

# Chapter 5

## Conclusions and Recommendations

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## Chapter 5

### Conclusions and Recommendations

#### 1. General Comments on the Renewable Energy Policy

For the Lower Mekong Basin Region (LMBR) and other countries in the region, there is no magic policy instrument that fits all. The countries in the region have adopted various targets, incentives measures, and policy instruments. The different types of policy instruments are well known. These are explained in various articles and reports. Before looking at what new policy instruments could be applied to address the main barriers, policies that are already in place should first be identified. Policymakers could select based on what policy instruments could be applied.

**Table 44: Proposed Instrument and Policy Types**

Instruments	Policies
Legislative instruments	<ul style="list-style-type: none"><li>- Law and regulations</li><li>- Standards</li><li>- Codes of practice</li><li>- Fiscal</li></ul>
Economic instruments	<ul style="list-style-type: none"><li>- Subsidies</li><li>- Property and tradable rights</li><li>- Bonds and deposit refunds</li><li>- Liability systems</li></ul>
Voluntary instruments	<ul style="list-style-type: none"><li>- Voluntary agreements</li><li>- Information and programmes</li><li>- Research and development</li></ul>

Source: Authors, compiled from various sources.

Identified policy instruments should be assessed to determine which one is the most suitable to address the barrier and thus improve energy efficiency in the target industry. The following criteria can be used to evaluate instruments:

- Environmental effectiveness,
- Economic efficiency,
- Budgetary impact,

- Ability to implement and enforce, and
- Support from stakeholders.

The policy review report mentioned earlier describes these criteria and presents a general evaluation against these criteria.

Action areas need to be defined, including measurable and realistic targets, legislation on standards and labelling, systems of market-based incentives, knowledge and information programmes, and an institutional environment that is conducive. Effective policymaking requires effective mechanisms for regular evaluations to determine whether targets and policies need to be revised.

Following the evaluation of different policy instruments, the most appropriate instrument needs to be selected. In practice, this study recommends a *mix of policy instruments* because one instrument may not be enough to effectively address all the problems and issues.

## 2. Conclusions

Countries in the region are endowed with RE sources such as biofuels, biogas energy, SHP, wind power, and solar energy. With a growing demand for electricity, and faced with a reduction in the availability of fossil fuel resources, the government has developed an overarching policy framework for the RE sector. However, the current legal framework and incentive mechanisms were not adequately developed, and many barriers on policy and institutional framework still exist.

This study has evaluated the potential and ability of exploiting each RE technology that can contribute to the national targets for RE development, and has prioritised RE technology options and proposals on strategy for RE development to achieve the targets of RE development by 2030 and 2040.

The following conclusions could be drawn from the results of the study:

- Viet Nam can achieve an RE target of 14.1% total power generation in 2040. Wind contributes the highest share at 3.7%, followed by solar and biomass at 3.5%, small hydro at 3.3%, and biogas at 0.1%.
- The main barriers for achieving the target of RE development include (i) limited access to capital; (ii) limited attractiveness to financiers because of indirect subsidies to power production from natural gas and coal; (iii) limited and unattractive FITs for RE power generation; (iv) limited understanding of RE technologies at the local level; (v) cumbersome requirements for establishing plans for RE development; (vi) weakly developed supply chains; and (vii) a lack of energy service provision, operation, and maintenance of RE equipment.
- The results of RE technologies proposed for power generation show that there are several options with low or negative abatement costs, such as biomass, SHP, and biogas that could provide a pure win-win solution in implementation, getting economic benefits while reducing GHG emissions. In many cases, these options save

money overall, so with careful implementation, many sectors of the society could enjoy net economic benefits from these options, including reduced local and regional air pollutants, jobs creation, and other benefits.

- Based on the criteria on GHG emission reduction potential, the country's development priorities and benefits on the economy, the society, and the environment, wind power plant was selected as the first in the prioritised range, followed by solar PV, biomass, and biogas. All RE technologies could be prioritised at different ranges to achieve the target of 14% of RE by 2040.

### **3. Recommendations**

#### **3.1. Policy recommendations**

Based on the landscape of RE policy discussed above, policy recommendations that should be considered are as follows:

- The assessment of policy options should include both the effectiveness and efficiency of alternatives. It is important to check whether policies achieve the desired outcomes, while meeting the demand for electricity, including those for the disadvantaged communities, at low cost
- Policy needs to be considered comprehensively. For example, integrating carbon pricing and resource pricing within the overall context is needed in achieving RE outcomes.
- While the East Asia Summit (EAS) region has abundant RE potential, the geographic distribution and exploitation status vary. If further promotion of RE is desired, further measures are needed.
- RE policy should be selected by taking into account the availability, maturity, market scale, and others of the RE generation technologies.
- Ways to share the cost of RE introduction should be well considered prior to the implementation of support scheme. To keep the support cost under control, support policy should include a system design that encourages market competition of RE supply, especially where the generation cost may fall rapidly.
- When the implementation cost of RE policy is to be recovered from the electricity users as FIT surcharge, considering its regressivity, it is necessary to consider measures that include the exemption of households below a certain level of power consumption.
- While cost measures are important, in order to expand the use of RE whose costs are currently high, it is essential to secure and maintain the stability of the policy to reduce investment risks. Long-term stability is particularly

important when investing in asset-specific developments. For this reason, policy uncertainty must be minimal and retroactive change in the system needs to be avoided. To ensure the stability of the investment environment, the measures adopted in Europe would be informative, where linkage between the RE power selling price and the market price was maintained at a high level and yet the long-term power purchase agreement is stipulated.

- At the same time, to avoid the over-subsidy of RE, it is best to share the vision of RE expansion in the long run, by clearly indicating in advance the conditions and schedule of reducing the support level based on certain criteria such as upper limit in the RE volume introduced at a certain period of time, and by setting the prospect of system change ('exit strategy', e.g. from FIT to FIP).
- When a subsidy is granted using the electricity tariff, there is a concern that the support to RE will distort power market (the market mechanism not functioning properly, or sending wrong price signals) and excessive support will put a cost burden on the government. Therefore, discussions to rationalise the subsidy are required.
- Initiatives must also be taken on obstacles other than financial incentives (e.g. lack of human resources, complicated regulations and procedures), with learning from best practices in other countries (e.g. acceleration of licensing procedures in Germany by specifying the development promotion zones [zoning] by local governments).
- Along with the increase in variable RE, measures to stabilise the electricity grid will become necessary, while maintaining the high degree of reliability demanded by consumers. It is important to consider how to bear those costs, including grid operation measures and/or expansion of grid infrastructure in line with the expansion of RE generation. It is also desirable to optimise system reinforcement and/or the construction of backup power sources. Thus, a comprehensive policy framework will be needed that would oversee the grid system and other related policy areas, such as smart communities, demand response, innovative storage technologies, and others with an aim to increase the supply of RE that would match the generation portfolio and electricity demand.
- A forward-looking technology think-tank specialising in trends in RE production technology and costs that is based in the East Asia Summit region can help drive an anticipatory RE policy. For example, the costs of solar PV production that have been bid by First Solar in the United States are for US\$0.04/kWh in the 2nd quarter of 2015. Tracking the progress of President Obama's Sunshot initiative will also provide a sense of the future trend line in production costs. Trends in new RE technologies, such as wave power and

tidal power, can also be analysed, for example, tracking new patents issued, and new trial projects being implemented in different parts of the world.

- An information network among East Asia Summit countries should be established and maintained to enable the sharing of knowledge and findings on RE policies and the promotion of best practices.

### **3.2. Proposed supporting mechanisms for RE in Viet Nam**

Viet Nam has already drawn some of these lessons. As already noted, a published avoided cost tariff, and a standardised power purchase agreement for qualifying Renewable Energy Small Power Projects [RESPPs] (no more than 30MW), under the supervision of a regulator, were adopted in December 2008, replacing the previous ad hoc system of confidential power purchase agreement negotiation, and a new FIT for selected RE technologies (wind, biomass, and MSW) in 2013. However, the question remains whether and how Viet Nam should implement more grid-connected RE then enable the new avoided cost tariff or FIT, which is expected to mainly benefit small hydro and possibly some biomass, wind, and waste-to-energy technologies. The first requirement is a clear articulation of the objective. If the objective is simply to meet some targets, then the rationale for that target should be sufficiently clear to enable the necessary political support. The mere existence of RE potential does not constitute a valid reason for its development, particularly in a relatively poor country such as Viet Nam.

Viet Nam is committed to market reforms, and indeed, the adoption of these principles has been a major factor in the successful economic development of the country over the past 20 years. These principles should be applied to RE development as well. The logical objective for Viet Nam is to develop RE resources to the point where the RE supply curve intersects the avoided social cost of thermal generation, which makes a logical target for RE development to bring most socio-economic benefits for the development of Viet Nam.

From the analyses presented, combined with international experiences on RE support and specific economic conditions in Viet Nam, the study team proposed the following supporting mechanisms:

- During the first stage (possibly a 5-year period), a FIT especially designed for selected RE technologies (wind, biomass, waste-to-energy, solar energy) and an Avoided Cost Tariff (ACT), which is currently applicable for small hydro, could greatly facilitate RE development in Viet Nam. In addition, supporting mechanisms should be based on quantity, i.e. competitive bidding, with differentiated objectives (targets) for each RE technology from the adopted government decree.
- In a competitive bidding mechanism as well as in a FIT, it is necessary to establish a supporting fund for RE development with stable and reliable financing sources (from the government, international donors, and levy on electricity and on fossil fuels).

### **3.3. Strengthened subregional cooperation**

Given their geography, RE resources, and economic opportunities, the LMBR are well placed to undertake cross-border RE projects that can make the energy future of the subregion more

stable and secure. The integration of significant shares of renewable resources is an important contribution for increasing electricity demand, diversifying the electricity generation mix, and decreasing import dependencies on conventional fuels. RE sources are abundant in the LMBR and remain an important – as in some countries and subregions – and dominant source of energy supply. Based on this, some recommendations could be suggested, as follows:

- ***Integrated regional renewable energy planning***
  - LMBR member countries may recognise that renewable sources bring about multiple benefits, including direct reductions in GHG emissions. Although the upfront cost is generally higher than coal or gas turbines, these sources have no fuel cost. Harmonised policies and support schemes will benefit the utilities, grid operators, and investors.
  - To encourage more investment, it is recommended that LMBR countries look beyond the widely implemented FIT. For example, individual or groups of countries could hold auctions for large-scale wind or solar projects to be built in one country but bought by one or more other countries. These could start as technology-specific auctions, but could evolve over time into those that are technology neutral – for example, location-specific auctions that allow all technologies to compete to see which one can provide the cleanest generation option at the lowest cost in a given location. Efforts to expand renewables should also be supported by working to improve power system flexibility, in order to integrate variable renewable resources while maintaining reliability.
- ***Capitalise on endogenous resources and technological capabilities for renewables***

In some cases, the specific RE technology choice is clear. For example, Lao PDR has vast hydropower resources whereas Thailand and Viet Nam are rich in agricultural wastes and products that can be processed for energy purposes, such as biomass, biogas, and by-products from the processed food industry. Therefore, LMBR countries should also capitalise on their strong RE potential with their capabilities for commercial exchange, energy import–export, and sustainable supply and regional energy security.

Many PV module manufacturers are located in Thailand, therefore, demand for PV systems may potentially be met through intra-LMBR acquisition and development.

By cooperating, LMBR economies could also reduce the costs of developing RE technologies.

Suggested below are measures that can enable power utilities in LMBR to obtain RE at high levels. The LMBR economies can also explore opportunities to facilitate the demand response at the regional level and the complementation of the ASEAN Power Grid.

- Focus fiscal policy and regulatory support for both small-scale and large-scale RE power systems towards enabling power utilities to manage increased RE generation. LMBR countries can initiate policy dialogues to encourage among them utility-scale power storage, smart grid technologies and approaches, as well as demand response measures. Such policy dialogues must begin sufficiently early to avoid constraints that impede investments in RE or to curtail RE output.

- Support coordinated improvements of existing coal power plants at the subregional level, and increase RE offtake by enhancing cycling capabilities that can reduce system-wide costs and carbon emissions. The region can prepare the operational flexibility of fossil fuel–powered plants in the region. As necessary, it can initiate policy dialogue at the subregional or regional level to discuss regulatory and pricing matters, which will lead to integrating renewables into the grid and allow coal power plants to play a backup role.
- Enhance demand responses and complementation in major cities and/or towns, and in a coordinated way at the subregional level, in large power systems, towards increasing RE penetrations. LMRB economies could consider supporting selected utilities, to put in place programs that urge customers to time shift certain loads, and to explore possibilities for temporal and spatial complementation.



