LEGAL FRAMEWORK, POTENTIAL AND OUTLOOK FOR BIOENERGY SECTOR IN VIETNAM

By Nguyen Duc Cuong
Director of Center for Renewable Energy & CDM, Institute of Energy
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6. Summary
The general policies from Government of Vietnam

To synchronously and rationally develop the system of electricity, petroleum, coal, and new and renewable energies, paying attention to the development of clean energies and prioritizing the development of new and renewable energies...


To prioritize development of power source from RE (biomass, wind, solar energy, etc.) of rapid growth, gradually increasing the proportion of electricity produced from RE resources...

1. Main Legal Frameworks for Biomass/MSW

Gov.’s RE development targets

To strive to increase the proportion of new and renewable energies to about 5% of the total amount of commercial primary energy by 2020; and about 11% by 2050.

(Article 1.2.b. of the Decision No. 1855/QD-TTg dated December 27, 2007 of Prime Minister on approval of “Vietnam’s National Energy Development Strategy up to 2020, with 2050 vision”).

To increase the percentage of electricity generation for RE resources up to 4.5% in 2020 and 6% in 2030 of the total electricity produced.

(Article 1.2.b. of the Decision No. 1028/QD-TTg dated July 21, 2001 of Prime Minister on approval of “National Power Development Master Plan for the period of 2011-2020, with outlook to 2030”).

To prioritize development of power source from biomass, by 2020 this biomass power will have a total capacity 500MW, up to 2000MW by 2030, shared 0.6% and 1.1% in 2020 and 2030 representative.

(Article 1.3.a. of the Decision No. 1028/QD-TTg dated July 21, 2001 of Prime Minister on approval of “National Power Development Master Plan for the period of 2011-2020, with outlook to 2030”).
1. Main Legal Frameworks for Biomass/MSW

Others related to develop RE

✓ National Green Growth Strategy
Promote effective exploitation and increase the proportion of new and RE sources in the Nation’s energy production and consumption
(Article 1.II.4. of the Decision No. 1393/QD-TTg dated September 25, 2007 of Prime Minister on approval of “National Green Growth Strategy”).

✓ National Strategy on Climate Change
The economy of low-carbon, green growth become mainstream in sustainable development; mitigate greenhouse gas emissions and increase the ability to absorb greenhouse gases gradually become mandatory targets for economic – social development
(Article 1.III.2. of the Decision No. 2139/QD-TTg dated November 05, 2011 of Prime Minster on approval of “National Strategy on Climate Change”).
1. Main Legal Frameworks for Biomass/MSW

<table>
<thead>
<tr>
<th>Name of legal frameworks</th>
<th>Approved by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision No. 24/2014/QD-TTg, Approval of biomass power price subsidy mechanism</td>
<td>PM</td>
<td>24/03/2014</td>
</tr>
<tr>
<td>Decision No. 31/2014/QD-TTg, Approval of waste power price subsidy mechanism</td>
<td>PM</td>
<td>05/05/2014</td>
</tr>
<tr>
<td>Electricity Law No. 24/2012/QH13</td>
<td>National Assembly</td>
<td>Revised 2012</td>
</tr>
<tr>
<td>Decision No. 1208/QD-TTg, Approval of national power (RE) development plan</td>
<td>PM</td>
<td>21/07/2011</td>
</tr>
<tr>
<td>Decree No. 04/2009/ND-CP on incentives and supports for environmental protection activities</td>
<td>Gov.</td>
<td>14/1/2009</td>
</tr>
<tr>
<td>Decision No. 2149/QD-TTg, Approval of national strategy on solid waste management up to 2025, with 2050 vision</td>
<td>PM</td>
<td>17/12/2009</td>
</tr>
<tr>
<td>Decision No. 1855/QD-TTg, Approval of “Vietnam’s National Energy Development Strategy up to 2020, with 2050 vision</td>
<td>PM</td>
<td>27/12/2007</td>
</tr>
</tbody>
</table>
2. Incentives and supports for biomass and MSW

Main Incentives:

- Electricity purchase price incentive
- Tax incentive
- Incentives for infrastructure, land use, fees, loan and others
2. Incentives and supports for biomass and MSW

Electricity purchase price incentive

Support to grid connected biomass power projects  {effect from 10 May 2014)

- EVN must buy all electricity from the grid-connected biomass power plants according to the SPPA, without negotiation
- The power purchase contract duration: 20 years, with possible extension
- Applied for two main types of biomass project:
  - @ FIT: equivalent to 5.8UScents/kWh - excluded VAT for bagasse
  - @ Avoided cost  {for only electricity generation}: The tariff has been calculating by avoided cost of the 01 kWh of the thermal power generation using imported coal in the national electricity system {will be issued soon, and announcement yearly from ERAV/MoIT}.

- Applied for two main types of technologies of MSW project:
  - @ FIT: equivalent to 10.05UScents/kWh - excluded VAT for incineration
  - @ FIT: equivalent to 7.28.05UScents/kWh - excluded VAT for landfill
2. Incentives and supports for biomass and MSW

Biomass/MSW development planning
Support to biomass/MSW development planning (state budget).
- Biomass: two levels; National and provincial level.
- MSW: only national level.

Connecting Biomass/MSW power projects
- Must be in accordance with the approved provincial power development planning.
- The connection point shall be agreed upon by the seller and buyer.
- The investor shall be responsible for investing, operating and maintaining the transmission line from the plant to the connection point and transformer (if any).
- Depending on the connected voltage levels, the Electricity Distribution or transmission Entities shall be responsible for investing in the transmission line from the point connected to the national grid (as mentioned in the electricity power planning approved).
- To priority exploiting full capacity and electricity generation.
2. Incentives and supports for biomass and MSW

Taxes incentive

- **Import tax**: Exemption of import duties for the imported materials, equipments, equipment and machineries which are not manufactured yet in VN (according to Decision 24/2014/QD-TTg; Decree 04/2009/ND-CP)

- **Corporate income tax**: exemption, reduction for enterprises: special support for investment
  - *Tax exemption for 4 first years, 50% tax reduction for the next 9 years.*
  - *Possibility of 10% tax rate being extended up to 30 years: If the projects are classified as using high or new technology and in special need of investment.*
Incentives for infrastructure/land use, fees, loan and others

Infrastructure/land use

- Exemption and reduction of land use/rent (according to Decision 24/2014/QD-TTg; and Article 10 of Decree 04/2009/ND-CP - reduced by 50%, to be paid but not later than 5 years from the date of allocation), including:
  - Biomass power plant area according to regulation
  - Transmission grid
  - Transmission stations

Fees

- Environment protection fee exemption (according to Article 16 of Decree 04/2009/ND-CP)

Soft loan and CDM

- Low interest rate (according to VDB’s regulations)

Others

- Apply CDM (Decision No. 130/2007/QĐ-TTg and related circular No. 58/2008/TTLT- MOF-MONRE)
3. Potential for power generation from biomass and MSW

Biomass types: Sustainable energy supply resources

Agricultural Residues
- Rice husks and straw
- Maize trash
- Coffee waste
- Coconut shells, husks
- Sugar cane residues (bagasse, tops, leaves)
- Peanut residues shells
- Cashew shells
- Cassava stem
- Others

Energy Crops
- Energy trees (fast growth & high heating value)
- Elephant grass
- Others

Forest Residues
- Wood fuel and fuel wood
- Bamboo
- Others (charcoal)

Other
- Garden and home trees
- Construction wood
- Wood wastes from processing mills (wood cheeps, sawdust)
- Scattered trees, etc.
# 3. Potential for power generation from biomass and MSW

## Wood energy and wood residues

<table>
<thead>
<tr>
<th>Biomass resources</th>
<th>Amount for energy usage (mill. Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural forest</td>
<td>14.07</td>
</tr>
<tr>
<td>Planting forest</td>
<td>9.07</td>
</tr>
<tr>
<td>Bare land</td>
<td>2.47</td>
</tr>
<tr>
<td>Industrial perennial</td>
<td>2.00</td>
</tr>
<tr>
<td>Fruit tree</td>
<td>0.41</td>
</tr>
<tr>
<td>Scattered tree</td>
<td>7.79</td>
</tr>
<tr>
<td>Wood chucks</td>
<td>5.58</td>
</tr>
<tr>
<td>Sawdust and shavings</td>
<td>1.12</td>
</tr>
<tr>
<td>Building (timber from work and house repairs)</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43.31</strong></td>
</tr>
</tbody>
</table>

## Agricultural residues

<table>
<thead>
<tr>
<th>Biomass resources</th>
<th>Amount for energy usage (mill. Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice straw</td>
<td>40.00</td>
</tr>
<tr>
<td>Sugar wastes (tops and leaves)</td>
<td>7.80</td>
</tr>
<tr>
<td>corn residues</td>
<td>9.20</td>
</tr>
<tr>
<td>Cassava stems</td>
<td>2.49</td>
</tr>
<tr>
<td>Rice husk</td>
<td>8.00</td>
</tr>
<tr>
<td>Bagasse</td>
<td>7.80</td>
</tr>
<tr>
<td>Groundnut shells</td>
<td>0.15</td>
</tr>
<tr>
<td>Coffee husk</td>
<td>0.17</td>
</tr>
<tr>
<td>Cashew nut shells</td>
<td>0.09</td>
</tr>
<tr>
<td>Others (estimated)</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>74.90</strong></td>
</tr>
</tbody>
</table>

**Note:** Theoretical potential in physical unit
# 3. Potential for power generation from biomass and MSW

<table>
<thead>
<tr>
<th>Source</th>
<th>Characteristic</th>
<th>Type of waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Waste</td>
<td>Normal</td>
<td>Waste from food, paper, cloth, leather, gardens, glass, wood, cans, metals,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tree leaves, etc.</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>Construction waste from houses, roads, industrial material waste, etc.</td>
</tr>
<tr>
<td>Rural Waste</td>
<td>Normal</td>
<td>Waste from food, paper, cloth, leather, gardens, glass, wood, cans, metals,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tree leaves, rice straws, animal husbandry, etc.</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>Electrical and electronic broken things, plastic bags, batteries, tires, paint,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>fluorescent lamps, packing bags containing chemicals for killing flies and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mosquitoes or rats, etc.</td>
</tr>
<tr>
<td>Industrial Waste</td>
<td>Normal</td>
<td>Daily life domestic waste from workers, etc.</td>
</tr>
<tr>
<td></td>
<td>Hazardous</td>
<td>Heavy metals, machinery cleaning cloths, rubber, packing bags of hazardous</td>
</tr>
<tr>
<td></td>
<td></td>
<td>chemicals, etc.</td>
</tr>
</tbody>
</table>
3. Potential for power generation from biomass and MSW

Urban solid waste in Vietnam

- Recycling
- Organic composting
- Used for Seraphin method
- Landfill
- Incineration
- Uncontrolled disposal
4. Current application and future plants for power generation

Current application

Biomass

- Bagasse: about 40 projects (150MW)
- Rice husk: one project for heat only, waiting for installation steam turbine (7MW?)

MSW

- Land field technology: one project (2.4MW)
- Incineration technology: one project (1.9MW under construction)

Future plants

- Bagasse: about 10 Projects under considering and preparing to make F/S documents (200-300MW)
- Rice husk: 10 projects under pipeline
- MSW: National power – based MSW plant planning (preparing)
Vietnam’s demand for energy and electricity for the next two decades is huge

- **Electricity demand (2030):** 695 billion kWh, 5.8 times increase against 2012
- **Demand for electricity investment (2011-2030):** VND1,554.6 thousand billion, making an average annual demand of about 3.7 billion US$

**Electricity price should be increased:**
To ensure the cost recovery and proper profit margin.
Electricity tariff should be incrementally increased to meet marginal cost in long run (PDP VII)

**Biomass & MSW development is encouraged and supported**

- Formulate strategy and master plan for RE development in Vietnam *(submitted to the Government of Vietnam)*
- Climate change adaptation strategy: biomass and biogas is one of the options targeting at GHG emission reduction.
- Green Growth Strategy: Promote green energy/industry and low carbon technology development (conversing waste into energy)
Orientation to develop biomass during the period of 2011 – 2030

- up to 2020: 500 MW
- up to 2030: 2000 MW

Biomass and MSW electricity planning is under development
6. Conclusion

- Vietnam has a high potential to develop biomass & waste power projects in various scales.

- The Government has interest in biomass and MSW development due to rapidly increasing power demand (ensuring of a sustainable socio-economic development).

- The Government has recently shown its commitment to promote biomass and MSW development through fiscal and financial incentives (taxation, feed-in tariff, land use fee, environmental fee etc.).

- To support for investors, Planning biomass and waste power at national and have been considered for development

- To support for rice husk and other biomass investors, the Avoided cost tariff should be developed and issued
Thank you

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