

Sri Lanka Sustainable Energy Authority

ON-GRID RENEWABLE ENERGY DEVELOPMENT



**A GUIDE TO THE PROJECT APPROVAL PROCESS FOR
ON-GRID RENEWABLE ENERGY PROJECT DEVELOPMENT**

**POLICIES AND PROCEDURES TO SECURE APPROVALS TO DEVELOP A
RENEWABLE ENERGY PROJECT TO SUPPLY ELECTRICITY TO THE NATIONAL GRID**

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1.0 INTRODUCTION

This Guide is intended to provide a detailed explanation on the procedures to be followed as prescribed in the On-grid Renewable Energy Projects Regulation 2011. This regulation will accommodate projects which have achieved substantial progress in realisation of statutory approvals and other planning work, yet which faced a stalemate situation due to limitations imposed in the On-grid Renewable Energy Projects Regulation 2009.

This Guide provides information to present investors and operators of existing renewable energy projects, investors who are in the process of developing renewable energy projects, and those intending to develop and invest on such projects. Furthermore, this Guide would serve as a reference to institutions that would be reviewing applications from investors in the process of issuing permits and approvals.

For on-grid renewable energy projects in an Energy Development Area as declared under the Section 12(1) of (see Gazette Nos. 1538/22 of 26th February 2008 and 1632/10 of 15th December 2009 by following the link http://www.energy.gov.lk/sub_pgs/elibrary_gazette.html) Sri Lanka Sustainable Energy Authority Act No.35 of 2007, referred hereafter as the Act, the approval process described in the Guide is mandatory.

Guidelines given are applicable to all projects presently operational as well as projects in various stages of development. This approval procedure is to be read in conjunction with the On-grid Renewable Energy Projects Regulation 2011 published in the Gazette xxxxxxxxxxxx. On-grid Renewable Energy Projects Regulation 2009 published in the Gazette No. 1599/6 of 27th April 2009 now stands repealed.

1.1 THE ROLE OF SRI LANKA SUSTAINABLE ENERGY AUTHORITY

With the enactment of the Act, all renewable energy resources of the country were vested with the republic of Sri Lanka. This piece of legislation defines the Sri Lanka Sustainable Energy Authority as the custodian of the renewable resources thus vested with the republic. Renewable energy resources, just like any other natural resource, now require an Energy Permit (Appendix 3), as required under section 16(1) of the Act, for utilisation by any person. This permit is issued by the Sri Lanka Sustainable Energy Authority (SEA). This legislation also facilitate renewable energy development for both on-grid and off-grid applications, and streamline the registration, resource allocation and approval process. This Guide explains the process and procedures to be followed by parties intending to develop on-grid renewable energy projects of all types and capacities. For off-grid projects, a separate Guide will be published in due course.

Apart from her statutory obligations, SEA will function as the facilitator of implementation of projects using new renewable energy (NRE) hitherto referred to as non-conventional renewable energy sources or NCRE.

1.2 POLICY, STRATEGIES AND TARGETS

National Energy Policy of Sri Lanka¹ (http://www.energy.gov.lk/pdf/sri_lanka_energy_policy_2006.pdf) emphasises the Government's policy of ensuring energy security and promoting the development on indigenous resources. Promoting the development of economically viable NRE sources is a key strategy under the national energy policy. The Government has established a target of meeting 10% of electricity served in the national grid, from NRE resources.

The latest policy communication date 12th January 2011, titled 'The Development Framework of the Government of Sri Lanka' requires 20% of electricity generation from NRE by 2020, with the target of 10% met by end 2016.

¹ See Government Gazette 1553/10 of 10th June 2008 for the official publication of the National Energy Policy
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1.3 STATUS OF DEVELOPMENT

In year 2010, Sri Lanka produced 53.38% of the total electricity requirements from renewable energy sources (large hydro: 46.56%, new renewables 6.83%). By end 2010, Ceylon Electricity Board (CEB) had 16 large hydroelectric power plants of total capacity 1,205 MW and a wind power plant of 3 MW. The last major hydropower project, the Upper Kotmale Hydro Power Project is nearing completion and initial work on the first of the last four medium hydropower projects commenced in year 2010. Through a process of facilitation of private investments, by end 2010, Sri Lanka had 84 new renewable energy power plants (each less than 10 MW) of a total capacity of 211 MW, owned and operated by the private sector. This includes two wind power plants (30MW total capacity) and a biomass power plant (10MW) using rice husk. By end 2010, the electricity generation from new renewable energy sources stood at 6.83% of the total generation.

1.4 ACCOMMODATION OF EXISTING AND PROJECTS UNDER CONSTRUCTION

In the absence of a well defined legal framework or a duly appointed custodian of renewable energy resources in the country, the Power Purchases Branch of CEB operated an administrative arrangement to grant resource development rights to private sector investors through a Letter of Intent (LoI) scheme. This document, which is an assurance to purchase electricity produced by a particular resource by a person on a first come first served basis also was accepted by all concerned as a granting of a resource rights to that person.

The On-grid Renewable Energy Projects Regulation 2009 required that all renewable energy projects presently built and operational in any of the declared resource areas stated in the Gazette Nos. 1538/22 of 26th February 2008 and 1632/10 of 15th December 2009, to obtain a Permit from SEA. All small hydropower projects which were in operation on 1st October 2007, the day from which the SEA Act was gazetted, made applications to SEA and obtained Energy Permits.

Through newspaper notices, SEA invited Applicants who claim exclusivity to a renewable energy source, to register with SEA by 21st April 2008. Except few, most renewable energy projects were registered with SEA. Projects with an active standardised power purchase agreement (SPPA) as of 1st October 2007 were invited to apply for a permit, without going through the Provisional Approval process. Geographical information available at the Power Purchases Branch of the CEB was transferred to databases of SEA, to facilitate seamless transition of the resource allocation process from the LoI based scheme to the permit scheme. Thus any conflicting claims for a resource were resolved by tracing back the original approvals granted by CEB through the then resource allocation process based on the LoI scheme.

2.0 APPLYING FOR PROVISIONAL APPROVAL

New applications, as given in the prescribed form, (Appendix 1) will be entertained for any type of renewable energy projects, which are capable of generating electricity which can be supplied to the national grid. Applicants will be either granted or refused Provisional Approval (Appendix 2) as prescribed. The main categories of NRE sources were identified and treated individually in tariff setting exercises undertaken by the Ministry of Power & Energy and the Public Utilities Commission of Sri Lanka (PUCSL). Projects developed using any other NRE resource than which were identified under the main categories were treated under the special category 'other' in the latest tariff announcement.

- (i) Mini Hydro: Power plants converting the potential energy of water (two categories where the use of locally manufactured turbine equipment are encouraged with a higher tariff)
- (ii) Wind: Power plants converting the energy in a moving mass of air (two categories where the use of locally manufactured turbine equipment are encouraged with a higher tariff)

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- (iii) Biomass(Dendro): Power plant using biomass, grown in a sustainable manner, either by the power plant company or through a system of out-growers, without depending on the yield of natural forests and home gardens, agricultural or other waste material
- (iv) Biomass (Agricultural and Industrial Waste): Power plants using agricultural waste (such as rice husk), industrial waste (such as saw dust and wood off-cuts), municipal solid waste and waste heat from another energy conversion process
- (v) Municipal Solid Waste: Power plants converting the energy in Municipal Solid Waste to Electricity
- (vi) Waste Heat Recovery: Power plants using recovered waste heat from other industrial thermal processes
- (vi) Other: Any other NRE resource which can be converted to produce electricity which can be fed to the national grid.

2.1 METHOD OF SUBMITTING NEW APPLICATIONS

Any person (an individual or a company) may apply for a renewable energy project anytime, irrespective of whether the person holds any rights to the resource or land rights. The recourse provided in the On-grid Renewable Energy Projects Regulation 2009 to verify the availability of the NRE site for development before a formal application is made on that behalf, is withdrawn and only complete applications as required under the Section 16(2) of the Act will be entertained by SEA. A complete application form, prescribed in the On-grid Renewable Energy Projects Regulation 2011, accompanied by a Pre-feasibility report prepared by a Consultant accredited by the Authority, dealing with the following main components will have to be made after payment of the prescribed application fee to the SEA. Thus the period of three months granted for preparation of Pre-feasibility report is hereby withdrawn.

- (a) Copy of the Pre-feasibility report prepared by a Consultant accredited by SEA,
- (b) A copy of the map of the geographical location of the proposed project,
- (c) A brief description of the project, including the amount of power to be generated,
- (d) The total estimated cost and financial model including the optimisation criteria adopted,
- (e) Proof of availability of adequate finances or the manner in which the required finances for the project are to be obtained,
- (f) Project location, describing the relative location of energy conversion plant and equipment to the resource,
- (g) A statement explaining how the Applicant intends to evacuate electricity generated from the project in relation to the existing national grid, and geographical area traversed by the power line constructed for that purpose,
- (h) A copy of the receipt obtained from the SEA, for the payment of the prescribed application fee, which will be calculated according to the schedule given below

Table 1 : Schedule of Application Fees

Amount of power proposed to be generated	Fee to be paid on application and reapplication
1,000 kW or part thereof	LKR 100,000
Each additional 1,000 kW	LKR 50,000 payable on pro rata basis

Note: Projects of capacities less than 10,000 kW implemented by a single party or parties acting in concert, in parallel or in phases in a same geographical or spatial context will be considered as a single project capable of generating more than 10,000 kW of power.

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To resolve conflicts arising out of two or more Applicants applying for the same resource site at the same time, an electronic token vending unit will be provided at the office of the SEA, accessible to any Applicant between 0830 – 1615 hrs. on working days. The token number issued to an Applicant will be copied to both the receipt and the application form received by SEA, and will be referred to in resolving any dispute related to the chronological sequence of application receipts.

Any application, after an initial inspection having obvious omissions will be returned unregistered to the Applicant, requesting the attention to the said omissions. The Applicants who fail to submit complete application forms runs the risk of another party applying for the same resource site, between the first attempt to submit the application and the second attempt, after attending to the obvious omissions as pointed out by the SEA. Accordingly, the Applicant has the option of submitting the incomplete application against the advice of the SEA, and risk the refusal of Provisional Approval by the PAC subsequently. All applications thus received will be registered forthwith in a register maintained for that purpose under the provisions of the Section 16(3) of the Act and a Registration Number of the style R□ □□□□ □ will be issued to the Applicant, and will be marked on the receipt issued in acceptance of the application fee. The four middle digits indicate the unique serial number assigned to applications when such applications are entered in the register. When the first digit is 1, it signifies that the number assigned is meant only for registration, and when it is 2, it means that a Provisional Approval has been granted, and if it is 3, it means that an Energy Permit is granted for the application. The last digit is a batch number, presently 0, which will be 1 when the unique serial number reaches 9999, and so on.

2.2 REAPPLICATION FOR PROJECTS WITH LAPSED PROVISIONAL APPROVALS

With the On-grid Renewable Energy Projects Regulation 2011, an opportunity is provided to Applicants who are faced with a cancellation of a Provisional Approval granted by SEA. All Applicants who were issued with a Provisional Approval will be invited to submit an application to gain an extended period to meet the conditions required for an issuance of an Energy Permit, after payment of the prescribed application fee. Any Applicant faced with a lapsed Provisional Approval will be allowed to make a fresh application to the same resource site, supporting the reapplication with documents requested by the Director General in his invitation, as available. No such consideration will be given to Applicants submitting reapplications, if the resource under consideration is later found to be in conflict with a more significant national level development. Following four aspects will be investigated by Director General before providing recommendation on the reapplication to the PAC.

- a) **Feasibility Studies:** Whether a report on comprehensive feasibility study carried out for the project including but not limited to an analysis of the availability of the renewable energy resource during a period in excess of a 12 month period, prepared by the Authority or a consultant registered with the Authority is submitted,
- b) **Access to Land Resources:** Whether a tenement list of land resources required for project implementation and a survey plan of the renewable energy resource site, prepared by a licensed surveyor registered with the Authority is submitted,
- c) **Status of Statutory Approvals:** Whether a status report on statutory approvals with proof of application for all such relevant approvals including but not limited to receipts of payment of such application fees payable to other approving authorities including but not limited to;
 - A copy of the Letter of Intent issued by the Ceylon Electricity Board
 - Divisional Secretary's Approval
 - Approval for Construction granted by the Urban Development Authority (UDA) or the local authority designated by UDA
 - Approvals from other relevant line agencies

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- d) **Environmental Clearance:** Documents in proof of progress achieved in realising the environmental approval from the relevant designated approving authority

In fairness to all Applicants, a transparent marking scheme will be used to carry out the above investigation in an objective manner. The marking scheme is given overleaf. Considering the fact that an agency is not relevant to a particular project (e.g. Department of Wild Life Conservation in a wind energy project located in an urban coastal area), full marks available for that particular approval will be given to the project, as it implies a one less issue which require the effort of the Developer to deal with.

Any inspection or intervention required to be undertaken in carrying on further investigations in this regard, which involves the participation of officers of the Authority will be undertaken only after receipt of payment for such services as quoted by the Authority on a case by case basis.

Table 2 : Marking Scheme (Reapplication Process)

Project Aspect Investigated	Marks
How far the Developer has proceeded	18
Provisional Approval status : Extension requested	1
Extension for Provisional Approval obtained	2
Letter of Intent from CEB obtained	2
Divisional Secretary's no objection obtained	2
Local Authority approval realised	2
National Water Supply & Drainage Board approval obtained	2
Department of Agrarian Services approval obtained	1
Department of Irrigation / Coast Conservation approval obtained	2
Forest Department approval obtained	2
Department of Wild Life Conservation approval obtained	2
Environmental Clearance	10
Registration	5
Terms of Reference obtained	3
Environmental approval issued	2
Level of effort of Developer	40
Initial survey carried out	3
Pre-feasibility study report available	2
Detailed survey plans available	8
Full feasibility study report available	8
Land requirement documented	5
Full weather cycle resource assessment report available	5
IEE or IEA report submitted to approving authority	5
Land ownership documented / acquisition status reported	4
How optimally the resource has been harnessed	8
Installed capacity accurately calculated	3
Energy yield accurately estimated	5
Financial and technical capability	14
Equity support documents provided	5
Bank references provided	3
Audited accounts provided	3
Volume of transactions of partners declared	3
Past experience	10
In similar projects (documented)	8
In project management (documented)	2
Total	100

Note: Information provided by applicants is subject to validation by directly contacting reference sources provided by the applicant.

The marking scheme is designed to capture four aspects (Feasibility Studies, Access to Land Resources, Status of Statutory Approvals and Environmental Clearance) by giving 15 marks for each aspect, which can be earned when a sub element of each aspect is completed. To qualify for issuance of a Provisional Approval, the Applicants concerned must earn at least 50 marks out of the maximum 100 marks which can be earned from the above scheme.

2.3 IMPORTANT ASPECTS FOR CONSIDERATION BEFORE SUBMITTING APPLICATIONS

Probable reasons for a project to be refused a Provisional Approval are many. Given the non-refundable nature of the application fee, the Applicants are required to pay keen attention to the following factors before submitting their application for a particular NRE resource site.

Completeness of the Application: The application, (with attached copy of the receipt obtained from the SEA, for the payment of the prescribed application fee) shall be duly perfected and accompanied by a report prepared by a Consultant accredited by the Authority, whose signature is placed on the report after conducting the pre-feasibility study. It must contain an original 1:50,000 topographical map (no copies or scanned reproductions will be accepted) with location of the project indelibly marked.

The report shall contain a brief analysis of the NRE resource availability leading to the sizing of the project, in terms of the amount of power/energy to be generated. This information will be compared with the models available to SEA using the EnerGIS, the Geographical Information System of the SEA. Any major difference between the amount of power/energy proposed to be developed and estimated using EnerGIS will result in either granting the Provisional Approval based on the estimated value or refusal of Provisional Approval.

A detailed financial analysis giving due consideration to the total estimated cost, likely revenue streams, cost of funds (including both equity and debt) and an appropriate optimisation along with the sources of fund (with supporting documents as proof of availability) will have to be incorporated in the report.

The report shall include a layout diagram of the project describing the relative location of energy conversion plant and equipment to the resource, and any other auxiliary system such as cooling water sources and importantly the point of interconnection with the national grid complete with the geographical area traversed by the power line constructed for that purpose.

Over/Under Statement of Installed Capacity and Energy Generation: SEA, once an application is received will carry out independent assessment of the NRE resource with respect to the likely installed capacity and annual energy generation using the parameters of commonly available conversion equipment. Any substantial overstatement or understatement will result in refusal of Provisional Approval.

Concurrence of the CEB: As the single buyer of electricity produced by the NRE project, CEB will have to be satisfied with her ability to accept electricity produced by the proposed project. This will be based on careful evaluation of system wide impacts, network topology and system stability, among the more commonly understood constraints such as local transmission grid limitations and grid substation capacity limitations. Hence the absence of the concurrence of CEB to grid connect the proposed project will result in refusal of Provisional Approval.

Resources Allocated to Other Parties: In spite of the availability of location information of all operational sites and sites reserved for development by other parties in the public domain, new applications continue to be made by Applicants for such sites. Even only if a part of the resource required for the new project is in conflict with any part of a resource allocated to another party, Provisional Approval will be refused to such new Applicants. This is not applicable to Applicants having a previous allocation of a particular resource, and such an application will be treated as a reapplication, made possibly to seek a fresh Provisional Approval to gain more time to fulfil the requirements for the issuance of an Energy Permit.

Alternative Approaches to Development: If a particular NRE resource is earmarked earlier or is to be selected to be developed by the state sector organisation through a different approach, Provisional Approval, extensions to Provisional Approval and Energy Permits will be refused to such resources.

Capacities Greater than 10MW: Unless a project specific directive from the Ministry of Power & Energy is available to consider a project of capacity greater than 10MW, Provisional Approval will be refused to such projects.

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Excluded Areas: Certain natural reserves, such as Forests and Wild Life Sanctuaries will not be made available for development of NRE projects. Apart from these, certain other sensitive areas may not be available for any development of NRE projects. Applications for such locations will be refused Provisional Approvals.

2.4 FEASIBILITY STUDIES AND ACCREDITED CONSULTANTS

The pre-feasibility study report to be attached to the application should cover the main topics given in the list of contents relevant to the type of the renewable energy project. Any additional information that would reinforce the project analysis from technical and financial points of view, and the technical and financial capability of the Applicant to develop the project, would be most welcome. The pre-feasibility study report should contain:

- Summary of the Pre-feasibility Study (Format F2)
- Certification by the Accredited Consultant (Format F3)
- Study report based on the list of contents (Format F1)

The pre-feasibility study should be conducted by a consultant accredited by SEA. The list of Accredited Consultants is published by SEA, and an updated list would be provided to each Applicant when an application form is physically issued. The most up-to-date list will be also available in the SEA website <http://>. The selection of the consultant for a particular project from among the accredited consultants and the fees payable are entirely at the discretion of the Applicant.

Despite the attempts of SEA to maintain a certain standards in preparation of pre-feasibility and feasibility reports, it is observed that even accredited consultants tend to forward substandard reports. Hence the panel of Accredited Consultants will be reconstituted at the earliest. Consultants who are already registered will be required to submit a brief on their previous work with the application for accreditation, based on which an interview will be held and a decision made on retaining them. If the consultant preferred by the Applicant is not on the accredited list, he/she may apply for accreditation any time (Format F4), and SEA will issue the accreditation to him/her if the requirements for accreditation are fulfilled. Such new consultants who wish to be accredited will also be required to face an interview conducted by SEA before being registered. The accreditation will be valid for a period of three years from the date of appointment.

3.0 GRANTING AND REFUSAL OF PROVISIONAL APPROVAL

Based on the information provided in the pre-feasibility report, all applications received by SEA will be evaluated to ascertain the possibility of securing grid connection, in consultation with the CEB. Similarly, all line agencies will be prompted to indicate the relevance of their approval for proposed projects at the first available meeting of the PAC after receipt of an application. If any line agency is indicating that a particular project is not relevant to their agency, such agencies will be delisted from the approvals required for granting of the Energy Permit. Relevant agencies will be handed over a scrutiny paper on each project, in preparation of granting Provisional Approval at the next PAC meeting and Energy Permit at an appropriate PAC meeting.

Irrespective of the nature of response obtained from the CEB all projects for which the CEB was consulted will be tabled at the next available meeting of the Project Approving Committee (PAC), with the recommendations of the Director General. Director General may invite the Applicant to make a presentation of the proposed project before an internal committee supported by external experts as necessary to evaluate the project and also may request a site inspection by a team of officers nominated by him, to gather information to make his recommendation before the PAC. The Applicant will be required to pay for such evaluations and site inspections on a case by case basis, which will be notified in advance to the Applicant.

If any other omissions were found in the preliminary screening of the application carried out by the Director General under the provisions of the Section 17(1) of the Act, the Director General will notify the PAC

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accordingly, which will lead to the refusal to grant Provisional Approval to the project under the provisions of the Section 17(3) of the Act. In the event of a project is refused to be granted a Provisional Approval by the PAC, the Applicants of such projects will be notified immediately after the meeting of the PAC. The processing time of an application for Provisional Approval by SEA will be a maximum of three months.

Recommendation of the Director General to the PAC will be based on the following principles.

- (a) Whether the application is complete in every sense, as per requirements of the Section 16(2) of the Act and On-grid Renewable Energy Projects Regulation 2011,
- (b) Whether the amount of power proposed to be produced by the Applicant is representative of the available resource,
- (c) Whether the CEB has granted its concurrence to consider the proposed capacity or part thereof for grid connection as required under Section 17(1) of the Act,
- (d) Whether there is any operational power plant in the same location or using the same resource area or part of the resource area required by the Applicant for the proposed project,
- (e) Whether SEA has issued a Provisional Approval or an Energy Permit to another Applicant for the same site or the resource or part of the resource area required by the Applicant for the proposed project,
- (f) Whether SEA or the Government of Sri Lanka has plans of their own to develop the site through a different mechanism,
- (g) Whether a policy directive from the Ministry of Power and Energy is available to consider a project with an installed capacity greater than 10MW, in the event of an application is received for a project of capacity greater than 10MW,
- (h) Whether the project is impacting on any excluded area.

Based on the recommendation of the Director General made on the above grounds, initial scrutiny of the project by relevant line agencies and observations of such agencies, the PAC will move to either grant or refuse Provisional Approval for projects. All projects which are at various stages of appraisal and queued behind a pioneering Applicant will be presented to the PAC to clear the backlog of projects held in abeyance, pending approval or refusal of the PAC. Provisional Approvals will be issued within 2 weeks of the relevant PAC and refusal to grant Provisional Approval will be notified to Applicants immediately after the relevant PAC meeting.

3.1 PROPERTIES OF THE PROVISIONAL APPROVAL

The Provisional Approval is granted to recognise the exclusive rights available to an Applicant to develop a particular NRE resource site under the provisions of the Section 17 of the Act. Once granted, it will be valid for a period of six months, and it can be extended to a maximum of a further six months. At the end of twelve months from the date of first issue, the Provisional Approval will stand cancelled.

Within the six month period (maximum twelve months), the Applicant should obtain the Letter of Intent to purchase electricity from the CEB (the single buyer of electricity), all the permits, land rights and letters of consent from equity partners and lenders, to satisfy SEA that the Applicant is capable of proceeding with the project through financing, construction, commissioning and operating the plant. Some of the permits/approvals to be obtained once the provisional approval is issued are the following;

- (a) Electricity Generating License from the Public Utilities Commission of Sri Lanka
- (b) Letter of Intent to purchase electricity from the CEB (single buyer of electricity)
- (c) Environmental approval

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- (d) Letters of consent from equity partners and lenders
- (e) Any other institutions, agencies and persons retained in the list of approvals required for granting of the Energy Permit or as required in accordance with requirements

Applicants are advised to peruse the document titled *Developing New Renewable Energy Projects in Sri Lanka* (Appendix 4) of this guide for more detailed explanation of the approval process.

Once the Applicant is moving forward to fulfil the requirements for the issuance of Energy Permit, the Applicant will be required to report the progress of the project at end of each quarter to SEA. Failure to submit such reports will be treated as lack of interest in moving forward with the project. Through these progress reports and other communication received from the Applicant, the SEA will identify any specific assistance required by any Applicant to obtain certain approvals. All approvals required from relevant line agencies will be formally followed up by the Heads of such agencies who are members of the PAC. SEA will use the forum provided by PAC to facilitate the approval process by proactively engaging all line agencies through pre-approval investigations, scrutiny of documents submitted by Applicants and finally following up the approval processes of each line agency. Failure to receive any communication from the subordinate officer of such line agencies will be treated as concurrence for formal approval with the agreement of the particular member of the PAC representing such an agency. The line agencies will have another opportunity to express their views, if necessary.

The Applicant is expected to support any request for an extension to the Provisional Approval granted after the initial six month period by a presentation of progress before an expert committee convened by SEA. In the event of Applicant approaching the end of the second six month period with certain unfulfilled requirements for the issuance of the Energy Permit, the Applicant is required to make a reapplication for a Provisional Approval three months before the impending cancellation of the Provisional Approval. The Applicant will be duly notified by the Director General to provide necessary details to consider the reapplication and the Applicant will be required to present his case before an expert committee, which will assist the Director General to make his recommendation to the PAC on the suitability of the project for granting a Provisional Approval.

4.0 GRANTING AND REFUSAL OF ENERGY PERMIT

Once all the requirements stated in the Provisional Approval is fulfilled and submitted with the application for the final approval, the Director General will submit the application to the next available meeting of the PAC for its consideration. The PAC will make a decision either to grant or to refuse the Energy Permit (Appendix 3) within a month of giving such consideration. The PAC will record reasons for arriving at such decisions in a register maintained for that purpose.

The Energy Permit is valid for a period of twenty years from the date of commercial operation of the project. Once issued with an Energy Permit, the status of the Applicant is changed to that of a Developer, a person having permission to develop an NRE project. A period of two years is allowed to the Developer for construction, from the date of the Energy Permit. At the end of the twenty year period, the permit is extendable for a maximum period of twenty more years, provided the relevant power purchase agreements are extendable based on the conditions stipulated in such agreements or other guidelines effective at that time. A power purchase agreement should be signed for the sale of electricity to the grid, within one month from the date of the Permit.

The onetime permit fee payable at the time of issuing the Permit is revised from LKR50,000/- per project to LKR500,000/- per MW of capacity for projects up to 10 MW. For Projects larger than 10 MW, the onetime permit fee payable is revised from LKR1,000,000/- per project to LKR1,000,000/- per MW of capacity of the project under consideration. Apart from the onetime permit fees, the Developers and operators of renewable

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energy power plants will be liable to pay annual royalties at the end of each year of operation, on renewable energy resources used, as may be determined by the Minister under the provisions of the Section 19 of the Act.

If a Developer fails to commission the project at the end of the two year period allowed for the construction of the plant, the SEA would move forward to cancel the Energy Permit issued under the provisions of the Section 21(1) a, and the Developer will be granted an opportunity to make a submission, on payment of the permit fee applicable at the time of making the submission to that effect, to show cause why the Energy Permit should not be cancelled. If the Board of Management of SEA is satisfied with the explanation provided by the Developer, it may move to grant time to comply with the unfulfilled conditions of the Energy Permit and realise commercial operation. No such remedies will be available to Developers if the resource under consideration is later found to be in conflict with a more significant national level development.

5.0 EFFECTS OF DELAYS ACCRUED

Any Applicant or Developer who fail to fulfil the conditions stipulated in the Provisional Approval, Energy Permit or this Guide on time, are provided with appropriate remedies to gain more time to fulfil such requirements. In the case of Provisional Approvals, remedies are provided through the reapplication procedure, where as in the case of Energy Permits, remedies are provided through the show cause procedure. In the event such additional time is gained by an Applicant or the Developer as the case may be, such delays will not have any impact on the commercial operation date originally envisaged by the Applicant. In other words, the 2 year period available for construction of the plant may erode, with each reapplication process, and similarly the 20 year life of the Energy Permit may be eroded by additional time granted to Developers to meet the requirements for issuance of Energy Permit.

Given the characteristics of the three tier tariff regime (having differential tariffs which are based on the number of years the plant was in operation) the erosion of available time will be from the front end of the SPPA. Developers may opt out of the three tier tariff scheme and enter the flat tariff option to minimise the commercial impact of such eroded time on their delayed projects at their discretion.

6.0 POWER PURCHASE AGREEMENTS AND TARIFFS

For projects up to 10 MW: SEA and CEB offer a Standardised Power Purchase Agreement (SPPA) for renewable energy projects of the approved types, with an installed capacity up to 10 MW. The SPPA is standardised and non-negotiable, and is valid for twenty years from the commercial operation date. Projects eligible for the SPPA are also eligible to be paid under the Small Power Purchase Tariff (SPPT).

For projects larger than 10 MW: There is no standardised agreement or standardised tariffs for the sale of electricity from renewable energy projects exceeding 10 MW. Such agreements shall be separately negotiated between the Developer and the CEB, subject to policy directives issued from the Ministry of Power and Energy.

Small Power Purchase Tariff: For renewable energy projects up to 10 MW, this standardised tariffs would apply. The tariff for projects that would enter into an SPPA is published at any given time, typically at the end of each calendar year. There will be a tariff review process conducted by the Ministry of Power and Energy typically once a year, where the following will be considered;

- (a) Types of projects to be offered the standardised tariffs (whether any new types of projects have matured to an adequate level to be included in the tariff schedule)
- (b) Tariffs to be offered to Developers entering into an SPPA in the coming year

7.0 CANCELLED PROVISIONAL APPROVALS AND ENERGY PERMITS

In the event of an Applicant failing to successfully lodge a reapplication for Provisional Approval or a Developer failing to prevent a cancellation of an Energy Permit, such NRE sites will be taken over by the Authority for further development. Once land resources required for both access and erection of project assets, obtaining grid access and the site reaches the 'ready to invest' status, the Authority will initiate a competitive bidding process to allocate the resource site to a suitable Developer. With the invitation of bids, the Authority assumes certain responsibilities such as complete access to resource site and securing all statutory approvals and hence it is necessary to curtail the offers only to resource sites which are completely cleared.

To be fair by any aggrieved Applicant or a Developer who held a right to a particular NRE resource site, the bidding process will have an opening for such Developers as well. Apart from the primary objective of selecting the best project implementers, there is an additional financial aspect built in to the evaluation scheme which will evaluate the bids on upfront payment and the net present value (NPV) of the revenue stream payable to SEA. 60% of the scheme will be given to non-financial attributes and the remaining 40% will be given to evaluate the upfront payment (15%) and NPV of revenue stream (25%).

7.1 AUCTION METHODOLOGY

Considering the enthusiasm among the investors, open invitation will be made to entrepreneurs and investors to register for the Auction and will be registered on a payment of LKR 100,000 per annum. The registration cycles will be limited to the months of December and June every year, to avoid unnecessary last minute clamour for NRE resource sites.

The resource site will be subjected to a preliminary screening and a weeding out process will eliminate all undevelopable sites, which would have too heavy a toll on society at large and the environment. After this stage, SEA will move to acquire all land resources required for the development and also to obtain necessary approvals, fulfilling conditions required to be issued with an Energy Permit. When the project is in the 'ready to invest' stage, a project profile of any feasible project will be offered to interested bidders for a payment of LKR 100,000. Projects which are technically feasible, yet are not socio-economically or environmentally feasible will be deleted from the register. Interested bidders will be invited to take part in the Auction by paying a normal bid bond in the range of 1-2% of the expected upfront payment. Bids will be received during the two cycles Jan/Feb and July/Aug, after which bid evaluation will be conducted. During the second and third quarters of the year, award of NRE resource sites will be made to the bidder who has obtained the highest combined score from the marking scheme given overleaf. Bid bonds offered by unsuccessful bidders will be returned to them after the award, and the bid bond of the successful bidder upon the receipt of the upfront payment.

Failure of the selected bidder to realise the successful implementation of the project will result in initiating a second round of bidding after the forfeiture of the upfront payment paid by the unsuccessful Developer.

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Table 3 : Marking Scheme (Auction Process)

Aspect Investigated		Marks
<i>Quality of bid</i>		20
	Quality of proposal	3
	Implementation timeline	5
	Qualifications of key people	2
	Local value addition ratio	10
<i>How optimally the resource has been harnessed</i>		10
	Installed capacity accurately calculated	5
	Energy yield accurately estimated	5
<i>Financial strength</i>		15
	Equity support documents	5
	Bank references	3
	Strong audited accounts	5
	Volume of transactions of partners	2
<i>Past experience</i>		15
	In similar projects (documented)	10
	In project management (documented)	5
<i>Financial consideration</i>		40
	Upfront payment	15
	NPV of revenue stream	25
Total		100

Note: Information provided by applicants is subject to validation by directly contacting reference sources provided by the applicant.

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APPENDIX 1 : APPLICATION FORM

Date of Application YYYY-MM-DD For official use only	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">SEA Reference Number SEA/REP</td> <td style="width: 40%;">A -</td> </tr> <tr> <td>Registration No. or Standby Registration No.</td> <td></td> </tr> </table>	SEA Reference Number SEA/REP	A -	Registration No. or Standby Registration No.	
SEA Reference Number SEA/REP	A -				
Registration No. or Standby Registration No.					

Application for Registration of an on-grid Renewable Energy Project
 For projects of the type listed below.
 See "Guide to the Project Approval Process for On-Grid Renewable Energy Development" for the policy on other types of renewable energy projects.

1. **Project Type:** Please mark ☒ in the appropriate box below. Please select **only one type**.

Small Hydro	Wind	Biomass (Grown)	Waste Agricultural	Waste Industrial	Waste Municipal	Waste Heat	Others (Pls. Specify)
-------------	------	-----------------	--------------------	------------------	-----------------	------------	-----------------------

2. **Name of the Project & Its Capacity (kW):**

(This is only for identification, the legal name may be established at a later stage)

3. **Name and Address of the Applicant :**

Name: (Mr./Ms./.....): _____

If the applicant is a Company : Name

: Registration No. _____

: Names of Directors of the Company _____

Address:

Telephone Numbers: _____ Email: _____

0			-						
0			-						

Company resolution authorizing the applicant to submit the application (pls. attached)

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4. Project Pre-feasibility/Report (please attach)

The Applicant is expected to provide a Pre-feasibility report along with the application prepared by a Consultant accredited by the Authority, including the information and documents referred to in paragraphs (a) to (f) of sub-section (2) Section 16 of the Act.

- a. Paste in the box below the relevant part of the 1:50,000 map showing locations of the all project components and powerhouse

Copy of 1:50,000 Map with Project Layout (1,50:000 scale not to be altered) Sheet No. Sheet Name

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(b) a brief description of the project, including the amount of power to be generated;

Project Information	Project Type:
Installed Generating Capacity of the Plant (kW)	
Name of Stream/River (if Hydro)	
Name of the Project	
Annual Electricity Generation (GWh)	
Proposed location of the Power Plant: provide the details below	
Village/Grama Niladhari Division	
Divisional Secretary Division	
District	

(c) the total estimated cost and financial model, including optimization criteria adopted;

(d) proof of availability of adequate finances or the manner in which the required finances for the project are to be obtained;

(e) Project location *i.e.* Weir and Power House relative to river or stream system if it is a hydro power project, wind Turbine and Structures if it is a Wind power project, Energy Plantation, Power House and Water Source if it is a Biomass Project and Conversion facility relative to energy resource, if it is any other project; and

(f) Grid connection *i.e.* how the applicant intends to evacuate electricity generated and the point at which the generator will be connected to the national grid and the geographical area traversed by the power line constructed for this purpose.

Certification by the Applicant:

- I hereby certify that the Pre-feasibility Report attached to this application has been prepared by.....
(name), a Consultant accredited by the Authority, and whose name and signature appear on page 1 of the Report.
- I attach herewith a copy of the receipt obtained, on the payment of the appropriate fee which is required to be made along with this application.
- I attach herewith technical and other details related to the resource site, as requested by the Director General.
- I have read and understood the "Guide to the Project Approval Process for On-Grid Renewable Energy Development"

Name of person signing this application _____

Signature: _____

Date: _____
YYYY - MM - DD

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APPENDIX 2 : PROVISIONAL APPROVAL

PROVISIONAL APPROVAL UNDER PARAGRAPH (a) OF SUBSECTION (2) OF SECTION 17

Date:

Registration Number	R -
Provisional Approval Number	PA -

Name :
Title (if applicable) :
Company _Name (if applicable) :
Address :
Project Name :
Date of granting Provisional :

Approval

(This approval is valid only for 6 month period from the date of granting provisional approval unless if it is extended by further 6 month on request of applicant as per sub section 17 of the act no. 35 of 2007)

Project Type :
Project Capacity :
installed generating capacity in kilowatts

This refers to the application submitted by you on, to engage in and carry on the above mentioned on-grid renewable energy project. The Project Approving Committee of Sri Lanka Sustainable Energy Authority (herein after referred to as the "Authority"), acting under paragraph (a) of subsection (2) of section 17 of the Sri Lanka Sustainable Energy Authority Act, No. 35 of 2007, has granted Provisional Approval to the said Project. The Provisional Approval Number specified above should be used in all future correspondence with the Authority, and in all reports and other documentation about the Project.

You are hereby required to submit the documents and information referred to below within six months of receipt of this communication. In the event that you are unable to submit the required documents and the information within such period, you are entitled to request from the Director-General for an extension of this period, provided the maximum of such extension shall not exceed a period of an additional six months. This provisional approval shall stand cancelled automatically at the end of the validity period as per subsection 4 of section 17 of the act no. 35 of 2007 if the documents and other information request for is not submitted to prior to the expiry of the validity period of the provisional approval.

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DOCUMENTS AND INFORMATION REQUIRED TO BE SUBMITTED

You are hereby required to make available:-

(a) the following documents:-

1.
2. etc.; and

(b) the following information:-

- i.
- ii. etc.; and

GENERAL

- * The Authority will assist you in obtaining any approval or clearance that is required to be obtained from any agencies, in order to engage in this project.
- * Any costs incurred by you in obtaining the documents and information required as specified in this Provisional Approval, should be borne by you and the Authority shall not be in anyway responsible for any expenses incurred.
- * Change of ownership or controlling interest of the legal person whom a Provisional Approval is required to be duly notified to the Authority and will be effected up on the payment of an administrative fee equivalent to the application fee.

Director General,
Sri Lanka Sustainable Energy Authority

Copies to

- (i) Director General, Public Utilities Commission of Sri Lanka
- (ii) Chairman and members of the Project Approving Committee
- (iii) Deputy General Manager (Energy Purchases) - Map showing the location of the
Ceylon Electricity Board Projects is attached herewith for your
information and necessary action.
- (iv) Director General, Urban Development Authority
- (v) Divisional Secretary, Division

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APPENDIX 3 : ENERGY PERMIT

PERMIT FOR ENGAGING IN AND CARRYING ON OF AN ON-GRID RENEWABLE ENERGY PROJECT

Registration Number	R					-	0	
Provisional Approval Number	PA					-	0	
Permit Number	EP					-	0	

Application Reference Number: A

Name and Address of Applicant: _____
(the special purpose Company, if required) _____

PERMIT NUMBER

Project Type: _____

Name of the Project _____

Installed electricity generating capacity of the Plant: _____ kilowatt

Date of issue of the Permit _____

.....(name of applicant) (hereinafter referred to as the "Developer") has been granted an On-Grid Renewable Energy Permit (hereinafter referred to as the "Permit") under paragraph (a) of subsection (2) of section 18 of the Sri Lanka Sustainable Energy Authority Act, 35 of 2007, (hereinafter referred to as the "Act"). The permit number as indicated above should be used in all future correspondence with the Sri Lanka Sustainable Energy Authority (hereinafter referred to as the "Authority") and in all reports and other documentation relating to the Project.

This Permit shall be subject to the following Terms and Conditions:-

1. The Project should commence its commercial operations within two years of the date of the issue of this Permit and in the event of the failure to commence commercial operations within such period, the Director-General of the Authority shall have the power to cancel this Permit.
2. This Permit shall be valid for a period of twenty years (20) from the date of issue of the Permit.
3. The plan for Project Implementation indicating major milestones should be submitted to the Authority, within two weeks from the date of issue of this Permit.

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4. A progress report indicating the achievement of Project milestones should be submitted to the Authority, at the end of each quarter of the year.
5. Within One (1) month from the date of issue of this Permit, the Developer shall enter into a Standardized Small Power Purchase Agreement or other similar Agreement with the Ceylon Electricity Board, to sell electricity generated by the Plant. A copy each of all such Agreements should be forthwith submitted to the Authority.
6. A certificate issued by the Ceylon Electricity Board, certifying the date of commencement of commercial operations of the Project as specified in the Standardized Small Power Purchase Agreement or other similar Agreement entered into with the Ceylon Electricity Board, should be submitted to the Authority within one month of such date of commencement.
7. Immediately upon the expiry of a period of three months of the date of commencement of commercial operations of the Project, the Developer should submit to the Authority an audited Statement of Accounts certified by a Chartered Accountant, covering all transactions carried out by the Developer during the period of commencing on the date of the grant of Provisional Approval for the Project and ending on the date of the expiry of the period of three months of the commencement of the commercial operations of the Project.
8. The Plant should deliver not less than fifty percent (50%) of the nominal annual energy delivery or minimum guaranteed energy as defined in the respective Standardized Small Power Purchase Agreement or other similar Agreement, as the case may be, for a continuous period of five (5) years.
9. The Plant shall be designed, built, commissioned and operated in accordance with the relevant grid connection standards of the Ceylon Electricity Board.
10. The Authority reserves the right to revise the installed generating capacity of the Plant to realize the optimal utilization of the renewable energy resource within a 12 month period from the date of issue of this Permit.
11. The Developer shall not during the construction and operational life of the Project, change the installed electricity generating capacity of the Plant, as specified in this Permit.
12. Utilisation of the renewable energy resource and structures required to harness the same shall conform to the relevant standards, regulations and codes as stipulated by the relevant approving authorities.
13. Any cost incurred by the Developer in the fulfillment of requirements, terms and conditions specified in this Permit, shall not be the responsibility of the Authority and shall be borne entirely by the Developer.

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14. The Developer shall take all necessary measures to use the renewable energy resources being utilized for the Project under strict compliance of the conditions laid out in the environmental license with due diligence, during construction and operational life of the project.
15. Where any damage is caused to the renewable energy resource being utilized for the Project due to the negligence or lack of due diligences of by the Developer, the Developer shall be liable to pay to the Authority such amount as compensation, as the Minister may determine in consultation with the Minister in charge of the subject of Finance.
16. If at any time during the validity of this Permit the terms and conditions stipulated herein are violated by the Developer, the Director-General of the Authority with the approval of the Authority, shall have the power to cancel the Permit under paragraph (b) of subsection (1) of section 21 of the Act.

Director General,
Sri Lanka Sustainable Energy Authority

Copies to:

- (i) Director General, Public Utilities Commission of Sri Lanka
- (ii) General Manager, Ceylon Electricity Board
- (iii) Director General, Central Environmental Authority
- (iv) Director General, Urban Development Authority
- (v) Divisional Secretary, Division

APPENDIX 4 : DEVELOPING NEW RENEWABLE ENERGY PROJECTS IN SRI LANKA

The project development process can be viewed to be having 8 distinct phases. The nature of steps taken in each phase varies widely, but displays the characteristic of moving from a broad / generic nature to a narrow / specific nature as the project progresses from initial phases to the final phases. The project development phases are as follows.

Development Phase	Outcome
1 Pre development	Pre-feasibility / Exclusive rights to a resource site
2 Approval	Statutory clearance to proceed / Land acquisition
3 Feasibility study	Determination of inputs / outputs
4 Licensing	Permission to use a resource / generate power
5 Financing	Realisation of project finances
6 Implementation	Construction of facility
7 Commissioning	Trial operation of facility
8 Operation	Power Generation / Energy Sales to Utility

Ensuing sections of this paper attempts to briefly describe each step to be taken by a project proponent in realising the project objectives of each phase of development.

1.0 PRE DEVELOPMENT PHASE

In this phase, the proponent makes initial inquiries about the project and takes the steps to secure exclusive rights to develop a particular resource site.

1.1 Prefeasibility Study The proponents identify a renewable energy resource for development and the first step would be to ascertain the economic viability of the project. A prefeasibility study is undertaken and certain Applicants may even initiate informal dialogues with the link agencies to find out whether the chosen location is outside excluded areas such as strict natural reserves. The report on pre-feasibility study is necessary to be compiled by a consultant accredited by SEA. In the case the Applicant is desirous of getting the services of a consultant who is not accredited by the SEA, to do the pre-feasibility study done, the Applicant is required to register such consultants with the SEA. SEA will evaluate the suitability of such persons and proceed to register the consultant as appropriate. Once the report on pre feasibility study is received by the SEA, it performs an initial examination of project feasibility, as it can impact the management of the resource which may be overtaxed by the proponent to keep a project afloat, in contravention of conditions agreed upon at project approving stages. The following important aspects are not examined by proponents in the early stages and result in unnecessary trouble during the project development. Ideally, focused attention must be paid to the following aspects, and action taken as mentioned below.

- Land issues (availability of the land for the project, consent of the agency to whom the land belongs to etc.) must be identified by carrying out an investigation, which can generate a list of land resources required for the project lay out, with clear identification of ownership
- Resource issues (availability of the resource for the project, conflicting uses of the resource etc.) must be clearly understood by studying all aspects of the resources such as seasonality and other uses (existing and future) of the resource which may compromise the project feasibility.
- Issues with respect to affected communities will have to be understood and documented to avoid conflicts during project implementation
- Technical feasibility especially from sustainability perspective needs to be dealt with comprehensively

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1.2 Making an Application After the project is found to be feasible, the proponent is required to make the first contact with the SEA and lodge an application in the format prescribed in the On-grid Renewable Energy Projects Regulation 2011. If the application was found to be compliant with all the requirements, an ☐ ☐ ☐ ☐ ☐ number is issued, meaning he has registered his NRE projects in a register maintained by SEA for that purpose. The schedule of application fees is quoted below.

Table 1 : Schedule of Application Fees

Amount of power proposed to be generated	Fee to be paid on application and reapplication
1,000 kW or part thereof	LKR 100,000
Each additional 1,000 kW	LKR 50,000 payable on pro rata basis

Note: Projects of capacities less than 10,000 kW implemented by a single party or parties acting in concert, in parallel or in phases in a same geographical or spatial context will be considered as a single project capable of generating more than 10,000 kW of power.

1.3 Provisional Approval The application, accompanying the aforesaid report on pre-feasibility study and meeting all other requirements given in the Section 16 of the Act, will be considered by the Director General of SEA for presenting before the Project Approving Committee of the SEA. The DG/SEA will consult the CEB on the acceptability of the project and most importantly the point of grid connection, and obtain formal concurrence at the outset. The PAC will evaluate the project in terms of the Section 17 of the Act before granting or refusing the Provisional Approval. PAC will meet once a month and approve projects which are acceptable to each of the relevant link agencies. With this, the project proponent, or the Applicant accede to the status of a Developer. Projects which fail to get approved will be listed and the proponents of such projects will be notified thereafter. This Provisional Approval is valid only for 6 months and could seek an extension of further 6 month. Applicants who fail to meet all requirements given in the Provisional Approval may submit a reapplication after the lapse of 12 months, and if substantial progress is evident, the PAC will move to grant a fresh Provisional Approval. If this results in non approval by the PAC due to absence of evidence of progress or any other reasons, the holder of Provisional Approval loses all rights to develop the particular resource.

2.0 APPROVAL PHASE

In this phase, the Developer seeks formal approval from several key agencies to proceed with the project development. The approval of the Divisional Secretary, CEA and an assurance from CEB on purchase of energy from the proposed project will provide a firm acceptance of the project to all stakeholders.

2.1 Divisional Secretary's Approval Divisional Secretary is considered as the representative of the Government at the grass root level who protects and manages the state land and other natural resources. When practicing, he is expected to follow the several legal provisions vested under the several acts and laws relevant to the subject. Hence the Divisional Secretary needs a considerable time period adhering to such legal provisions and to give his recommendations. Under the 13th Amendment to the constitution, getting the consent of the respective Provincial Council also is also compulsory. Small hydropower Developers are required to obtain the approval from Land Commissioner General based on the recommendation of the Divisional Secretary and the relevant Provincial Land Commissioner to obtain water rights. Further to the water rights if it is necessary to get a state land for the project, the investor has to obtain a long term lease from the Minister of Lands. Land Commissioner General has to make his recommendation to the Minister of Lands to get such approval by considering the Divisional Secretary's recommendation and Provincial Land Commissioner's consent.

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Since these are legal requirements Government agencies are bound to follow, the investors should be aware of these procedures and should submit the relevant documents and accurate information to Divisional Secretary which enables to make quick decisions and an expeditious process.

2.2 Letter of Intent This important document, referred to as the Lol, issued by the Ceylon Electricity Board (CEB), signifies the assurance of CEB to procure the electricity generated by the project. It provides the CEB's intention to buy all power produced by the Developer, and virtually eliminate the market risk of the project Developer. An application to obtain an Lol could yield one of the three standard responses below.

- CEB is willing to purchase electricity from the project as per attached grid connection proposal
- CEB is willing to purchase electricity from the project, but the grid proposal will be provided within one month

The processing fee charged by CEB stands at LKR100,000/- and is required to be paid along with the application for the Lol. This is required to cover the cost of preparing the grid connection proposal at the regional level, where Engineers have to visit project locations and interconnection sites several times to prepare the proposal. This document is desired by other link agencies as this will provide CEB's intention to purchase energy from the proposed project.

3.0 FEASIBILITY STUDY PHASE

In this phase, the Developer makes detailed evaluation of the feasibility of the project, giving due consideration to the input resources and outcome of the project.

3.1 Comprehensive Feasibility Study The Developer is required to evaluate all factors which influence the project, ranging from weather and climate conditions to eventualities of relocating people who may be affected by the project implementation. A good feasibility report answers almost all the questions raised by all link agencies, financial institutes and investors and hence will have to be a genuine effort. Most Developers tend to get the services of less competent consultants and fail to offer valid responses to environmental scoping committees and other investigators and also lead Developers to make unwise decisions cornering them to disastrous post implementation consequences. Feasibility study is always related to the approval of the project by link agencies. Hence, the commissioning of consultant always kicks-off initiatives to obtain approval of link agencies. Processing of link agency approvals and feasibility study are often carried out in parallel as a result.

Project design too is often carried out in parallel, and produces fairly detailed design parameters, just short of Engineering designs required to carry out the implementation.

3.2 Environmental Examination The Developer is required to make an application to the Central Environmental Authority (CEA) seeking environmental clearance. Depending on the severity of the environmental impact of the project, the project may be required to undergo either an Initial Environmental Examination (IEE) or a more comprehensive Environmental Impact Assessment (EIA). A scoping committee is appointed by the relevant Approving Authority designated by CEA for the project and a terms of reference is issued to the Developer. Preparation of a response requires a detailed analysis of hydrological aspects, an Engineering design of the project and certain geotechnical information. A project may be initially required to undertake an IEE and could be subsequently directed to undertake an EIA if becomes necessary. The membership of the scoping committee is case specific, but includes the following agencies most of the time.

- Department of Forests
- Department of Wildlife Conservation
- Pradeshiya Sabha / Local Authority
- Department of Archaeology
- Department of Irrigation

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- National Water Supply & Drainage Board
- Divisional Secretary

In addition to the above agencies, National Building Research Organisation will be approached to prepare a report on geological stability of the project terrain to address land slide and soil stability safety issues. In certain rare cases, an approval of the Urban Development Authority too may be required. If the project is located in an area where predominant use of water is for agriculture, the approval of the Department of Agrarian Services becomes necessary. Certain District Secretaries too may get involved in the project approval process, when the approval is referred to the District Agricultural Committee. The conditions laid out in the approval are monitored at the project commissioning stages by the CEA, but post project compliance is hardly enforced, unless there is a complaint of a violation by an affected party.

3.3 Land Resource Identification The report on feasibility study provides indications on the land resource required to implement the project. In most cases, a detailed survey including the comprehensive tenement list is prepared for acquisition or lease or purchase, after the formal environmental clearance is obtained. Land resources identified as crown land, land coming under the Land Reforms Commission and other land resource which are difficult to be acquired need early attention, and hence it is necessary to identify such land through a preliminary survey at the very beginning of the project, as the results of this survey are vital for environmental clearance.

However, a detailed survey will have to be undertaken after the environmental clearance to complete the acquisition process. The Developer is expected to use all his resources to procure the required land resources, and could approach SEA to resolve any unresolved dispute with regard to land resources, within one month of the granting of the CEA approval.

4.0 LICENSING PHASE

Having obtained statutory clearance to proceed, the Developer is required to secure an Energy Permit to use the renewable energy resource, a Generation License from PUCSL to generate electricity and sell energy to the CEB.

4.1 Energy Permit Renewable Energy resources of Sri Lanka were vested in the republic under the Section 15 of the Act. All renewable energy resources are considered to have an inalienable ownership by the republic and hence the utilisation of the resource is granted through a 20 year permit system. The Energy Permit looks into all matters related to exploitation of the renewable energy resource up shaft which transfers energy from prime mover to the electricity generator. Once all other approvals are secured by a project Developer, the PAC grants a 20 year permit (extendable by a further 20 years after the successful operation of the project during the initial 20 year period) to the Developer allowing him to use the resource under several conditions. The Developer will have to pay a fee of LKR `500,000/- (per MW of capacity) as the permit fee in the case of projects with capacities of 10MW or less or LKR1,000,000 (per MW of capacity) on projects of capacity more than 10MW. A royalty payment, as determined by the Minister, based on kWh produced too is applicable to projects having capacities more than 10MW.

The Energy Permit carries a grace period of 2 years to allow for construction activities, and the Developers are required to complete implementation within this period. Delays to commission the project within two years will erode the 20 year life of the Energy Permit from front end of the period, by a period equivalent to the delay caused.

4.2 Generation License The project Developer, possessing an Energy Permit is required to obtain a Generation License from the Public Utilities Commission of Sri Lanka (PUCSL) with the enactment of the Sri Lanka Electricity Act 20 of 2009. The conditions of the license look into all matters pertaining to the operation

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of the power plant beyond the shaft which transfers power from the prime mover to electricity generator. The annual fees payable to PUCSL for the Generation License will be LKR10,000/- per MW or part of a MW and also include a onetime application processing fee of LKR10,000/- per generation facility.

4.3 Power Purchase Agreement All projects having capacities of 10MW or less have to be taken under the Standardised Power Purchase Agreement (SPPA), reached between the CEB and the power producer. The time tested agreement is supported by tariffs offered to various technologies and are subject to revisions based on project cost escalations, at appropriate intervals. The SPPA is valid for a period of 20 years from the date of commercial operation. The tariffs offered are broadly classified into two categories; three tier and levelised. Both options are available for several genres of technologies which may undergo additions and deletions from time to time.

There are no power purchase agreements or declared tariffs for power projects having capacities greater than 10MW at present. Any such project proposal will be treated as an unsolicited proposal and follow a lengthy procedure, if a policy direction to that effect is forthcoming from the Ministry.

5.0 FINANCING PHASE

Having obtained statutory clearance to proceed, the Developer is required to secure financial resources to implement the project. Even though listed below statutory clearance in the sequence, this activity could commence no sooner the Provisional Approval is granted for a project, as this too consumes a long period. However, formal negotiations with the equity and debt providers starts only after securing all land resources to implement the project, all statutory approvals, Energy Permit and a signed power purchase agreement are available to the Developer.

5.1 Investment Approval The Board of Investment (BoI) provides special facilities to power generation projects, and the Developers are required to obtain an investment approval from the BoI by paying an annual supervision fee of USD5,000/- throughout the construction period. The concessions are granted to a particular corporate and it is often required to incorporate a special purpose company to receive such benefits, in the event that the project is to be implemented by a large holding company having other business interests which may provoke conflicts in realising import duty concessions and other benefits offered to the project implementing company. The incorporation of a special purpose company will trigger a name change process at CEB for which a fee of further LKR100,000/- is charged. A similar effect in the project database will be triggered, requiring a payment of a fee equivalent to the application fee paid on the particular project. Due to the inalienable nature of the Energy Permit, the Developers are required to complete the incorporation of project implementing company before being granted with an Energy Permit in the name of holding company.

5.2 Equity Finance Renewable Energy projects are often associated with several partners, namely technical partners (who do not put in any funds), pre-Developers (also without access to financial resources) and equity providers. These parties agree on an ownership structure and a revenue / profit sharing arrangement before approaching for debt financing. Developers are required to arrange all equity finances on a firm basis before applying for debt financing, as it is customary for debt providers to seek equity participation as a firm commitment to project implementation.

5.3 Debt Finance The Developers are required to enter into a power purchase agreement which clearly spells out a revenue forecast, before approaching a financial institute for debt financing. The renewable energy industry draws majority of debt finances from the participating credit institutes (PCI) operating within the World Bank's Renewable Energy for Rural Economic Development (RERED) project. This project is a result of a package received by the Ministry of Finance & Planning, under concessionary terms and a longer tenure of 40 years, inclusive of a 10 year grace period. The PCIs operate through a refinance scheme, and may lend to projects for tenures of 5 to 8 years depending on the client's merit. After rescheduling of certain loans, the final tenure could reach a maximum of 10 years. The collateral offered includes project assets and land on which the project components are laid out.

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Often, the PCIs demand full and uncompromised ownership of all land and other resources required for project operation as a guarantee of project revenue during the loan tenure. The PCIs go through project feasibility reports and arrives at its own judgement to finance the project, which is signified with the signing of the loan agreement. Thereafter, the funds are disbursed to a schedule closely following up the project implementation schedule. Governed by the funding agency's environmental concerns, the loan approval could be very much guided by a stricter guideline.

6.0 IMPLEMENTATION PHASE

Having obtained debt and equity finance, statutory clearance to go ahead, license to generate electricity and a market assurance through the SPPA, the Developer can mobilise construction of power plant at site. There are many other activities undertaken parallel to this task.

6.1 Procurement of Equipment Renewable energy projects require custom made equipment for energy conversion and the Developers are required to initiate procurement activities very early, to accommodate long lead times associated with such custom made equipment. Working with the financial institution quite closely to manage working capital, it is often desirable to have a bank facility to import material such as penstocks, turbines and generators. When purchase orders are processed, it is important to get the Ministry of Power & Energy recommendation on VAT exemptions forwarded to Ministry of Finance & Planning, saving many troubles at the time of custom clearance later.

6.2 Site Work Just like any other construction project, renewable energy projects also require a planning approval for construction. Once the Engineering and Architectural drawings are presented to the local authorities, it will be approved or could be subjected to corrections before approval. After construction, the actual construction will be compared with the approved drawings and a Certificate of Conformity (CoC) will be issued by the relevant authorities to proclaim that the construction is a legally acceptable building.

There could be many instances where indirect project tasks such as construction of access roads and strengthening of bridges will have to be taken care by the Developer. Similarly, the Developers are required to repair damages caused to local infrastructure due to the project implementation at the end of the construction period. Hence it is advisable to do a preliminary investigation of the local infrastructure before commencement of any site work and document it with documentary evidence and photographic proof. The local communities tend to view all damages due to natural causes as stemming from project activity, years after completion of construction work.

6.3 Power Line Construction The most important link to the market, the power line is required to be constructed at the Developer's expense, and will have to be according to the standards of the CEB. The construction work is carried out under the direct supervision of the CEB, and the main components are to be sourced from CEB or from a source capable of providing a level of quality acceptable to CEB. However, important switch gear is supplied solely by CEB, to retain the island wide standards maintained. Project Developers are not allowed to undertake power line construction according to any other standard than the standards used by CEB. Care must be taken to take the original path of the power line in order to avoid conflicts with link agencies which cleared the project under certain pre-implementation understanding. To avoid complex issues at the implementation stages, it is advisable to traverse the grid connection line path fully, at the planning stage itself. The way leaves clearance and other line maintenance activities are to be carried out by the CEB during the power plant operation. In certain locations, existing power lines are reconducted to uptake the power generation to national grid, and the full cost of the upgrade is passed on to the Developer, although some benefits accrue to the CEB. A careful analysis of cost / benefit and equitable share of costs would greatly ease the burden on the Developer.

7.0 COMMISSIONING PHASE

After completing the construction work and installation work of the power plant, the facility requires to be operated on a trial basis. At this point, the suitability of the power plant for grid connection is ensured by the CEB.

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7.1 Steel Structures Certain important steel structures such as penstock pipes in hydropower plants, towers in wind turbines and boilers in biomass plants require many pre-commissioning tests. The tests include inspection schemes such as x-ray, dye penetration and many other non-destructive test procedures. Further, pressure tests are carried out to identify any leaks in pressurised systems, before it becomes a problem during operation.

7.2 Manufacturer's procedures Almost all manufacturers of energy conversion equipment ranging from hydropower turbines, wind turbines to steam turbines provide a pre-commissioning test procedure which may be aligned with internationally accepted norms such as IEC in the case of electrical equipment. These procedures will have to be followed according to the instruction to invoke warranties of the equipment. Certain plants are driven on a 'runaway speed' scheme to simulate a case of complete disconnection of loads while the energy production is at a peak. After conducting these tests, the whole system is run on a trial basis, mostly at partially loaded conditions. During this phase, abnormal conditions (if any) are identified using techniques such as bearing temperature monitoring etc. and such faults are remedied before load tests.

7.3 Protection Testing The grid code practiced by the CEB; "CEB Guide for Grid Interconnection of Embedded Generators, Sri Lanka (2000)", clearly spells out the requirements to be met by an embedded generation plant prior to commence the commercial operation. Several tests are carried out by a Commissioning Engineer appointed by the CEB according to the grid code. After the plant is certified as fit to be connected to the grid, the power plant begins to operate on a commercial basis, and during the initial period, several efficiency measurements are made by some Developers to ascertain whether the manufacturers claims are fulfilled.

8.0 OPERATION PHASE

Once the CEB accept the installation as worthy of grid connection, the power plant will be allowed to operate on a commercial basis. This phase usually involve the full life of the Energy Permit (20 years). This period involves the operating and maintaining of the power plant on the technical front and revenue generation and debt / equity servicing on the financial front.

8.1 Metering of Electricity Generation The prevalent practice of the CEB was to visit all power plants on a monthly basis and note the power generation and station consumption during the previous one month with the presence of the Developer. After carrying out joint meter reading, the Developers raise invoices and submit same to the Energy Purchase Branch of the CEB for payments. The prevalent technology specific, cost based, three tier tariff is thus tailored to suit the many aspects of the power plant operation; the first tier to meet debt servicing and equity returns, the second tier meeting equity returns and the third tier returning the benefits of low cost energy back to the republic.

Recently, advanced technologies such as remote metering facilities have been provided to gather energy outputs from these power plants.

8.2 Plant Maintenance The variability of renewable energy resources are made to good use by Developers to undertake planned maintenance of power plants. The hydro and wind power plants plan their maintenance during periods where monsoonal wind and rains are not available. Similarly, biomass power plants plan their maintenance for periods where labour are in short supply. In reality, many power plants face unplanned maintenance tasks during the peak production periods, due mainly to incessant rain and flood conditions and also strong winds, which disrupt grid connections.

8.3 Project Closure The small power producers came into being in 1996 and are still operating on valid power purchase agreements. These agreements are silent on the mode of operation beyond the period of contract. It is expected that either an extension to the contract on a favourable agreement or complete

repowering of the plant will become necessary to ensure continuity of operation. However, such an eventuality is not expected until year 2011. It will be prudent to seek the continuous operation of the power plants under the third tier of the new tariff regime rather than entering into a complicated process of re-negotiating contracts with the Developers.

POSTSCRIPT

This briefing paper is based on the report prepared by a Committee appointed by the Presidential Task Force on Renewable Energy Development on 2nd July 2009 to compile a checklist of approvals to be taken by a project Developer who embarks on development of a typical new renewable energy resource in Sri Lanka. This paper presents the many phases a generic project undergo before starting to generate power. However, certain specific steps required by a few projects may have been left out of this consideration of a generic project.

Members of the Committee, through the valuable interaction with project Developers, interaction with relevant officers and numerous opportunities afforded in resolution of conflicts between project Developers and link agencies has gained valuable insights in to the various approval processes carried out by the link agencies. Based on this exposure, the Committee wished to place the following reasons and facts which prolong the project approval process before the Presidential Task Force. Hence the reasons for frequently faced issues are presented as a postscript to the paper.

(a) Poor Public Relations

Protests and complaints from residents living in and around the project site regarding real and perceived threats from projects often cause a great deal of delay. Early discussions with such affected persons and preparation of mitigation measures where necessary which is a key responsibility of the project proponent, which is seldom taken. A healthy relationship with the people in and around the project site is absolutely necessary to proceed with the project as planned. Trying to resolve such problems during the project approval process often delays the approval process unnecessarily. Clear documentation of pre and post project circumstances of all interfaces of project with the society, and awareness creation among the affected people from the inception are essential to circumvent such issues.

(b) Insufficient Information

More often than not, the Developers provide less information than required to link agencies, resulting in long delays in exchange of letters and revisits etc.. This is a result of poorly briefed Developers. Accordingly, Developers are requested to provide all information requested by approving authorities, along with the formal applications made.

(c) Delayed Application Fees

Due to liquidity issues or otherwise, Developers fail to pay application fees to link agencies, but perceives the non-processing of their application as a delay caused by the approving authority. Hence payment of required fees at the earliest is advisable.

(d) Lack of Awareness of Link Agency Officers

Certain officers, especially officers who are attached to regional offices of many link agencies do not understand the urgency of processing an application for approval (resulting from the new resource allocation regime) or the fact that this is a Government driven programme. This has caused extensive delays in the case

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of many link agencies. Solicitation of support from SEA would resolve most such issues, and Developers are advised to bring such issues to the notice of SEA at the earliest.

(e) Lack of Capacity

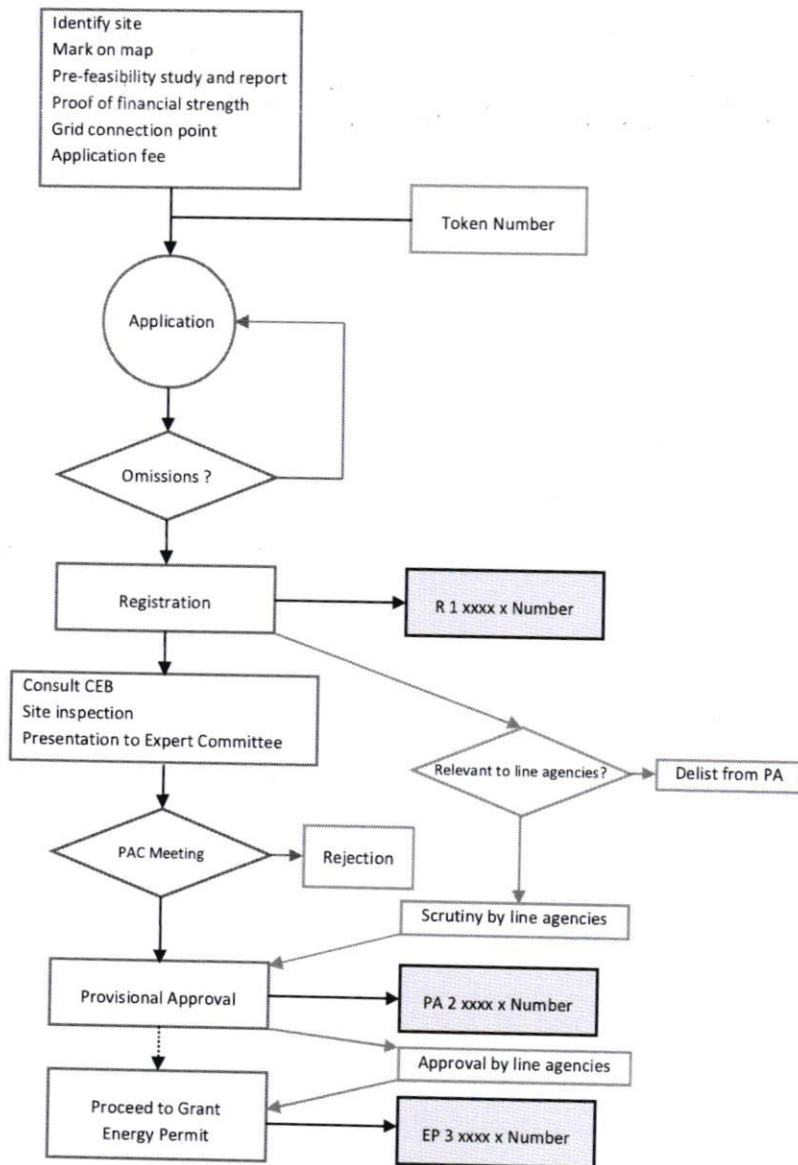
Certain link agencies and branches are heavily understaffed or do not have qualified staff to process applications. This has resulted in long delays, especially when a non-routine matter is investigated. Hence early approach of such agencies could help timely realisation of approvals.

(f) Irrelevant Link Agencies

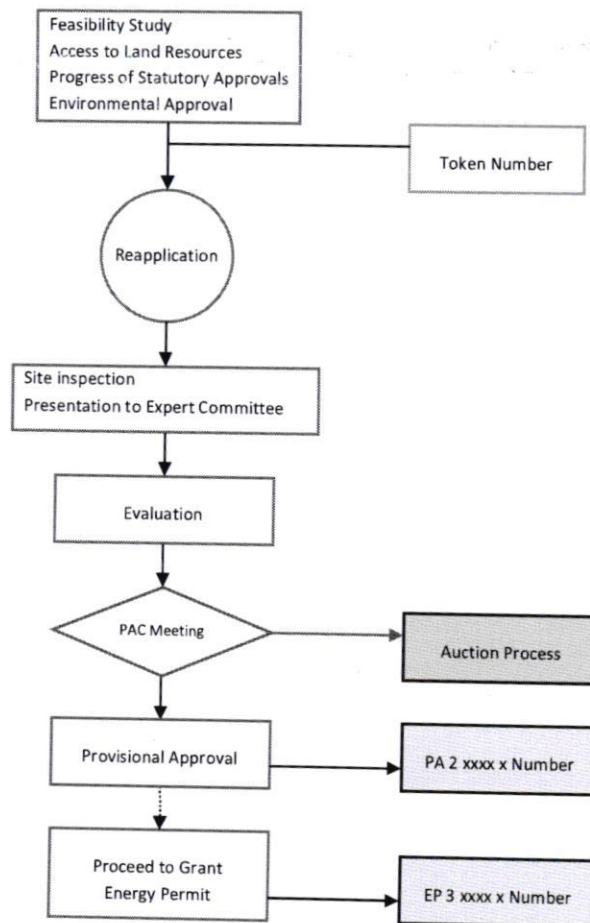
In several instances, cases of projects being referred to link agencies without any connection to the resource or the location have come to light. This is a result of keeping the list of agencies from which the Developer has to seek approval being kept open. Much time and effort is consumed in eliciting a no objection letter from such an irrelevant link agency. It will have to be noted that all these deficiencies add unnecessary burden to the Developers and often eat into the limited time period allocated to get a Provisional Approval converted to an Energy Permit. In these circumstances, Developers could benefit by determining the relevant agencies at the outset and adhering to that particular list in all future actions.

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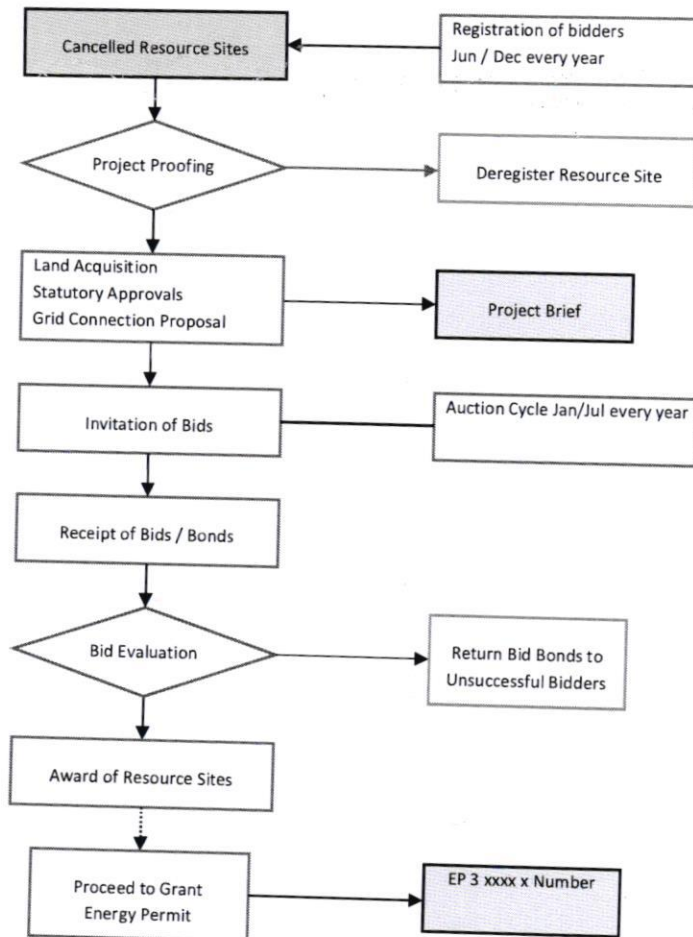
APPENDIX 5 : NEW APPLICATIONS – PROCESS FLOWCHART



APPENDIX 6 : REAPPLICATIONS – PROCESS FLOWCHART



APPENDIX 7 : AUCTION METHODOLOGY – PROCESS FLOWCHART



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FORMAT F1 PRE-FEASIBILITY STUDY CONTENTS

Checklist of Contents of the Pre-feasibility Study which is to be attached to the Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Small Hydro	
Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the stream/ river	
Name of the village and administrative divisions	
Land use and general socio-economic background of the area	
Sketch of the catchment	
Site Survey	
Gross head from weir crest to tail water level (m)	
Location details (latitude/longitude) of the weir and powerhouse	
Stream Flow Analysis	
General description of the climate and geo-physical conditions in the region	
Rainfall data	
Catchment area (km ²)	
Daily stream flow rates or estimated FDC	
Preliminary Plant Design	
Design flow rate and gross head	
General layout of the power plant including a single-line diagram of the electrical system up to grid interconnection	
Preliminary sizing of civil works, hydraulic losses	
Net head on turbine	
Turbine selection	
Installed capacity	
Key specifications of the E&M equipment	
Gross annual or monthly generation, losses, net sales to the grid	
Environmental Considerations	
Localised social & environmental benefits likely to result due to the project	
Localised negative social & environmental impacts likely to result due to the project	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital cost of the project	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

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Checklist of Contents of the Pre-feasibility Study which is to be attached to the
Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Biomass (grown)

Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the site	
Name of the village and administrative divisions	
Sketch of the area earmarked for the power plant	
Land use and general socio-economic background of the area	
General infrastructure facilities - access roads, nearest CEB grid substation, water supply	
Preliminary Plant Design	
Rated capacity	
Preliminary layout of the power plant including a single-line diagram of the electrical system up to grid interconnection	
Gross/ net annual electricity generation	
Biomass type earmarked as the fuel and key properties	
Heat and mass balance calculations	
Biomass demand	
Data on biomass yield, required land area	
Ash disposal arrangements	
Biomass Supply	
Method of sourcing biomass	
If biomass will be grown by the plant owner, area earmarked for biomass plantations	
If biomass will be sourced from other suppliers, information on the identified suppliers – name, location, letter of consent in principle	
Arrangements for harvesting, transport and supply of biomass	
Environmental Considerations	
Localised social & environmental benefits likely to result due to utilisation of biomass in the power plant	
Localised negative social & environmental impacts likely to result due to utilisation of biomass in the power plant	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital cost of the project	
Cost of biomass supply – price payable for biomass at source, handling costs, transport costs	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

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Checklist of Contents of the Pre-feasibility Study which is to be attached to the
Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Wind

Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the site	
Name of the village and administrative divisions	
Sketch of the area earmarked for the project with coordinates	
Land ownership information	
Current land use and socio-economic background in the area	
General Infrastructure facilities – access roads, nearest CEB grid substation	
Wind Resource Analysis	
Description of the local wind climate	
Estimated average annual wind speed ² at the site	
Estimated Weibull parameters	
Estimated wind speed frequency distribution	
Preliminary Plant Design	
Rated capacity	
Wind turbine specifications and power curve data	
Preliminary plant layout including a single-line diagram of the electrical system up to grid interconnection	
Proposed 33 kV transmission line route	
Gross annual electricity generation, losses, net sales to the grid	
Transport of wind turbines – proposed route, identified bottlenecks	
Crane requirements for erection of wind turbines	
Environmental Considerations	
Localised social & environmental benefits likely to result due to the proposed project	
Localised negative social & environmental impacts likely to result due to the project	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital costs	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

² If measured wind data is not available close to the site, please refer to the national wind atlas

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Checklist of Contents of the Pre-feasibility Study which is to be attached to the
Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Waste (agricultural, industrial, municipal)

Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the site	
Name of the village and administrative divisions	
Sketch of the area earmarked for the power plant	
Land use and general socio-economic background in the area	
General Infrastructure facilities – access roads, nearest CEB grid substation, water supply	
Preliminary Plant Design	
Rated capacity	
Preliminary layout of the power plant including a single-line diagram of the electrical system up to grid interconnection	
Gross/net annual electricity generation	
Waste type(s) earmarked as the fuel and key properties	
Heat and mass balance calculations	
Waste demand	
Ash disposal arrangements	
Waste Supply	
Identified types of waste(s), their moisture levels, drying methods, processing/sorting required	
Waste availability – survey method, surveyed region, available quantities, seasonal variation, etc.	
Present uses of waste, price paid by users, if any	
Information on identified suppliers – name, location, letter of consent in principle	
Environmental Considerations	
Localised social & environmental benefits likely to result due to utilisation of waste in the power plant	
Localised negative social & environmental impacts likely to result due to utilisation of waste in the power plant	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital cost of the project	
Cost of waste supply –price payable for waste at source, handling costs, transport costs	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

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Checklist of Contents of the Pre-feasibility Study which is to be attached to the
Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Waste (waste heat)

Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the site	
Name of the village and administrative divisions	
Sketch of the area where waste heat is available and the site earmarked for the power plant	
Land use and general socio-economic background in the area	
General Infrastructure facilities – access roads, nearest CEB grid substation, exiting grid interconnection, water supply	
Preliminary Plant Design	
Estimates of waste heat, temperature and pressure of the waste stream	
Rated capacity of the power plant	
Preliminary layout of the power plant including a single-line diagram of the electrical system up to grid interconnection	
Gross/net annual electricity generation	
Supplementary fuel requirements	
Heat and mass balance calculations	
Source of Waste Heat	
Identified source(s) of waste heat	
Associated industrial process (product, raw material, annual output)	
Primary fuel source(s) for the existing industrial process	
Present uses of waste heat, if any	
Environmental Considerations	
Localised social & environmental benefits likely to result due to the power plant	
Localised negative social & environmental impacts likely to result due to the power plant	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital cost of the project	
Cost of waste heat recovery structures and systems	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

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Checklist of Contents of the Pre-feasibility Study which is to be attached to the
Application for Provisional Approval for an On-grid Renewable Energy Project

Project type: Other

Profile of the Applicant	
Background ¹ of the company/individual applying for provisional approval	
Site Description	
Name of the site	
Name of the village and administrative divisions	
Sketch of the area earmarked for the project	
Available infrastructure in the area - access roads, nearest CEB grid substation	
Socio-economic profile in the selected coastal belt	
Renewable Energy Resource potential	
General climate in the region	
Technical description of the resource characteristics	
Resource potential estimates	
Project Concept	
Global status of power generation from the particular resource	
Description of the project concept	
Principle of operation of the proposed technology & its operational characteristics	
Past experience with similar technology concept elsewhere in the world	
Maturity of the technology for commercial deployment	
Preliminary Plant Design	
Configuration of the power plant structures and power transmission	
Rated capacity	
Key specifications of energy converters and auxiliary equipment	
Single-line diagram of the electrical system up to grid interconnection	
Gross annual or monthly electricity generation, losses, net sales, to the grid	
Environmental Considerations	
Localised social & environmental benefits likely to result due to the project	
Localised negative social & environmental impacts likely to result due to the project	
Proposed measures to mitigate negative impacts	
Project Costs	
Capital cost of the power plant	
O&M costs, insurance costs	
Financial Analysis	
Financing parameters	
Financial analysis including a sensitivity analysis against key variables	
Project Development Plan	
Site ownership, plans to acquire land	
Source(s) earmarked to raise the equity and debt financing	
Project implementation schedule	

¹ Current business, products,/services, proposed business plan for the project

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Annex to the Pre-feasibility Report: Land Resource Requirements

For Project Components

Extent	Location/Description	Ownership

For Site Access

Extent	Location/Description	Ownership

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FORMAT F2 SUMMARY OF PRE-FEASIBILITY STUDY

To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Please fill-up the shaded areas only. Page layout: Landscape **Format F2**

Project Type		Small hydro		Name of the Applicant			
Name of the Project							
Location of Power Plant		District:			DS Division		
		Village(s)				GN Division(s)	
Resource Information	Name of river or stream		Catchment area (km ²)		Average annual rainfall (mm)	Others users of water (specify):	
Resource Use	Design flow (m ³ /s)		Gross head on turbine (m)		Net head of turbine (m)		
Power Plant Data	Length of channel or tunnel (m)		Length of penstock (m)		Diameter of penstock(m)		
	Turbine type		Installed capacity (kW)		Generating voltage (V)	Net annual energy (MWh)	
Land Requirements (ha)	Total land-use		Applicant's own land		Other private land	State land	Other owners (specify):
						Estate land	
Transmission	Interconnection voltage (volt)		Length of new transmission line (km)		Receiving grid substation	Any special issues on transmission:	
Environmental issues (describe)							
Estimated Investment (LKR)		Pre-project, land rights				Project Financing Plan (LKR)	
Please state here any assumptions in cost estimates		Civil works including penstock				Equity by the Applicant	
		Electro-mechanical equipment				Equity from other sources	
		Transmission line				Loans	
		Other- IDC, insurance, working capital, contingencies				Total	
		Project development costs				Any special notes on the financing plan:	
		Total					
		Estimated annual maintenance cost (LKR)					
Project IRR		Equity IRR		Other financial parameters (specify)			
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:							
For use by SEA:							
Notes to the Project Approving Committee:							
PAC submission Date:		Discussed on:		Decision:		Communicated to applicant on:	

To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Page layout: Landscape **Format F2**

Project Type		Biomass (grown)		Name of the Applicant			
Name of the Project							
Location of Power Plant		District:			DS Division		
		Village(s)				GN Division(s)	
Resource Information	Name of the fuel		Yield (kg/tree/year)		Moisture content: as harvested and after drying		LHV (MJ/kg)
Fuelwood Supply	Applicants' dedicated fuelwood plantation	District		DS division	Extent of land (ha)		Fuelwood supply (tonne/year)
	Outside suppliers	Number of suppliers		Mono crop or mixed crop	Extent of land (ha)		
Power Plant Data	Power plant technology		Installed capacity (kW)		Overall plant efficiency		Specific fuel consumption (kg/kWh)
	Biomass demand (tonne/day)		Water demand (m ³ /day)		Cooling method (describe):		Ash/residues (tonne/day)
Transmission	Interconnection voltage (volt)		Length of new transmission line (km)		Receiving grid substation		Any special issues on
Environmental issues (describe)							
Estimated Investment (LKR)		Pre-project, land rights				Project Financing Plan (LKR)	
Please state here any assumptions in cost estimates		Civil works				Equity by the Applicant	
		Electro-mechanical equipment				Equity from other sources	
		Transmission line				Loans	
		Other- IDC, insurance, working capital, contingencies				Total	
		Project development costs				Any special notes on the financing plan:	
		Total					
		Estimated annual maintenance cost (LKR)					
Project IRR		Equity IRR		Other financial parameters (specify)			
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:							
For use by SEA:							
Notes to the Project Approving Committee:							
PAC submission Date:		Discussed on:		Decision:		Communicated to applicant on:	

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To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Please fill-up the shaded areas only.

Page layout: Landscape

Format F2

Project Type	Wind	Name of the Applicant			
Name of the Project					
Location of Power Plant	District:	DS Division		GN Division(s)	
	Village(s)				
Resource Information	Mean annual wind speed (m/s)	Weibull shape factor (k)		Weibull scale factor (c)	
Power Plant Data	Installed capacity (kW)	Wind turbine model	Rotor diameter (m)	Rated wind speed at standard air density	
	Tower height (m)	Number of units	Generating voltage (V)	Net annual energy (MWh)	
Land Requirements	Area required for the wind power plant site (km ²)	Area required per wind turbine location (m ²)	Distance between wind turbines (m)	Area required for buildings and access roads (m ²)	
Land Ownership (approximate percentage distribution by type of owner)	State land	Applicant's own land	Other private land	Estate land	
Power Transmission	Interconnection voltage (volt)	Length of new transmission line (km)	Receiving grid substation	Any special issues on transmission:	
Environmental issues (describe)					
Estimated Investment (LKR)	Pre-project, land rights		Project Financing Plan (LKR)		
Please state below any assumptions in cost estimates	Civil works including penstock		Equity by the Applicant		
	Electro-mechanical equipment		Equity from other sources		
	Transmission line		Loans		
	Other- IDC, insurance, working capital, contingencies		Total		
	Project development costs		Any special notes on the financing plan:		
	Estimated annual maintenance cost (LKR)		Total		
Project IRR	Equity IRR	Other financial parameters (specify)			
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:					
For use by SEA:					
Notes to the Project Approving Committee:					
PAC submission Date:	Discussed on:	Decision:	Communicated to applicant on:		

To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Please fill-up the shaded areas only.

Page layout: Landscape

Format F2

Project Type	Waste	Type of Waste Used	Agricultural Industrial Municipal (select one)		Separate format for waste heat
Name of the Project					
Name of the Applicant					
Location of Power Plant	District:	DS Division		GN Division(s)	
	Village(s)				
Resource Information	Waste material to be used	Method of transport			
	Principal supplier(s)	Sorting Method	Daily fuel use (tonne/day)		
	Moisture level as delivered	Drying method			
Power Plant Data	Combustion technique (describe):			Installed capacity (kW)	
	Number of units	Generating voltage (V)	Net annual energy (MWh)	Overall net efficiency	
Land and Water Requirements	Fuel storage and processing (m ³)	Power plant site (m ²)	Cooling water requirement (m ³ /day) and source	Cooling system (describe):	
Land Ownership (approximate percentage distribution by type of owner)	State land	Applicant's own land	Other private land	Estate land	
Power Transmission	Interconnection voltage (volt)	New trans-mission line (km)	Receiving grid substation	Any special issues on transmission:	
Environmental impacts	Ash quantity (m ³ /day)	Ash disposal method	Other environmental issues (describe):		
Estimated Investment (LKR)	Pre-project, land rights		Project Financing Plan (LKR)		
Please state below any assumptions in cost estimates	Civil works		Equity by the Applicant		
	Electro-mechanical equipment		Equity from other sources		
	Transmission line		Loans		
	Other- IDC, insurance, working capital, contingencies		Total		
	Project development costs		Any special notes on the financing plan:		
	Estimated annual maintenance cost (LKR)		Total		
Project IRR	Equity IRR	Other financial parameters (specify)			
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:					
For use by SEA:					
Notes to the Project Approving Committee:					
PAC submission Date:	Discussed on:	Decision:	Communicated to applicant on:		

ON –GRID RENEWABLE ENERGY DEVELOPMENT

To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Please fill-up the shaded areas only. Page layout: Landscape Format F2

Project Type	Waste	Source of Waste Heat
Name of the Project		
Name of the Applicant		
Location of Power Plant	District:	DS Division
	Village(s)	GN Division(s)
Resource Information	Industrial process providing waste heat	
	Temperature (C)	Flow rate (m ³ /s)
	Heat recovery method	Final exhaust temperature (C)
Power Plant Data	Supplementary firing method and fuel (describe):	
	Number of units	Generating voltage (V)
Land and Water Requirements	Power plant site (m ²)	Cooling water requirement (m ³ /day) and source
	Cooling system (describe):	
Land Ownership (approximate percentage distribution by type of owner)	State land	Applicant's own land
Power Transmission	Interconnection voltage (volt)	New trans-mission line (km)
	Receiving grid substation	
Environmental impacts (describe)		
Estimated Investment (LKR)	Project Financing Plan (LKR)	
Please state below any assumptions in cost estimates.	Civil works	
	Electro-mechanical equipment	
	Transmission line	
	Other-IOC, insurance, working capital, contingencies	
	Project development costs	
	Total	
	Estimated annual maintenance cost (LKR)	
Project IRR	Equity IRR	Other financial parameters (specify)
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:		
For use by SEA:		
Notes to the Project Approving Committee:		
PAC submission Date:	Discussed on:	Decision:
Communicated to applicant on:		

To be Completed by the Applicant and provided as the first page in the Pre-feasibility Report. Please fill-up the shaded areas only. Page layout: Landscape Format F2

Project Type	Other	Source of Energy
Name of the Project		
Name of the Applicant		
Location of Power Plant	District:	DS Division
	Village(s)	GN Division(s)
Resource Information	Resource characteristics (describe):	
	Seasonality assessment	Spatial dispersion
Power Plant Data	Energy Conversion technique (describe):	
	Number of units	Generating voltage (V)
Land Requirements	Power plant site (m ²)	Other land (m ²)
	Other facilities (describe):	
Land Ownership on-shore (approximate percentage distribution by type of owner)	State land	Applicant's own land
Power Transmission	Interconnection voltage (volt)	New trans-mission line (km)
	Receiving grid substation	
Environmental impacts (describe)		
Estimated Investment (LKR)	Project Financing Plan (LKR)	
Please state below any assumptions in cost estimates.	Civil works	
	Electro-mechanical equipment	
	Transmission line	
	Other-IOC, insurance, working capital, contingencies	
	Project development costs	
	Total	
	Estimated annual maintenance cost (LKR)	
Project IRR	Equity IRR	Other financial parameters (specify)
Please describe any additional issues related to the resource, power plant, land and transmission line, that require the attention of the SEA:		
For use by SEA:		
Notes to the Project Approving Committee:		
PAC submission Date:	Discussed on:	Decision:
Communicated to applicant on:		

ON –GRID RENEWABLE ENERGY DEVELOPMENT

FORMAT F3 CERTIFICATION BY THE ACCREDITED CONSULTANT

Certification by the Accredited Consultant

Name of the Consultant: _____

Address: _____

Email: _____ Phone: _____ Fax: _____

I certify that the pre-feasibility study for _____ (state the Project Name) was conducted by me, after a site reconnaissance and _____ (state the number of visits made) site visits. I certify that the attached report and the summary are in accordance with the format provided by Sri Lanka Sustainable Energy Authority (SEA).

I understand that any professional misconduct caused by me in preparation of this report would result in my name being struck off the Register of Consultants maintained by SEA and that this misconduct would be reported to all professional bodies which I am affiliated at present for further action.

Signature of Consultant:

Date:

- Sequence of filing:
- (a) Cover page
 - (b) This certificate by the Consultant
 - (c) Summary of the Pre-feasibility study (format F2)
 - (d) Pre-feasibility report (list of contents as per format F1)

Development of On-grid Renewable Energy Projects Accreditation of Consultants

Applications are hereby invited from all Chartered Engineers who are willing to carry out Pre-feasibility studies and Feasibility studies with regard to renewable energy projects.

Consultants who are already accredited by SEA are also required to send fresh applications, as the SEA is planning to reconstitute the panel of Consultants. A short list of Consultants will be interviewed by a panel of experts before accreditation.

Standard application forms can be obtained from the office of the SEA between 0900-1500 hrs. on any working day or can be downloaded from <http://www.energy.gov.lk/xx>. Perfected application forms shall reach the undersigned on or before 30th April 2011.

Director General

Sri Lanka Sustainable Energy Authority

3G 17 BMICH

Bauddhaloka Mawatha

Colombo 00700

www.energy.gov.lk

info@energy.gov.lk

12th April 2011

ON –GRID RENEWABLE ENERGY DEVELOPMENT

Sri Lanka Sustainable Energy Authority (SEA) desires to further streamline the process of developing New Renewable Energy (NRE) projects by prospective investors for generation of electricity for the national grid. From now on, the process of developing a renewable energy resource will consist of three main steps.

1. Application: Applicants will be required to lodge a completed application for the resource site which is proposed to be developed by the Applicant. A complete application would have;
 - (a) Copy of the Pre-feasibility report prepared by a Consultant accredited by SEA,
 - (b) A copy of the map of the geographical location of the proposed project,
 - (c) A brief description of the project, including the amount of power to be generated,
 - (d) The total estimated cost and financial model including the optimisation criteria adopted,
 - (e) Proof of availability of adequate finances or the manner in which the required finances for the project are to be obtained,
 - (f) Project location, describing the relative location of energy conversion plant and equipment to the resource,
 - (g) A statement explaining how the Applicant intends to evacuate electricity generated from the project in relation to the existing national grid, and geographical area traversed by the power line constructed for that purpose,
 - (h) A copy of the receipt obtained from the SEA, for the payment of the prescribed application fee.

The applications thus received will be registered forthwith in a register maintained by SEA, irrespective of whether there are any other applicants who have applied before the particular Applicant. The resources will be allocated strictly on a first-come, first-served basis, on the principles laid down in the document titled 'A Guide to the Project Approval Process for On-grid Renewable Energy Project Development'. After the assessment of the pre-feasibility study and other information about the applicant, a Provisional Approval will be either granted or refused.

2. Application for Energy Permit: The requirements to issue a renewable Energy Permit include a comprehensive feasibility study. Once all the conditions in the provisional approval have been fulfilled (within a maximum period of one year), an Energy Permit will be issued.
3. Commercial Operation: Within two years of receiving the renewable energy permit, the power plant should enter commercial operation. The renewable energy permit is valid for 20 years from the commercial operation date.

The pre-feasibility study listed under 1 above is required to be conducted by a consultant accredited by SEA. The list of contents required in a pre-feasibility study report will be provided by SEA, for each type of renewable energy resource. An applicant registered for a renewable energy project will be provided with the list of Accredited Consultants. The selection of the Consultant for a particular project from among the accredited Consultants is entirely at the discretion of the Applicant.

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Application for Accreditation as a Consultant to conduct Pre-feasibility Studies for On-grid Renewable Energy Projects

Note: If a Consulting Company is citing qualifications of their key professionals, each such professional shall complete a separate form

Name of the Consultant (company or individual)		
NIC or Company Registration No.		
Address		
Telephone		
Facsimile		
Email		
Academic qualifications		
Training courses followed		
Membership of professional institutions/ associations in the profession of Engineering		
Current employer and position in the organisation (if relevant):		
Type of projects for which pre-feasibility studies could be undertaken – mark ✓ in the box against each project type. You may selected more than one type.	Project type	
	Small hydro	
	Wind	
	Biomass (grown)	
	Waste (agricultural)	
	Waste (industrial)	
	Waste (municipal)	
	Waste heat	
	Other (please state)	
Experience in carrying out pre-feasibility/ feasibility studies in relation to the chosen project type(s). State project type and years of experience.		
Please list below recent pre-feasibility/ feasibility studies conducted by the consultant in relation each chosen project type. State project name, capacity (MW) and whether it is operational/under construction/development or abandoned.		
1.		
2.		
3.		
Note: If the Consultant is already accredited by SEA, list all projects undertaken before / after the accreditation		

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Notice needed to undertake an assignment – mark ✓ in the appropriate box below				
5 days	10 days	15 days	20 days	30 days
Typical time required to prepare and submit a pre-feasibility report ____ to ____ days				

Signature of Consultant:

Date: