

Introduction to Renewable Energy Study

Final Workshop – RISPO-II

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Effects of EI on Environment

Negative effects:

(EI => more economic growth, structural change => increased energy use)

- Increased environmental pollution (e.g. GHG emissions & air pollution) due to increased use of energy
 - Especially while shifting energy intensive industries to countries using comparatively inefficient technology.
 - And enhanced use of cheaper and dirtier energy sources
- Increase imbalance between demand and supply of energy: worsening the problem of energy security

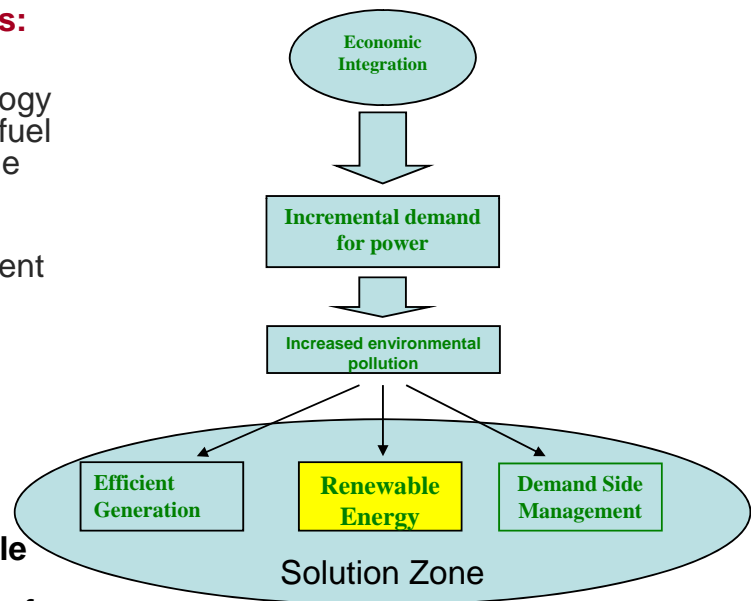
Positive effects:

- Facilitate more trade and technology transfer of renewable energy equipment and technical knowledge

How to combat the negative impacts of EI?

Basically THREE possible ways:

1. Using improved technology to generate more fossil fuel based power using same resources
2. Implementing massive demand side management and energy efficiency measures to reduce demand
3. Generating additional power from renewable energy



This study focuses on **Renewable Energy**, because it has greater connection to EI, and because of its multipurpose benefits.

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Rationale of using RE as a solution to the problem created due to EI

Multipurpose benefits of RE:

- RE can contribute to GHG reduction.
- RE can promote rural electrification. Many people in the region are still without access to electricity. RE can address this problem without using fossil fuels.
- RE has more job creation potential than conservation or efficient FF generation.
- Renewable energy can have cross sectoral effects on the economy – Other economic sectors can use RE to mitigate some of the effects of FF use .

RE is feasible

- The Asian region has vast reserves of untapped potential of renewable energy.
- Due to continuous R&D activities and increasing fossil fuel prices, RE will become more price competitive with conventional power.

RE is linked to EI

- EI facilitates financial and technological support for RE for developing countries.
- EI can facilitate the promotion of the RE industry through RE equipment trade
- EI affects operation of RE policies (discussed in regional study).

RE is necessary part of energy policy

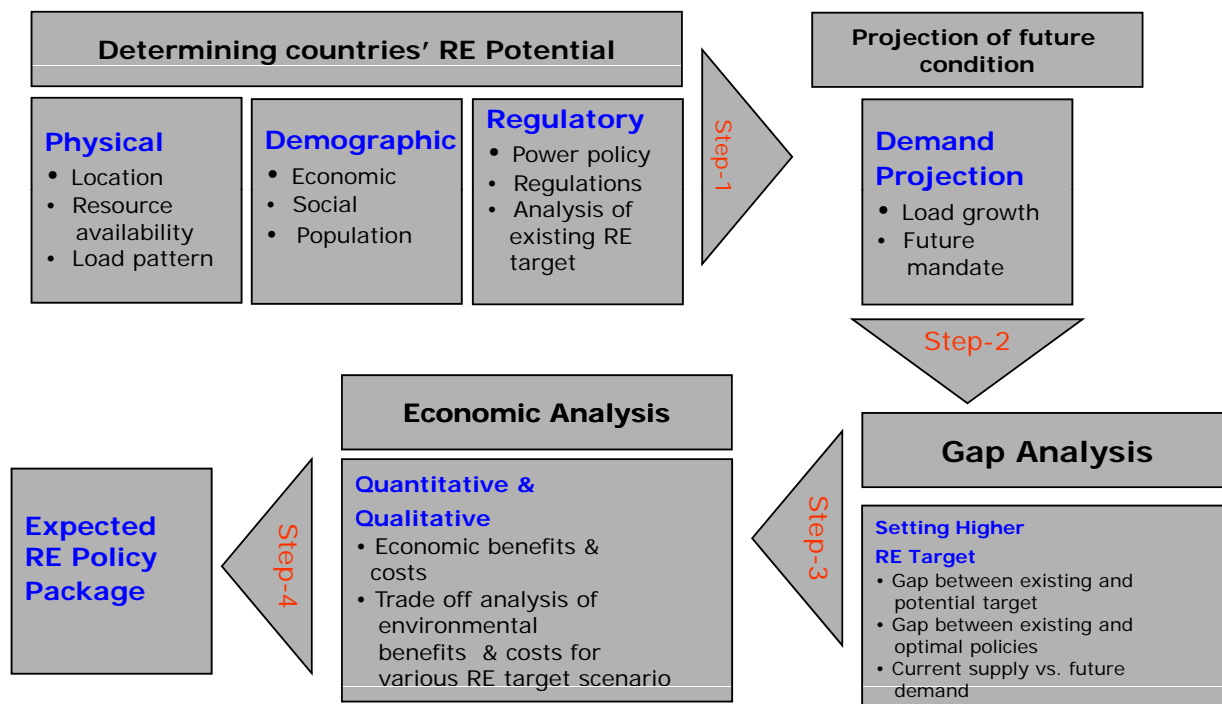
- Efficient generation and demand side management are important, but not enough by themselves to address energy related issues.

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Research design



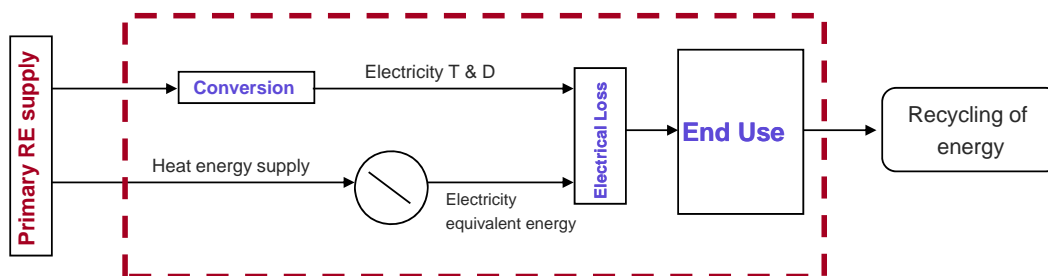
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Research design ...2

Project Boundary : In this study we have focused only on the electrical and electricity equivalent energy use of Renewable energy sources



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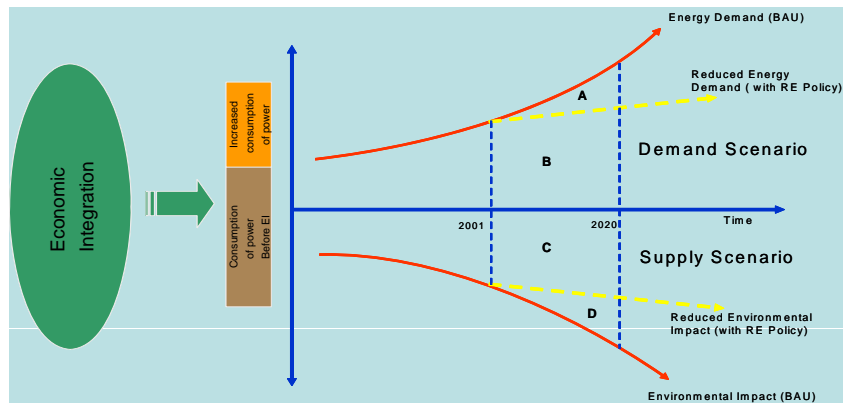
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Research design ...3

Objective of this study:

- Reduce conventional power demand by using RE promotional policies
- Reduce environmental impacts by increasing the share of renewable energy

Therefore, policy recommendations focus on both supply and demand



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Research design ...4

Geographical scope of the study:

- National level studies
 - 2 developed countries
 - 2 developing countries
- Regional study
 - Overall regional analysis
 - Aggregated country studies

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Overview of process for developing policy recommendations

- Before making any specific policy recommendations, we first identified two sets of standard policies used across the world to promote renewable energy.
 - Note: Most countries in Asia do not currently use the whole set.
- We then develop various combinations of these policies based on countries' specific circumstances, and then evaluate the effectiveness and implementability of each combination to reach final recommendations for each particular country.
- In many cases we could not perform quantitative analysis due to lack of relevant data availability but we conducted qualitative and logical analysis supported by the results from previous studies.

Standard Supply Side Policies

- Supply policies can be **a combination of RPS and Feed In Tariff (FIT)** to counter inherent bias of the existing RPS policy towards the cheaper but not necessarily technologically superior renewable sources.
- It can be with **higher target of RE** generation under the existing RPS system.
- This should **focus on involving consumers in the whole process** of developing new and renewable energy. It should **encourage local community based RE generation**.
- It should **introduce full cost accounting**, in order to internalize environmental and social costs of fossil fuel based power to make RE cost competitive with conventional power.
- Finally, it is important **to promote cross country grid interconnection**. This will solve the problem of a lack of back up generation capacity and energy security.

Standard demand side policies

1. Cost reduction policies: These policies are aimed at reducing the costs of consumption of new and renewable energy by providing direct or indirect price support.

- Subsidies & rebates,
- Appropriate tax benefits to the consumers
- Soft loans and grants for household installation of RE facilities.

2. Market facilitation policies: These policies are to basically promote market demand for new and renewable energy for example by mandating NRE procurement in government buildings and in large residential and commercial buildings.

3. Policies to strengthen interconnection: These policies are to strengthen open access facilities for all type of NRE developers (grid and off grid facilities) including long term power purchase agreement.

Relation between national and regional studies:

National studies identify:

1. National level strengths and weaknesses for promoting RE under the influence of EI
2. National comprehensive RE promotion policies based on different national conditions (e.g. RE potential, energy market structure, political institutions and decision-making processes, etc.)
3. Specific need for international cooperation to promote RE in the country and potential for contributing to cooperation

Regional study identifies:

1. Structural obstacles and opportunities for RE promotion presented by EI
2. Regional policies to overcome these obstacles and take advantage of these opportunities
3. Overall, regional policies strive to achieve a win-win situation. Collectively how this region as a whole could reach a reasonable target of RE production without much economic loss or concerns about relative gains.

Relevance to existing policy processes and current debates

- **Ongoing multilateral and bilateral trade negotiations, FTA/EPA negotiations**
 - RE equipment is still subject to significant tariffs in some countries
 - Consideration should be given to their impacts on promotion of RE use
- **Kyoto Protocol**
 - Measures to meet current Kyoto Protocol targets
 - Discussions on GHG reduction goals and measures after 2012
 - CDM/JI/Emissions trading
- **Asia Pacific Partnership**
- **Tripartite Environmental Ministers Meeting (TEMM)**
 - Input to the Trade and Environment Working Group
- **G8 Toyoko Summit**
 - New energy and global warming (renewable energy case study)
- **ASEAN + 3 countries negotiations**
 - Ongoing multilateral and bilateral trade negotiations (including Free Trade Areas / Economic Partnership Agreements)
 - Input to negotiations for harmonization of regional environmental standards in ASEAN + 3 countries

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● Thank You !

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