

<Note: The work described is for an in depth review and analysis of policy and regulatory barriers to wider adoption of renewable energy technologies for electricity generation in the country. The purpose is to develop practical instruments and methodologies >.

Terms of Reference

Review of Renewable Energy Policy and Regulatory Environment

Background

<Brief description of status of renewable energy for electricity generation in the country, and the broad policy, regulatory and market barriers that prevent a larger contribution>

Project Rationale and Objectives

The objective of the review is to identify regulatory and institutional barriers to renewable energy investment in the country and provide practical advice that can, within the current and proposed energy market designs, provide a better basis for commercially viable investment in efficient renewable energy generation.

Practical experience with renewables projects suggests that there are number of potential barriers to the uptake of economically efficient renewable options. These include:

1. institutions and, in particular, utility planning processes that reflect the dominance of traditional network and/or large-scale generation approaches
2. concerns about the unpredictability of some forms of renewable energy (e.g. wind) and the cost of this uncertainty
3. the treatment of environmental externalities. Typically these are not 'monetarised' and financial viability and economic efficiency are not brought together
4. the valuation of fuel diversity benefits
5. connection costs and conditions for renewable generators, including the treatment of network cost savings
6. determination of buy-back rates or pass-through of purchase costs of energy from renewable generators where retail supply is regulated.

Issues (1) and (3) have long been recognized but new policy instruments are being developed and implemented. More transparent planning processes (where required), innovative pricing options and open bidding for both supply and demand side responses are mechanisms being used to open up the planning process to a wider range of alternatives. Emissions trading regimes or taxes can be used to price 'externalities'. Consideration of the effectiveness of these options needs to draw upon a better, deeper institutional analysis of the utilities and other key players. Less focus has been placed on issues (2), (4) and (5) to date but these are becoming increasingly important with the unbundling of the sector. Renewable generators are often perceived to be less reliable than conventional generation or network solutions and traditional planning approaches can imply a high cost for this. Conversely, where a renewable generator locates on the 'right' side of a network constraint it can defer network costs but these savings – which can be as great as the wholesale value of the energy - are rarely included.

While the issues will be examined in the context of the country's power sector to provide advice to regulators and policy-makers, these issues are common across many countries and the output of the project will be of more general value.

Scope of Work

The consultant is to:

1. Identify the regulatory and institutional barriers to efficient investment in renewable generation. These may include but not be confined to:
 - a. institutional issues and utility planning processes
 - b. treatment/valuation of the additional unpredictability of some renewable energy sources
 - c. treatment of environmental externalities
 - d. valuation of fuel diversity benefits
 - e. connection conditions and costs, including the treatment of network cost savings or service benefits
 - f. determination of buy-back rates or purchase cost pass-throughs.
2. In the context of 1(a), examine, through a small number of case studies of utilities, the institutional organization, culture and process issues that may affect the uptake of efficient renewable energy opportunities. In particular, the consultant should review the planning processes to assess the extent to which the elements in (1) are properly factored into the evaluation.
3. Develop a practical framework and, where appropriate, compile reference data for the valuation of the economic and financial costs of renewable generation and conventional generation and apply this to a range of case studies to demonstrate the application of the framework. Among the relevant costs and benefits to be included would be:
 - a. the operating and capital costs of new generation capacity across a range of technologies
 - b. valuation of risks associated with changing fuel prices, technological change and demand and the costs/benefits of diversification strategies
 - c. valuation of the variability in output under alternative technologies, having regard to the share of capacity provide by less predictable technologies and the scope for managing this risk through the portfolio of generation contracts
 - d. impacts on technical and commercial losses
 - e. impacts on transmission or distribution costs and/or quality and reliability of service
 - f. environmental impacts.
4. Review and advise on the policy instruments available to promote a greater uptake of renewable generation potential in a manner consistent with efficient utilization of resources. The consultant would need to consider
 - a. both regulatory (e.g. generation purchase rates and quotas) and non-regulatory (e.g. output-based subsidies/taxes, input subsidies) instruments
 - b. the alignment of the incentives of participants to the economic costs and benefits of decisions on investment in new capacity and the use of existing capacity. This would include consideration of the mechanisms for incorporating the impacts on losses and network costs/performance in decision-making.
 - c. The linkage between these options and the other critical issues facing the sector such as rural electrifications, subsidies, metering, losses and the introduction of open access and competition to the IMW level.

5. Develop, for the consideration of regulators, practical methodologies for setting buy-back rates and quotas that can help ensure the efficient achievement of the renewable energy targets.

The consultant is to propose the utilities to be used for case studies under (2). It is expected that the number of case studies will be limited to, say, 3 and that these will be chosen to provide a range of experience with renewable generation. The primary audience for the report will be regulators and the report should provide clear, practical, guidance.

In undertaking the task the consultant is to have regard for:

- The current structure and proposed reforms for the country's power sector
- International experience in setting policy frameworks to support efficient investment in renewable generation
- The current contractual position of renewable generators and utilities and the grandfathering of existing contracts, if necessary.

Deliverables and Milestones

- Scoping meeting with Bank staff and Government counterparts on the scope of project, proposed approach, case studies and industry consultation.
 - Within two weeks of appointment
- Presentation on issues and proposed approach to Forum of independent regulators
 - Within four weeks of appointment
- Draft Report and templates under scope of work 3 & 5 for circulation within the bank and to key stakeholders
 - Within 12 weeks of appointment
- Workshop for stakeholders on the draft report
 - 1-2 weeks after circulation of draft report
- Final Report and templates under scope of work 3 & 5
 - Within 16 weeks of appointment
- Workshop for regulators and other stakeholders on application of templates under scope of work 3 & 5
 - Concurrent with release of final report.

NB the timetable for the various deliverables is a draft and subject to discussion/agreement.

Budgetary Estimate

The proposed budget for the project is US\$90,000 (including travel and expenses).

Consultant Skills

The Consultant should have:

1. in-depth knowledge of the country's electricity sector, and proposed sector reforms
2. in-depth knowledge of regulatory issues and practical experience in advising regulators
3. in-depth knowledge of the international policies and regulator approaches for the promotion of renewable energy, especially in the context of the transition to competitive markets
4. strong financial modeling and policy advice skills
5. a strong understanding of the technical and financial feasibility of the renewable energy technologies and the integration of renewable energy in the operation of the electricity supply system
6. practical experience in advising and/or managing renewable generators