

## THAILAND RENEWABLE ENERGY POLICY

Thailand wishes to diversify its energy mix and to promote the use of Renewable Energy within its energy mix.

The use of Renewable Energy within Thailand's energy mix has the added benefits of reducing the environmental impact of using conventional fossil fuels and simultaneously displacing Thailand's need to spend foreign exchange on the import of fossil fuels.

It is anticipated that the majority of Renewable Energy in Thailand will be generated by biomass-fuelled projects (presently estimated to account for 90-95% of Renewable Energy capacity in Thailand). This will significantly benefit the agricultural community in Thailand.

The Ministry of Energy ("MoE") has a stated policy objective that 8% of Thailand's overall installed generating capacity by 2011 be contributed by Renewable Energy projects. It is estimated that this will represent approximately 2,300-2,400 MW<sup>1</sup> of installed capacity by 2011.

Thailand's present Renewable Energy capacity is approximately 1,240 MW; of which only approximately 640 MW is delivered to the Thai electricity grid<sup>2</sup>.

The Energy Policy Planning Office ("EPPO") reports that the MoE's objective is to increase the installed generating capacity of Renewable Energy by 2,000 MW by 2011.

Against this background, it is important that Thailand establishes a Renewable Energy policy, tariff structure and contractual framework (i.e., Power Purchase Agreement ("PPA")) that will support investment in Renewable Energy projects and maximize the energy delivered, accepted and purchased from these investments.

It is in this context that we have prepared a set of principles for the development of a Renewable Energy policy ("RE Principles") for consideration by the MoE. These principles are set out as Part A hereto.

Part B sets out a conceptual mechanism for a Feed-in Tariff that may be used to support the cost differential between the expected cost of Renewable Energy tariffs and those achievable using conventional fossil fuels.

Part C sets out recommendations for a Renewable Energy PPA ("RE PPA"). We would welcome an opportunity to provide additional assistance to the MoE in making more detailed recommendations for an appropriate PPA, including the provision of a draft PPA that would support investment in this sector.

It is the industry's and investor's considered view that the adoption of the RE Principles set out in Part A, in conjunction with an appropriate tariff structure and RE PPA, will assist Thailand in meeting its objectives with respect to the role of Renewable Energy within Thailand's energy mix and place Thailand as a regional leader in this increasingly important sector.

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<sup>1</sup> Based on Thailand Load Forecast dated 27 July 2006 by Thailand Load Forecast Subcommittee. Source: EPPO.

<sup>2</sup> Based on estimates available at EPPO's website [www.eppo.go.th](http://www.eppo.go.th) dated March 2006.

## PART A: RENEWABLE ENERGY POLICY PRINCIPLES

1. Apply the Renewable Energy policy to projects that qualify as 100% Renewable Energy projects.

*This is consistent with the Renewable Portfolio Standard introduced by the National Energy Policy Council (“NEPC” in August 2004); that is to say, that such projects shall be permitted to utilise fossil fuels only for the purposes of start up operations (i.e. 5 days equivalent full load operation).*

*Consideration may also be given to developing a separate policy regime to promote co-firing with renewable energy and fossil fuels.*

2. Provide a ‘level playing field’ by establishing a Renewable Energy policy to apply to all Renewable Energy projects, including existing operating projects.

*Provision should be made for existing Renewable Energy projects to elect to come under the Renewable Energy policy, including the application of the tariff mechanism (Principles 5, 6 and 7) and RE PPA (Principle 8).*

3. Optimise delivery of Renewable Energy in Thailand’s energy mix by deeming Renewable Energy projects as ‘must run / must take’ facilities.

*This is necessary to optimise the delivery of Renewable Energy in Thailand’s energy mix. It is inappropriate that dispatch of Renewable Energy projects, and therefore the fulfillment of policy objectives, be left in the hands of the power purchaser(s) – this should be controlled by the Government, and supported by the Feed-in Tariff mechanism (Principle 8), in order to meet Government policy objectives.*

4. Provide for a guaranteed minimum dispatch for projects (e.g. biomass projects) that can accommodate a reasonably reliable / predictable availability and require dispatch assurances to optimise cost effectiveness and fuel supply planning and contracting.

*Notwithstanding the ‘must run / must take’ requirement (Principle 3), a guaranteed minimum dispatch is essential to enable the generator to plan and contract fuel supply (including on a take-or-pay basis) which will generally be done with farmers / agricultural communities. This is also beneficial to the power purchaser to enable predictable and reliable dispatch, system planning and load flows on a more consistent and dependable basis.*

5. Provide for an exclusive zone around projects such that no competing project utilising the same fuel type will be licenced within the exclusive zone.

*This is essential to protect the fuel supply of the project and assure that the fuel supply will not be diverted to a subsequently established competing project – as has occurred in a number of instances in Thailand.*

6. Create an appropriate tariff mechanism to match the capital cost and operating cost of Renewable Energy projects, recognising the typically higher initial capital cost for Renewable Energy projects.

*The Capacity and Energy Payment components of the tariff will need to reflect the Renewable Energy technology employed in the relevant project.*

7. Include in the Energy Payment component of the tariff the cost of fuel, on a pass through basis, based on either (a) a market price mechanism or (b) a fixed price with indexation to a Consumer Price Index (“CPI”) to account for inflation.

8. Provide for a 'Feed-in Tariff' to meet the differential between the Small Power Producer ("SPP") PPA tariff and the RE PPA tariff.

*This will have the effect of making the power purchaser indifferent to dispatch between a Renewable Energy project and an SPP project. This is appropriate and consistent with the 'must run / must take' principle (Principle 3)*

*Proposals for Feed-in Tariff mechanisms are included at Part B hereof.*

9. Introduce a Renewable Energy PPA ("RE PPA") that provides for an appropriate balanced risk allocation between the generator and the power purchaser.

*The present SPP PPA (a) had its genesis as a basis for cogeneration facilities to sell excess capacity and energy to the Thai electricity grid and (b) was developed for the benefit of the power purchaser. It is heavily one-sided in favour of the power purchaser.*

*When applied to Renewable Energy projects such a contract serves to discourage investment whereas the objective should be to encourage investment in this sector.*

*In order to achieve a balanced risk allocation it is inappropriate that the RE PPA be written by the power purchaser without the involvement of the generator. In this regard we attach as Part C suggested principles to be included in an RE PPA.*

10. Remove capacity constraints for Renewable Energy projects.

*In looking to maximize the contribution of Renewable Energy, scale should be encouraged not confined.*

## Part B: Feed-in Tariff Mechanism

The Feed-in Tariff mechanisms contemplated below are based on 2006 estimated load factors and calculate the Feed-in Tariff that would be required if 6% or 8% of delivered energy was derived from RE projects.

The reality is that in 2006 Thailand has only approximately 640 MW of RE capacity which results in only approximately 4,500 GWhr of delivered energy to the Thai electricity grid<sup>3</sup>.

On this basis the MoE could employ a step-up approach to the imposition of the surcharge on delivered energy, whether applied to all delivered energy or only on non-RE energy delivered.

### Alternative A: Surcharge on delivered energy to support RE policy objective

2006 Estimated delivered energy =	140,287 GWhr <sup>4</sup>	
Surcharge on delivered energy =	THB 0.05 / kWhr	
Contribution to Feed-in Tariff Fund =	THB 7.0 billion	
Proportion of delivered energy from RE projects =	8%	6%
Total contribution of RE projects =	11,223 GWhr	8,417 GWhr
Average Feed-in Tariff available =	THB 0.625 / kWhr	THB 0.83 / kWhr

### Alternative B: Surcharge on non-RE energy to support RE policy objective charged to Non-RE energy generators

2006 Estimated delivered energy =	140,287 GWhr	
Proportion of delivered energy from RE projects =	8%	6%
Total contribution of RE projects =	11,223 GWhr	8,417 GWhr
Total Contribution from Non-RE Energy =	129,064 GWhr	131,870 GWhr
Surcharge on Non-RE delivered energy (charged to generator) =	THB 0.055 / kWhr	THB 0.055 / kWhr
Contribution to Feed-in Tariff Fund =	THB7.09 billion	THB 7.25 billion
Average Feed-in Tariff available =	THB 0.632 / kWhr	THB 0.862 / kWhr

<sup>3</sup> Assuming a load factor of 80%

<sup>4</sup> Based on Thailand Load Forecast dated 27 July 2006 by Thailand Load Forecast Subcommittee. Source: EPPO.

## **PART C: RECOMMENDATIONS FOR A RENEWABLE ENERGY POWER PURCHASE AGREEMENT**

Following a review of the Independent Power Producer (“IPP”) PPA and the SPP PPA the following recommendations are submitted to the MoE for its consideration in the development of a Renewable Energy PPA (“RE PPA”).

In submitting our recommendations for an RE PPA, we have considered the importance of ensuring a balanced risk allocation which will promote investment in the Renewable Energy Sector in Thailand.

The recommendations assume the use of the SPP PPA as the starting basis for the development of the RE PPA. The recommendations set out below are proposed as modifications to the existing SPP PPA.

It is noted that the existing SPP PPA had its genesis in providing cogeneration facilities the opportunity to sell electrical capacity and energy to the Thai electricity grid (usually by sale to EGAT, as power purchaser).

Therefore, in certain respects, the SPP PPA provides a poor benchmark for a PPA to be applied to a Renewable Energy project that may sell electrical capacity and energy exclusively to the Thai electricity grid (i.e. through a power purchaser) and thus have as its principal, and likely only, source of revenue the revenue to be paid by the power purchaser.

In this context, despite the use of the SPP PPA as the base document, there are many areas where the IPP PPA could provide more appropriate guidance for development of an RE PPA.

1. **Milestone Obligation:** The generator is to achieve commercial operation by a date certain (“Commercial Operation Date” or “COD”) agreed between the parties.
2. **Testing and Commissioning:** Provision should be made for the power purchaser’s participation in the testing procedure. The contractual philosophy should focus on attempting to achieve the initially targeted capacity.

Provision should also be made for retest in the event of a shortfall with appropriate time periods permitted to prepare and schedule for the retest.

In the event that the power purchaser is not available, or does not make a grid connection available, to complete testing and commissioning of the power plant, the power plant should be deemed commissioned.

3. **Validation of Capacity:** The generator or power purchaser may request retest with appropriate notice period (30 days) up to an agreed maximum retests in any year (4 times) to validate the Contracted Capacity or, if applicable, declared capacity.
4. **Power Purchase:** Consistent with RE Policy Principle 3, the power purchaser would be obliged to purchase all available energy delivered by a Renewable Energy Project.

To support those projects able to meet guaranteed dispatch obligations in contracting fuel supply, a guaranteed minimum dispatch of 80% should be contracted; provided always that the power purchaser remains obliged to purchase all available energy.

5. **Capacity Payment:** The Capacity Payment should reflect the actual all-in investment cost and fixed operation and maintenance (“O&M”) costs of the Renewable Energy project based on the relevant technology.

Under no circumstances should the Capacity Payment be linked to the cost of developing and constructing a fossil-fuelled power plant that has no relevance or bearing on the cost of developing and constructing a Renewable Energy Project.

The Capacity Payment should be apportioned between foreign and local currency in proportions that reflect the actual investment cost and capital structure of the project, and should commence at COD.

A reasonable minimum guaranteed dispatch level should be agreed as the basis for setting the Capacity Payment. 80% dispatch (7,008 hours) over the course of a year is considered to be a reasonable guaranteed dispatch level.

Consistent with the amendments made to the SPP PPA, there should be no time-of-day provisions. These are superfluous in light of a must-run mandate.

6. **Energy Payment:** The Energy Payment should reflect the actual fuel cost and variable operating cost of the project.

The take-or-pay fuel payment associated with the minimum guaranteed dispatch is an important security arrangement for the planning and contracting of fuel supply.

The minimum guaranteed dispatch and associated Energy Payments must commence from COD (whether actual or deemed) and apply on a pro-rated basis for the first and last year of operation.

The generator should be paid the Energy Payment for energy delivered during testing and commissioning procedures.

7. **Fuel Charge:** The fuel charge component of the Energy Payment should be linked to its actual cost, and not to the cost of an unrelated fossil fuel.

The generator should be granted the option to elect either (a) a fixed and indexed fuel charge or (b) a market based fuel price mechanism (where a spot market exists for the fuel commodity). Where the generator requires specific terms consequent to its contractual arrangements for fuel supply, the power purchaser may review the terms of the fuel supply agreement.

If in a given year the power purchaser fails to dispatch the project at its minimum guaranteed dispatch level, a true-up mechanism may be required by which the power purchaser may take energy that it has paid for but not taken in a given year for an agreed number of subsequent years (e.g. 3 years;) over and above the minimum guaranteed dispatch (i.e., after meeting the guaranteed dispatch for the year in which the make up energy is being taken).

8. **Indexation:** The generator should be permitted to propose indexation for the following cost components:

Capacity Payment: To US\$ for a portion (up to a maximum of 80%) of the Capacity Charge relating to the investment cost recovery component.

Fixed O&M Costs: To US\$ for a portion of the Fixed O&M costs and to the relevant THB and US\$ inflation rates in the relevant proportion.

Variable O&M Costs: To the THB inflation rate.

9. **Operation and Maintenance:** The realities of operating Renewable Energy projects should be accommodated within the RE PPA, in terms of maintenance cycles and related maintenance outages.

10. **Force Majeure:** A distinction should be made between Force Majeure events and State Agency Force Majeure events.

In the event of Force Majeure the party suffering the Force Majeure event shall be excused from its obligations and permitted a day-for-day extension of time for the period of the Force Majeure

In the event of a State Agency Force Majeure event, the capacity and take-or-pay fuel payments should continue.

11. **Default and Termination:** Balanced default provisions need to be included in the RE PPA, including in respect of the power purchaser's performance and payment obligations (largely absent under the existing SPP PPA).

Reasonable cure periods should be included within the RE PPA to enable both the generator and the power purchaser to cure any default situation.

12. **Lender Step-in Rights:** Lender step-in rights should be accommodated, including appropriate cure periods following step-in by lenders to enable lenders to cure default, and provisions to allow lenders to transfer ownership and operations to a qualified replacement entity in the event of a generator default.

13. **Penalties and Liquidated Damages:** Reasonable penalties / liquidated damages ("LDs") are appropriate but the levels presently included in the SPP PPA and the events which result in penalties / LDs are too broad. LDs need to reflect the costs/damages actually suffered by the power purchaser should key events (delay in completion, capacity shortfall) not be met. Lenders, investors and the EPC contractor will all need to be able to reasonably define and justify the level and reason for LDs in order to accept these.

A threshold of 5% below contracted capacity before the imposition of LDs is reasonable.

In the event that capacity falls below the Contracted Capacity during the operating period (i.e. post COD) the generator should be penalised only for the shortfall in capacity for the period that the shortfall has prevailed – it should not be penalised on a punitive and retroactive basis as is presently the case under the SPP PPA.

Moreover, as noted above, the generator should be given the opportunity to retest and demonstrate capacity at or close to Contracted Capacity.

It is inappropriate to precipitate a default or termination for a project in respect of which the only cash flow may be from the sale of capacity and energy to the power purchaser - for example, through the imposition of punitive and excessive penalties on the generator that go well beyond the damages that could reasonably be suffered by the power purchaser. The present SPP PPA provisions have this effect.

14. **Development and Performance Securities:** It is appropriate for RE projects to lodge Development and Performance Securities. However, these should be set at reasonable and realistic levels that do not impair the project's ability to raise finance.

The present SPP PPA requirement for a Performance Security equivalent to a Net Present Value ("NPV") of 5% of projected total contract revenue will result in

a requirement for a Performance Security in an amount equivalent to approximately 20% of the total project cost.

The comparable IPP requirement is approximately 1.5% - a much more reasonable and realistic level.

**15. Dispute Resolution:** Disputes should, in the first instance, be resolved by good faith discussion of the parties, utilising, where applicable, an expert.

In the event that such good faith discussions are unable to resolve the dispute, referral to arbitration would be an appropriate dispute resolution mechanism utilising the rules of the International Chamber of Commerce (“ICC”) or similar internationally recognised format, with one arbiter appointed by each side and the third appointed by the other two arbiters.

The decision of the arbitration shall be binding on the parties.

The dispute resolution and arbitration procedures should accommodate the requirements of foreign investors by provision for English translation.