficiencies	At least 10 companies compliant



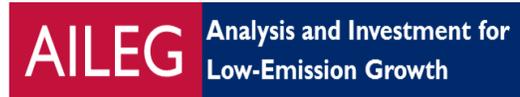
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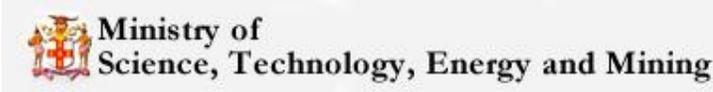
Flagship Project	Responsible Agencies	Contribution to Other Goals	Strategies Addressed	Timeline	Cost	Expected Outcomes	Performance Measurement
			companies to improve their processes and energy efficiencies				
<b>Flagship Project 27</b>							
Advancing Clean Energy in MSMEs and CBOs	MSTEM, PCJ, DBJ, MIC, SBAJ	Goals 1,	Facilitate greater energy efficiency and lower energy costs in all sectors	2013-2016		Energy Audits Training in EE RE Applications	Energy Savings Reduction in carbon footprint
<b>Flagship Project 28</b>							
Sustainable Energy Research Development and Innovation in Industry and Academia	MSTEM, SRC, UTech, UWI		Develop the capacity of local companies to improve their processes and energy efficiencies	2013-2016		Monitoring and assessment of Energy Management Systems and equipment, new fuels	Improved efficiencies



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APPENDIX 3



**WORKSHOP: IDENTIFICATION AND SELECTION OF ENERGY FLAGSHIP PROJECTS, SECOND NEAP (2013-2016)**

June 3, 2013 - Kingston, Jamaica  
INSTRUCTIONS

Below are instructions on completing the Action Impact Matrix (AIM). The AIM will be completed within your small group through consensus on the appropriate score for each cell.

**Scoring**

In order to identify how a proposed project might affect a goal/policy, each cell is assigned a value according to the following guidelines:

<p><u>Scoring Key</u>          -3 = High negative (undesirable) impact/effect          -2 = Medium negative (undesirable) impact/effect          -1 = Low negative (undesirable) impact/effect          0 = No impact/effect          1 = Low positive (desirable) impact/effect          2 = Medium positive (desirable) impact/effect          3 = High positive (desirable) impact/effect</p>
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Here is an example **not** from this workshop to avoid answering bias. If the proposed project is improved forestry management, and the goal/policy is poverty alleviation, the following rationale can be used to provide a score. [+2] Gains: Forestry projects would help in poverty alleviation by providing employment to the rural poor. [-1] Losses: Forestry projects may take away valuable agricultural land which could also generate income for poor people. This results in a total score of +1.

Complete this exercise for each cell until your group reaches the last three rows in green, but do **not** input scores for the column “Row Totals (No CC).” These will be generated automatically later on by the workshop organizers.

Leave the row “Column Totals (No CC Impacts)” and the row “Column Totals ( +CC Impacts)” blank; do **not** input scores here. These will be generated automatically later on by the workshop organizers.



For the row “Impacts of CC,” put in a score using the same Scoring Key as above to identify how climate change might affect a goal/policy. Using another example **not** from this workshop, the impacts of climate change on the goal/policy of poverty alleviation could result in a score of -2, because the poor are disproportionately impacted by the effects of climate change making alleviation efforts more difficult.

Once these cells have been completed, please notify a workshop organizer, and your completed AIM will be tabulated to generate an average final workshop score.

**Color Key**

Remember that cells filled with:

- Light orange  are flagship projects and/or sub-projects that are newly identified since the first National Energy Policy Action Plan (NEAP).
- Dark grey  are projects already in the MSTEM pipeline of policy and programmatic improvements, and will not require in-depth discussion on prioritization.

**Description of Goals/Policies**

To help determine the potential relationship between the flagship projects/sub-projects to the goals/policies, a description of each goal/policy is provided below.

Goal	Title	Description
A	Reducing the price of electricity	Reducing the electricity price will free up capital throughout sectors and socio-economic demographics to allow for greater investment in economic growth activities and improvements in quality of life.
B	Improving Energy Efficiency for competitiveness and savings for industry and consumers	Reduce the cost of doing business through improved policies, practices and technologies to increase energy efficiency and thereby increasing private sector competitiveness.
C	Modernized Energy infrastructure to increase efficiency	Upgrading and/or retrofitting energy infrastructure to increase energy efficiency will reduce the cost of doing business to lead to the reduction in energy prices, and reduce emissions per kWt.
D	Increased Renewable Energy to decrease energy dependence and price fluctuations	Increase the domestic source of energy through the increased use of renewable energy source through solar, wind, biogas, waste-to-energy, etc. to reduce dependence on foreign imports and foreign price fluctuations. This will ultimately lead to reduced energy prices and a more attractive and stable business environment.
E	Government as leader in Energy Conservation	As a leader in energy conservation, the government can provide a stable, consistent and progressive regulatory environment that provides standards, guidance and assistance on energy conservation to achieve the other goals/policies listed here.



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<b>Goal</b>	<b>Title</b>	<b>Description</b>
F	Improving Governance/regulatory framework to increase the energy sector's efficiency and coverage	Ensure strong and clear governance and a regulatory framework to provide a transparent, participatory, accountable and highly capable system.
G	Contribute to global efforts to combat Climate Change	Policies and projects are aligned with best practices to mitigate and adapt to climate change.



**APPENDIX 4**

**LIST OF PARTICIPANTS**

<b>No.</b>	<b>NAME</b>	<b>ORGANIZATION</b>	<b>TELEPHONE No.</b>	<b>EMAIL ADDRESS</b>
1	Yvonne Barrett Edwards	Ministry of Science, Technology, Energy and Mining	929 8990	yedwards@mstem.gov.jm
2	Christopher Brown	Development Bank of Jamaica	929 4000	cbrown@dbankjm.com
3	Garfield Daley	Rural Electrification Programme	933 5504 933 0631	gdaley@rep.gov.jm
4	Charles Douglas	Jamaica Productivity Centre	948 6168 948 4611	Charlesdouglas.jpc@cwjamaica.com
5	Winston Robotham	Office of Utilities Regulation	968 6053	wrobotham@our.org.jm
6	Lennox Williams	Planning Institute of Jamaica	960 9339 906 4463	Lennox_williams@pioj.gov.jm
7	Dianna Gillespie	Abt Associates	-	Dianna_Gillespie@abtassoc.com
8	Karen McDonald Gayle	Workshop Facilitator	960 6744	kmcdonaldgayle@efj.org.jm
9	Ruth Potopsingh	AILEG Energy Policy Expert	372 9386	ruthpotopsingh@gmail.com



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# ANNEX D: SECOND AIM WORKSHOP, JUNE 10, 2013



Ministry of  
Science, Technology, Energy and Mining



**AILEG**

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**ANALYSIS AND INVESTMENT IN LOW EMISSIONS GROWTH (AILEG) PROJECT**  
**Action Impact Matrix (AIM) Prioritization Workshop**  
**National Energy Action Plan – 2013 to 2016**  
**Friday, June 14, 2013 - 8:30 a.m. to 2:00 p.m.**  
**Knutsford Court Hotel**  
**11 Ruthven Road, Kingston 10**

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## 1.0 BACKGROUND AND CONTEXT

The AILEG project is the first initiative in a three year programme for enhancing capacity for low emissions development strategies (EC-LEDS) in Jamaica. AILEG is providing technical assistance to the Government of Jamaica and other stakeholders to analyze low emissions scenarios and integrate them into economic development strategic planning and implementation, as well as conducting economic analysis to promote investment in low emissions technologies and projects. AILEG is working in collaboration with the Ministry of Science, Technology, Energy & Mining (MSTEM), the Ministry of Water, Land, Environment and Climate Change (MWLECC) and the Planning Institute of Jamaica (PIOJ).

The development of the National Energy Action Plan (NEAP) 2013 to 2016 is one of the priority areas of support that the AILEG project is providing for the development of LEDS in Jamaica. In 2010 Parliament approved the National Energy Policy and the outputs of the Policy are being managed through the implementation of a series of seven three-year action plans. The NEAPs will contain a continuum of actions that will be geared towards achieving the Policy objectives. The projects that were developed for consideration for the second NEAP were informed by global trends in energy, the priorities expressed by Minister Philip Paulwell, alignment with the Vision 2030 National Development Plan Medium term Framework (MTF) 2012-2015, the GOJ Fiscal Plan 2013-2016 and recommendations from a number studies undertaken specifically for MSTEM.



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## **2.0 RATIONALE**

Through this workshop the AILEG project is seeking to engage a broad grouping of stakeholders within the energy sector in the selection and prioritization of projects for NEAP 2013 to 2016. This participatory approach is intended to facilitate dialogue between stakeholders and MSTEM in order to receive inputs that will reflect the priorities of the Ministry as well as those of the stakeholders who represent varying interests within the energy sector. The aim is to develop a plan that is actionable and that will receive the buy-in and support of sector participants, in order to achieve the objectives of the National Energy Policy.

## **3.0 WORKSHOP OBJECTIVES**

1. Present the recommended flagship projects for NEAP 2013 to 2016
2. Obtain stakeholder feedback on the selection and prioritization of these projects using the Action Impact Matrix (AIM) methodology
3. Solicit ideas for other project interventions that have transformative potential for the energy sector

## **4.0 PARTICIPANTS**

Participants were mainly a select group of stakeholders who represented various energy sub-sectors including government ministries and agencies, academia, private sector companies and utilities. Invitees were selected based on the goals that the NEAP will seek to achieve and the nature of the recommended flagship projects. The number of participants who attended exceeded expectations, so the sub-sectors were well represented. The list of participants was made as broad as possible to achieve participatory planning objectives and enhance buy-in from key stakeholders. The participants engaged in lively and targeted discussions that were pertinent and provided insight for prioritizing the projects.

It was interesting to note that none of the participants were aware of the first NEAP. Mrs. Barrett-Edwards indicated that although the individuals in attendance were not familiar with the NEAP their organizations would have been engaged in the consultations which accompanied the development of the first Plan.

## **5.0 METHODOLOGY/APPROACH**

The AIM was developed using the list of forty-eight recommended flagship projects on the X-axis and five recommended development policy goals for the Y-axis variables. Eighteen of the forty-five recommended flagship projects are carried over from the first NEAP, and are in various stages of progress. Nine of the recommended flagship projects are new from the first NEAP, but are already within the MSTEM pipeline. The MSTEM representatives provided updates and information on these projects that would assist participants in making their decisions. The Y-axis variables were developed by the AILEG Policy Development Expert and MSTEM, and are specifically targeted towards achieving the development goals outlined in the Vision 2030 Jamaica – National Development Plan. Development policy goal A was changed from “Reducing the price of energy” to “Reducing the cost of energy” and Development policy goal E was changed from “Contribute to global efforts to combat climate change” to ‘Contribute to efforts to reduce carbon emissions locally”, based on the recommendation of the participants. The final list of development policy goals used included:



1. Goal A : Reducing the cost of energy
2. Goal B : Improving energy efficiency for competitiveness and savings for industry and consumers
3. Goal C : Modernize &/or expand energy infrastructure to increase efficiency
4. Goal D : Increased renewable energy to decrease energy dependence and price fluctuations
5. Goal E : Contribute to efforts to reduce carbon emissions locally

Participants were given a scoring rubric of A to G to rate the contribution that each flagship project would make to the achievement of the development policy goals. Participants scored individually using Turning Point, which is a polling software. The scores were recorded in alpha format and converted to a numeric format after the workshop. The final AIM matrix developed is presented in Attachment 1.

In her opening remarks, Mrs. Barrett Edwards developed a context for the prioritization workshop by providing a background and brief history of the NEAP development process. The prioritization activity was led by a facilitator, and the AILEG Policy Development Expert and representatives from MSTEM provided guidance, clarification and updates on projects as necessary. The prioritization session was followed by an invitation to participants to provide suggestions for flagship projects that they deemed to be most critical for transforming the energy sector. The recommendations will be discussed later with Hon. Minister Philip Paulwell and the Permanent Secretary in MSTEM.

Due to the number of projects and the limited time frame for the workshop, projects 29 to 37 were not reviewed as they are specific to the Ministry and form a part of its legislative programme of work. Projects 47 and 48 were also not discussed as there were some possible overlaps with other projects. Participants were invited to submit their comments on the scores after the workshop.

**6.0 COMMENTS MADE BY PARTICIPANTS ON THE RECOMMENDED PROJECTS**

GOAL No.	SUB-PROJECT No.	PROJECT NAME	COMMENTS
1	2	Enforcement of Jamaica Building Code	The code is expected to be promulgated within the current year and will apply to new construction only.
1	4	Expansion of the Appliance Labeling and Testing Programme	Bureau of Standards Jamaica (BSJ) does not have the capacity to do all the testing that is required. At present, testing and labeling is only being done for refrigerators. However, there is a current World Bank funded project that will allow the BSJ to establish 2 new testing chambers and MSTEM is assisting the Bureau to undertake an extensive labeling and public education programme. The



GOAL No.	SUB-PROJECT No.	PROJECT NAME	COMMENTS
			implementation of this project will be done under NEAP 2013-2016.
1	5	Energy Saving Compact Fluorescent Lamps Project	LEDS cannot be included in the project as it is intended to complete activities that were started under the Cuban Light Bulb Project.  The word “constituencies” will be removed from the expected outcomes and the scope of the project will be redefined.
1	6	Development of Energy Services Companies (ESCOs)	The proposal is for work to be done through Jamaica Productivity Centre (JPC) to build the ESCO sub-sector. JPC, through an EU funded project, will conduct capacity building training for the sub-sector. Through the training, ESCOs will be able to perform energy audits and make recommendations for renewable energy (RE) and energy efficiency (EE) systems. Three financing strategies can be used: the client, the ESCO or an independent financial institution. Energy audit services have not had much uptake in the past as companies want to see financial benefits upfront and EE/RE retrofitting does not usually provide an immediate positive financial return.
1	7	Energy Efficiency and Conservation Programme for NWC	The NWC has received IDB funding to improve its infrastructure. This infrastructure programme could be expanded to include EE retrofits that will reduce losses.
1	8	Energy Conservation and Renewable Energy and Efficiency Technology Training Programme with HEART NTA and Other Relevant Training Institutions	Include SRC, Ministry of Education, teachers colleges and universities in all education projects.  The programme should include a strong technical component.
1	10	Public Education Energy Efficiency and Conservation Campaign	This is included in the National Energy Policy as it is seen as vital for sustainability of EE and RE efforts.
1	11	Energy Conservation in the Transport Sector	The issue of transportation has been on the table for a considerable length of time. However, momentum has increased and some solutions are



GOAL No.	SUB-PROJECT No.	PROJECT NAME	COMMENTS
			<p>being fast tracked for implementation.</p> <p>Jamaica has a National Transportation Plan. However, dialogue among the implementing agencies has been weak. The intention is to improve the inter-agency communication under NEAP 2013 to 2016.</p>
1	12	Demand Side Management by Public Utilities	<p>The Jamaica Public Service Company has been implementing demand side management (DSM) initiatives for over 30 years. However, the programme needs to be more vibrant. DSM showed good results when it was actively pursued. However, the programme has been scaled down and losses have increased. DSM will reduce losses and consequently, the price of electricity will be reduced. DSM programmes will also give consumers greater control/management of their energy use and cost.</p>
2	13	Petrojam Oil Refinery Upgrade	<p>Petrojam pricing mechanisms are not usually available for public scrutiny. Therefore, the consumer would not know how the investment in Petrojam will affect prices.</p> <p>The upgrade at the refinery will increase the amount of premium product obtained from a barrel of oil from 50% to 80%. The upgrade would also lead to cleaner fuels being produced as well as the production of more value added products and petcoke. These benefits would make the project economically feasible as they would reduce imports.</p>
2	14	Energy Management Programme in Refinery and Bauxite & Alumina Sector	<p>Energy management systems would be linked to ISO 50001 and this would lead to reductions in energy consumption.</p>
2	15	Improvement of Electricity Distribution and Transmission Efficiency	<p>Government and private sector organizations should be engaged to help reduce electricity theft.</p>



GOAL No.	SUB-PROJECT No.	PROJECT NAME	COMMENTS
			The issue of technical losses is being addressed.
2	16	Power Sector Development and Capacity Replacement	The Office of Utilities Regulation (OUR) has already invited bids for the 115MW renewable energy plant, so this project represents an objective that the government wants to see implemented.
2	17	Develop Smart Grid Road Map for Jamaica and Facilitate its Implementation	This project has already started.
3	20	Increase in Wind Energy Generation Capacity	The agreement under the current IDB agreement is for wind mapping data to be made available to all sectors and at no cost.  The tariff issue needs to be addressed before a determination can be made on whether or not this project should be included in the list of flagships.
3	25	Engage the Ministry of Education and the Teaching Fraternity in the Development of a Renewable Energy and Energy Efficiency Curriculum Including Practical Demonstrations	Include SRC, Ministry of Education, teachers colleges and universities in all education projects.
4	26	Petcoke Cogeneration	JPS Co. has signed a legal agreement with Petrojam for the purchase of petcoke. However, this project is dependent on the refinery upgrade.
4	27	Waste-to-Energy Project	Tipping fees are a hindrance to getting this project off the ground.
4	28	Oil and Gas Exploration Programme	This is an on-going activity and is carried over from NEAP 1. Seismic surveys have been done and blocks were assigned to 3 companies that were contracted to drill exploration wells. They failed to deliver so a new call for proposals is now out.
7	46	Facilitate Clean Energy Projects in MSMEs and CBOs through partner agencies	The project is designed specifically to target the mentioned groups as many of these organizations are struggling and energy cost is one of their major burdens. The goal of the project is to increase productivity by addressing EE & RE



GOAL No.	SUB-PROJECT No.	PROJECT NAME	COMMENTS
			through grant-based activities.  Environmental Foundation of Jamaica is to be added to the list of responsible agencies for this project.
8		Regarding Renewable Energy Sources	Geothermal should be added. Two researches have been done that show that Jamaica has potential for geothermal energy

Participants raised the issue that several of the recommended flagship projects have been on the table for a considerable length of time; up to 15 years. They wanted to know what would make the difference at this time under the NEAP. The MSTEM representatives provided updates that demonstrated that work is in progress to get these projects off the ground, so if selected, they would stand a good chance for implementation. Additionally, financing for some of the NEAP 1 projects was received late in the term of the Action Plan so the financing is already in place for implementing them under the second NEAP.

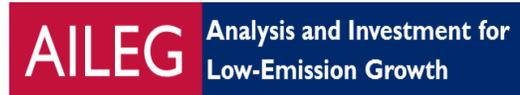
### 7.0 SUGGESTIONS MADE BY PARTICIPANTS FOR NEW FLAGSHIP PROJECTS

The participants made the following suggestions for high priority flagship projects:

1. Expanding uptake by the Development Bank of Jamaica (DBJ) and National Housing Trust (NHT) of the revolving facility for EE and RE financing in the private and residential sectors
2. Energy efficiency and conservation project implementation
3. Demand side management by public utilities
4. Improvement of electricity distribution
5. Development of energy services companies (ESCOs)
6. Generation expansion plan and long-term planning in the energy sector
7. Waste-to-energy project
8. Promotion/implementation of ISO 14001 and 50001 in industry
9. Develop smart grid roadmap for Jamaica and facilitate its implementation
10. 360 MW project
11. Put infrastructure in place to achieve energy diversification. E.g. Establish an LNG logistics hub
12. Establish net metering and wheeling system
13. Research and development in energy through local universities
14. Develop and Implement EE and RE curriculum for schools
15. Legislation – Development of an Energy Act



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## **8.0 CLOSING COMMENTS MADE BY MR. FITZROY VIDAL, PRINCIPAL DIRECTOR OF ENERGY IN MSTEM**

Until recently, energy was not mentioned in any government ministry and this development area is still struggling to get funding from central government to finance developments that are necessary. Now there is a policy in place and the first Action Plan was approved, but the Ministry struggled to find funding partners for some of the recommended actions. Some have been financed, but regrettably, some have to be carried forward as even when funding is approved spending is sometimes curtailed because of fiscal challenges. The participatory process that is being undertaken to develop the second NEAP is a big step towards including stakeholders in decision-making for national development. The Ministry hopes that stakeholders will continue their involvement by contributing towards implementation of Plan and working through their lobby groups for continued prioritization of their interests.

The AILEG Policy Expert and the Workshop Facilitator thanked participants and advised that they would get feedback on the exercise. Any questions were to be sent to their email addresses which were provided.



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APPENDIX 1

 **Ministry of  
Science, Technology, Energy and Mining**



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**WORKSHOP: SELECTION AND PRIORITIZATION OF ENERGY FLAGSHIP PROJECTS,  
SECOND NEAP (2013-2016)  
June 14, 2013 - Kingston, Jamaica  
Knutsford Court Hotel  
Leeward Suite**

**Agenda**

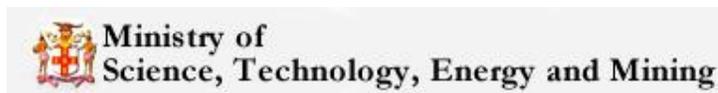
Welcome and Opening Remarks	Dr. Ruth Potopsingh – AILEG Energy Expert
Remarks	Mrs. Yvonne Barrett Edwards Director of Energy Economics & Planning – MSTEM, Project Focal Point
Workshop Objectives and Approach Used for Identifying Draft List of Flagship Projects	Dr. Ruth Potopsingh
Discussion on AIM Approach and Methodology	Mrs. Karen McDonald Gayle – AILEG Facilitator
Workshop Activity	
Coffee Break	
Workshop Activity	
Lunch	
Final Discussion and Closure	



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APPENDIX 2



**ANALYSIS AND INVESTMENT IN LOW EMISSIONS GROWTH (AILEG) PROJECT**  
**Action Impact Matrix (AIM) Prioritization Workshop**  
**National Energy Action Plan – 2013 to 2016**  
**Friday, June 14, 2013 - 8:30 a.m. to 2:00 p.m.**  
**Knutsford Court Hotel**  
**11 Ruthven Road, Kingston 10**

**ATTENDANCE REGISTER**

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27	Fitzroy Vidal	Ministry of Science, Technology, Energy & Mining	929 8990-9	fvidal@mstem.gov.jm
28	Yvonne Barrett Edwards	Ministry of Science, Technology, Energy & Mining	929 8990-9	yedwards@mstem.gov.jm



**PHOTO GALLERY**



***Energy Policy Consultant (Dr. Ruth Potopsingh) Making Presentation to Participants***



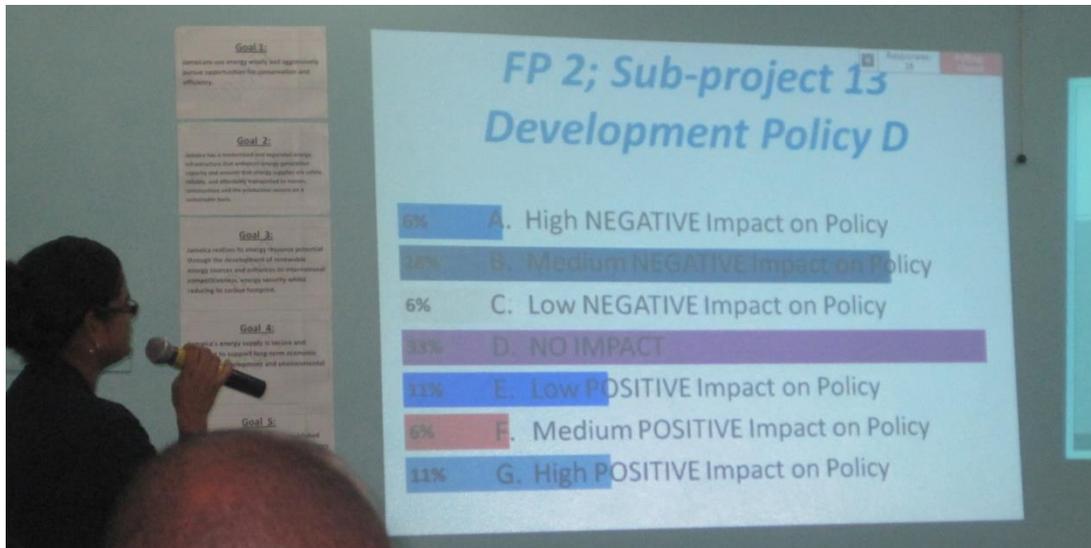
***Participant Expressing Views during Workshop Session***



**PHOTO GALLERY CONTD.**



**Workshop Scoring Session**



**Scoring Rubric Used for Assessing Impacts of Sub-projects on Development Policy Goals**



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## ANNEX E: FINAL AIM WITH AVERAGE SCORES FROM FIRST AND SECOND WORKSHOP

Based upon feedback from the first workshop, we added two projects to the preliminary list. Under the existing Project 23, “Increasing energy conservation and efficiency in the public sector,” was added Sub-project 23.4, “Development of Measurement Data and Applied Knowledge for Project Selection.” We also added Project 28, “Sustainable Energy Research Development and Innovation in Industry and Academia,” and Sub-project 28.1, “Identify lessons learned and frameworks.” However, participants did not score these at either workshop because they were added at the end of the first workshop, and time was short at the second workshop.

Development Priority A was changed from “Reducing the price of energy” to “Reducing the cost of energy,” and Development Priority E was changed from “Contribute to global efforts to combat climate change” to “Contribute to efforts to reduce carbon emissions locally.”

The “Overall Perception” step was not included in the second workshop due to time. Similarly, two more development priorities were removed from the second workshop. These were: “Government as leader in Energy Conservation,” and “Improving governance/regulatory framework to increase the energy sector’s efficiency and coverage.”



Development Policies									
A	B	C	D	E	F	G			
Reduce the price of energy	Improve Energy Efficiency for competitiveness and savings for industry and consumers	Modernize and/or expand Energy infrastructure to increase efficiency	Increase Renewable Energy to decrease energy dependence and price fluctuations	Contribute to efforts to combat climate change	Government as leader in Energy Conservation (Workshop 1 Only)	Improving Governance/regulatory framework to increase the energy sector's efficiency and coverage (Workshop 1 Only)	RO W TO TA L	Pri ority in Draf t 2nd NEA P	Overall Percep tion (Work shop 1 Only)

**Proposed Projects**

Type	Goal	Project	No.	Sub-Project									
G1: Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency.													
New	I	P 1: Developing Energy Efficiency (EE) Potential	1	SP 1.1 - Expanding uptake by the DBJ and NHT of the revolving facility for EE and RE financing in the private and residential sectors (modified from 1 <sup>st</sup> NEAP)	0.62	2.35	1.52	2.35	0.93	0	0	7.77	3
1st NEAP	I	P 1: Developing Energy Efficiency (EE) Potential	2	SP 1.2 - Enforcement of Jamaica Building Code	1	1.76	0.79	0.82	1.13	1.50	2.25	5.5	2
New	I	P 1: Developing Energy Efficiency (EE) Potential	3	SP 1.3 - Implementation of Energy Efficiency Programmes for Street Lighting in Communities	1.54	1.38	1.23	1.41	1.32	3	0	6.88	3
1st NEAP	I	P 1: Developing Energy Efficiency (EE) Potential	4	SP 1.4 - Expansion of the Appliances Labelling and Testing Programme	1.08	1.92	1.12	0.46	1	0.25	1.5	5.58	3



Ist NEAP	I	P 1: Developing Energy Efficiency (EE) Potential	5	SP 1.5 - Energy Saving Compact Fluorescent Lamps (CFL) Project	1	1.42	0.4	0.35	1.08	1.25	0.75	4.24		2.25
New	I	P 2: Development of Energy Services Companies (ESCOs)	6	N/A	0.54	1.62	1	1.21	1.08	0	3	5.44	14	3
New	I	P 3: Energy Efficiency and Conservation Programme for the NWC	7	N/A	1.40	1.63	1.16	0.68	1.15	1.2	0.8	6.02	12	3
New	I	P 4: Energy Conservation and Renewable Energy and Efficiency Technology Training Programme with HEART NTA and other relevant training institutions	8	N/A	0.72	1.25	0.54	1.12	0.88	1.2	0.5	4.5	6	2
New	I	P 5: Introduction of Energy Management Programmes using ISO 50001	9	N/A	0	2.5	0.25	0.75	0.75	0.33	1.25	4.25		2
New	I	P 6: Public education Energy Efficiency and Conservation Campaign	10	N/A	1.29	1.64	0.48	0.88	0.96	0.8	0.2	5.24	5	3
Ist NEAP	I	P 7: Energy Conservation in the Transport Sector	11	N/A	1.45	1.59	0.52	0.43	1.27	0.5	0.5	5.27		2.75
New	I	P 8: Demand side Management by Public Utilities	12	N/A	1.09	1.62	0.73	0.68	1.28	0	0.25	5.39		2



G2: Jamaica has a modernized and expanded energy infrastructure that enhances energy generation capacity and ensures that energy supplies are safely, reliably, and affordably transported to homes, communities, and the productive sectors on a sustainable basis.														
Ist NEAP	2	P 9: Petrojam Oil Refinery Upgrade	13	N/A	2	2.33	3	-2	1.67	0	0.33	7	2.83	
Ist NEAP	2	P 10: Energy Management Programme in Refinery and Bauxite & Alumina Sector	14	N/A	0.83	1.33	1.35	0.54	0.3	0	0	4.35	3	
Ist NEAP	2	P 11: Improvement of Electricity Distribution and Transmission Efficiency	15	N/A	1.96	2.08	2.13	-0.13	1	0	1	7.04	2	3
Ist NEAP	2	P 12: Power Sector Development and Capacity Replacement	16	N/A	2.33	2.46	2.75	1.40	1.8	0	2	10.74	1	3
Ist NEAP	2	P 13: Jamaica's Renewable Energy Programme	17	SP 13.1 - Develop Smart Grid Road Map for Jamaica and Facilitate Its Implementation	1.20	2.00	2.25	1.75	1	0	0.5	8.2	16	1.67
Ist NEAP	2	P 13: Jamaica's Renewable Energy Programme	18	SP 13.2 - Generation Expansion Plan & Long-term Planning in the Energy Sector	1.95	1.75	2.15	1.14	1.39	0.25	1.75	8.37	11	3
G3: Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness and energy security while reducing its carbon footprint.														
New	3	P 14: Jamaica's Renewable Energy Programme	19	SP 14.1 - Implementation of Hydro Power Capacity	2.44	1.96	1.92	2.45	2.12	0	1.83	10.9	13	3
New	3	P 14: Jamaica's Renewable Energy Programme	20	SP 14.2 - Increase in Wind Energy Generation Capacity	2.44	2.13	2.05	2.67	2.25	0	1.83	11.53	4	3
Ist NEAP	3	P 14: Jamaica's Renewable Energy Programme	21	SP 14.3 - Increased Application of Solar (Photovoltaic and Thermal) Technologies	2.12	1.96	1.75	2.52	2.24	0	1.83	10.59	7	3



New	3	P 15: Application of bio digestion for methane production in the housing, health and agricultural sectors	22	N/A	1.32	1.54	0.46	1.08	0.96	0.33	0	5.36	3	
New	3	P 16: Increase application of Biomass and Biofuels	23	SP 16.1 Cogeneration from bagasse	1.4	1.41	1.04	1.61	0.87	0	0.8	6.33	2.33	
New	3	P 16: Increase application of Biomass and Biofuels	24	SP 16.2 Development of Biofuels industry	1.32	1.19	1	1.68	1.45	0	0.8	6.64	2	
New	3	P 17: Engage the Ministry of Education and the Teaching Fraternity in the development of renewable energy and energy efficiency curriculum including practical demonstration	25	N/A	0	1.4	0.6	1.8	0.8	1.6	0.4	4.6	3	
G4: Jamaica's energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability.														
1st NEAP	4	P 18: Diversification of Jamaica's Energy Supply	26	SP 18.1 - Petcoke Cogeneration (dependent on the refinery upgrade)	2.30	3	0	-2.80	-1.5	0	0	1	3	
1st NEAP	4	P 18: Diversification of Jamaica's Energy Supply	27	SP 18.2 - Waste-to-energy project	0.94	1.06	0.89	1.12	0.29	0	0	4.3	3	
1st NEAP	4	P 18: Diversification of Jamaica's Energy Supply	28	SP 18.3 - Oil and Gas Exploration Programme	1.56	1	0.83	-0.22	-0.89	0	1	2.28	3	
G5: Jamaica has a well-defined and established governance, institutional, legal, and regulatory framework for the energy sector that facilitates stakeholder involvement and engagement														
New	5	P 19: Improved regulatory and institutional governance of the sector	29	SP 19.1 - Promulgation of Energy Sector Policies	1	2.33	0.5	2	1	2	2.67	6.83	9	3



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New	5	P 19: Improved regulatory and institutional governance of the sector	30	SP 19.2 - Institutional strengthening and improved governance in Rural Electrification Programme	0	1	2	1.67	0.67	0.33	2.33	5.33	15	3
New	5	P 19: Improved regulatory and institutional governance of the sector	31	SP 19.3 - Strengthening of the Legislative and Regulatory Framework in specific areas for enhanced efficiency and better governance	0.67	1.67	2	3	0.67	1.5	3	8	8	3
New	5	P 19: Improved regulatory and institutional governance of the sector	32	SP 19.4 - Business Process Review of the Government Energy Inspectorate	0	1.5	1	0.5	0.5	3	2.5	3.5		0
New	5	P 19: Improved regulatory and institutional governance of the sector	33	SP 19.5 - Regulatory Framework for Liquefied Natural Gas (LNG)	2	1.67	2	-0.67	0.67	0	3	5.67		3
New	5	P 19: Improved regulatory and institutional governance of the sector	34	SP 19.6 - Expansion of the regulatory mandate of OUR	1.67	1.67	0.67	1.00	0.67	0.67	2.67	5.67		3
New	5	P 20: Net Metering and Wheeling System	35	N/A	0.33	1.67	1.67	2.00	0.67	0	2	6.33		3
New	5	P 21: Comprehensive Review of Energy Pricing - Fuels and Electricity	36	N/A	3	2.67	1.33	0.33	0.67	0.33	2.33	8	10	3



New	5	P 22: Establish a National Energy Efficiency Institution (NEEI) in Jamaica	37	N/A	0.33	1.33	1.33	1.33	0.67	1.33	1.67	5		3
G6: Government ministries and agencies are a model/leader in energy conservation and environmental stewardship in Jamaica.														
Ist NEAP	6	P 23: Increasing energy conservation and efficiency in the public sector	38	SP 23.1 - Energy Efficiency and Conservation Project Implementation	0	1	0.17	0	0.8	3	3	1.97		3
Ist NEAP	6	P 23: Increasing energy conservation and efficiency in the public sector	39	SP 23.2 - Environmental Stewardship Policy Implementation		1.25	0.50	0.5	0.88	1.25	1.5	3.13		3
Ist NEAP	6	P 23: Increasing energy conservation and efficiency in the public sector	40	SP 23.3 - Develop a framework for energy performance contracting with the public sector to mainstream ESCOs	0	2.4	1	1.4	0.6	1.6	2	5.4		3
New	6	P 23: Increasing energy conservation and efficiency in the public sector	41	SP 23.4 Development of Measurement Data and Applied Knowledge for Project Selection										
New	6	P 24: Facilitating private investment in sustainable energy	42	N/A	3	3	3	3	1.17	0	2	13.17	3	3



New	6	P 24: Facilitating private investment in sustainable energy	43	SP 24.1 - DBJ use of energy indicators for private sector (SMEs) benchmarking and improvement										
G7: Jamaica's industry structures embrace eco-efficiency for advancing international competitiveness and move toward building a green economy.														
New	7	P 25: Conduct Study on Green Business Opportunities in Jamaica	44	N/A	0.88	1.13	0.67	1.24	1.25	0.75	0.25	5.16		1.8
New	7	P 26: Promotion of ISO 14001 and ISO 50001 in Industry	45	N/A	0.76	1.89	1.16	0.63	1.25	0.8	0.4	5.7		3
New	7	P 27: Facilitate Clean Energy projects in MSMEs and CBOs through partner agencies	46	N/A	0.94	1.89	0.95	1.33	1.33	0.4	0.2	6.45		3
New	7	P 28: Sustainable Energy Research Development and Innovation in Industry and Academia.	47	N/A	0.33	1.67	1.33	1.33	1.33	0	0	6		3
New	7	P 28: Sustainable Energy Research Development and Innovation in Industry and Academia.	48	SP 28.1 Identify lessons learned and frameworks										
<b>COLUMN TOTAL</b>					<b>52.14</b>	<b>76.65</b>	<b>53.66</b>	<b>43.99</b>	<b>42.43</b>	<b>29.18</b>	<b>56.6</b>			



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# ANNEX F: FOCUS GROUP CONSULTATION



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**ANALYSIS AND INVESTMENT IN LOW EMISSIONS GROWTH (AILEG) PROJECT**  
**National Energy Action Plan (NEAP) Focus Group Consultation**  
**Friday, June 28, 2013 - 9:00 a.m. to 12:00 noon**  
**Environmental Foundation of Jamaica Boardroom**  
**1b Norwood Avenue, Kingston 5**

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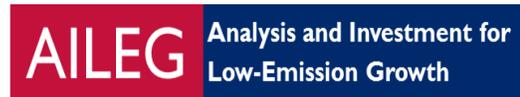
## 3.0 BACKGROUND AND CONTEXT

The AILEG project is the first initiative in a three year programme for enhancing capacity for low emissions development strategies (EC-LEDS) in Jamaica. AILEG is providing technical assistance to the Government of Jamaica and other stakeholders to analyze low emissions scenarios and integrate them into economic development strategic planning and implementation, as well as conducting economic analysis to promote investment in low emissions technologies and projects. AILEG is working in collaboration with the Ministry of Science, Technology, Energy & Mining (MSTEM), the Ministry of Water, Land, Environment and Climate Change (MWLECC) and the Planning Institute of Jamaica (PIOJ).

The development of the second National Energy Action Plan (NEAP2) 2013 to 2016 is one of the priority areas of support that the AILEG project is providing for the development of LEDS in Jamaica. In 2010 Parliament approved the National Energy Policy and the outputs of the Policy are being managed through the implementation of a series of seven three-year action plans. The NEAPs will contain a continuum of actions that will be geared towards achieving the Policy objectives, which were formulated from the goals articulated in the Vision 2030 Jamaica – National Development Plan. The projects that were developed for consideration for the second NEAP were informed by global trends in energy, the priorities expressed by Minister Philip Paulwell, alignment with the Vision 2030 National Development Plan Medium term Framework (MTF) 2012-2015, the GOJ Fiscal Plan 2013-2016 and recommendations from a number studies undertaken specifically for MSTEM.



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#### **4.0 RATIONALE**

Through this focus group consultation the AILEG project sought to engage a select group of key stakeholders in the final prioritization of projects for developing the NEAP2. The original list of forty-eight recommended projects was prioritized in two previous workshops held on June 3 and 14, 2013. The results of those prioritization exercises were combined with other project selection criteria and a final list of sixteen projects was drafted by the consultant for discussion in terms of their inclusion in the NEAP2. The goal of this consultation was to engage key stakeholders in a final confirmation and prioritization of the sixteen selected projects.

#### **3.0 CONSULTATION OBJECTIVES**

To engage stakeholders in a final prioritization of the flagship projects that will be included in the NEAP 2013 to 2016.

#### **4.0 PARTICIPANTS**

Participants were a select group of stakeholders who had participated in the June 14 AIM Prioritization workshop. They represented various energy sub-sectors including government ministries and agencies, private sector companies and utilities. The participants engaged in lively and targeted discussions that provided insight and led to the creation of a final list of projects in order of prioritization for the NEAP2. Annex A provides a full participant list.

#### **5.0 METHODOLOGY/APPROACH**

The Energy Policy Consultant, Dr. Ruth Potopsingh, presented an overview of the AILEG project, after which a summary of the achievements of the first NEAP was presented. The process that had been followed to date in identifying and prioritizing projects for the NEAP2 was then outlined. The ensuing session was an engagement of the participants in a review and prioritization of the final sixteen flagship projects. The outline of the consultant's presentation is presented in Appendix I:

- ❖ Project Overview
- ❖ Brief Overview of NEAP 2009-2012
- ❖ Process for Identifying and Selecting Flagship Projects
- ❖ Process for Prioritization of Projects for the second NEAP
- ❖ Review Process for Recommended Priority Projects and Flagship Projects

#### **6.0 OVERVIEW OF NEAP 2009-2012**

Of the thirty-one (31) projects in the first NEAP, three (3) were completed, twenty-six (26) are in various stages of implementation and two were not started. The projects that were completed are:

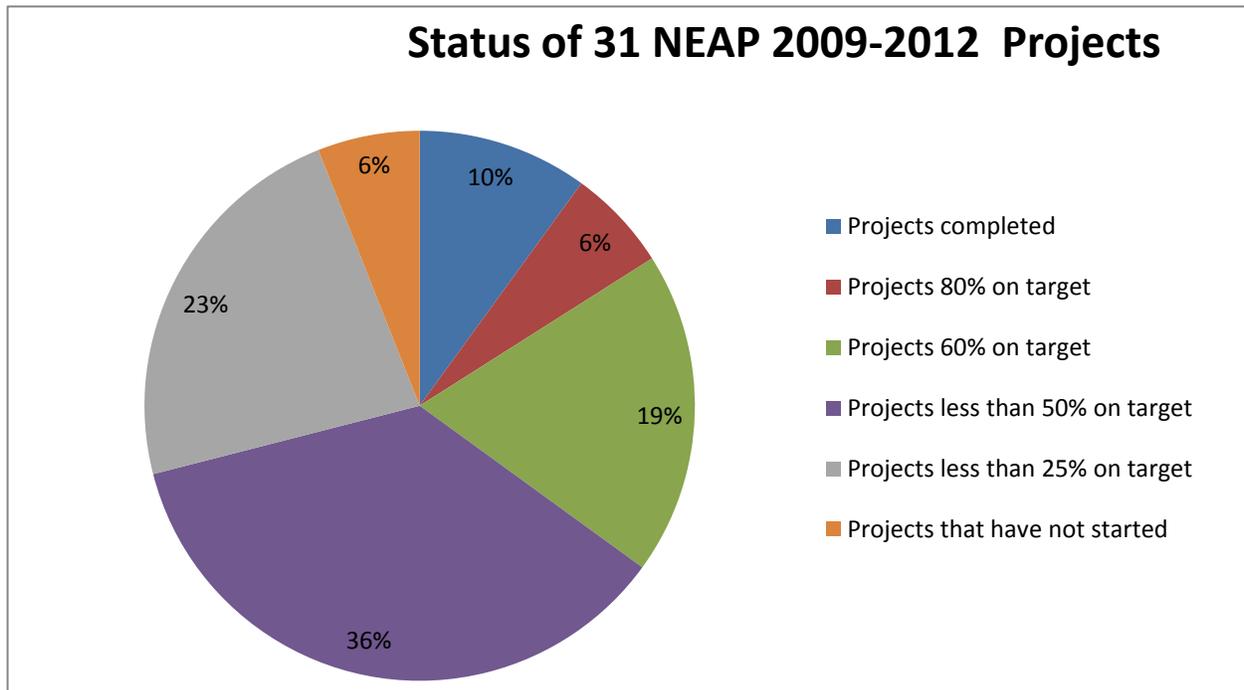
- ❖ Expansion of Wigton Wind Farm;
- ❖ Establishment of the OLADE Sub Regional Office; and
- ❖ Launch of the National Energy Initiative Clearinghouse.



The two projects that were not started were (i) the Petrojam Upgrade and (ii) Generation Expansion.

Implementation Summary for the 31 Projects

- ❖ 6% of the projects are 80% on target
- ❖ 19% are 60% on target
- ❖ 36% are less than 50% on target
- ❖ 25% have not been started or are less than 25% on target
- ❖ Approximately 63% of projects are below expected completion stage



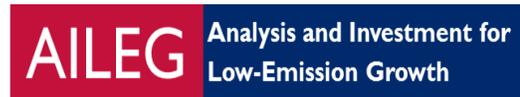
**7.0 PROCESS FOR DEVELOPING THE NEAP2 (2013-2016):**

The key steps taken in developing the Action Plan were:

- ❖ Desk/literature review of relevant plans, policies, protocols, regulations, reports and data sets.
- ❖ Gap analysis of the achievements of the first NEAP. The analysis included lessons learnt, achievement status, challenges and recommendations on approaches for NEAP2.
- ❖ Identification of flagship projects and programmes for NEAP2. The identification process was driven by consultations with MSTEM on sector priorities. The consultations resulted in the selection of projects to be brought forward from the first NEAP as well as the identification of new areas of interest.



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- ❖ Key stakeholder identification (with MSTEM) and consultations in which the Action Impact Matrix (AIM) methodology was used to select and prioritize projects based on their potential for achieving a list of development goals.

The participatory elements of the process reflected a shift from government-centered planning to the involvement of stakeholders in planning processes. Additionally, the projects prioritized indicated a shifting paradigm from government implementation to private sector driven implementation.

Forty-eight (48) projects were recommended for prioritization at the beginning of the process by the consultant based on her dialogue with MSTEM and her research.

Several criteria were then used to select the list of sixteen (16) projects for the final prioritization activity. Selection criteria included:

- ❖ Stakeholder responses at the AIM Prioritization Workshops (June 3 and 14);
- ❖ The Government of Jamaica's Letter of Intent to the International Monetary Fund (April 17, 2013);
- ❖ The priorities within government ministries and agencies;
- ❖ Assessments of whether or not the projects were implementable; and
- ❖ Whether or not the necessary regulatory framework and financial resources would be in place to support implementation.

It was noted that in the AIM scoring there were projects which received high scores but which are not reflected in the list of selected projects. This is due to the fact that they are projects which are currently being implemented and have reached an advanced stage in their development. Examples include "Energy Efficient Street lighting" and "Implementation of the National Building Code". These projects are identified in an Annex to the Draft NEAP2 Report. In addition, there are two projects which were not highly rated in the AIM prioritization process, but which were deemed to be critical for transforming the energy sector, such as the "National Energy Efficiency and Conservation Education Programme". It was considered by the consultant to be a key strategic mechanism for success in lowering the oil import bill, achieving efficiencies in businesses and throughout all sectors and a low hanging fruit which can benefit every citizen. The other priority project is the "Renewable Energy and Efficiency Technology Programme", which is essential for the development of the renewable energy sector and which is specifically mentioned in the IMF Letter of Intent.

The sixteen projects that were selected for final prioritization show a marked difference from those included in the first NEAP. They are indicative of a level of aggressiveness to achieve lower energy costs and increase uptake of renewables. They also represented attempts to secure investment support for small and medium-sized enterprises and indicated greater buy-in by the public.



**8.0 RESULTS OF THE FINAL PRIORITIZATION AND STAKEHOLDER DIALOGUE AT THE FOCUS GROUP CONSULTATION**

Final prioritization of projects by participants in June 28 Focus Group Meeting:

- 1) Power Sector Development and Capacity Replacement
- 2) Improvement in Electricity Distribution and Transmission Efficiency
- 3) Facilitating Private Investment in Sustainable Energy
- 4) Jamaica’s Renewable Energy Programme: Increase in Wind Energy Capacity
- 5) National Energy Education Programme
- 6) Renewable Energy and Energy Efficiency Technology Training Programme
- 7) Jamaica’s Renewable Energy Programme: Increased Application of Solar Technologies
- 8) Strengthening of the Policy, Legislative and Regulatory Framework
- 9) Promulgation of Energy Sector Policies
- 10) Comprehensive Review of Energy Pricing – Fuels and Electricity
- 11) Generation Expansion Plan and Long Term Planning in the Energy Sector
- 12) Energy Efficiency and Conservation Programme for the National Water Commission
- 13) Jamaica’s Renewable Energy Programme: Implementation of Hydro Power Capacity
- 14) Development of Energy Services Companies (ESCOs)
- 15) Institutional Strengthening and Improved Governance in the Rural Electrification Programme
- 16) Development of Smart Grid Road Map

Development Areas Represented in the Prioritization

- 1) Energy infrastructure – 4 projects (Projects 1, 2, 11 and 16)
- 2) Energy efficiency and conservation – 2 projects (12 and 14)
- 3) Renewable energy – 4 projects (3, 4, 7 and 13)
- 4) Policy – 3 projects (8, 9, and 10)
- 5) Training, education and information – 2 projects (5 and 6)
- 6) Institutional strengthening – 1 project (15)

**COMMENTS MADE BY PARTICIPANTS ON THE RECOMMENDED PROJECTS**

GOAL No.	PRIORITY	PROJECT TITLE	COMMENTS
2	2	Improvement in Electricity Distribution and Transmission Efficiency	The cost of reducing technical losses is very high, so the <i>reduction target should be changed from 8.5% to 9% of net generation</i> . ACCEPTED
6	3	Facilitating Private Investment in Sustainable Energy	Support mechanisms and incentives for participation might have to be developed.
3	4	Jamaica’s Renewable Energy Programme: Increase in Wind Energy Capacity	A Worldwatch study has identified suitable sites in Jamaica for setting up wind farms. The study will be published in August 2013



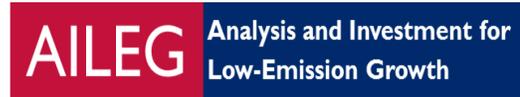
GOAL No.	PRIORITY	PROJECT TITLE	COMMENTS
			<p>There is a German technology that is being successfully used to install small windmills for the residential sector. This option could be explored for Jamaica</p> <p>Projects must demonstrate economic viability</p>
1	5	National Energy Efficiency and Conservation Education Programme	<p><i>Change the project title to:</i> National Energy Education Programme.</p> <p><i>Change main activities to:</i> Design and implement National Energy Education Programme. Include coordination of all such activities, opportunities available, renewable energy options, energy conservation and efficiency and technology.</p>
1	6	Renewable Energy and Energy Efficiency Technology Programme	<p><i>Change the Project Title to:</i> Renewable Energy and Efficiency Technology Training Programme Funding for this project could be sought through CARICOM Technical Assistance</p> <p><i>Change the third key milestone to:</i> “Certified persons (plumbers, solar workers, electricians, welders, installers)”</p>
3	7	Jamaica’s Renewable Energy Programme: Increased Application of Solar Technologies	<p><i>Change the second and third key milestones :</i> Development of solar power resources</p> <p>JPSCo net billing Target (2% of peak demand) satisfied through standard offer contract</p> <p><i>and timeline to:</i> Defined reduction in CO2 timeline - May 2014</p>
5	8	Strengthening of the Policy, Legislative and Regulatory Framework	Participants raised the need to address feed-in tariff issues
5	10	Comprehensive Review of Energy Pricing – Fuels and Electricity	<p><i>Change main activities to:</i> Develop regimes for pricing of electricity and petroleum products that will be transparent and balance requirements for competitiveness with the long-term viability of the sector.</p> <p><i>Change expected outcome to:</i> Establish and develop mechanisms for access to National Energy Pricing Models</p>



GOAL No.	PRIORITY	PROJECT TITLE	COMMENTS
2	11	Generation Expansion Plan and Long Term Planning in the Energy Sector	<p><i>Change the first key milestone to:</i> Reduction in the cost of electricity.</p> <p>The economic dispatch of generators according to merit order ranking is to be removed from the Key Milestones as this is already being done by Jamaica Public Service Co. Ltd.</p>
1	12	Energy Efficiency and Conservation Programme for the National Water Commission	<p><i>Change the first expected outcome to:</i> Reduction in electricity consumption, including the improvement of water distribution efficiency</p>
3	13	Jamaica’s renewable Energy Programme: Implementation of Hydro Power Capacity	<p>This project’s <i>ranking was changed from 5 to 13</i> due to its low state of readiness.</p> <p>Pre-feasibility studies are being conducted for five rivers. Five additional studies are to commence in January 2014.</p> <p>Approximately 40MW of renewable energy could be produced by the Rio Grande, so conducting this study needs to be a priority for the government.</p>
1	14	Development of Energy Services Companies (ESCOs)	<p>This project should be enhanced by the European Union funded project to support the development of ESCOs. The project is being implemented by Jamaica Productivity Center.</p>
5	15	Institutional Strengthening and Improved Governance in the Rural Electrification Programme	<p><i>Change the first key milestone and timeline to:</i> Jamaica rural energy solutions incorporated by mid 2014</p>
2	16	Development of Smart Grid Road Map	<p><i>Change expected outcome to:</i> Assessment of Smart Grid Pilot Project underway</p> <p><i>Change key milestone to:</i> Decision taken on roll out</p>



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## 9.0 CLOSING COMMENTS

Dr. Potopsingh thanked those present for their participation in the entire NEAP2 development process, and informed them that the final prioritization would be presented to a broad group of stakeholders at the AILEG terminal Symposium in July. They would all be invited to attend.

The representative from the Scientific Research Council (SRC) lauded the process, and particularly the use of the AIM matrix methodology. She expressed interest in using it for an upcoming SRC project.



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APPENDIX 1



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**FOCUS GROUP NEAP  
2013-2016**

June 28, 2013

Presented by: Ruth Potopsingh, PhD  
Policy Expert



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**PRESENTATION OUTLINE**

- Project Overview
- Brief overview of NEAP 2009-2012
- Process for Identifying and Selecting Flagship Projects
- Process for Prioritization of Projects for Second NEAP
- Review Process for Recommended Priority Projects and Flagship Projects



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## PROJECT OVERVIEW

- United States Agency for International Development (USAID) has provided technical support / funding under Analysis and Investment for Low-Emission Growth project (AILEG)
- Subset of Enhancing Capacity for Low Emissions Development Strategies program (EC-LEDS) in Jamaica
  - Build capacity to analyze low emissions scenarios and integrate them into economic development strategic planning and implementation
  - Conducting economic analysis to promote investment in low emissions technologies and projects
  - Abt Consultants providing Technical support



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## THREE ACTIVITIES

- I. Climate Finance Analysis*
- II. Low emissions development economic modeling  
LEDS Integration into National Planning*
- I. Development of a data-driven Second National Energy Policy Action Plan (2013-2016)**

Development of Community Energy Efficiency and Renewable Energy (EE/RE) Action Plans



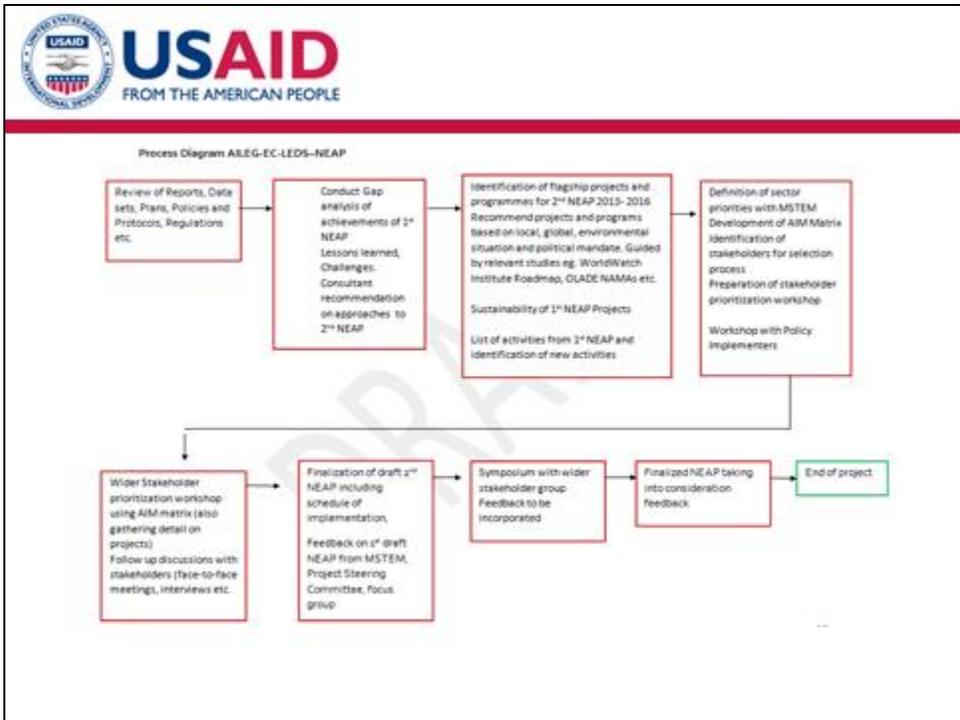
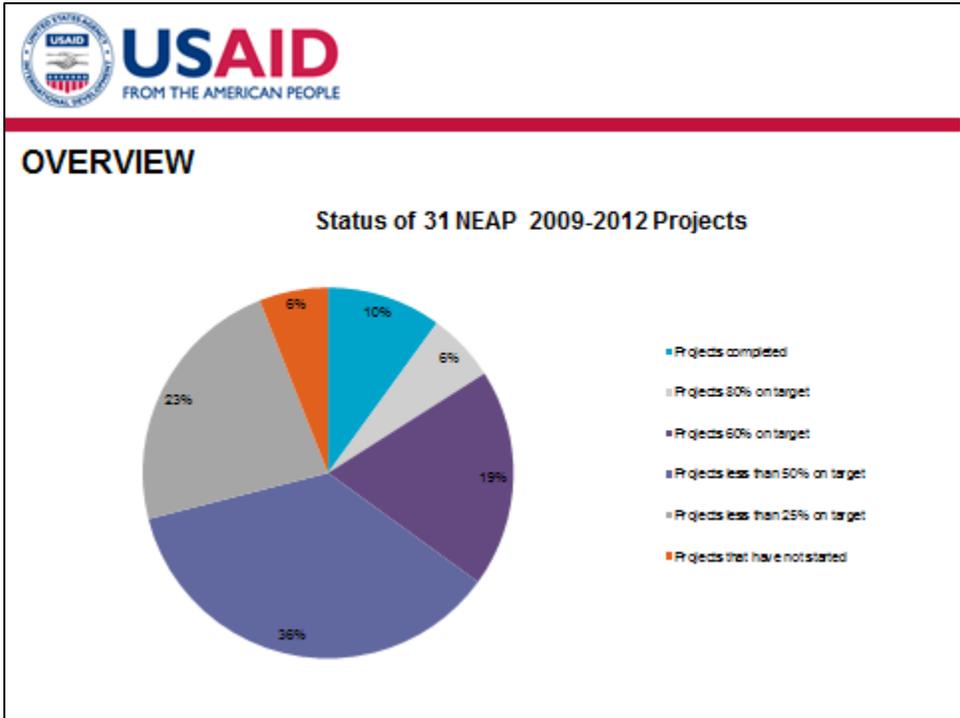
**NATIONAL ENERGY ACTION PLAN GOALS**

"A modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework"  
*(Vision of Jamaica's Energy Sector)*

<b>Goal 1:</b> Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency	<b>Goal 2:</b> Jamaica has a modernized and expanded energy infrastructure that enhances energy generation capacity and ensures that energy supplies are safely, reliably, and affordably transported to homes, communities and the productive sectors on a sustainable basis	<b>Goal 3:</b> Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness, energy security whilst reducing its carbon footprint	<b>Goal 4:</b> Jamaica's energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability	<b>Goal 5:</b> Jamaica has a well-defined and established governance, institutional, legal and regulatory framework for the energy sector, that facilitates stakeholder involvement and engagement	<b>Goal 6:</b> Government ministries and agencies are a model/leader in energy conservation and environmental stewardship in Jamaica	<b>Goal 7:</b> Jamaica's industry structures embrace eco-efficiency for advancing international competitiveness and moves towards building a green economy
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**NEAP : 2009-2012**

- 19 Flagship Projects
- 31 Projects
- Implementation was successful in expansion of the Wigton Wind Farm, Establishment of OLADE Sub Regional, Online clearing house launched: NEICH launched on March 21, 2013 and currently operational
- 2 projects not started
- 26 projects are in various stages of development





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**REVIEW PROCESS FOR RECOMMENDED PRIORITY AND FLAGSHIP PROJECTS**

- Review of 16 Priority Projects
- Criteria:
  - Letter of Intent (GOJ/IMF)
  - Ministry and Agencies priorities
  - AIM Responses
  - Achievable
  - Support



**ACTION IMPACT MATRIX (AIM)**

Development Objectives				
Projects				
	Scores			
	Totals			