# Summary of Support Mechanisms for Renewable Energy Sector in Vietnam

***GIZ Energy Support Programme*** *is supporting the Vietnamese government with the development of the energy sector in Vietnam. It aims to assist the implementation of political targets on the promotion of renewable energy and increase energy efficiency in the country , via 3 main Action areas including: Regulatory Framework, Capacity Building and Technology Corporation.*

giz in Viet Nam, 2016

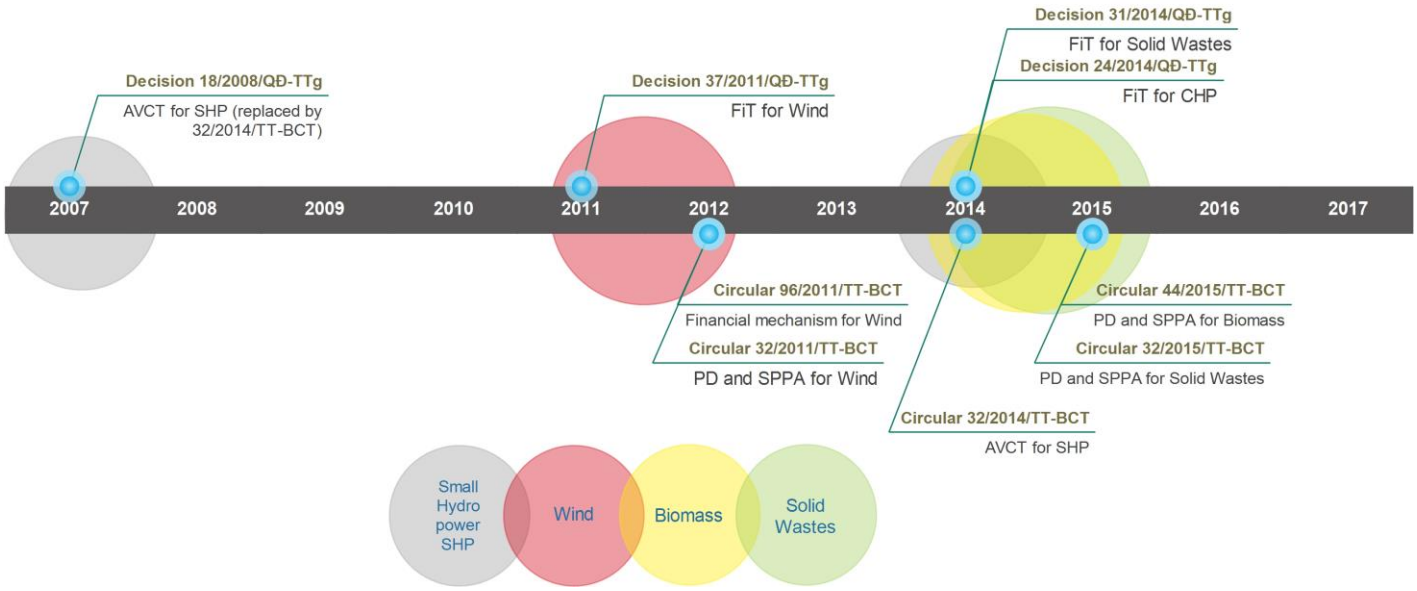



***Figure 1:*** *Summary of key legislations on Support Mechanisms for renewable energy sector in Vietnam*

*Note: PD = Project Development, SPPA = Standardized Power Purchase Agreement, AVCT = Avoided Cost Tariff, FiT = Feed-in Tariff*

## Overview of Renewable energy potential and development targets in Vietnam

Vietnam is endowed with a large amount of renewable energy resources which is distributed throughout the country. The estimated technical potential for the development of wind power across Viet Nam adds up to 24 GW of installed capacity at average wind speeds above 6m/s. For solar, the resource is equally strong, in particular in the Centre and South of Viet Nam, with irradiations of 4-5 kWh/m$^2$/day. Biomass from agricultural products and residues could generate the equivalent of 10 million tons of oil per year. The annual potential for energy from biogas is approximately 10 billion m$^3$, with resources which can be collected from landfills, animal excrements and agricultural residues *(Institute of Energy, 2013)*

According to the revised National Power Development Plan VII which was issued under **Decision 428/QD-TTg** dated 18/03/2016, Viet Nam strives to increase the proportion of electricity generated from renewable energy sources up to around 7% in 2020 and above 10% in 2030.

## Support Mechanisms for Renewable Energy in Viet Nam

Since 2008, a range of support mechanisms has been introduced for RE projects. The first of its kind, **Decision 18/2008/QD-BCT** of Ministry of Industry and Trade (MOIT) in 2008 introduced an avoided cost tariff (AVCT) and standardized power purchase agreement (SPPA) applying to small renewable energy power plants (installed capacity of less than 30MW). According to this Decision, the AVCT is calculated based on the production cost of most expensive power plant in the power system (normally this is the gas turbine combined cycle power plants) and the National Load dispatching center is responsible for the calculation of this tariff on an annual basis and submit to the Electricity Regulatory Authority of Viet Nam (ERAV) for appraisal and issuance.

De facto, until now, the Decision 18 has only been applied to small hydropower projects since wind, biomass and other RE sources are regulated by other Decisions and Circulars.

In addition, all renewable energy power projects can also benefit from tax exemption for import duties for imported goods to establish project fixed assets, materials and semi-finished products that are not domestically produced and

tax holidays for corporate tax which are 0% applied for the first 4 years followed by a 50% reduction in the next 9 years. Other financial incentives worth mentioning include support on land use, capital, and fees for environmental protection activities** (Article 16 of **Decree 04/2009/ND-CP**).

Furthermore, regarding investments, owners of renewable energy projects can obtain loans of up to 70% of the total investment cost from the Vietnam Development Bank (VDB) at an interest rate equivalent to that of a 5-year government bond plus 1% per year *** (Decree No. **151/2006/ND-CP** dated 20 December 2006 by Government on state investment development credit and export credit and Decree No. **106/2008/ND-CP** dated 19 September 2008 by Government on amendments, supplements of some articles of Decree No. **151/2006/ND-CP)**

**Wind Power** In 2011, the Prime Minister issued **Decision 37/2011/QD-TTg,** which set a feed-in-tariff of 1,614 VND/kWh (fixed at US Cents 7.8 /kWh) for 20 years of project lifetime of which 207VND (fixed at 1US cent) is subsidized via the Vietnam Environment protection Fund (VEPF). Besides, wind power projects can also apply other non-tariff incentives from the government such as exemption of equipment import duties, corporate taxes and land use rights etc. as mentioned in ** above. Moreover, it is also regulated that the power purchaser must buy all electricity generated from wind power projects which meet the eligibility criteria indicated in this Decision.

The following year, the Circular **96/2012/TT-BTC** from the Ministry of Finance (MoF) was issued to instruct the financial mechanism for tariff support/subsidy for grid-connected wind power projects while regulations on project development and SPPA were provided in the Circular **32/2012/TT-BCT** by MOIT.

Even though the first important step had been initiated via the Decision 37 and other relevant Circulars, until now, little development has been taken place. Wind project developers and investors still perceive the market as being too nascent and financial conditions is not attractive enough to realize their projects. The Government of Viet Nam is thus considering an increase of the existing FIT and seeking support from GIZ for revising the current one.

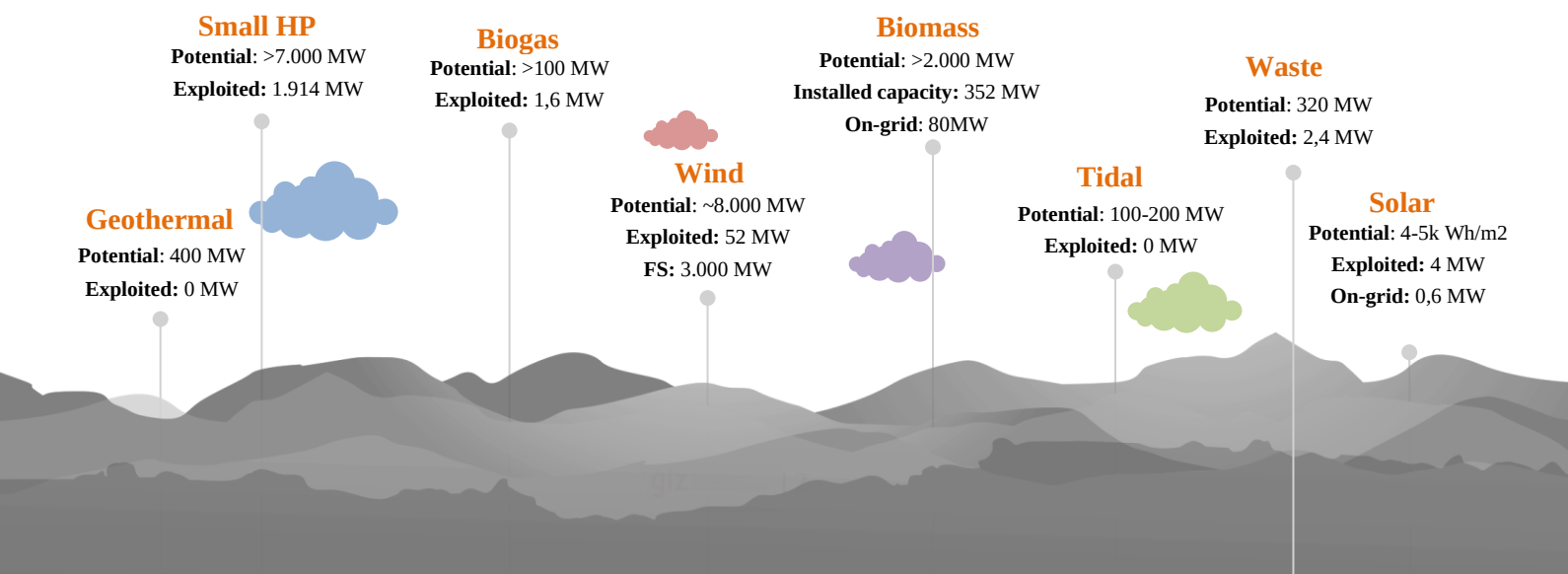
**Biomass Energy** In 2014, the first support mechanism related to grid-connected biomass power plants was issued by the Prime Minister under **Decision 24/2014/QD-TTg**. This Decision provides basis for removing financial barriers of grid-connected biomass power projects and orientations towards the preparation of National and Provincial Biomass Energy Development and Utilization Planning. According to Decision 24, investors from biomass combined heat and power projects can sell their surplus power to the grid at a FIT of 1,220 VND/kWh (fixed at 5.8 US cents) while investors from biomass power projects can benefit from the AVCT, which is calculated annually and based on the coal power plants using imported coal. Power purchase agreement term applicable to biomass power projects is 20 years from the date of commercial operations with possible extension. Furthermore, power generated from biomass power projects is regulated as "the must buy all power" and biomass investors can also apply other incentives as indicated in ** and *** above. .

In 2015, as follow up instruction from the Decision 24, MOIT enacted the Circular **44/2015/TT-BCT** to regulate the project development, methodology for AVCT calculation and SPPA for grid-connected biomass energy projects in Vietnam. Accordingly, the Power system operation unit/agency is in charge of calculating the tariff based on the methodology provided in Annex 1 of the Circular and submitted to ERAV. ERAV will be mainly responsible for coordinating with the General Directorate of Energy (GDE) under MOIT for appraisal to submit to MOIT for final approval.

On March 11th, 2016, MOIT has just issued**,** the AVCT of 2016 applied to biomass power projects via **Decision 942/QD-BCT** satisfying the applicable conditions provided in the **Circular 44/2015/TT-BCT**. Accordingly, except CHP projects and bagasse-based extraction-condensing power generation projects for sugar mills, all biomass power projects can sell their surplus electricity to the grid at around **7.4 US Cent/kWh,** depending on region the project located in.

**Municipal Solid Wastes to Energy** In 2014, numerous preferences were given to waste-to-energy plants as provided in **Decision 31/2014/QD-TTg** approved by the Prime Minister. Accordingly, the following FIT was

*Source figures in the graph below: IE (2014)



introduced: 10.05 US cents/kWh for power generation projects using solid wastes that are directly incinerated, and 7.28 US cents/kWh for those using combusted gas collected from solid waste landfills. Investors from waste-to-energy projects can also benefit from non-tariff incentives from the Government as indicated in ** and *** above.

In 2015, the MOIT stipulated project development and SPPA applied to grid-connected projects using solid wastes via Circular **32/2015/TT-BCT** dated 08 October 2015, which helped to facilitate the investment process for waste to energy projects...

**Small Hydropower** As mentioned above**,** the small hydro power investors can apply the AVCT stipulated in the Decision 18 of MOIT in 2008. The power purchaser must buy all electricity produced from these small hydro power projects after deducting the self-consumption of the plant and possible supply to power distributors in remote areas via the SPPA with term of 20 years. By end of 2013, there were 180 operational SHP projects with a total installed capacity of about 1,730 MW. Although the Decision 18 has been perceived to be beneficial to investors, there were also several shortcomings which hindered the implementation. That's why on October 9th 2014, MOIT promulgated the Circular No. **32/2014/TT-BCT** on the procedures for the AVCT preparation and application and the introduction of SPPA applicable to SHP plants as substitution of Decision 18. While major information remained unchanged, there were several modifications and changes of Decision 18 as stipulated in Circular 32. These modifications/changes are illustrated in the Table 1below. At the end of 2015, there was 1,914MW of small hydro power projects installed in Vietnam to benefit an AVCT indicated in Decision **12086/QĐ-BCT**.

The annual AVCT are calculated according to time of use in days and seasons in the year, which are stipulated in details in Annex 1 of Circular **32/2014/TT-BCT**, including 7 components: peak, normal, off-peak hours in dry and wet season and electricity surplus in wet season. Additionally, corresponding to the 7 afore-mentioned components, AVCT comprises avoided electricity tariff and avoided capacity tariff, in which the latter is only payable during peak hours in the dry season. The average AVCT are presented in the graph below.

**Photovoltaic** To utilize the vast potential of solar photovoltaic (PV), the Government is developing an incentive mechanism expected to be published in 2016. According to the draft decision by MOIT in 2015, the mechanism could consist of two components: a feed-in tariff for large-scale grid-connected solar power plants, as well as a net-metering scheme for rooftop solar PV applications (e.g. on industrial, commercial or residential buildings).

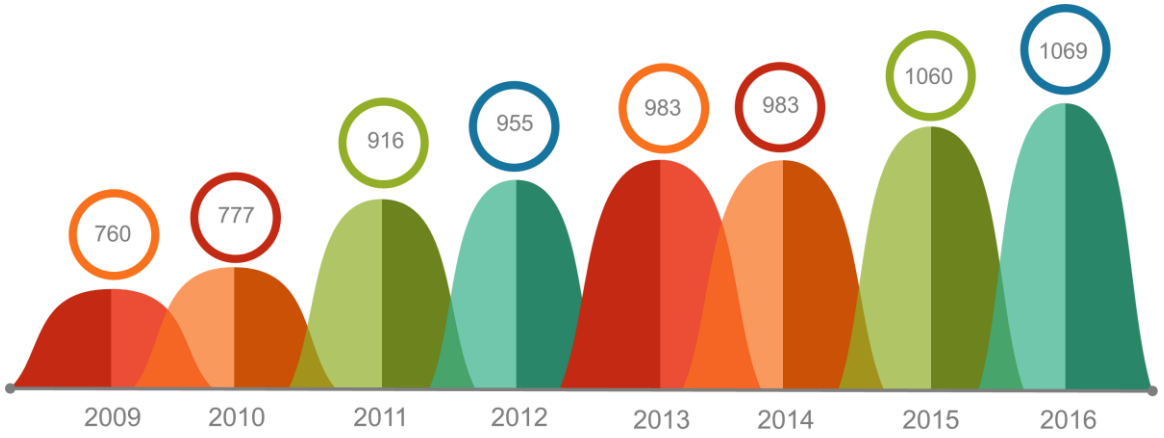



***Figure 2:*** *Average avoided cost tariff for Small Hydropower from 2009 to 2014. Unit: VND/kWh*

*Source: Author's Calculation*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## ANNEX

**Table 1. Modifications to the Decision 18/2008/QD-BCT as indicated in the Circular 32/2014/TT-BCT**

| Contents | Decision 18 | Circular 32 |
|---|---|---|
| Article 1. Scope and Subjects of Application | Applicable to small renewable energy power plants which are connected to the national power grid | Applicable to ***small renewable energy power plants*** which are connected to the national power grid<br>Applicable to small grid-connected renewable energy power plants, which do not apply separate electricity tariff mechanisms as regulated by the Prime Minister |
| Article 2. Interpretation of Terms | 13. Renewable energy is the energy produced from small hydropower, wind, solar, geothermal, tide, biomass, land field gas, gas from waste treatment plants and biogas. | 12. Renewable energy is the energy produced from small hydropower, wind, solar, geothermal, tide, biomass, ***direct solid waste combustion***, land field gas, gas from waste treatment plants and biogas. |
| Article 3. Tariff Structure | In the tariff components, the ***Local environmental damage avoided cost*** is included but temporarily not applicable with the value of 0. | The AVCT does not include water resource tax, forest environment service charges and VAT<br>In the tariff components, the ***Local environmental damage avoided cost*** is **NOT** included |
| Article 4. Procedures for Preparation and Promulgation of the AVCT | b) Prior to ***31st August*** every year, the ***National Load Dispatching Unit*** shall prepare draft avoided cost tariff for the next year for submission to the ERAV for appraisal and promulgation. | 3. Prior to ***31st October*** every year, the Power System ***Operations Unit*** shall be responsible for preparing the avoided cost tariff for the next year for submission to the ERAV |
| | c) Prior to ***01 December every year***, ERAV shall appraise and approve the avoided cost tariff which is prepared by the ***National Load Dispatching Unit*** | 4. Prior to ***31 December every year***, ERAV shall appraise and approve the avoided cost tariff which is prepared by the Power System ***Operations Unit***. |
| Article 9. Participation in the Electricity Market | This content is not included | ***Article 9. Participation in the Electricity Market*** is supplemented |

**Table 2: Summary of Support Mechanisms for RE sector in Vietnam**

| RE type | Support mechanism | Remark |
|---|---|---|
| Small Hydro | Avoided cost tariff | By year, by season, by region. |
| Wind Power | FIT | 7.8 US cents/kWh.<br>Currently re-calculating and re-designing FIT. |
| Biomass | FIT, avoided cost tariff | 5.8 US cents/kWh for co-generation.<br>Avoided Cost calculated annually. AVCT for 2016 are 7.5551, 7.3458, 7.4846 US cent/kWh for the North, Centre and South, respectively. |
| Solid Waste | FIT | 7.28 US$-Cent / kWh for combustion of landfill gas.<br>10.05 US$-Cent / kWh for waste incineration. |
| Biogas | | Studies completed, FIT draft has been submitted by MOIT to Government Office. |
| Solar PV | | Studies completed, FIT draft has been submitted by MOIT to Government Office. |
| Geothermal | | Implementing studies |
| All kind of RE sources | Tax exemption | Imported goods to establish project fixed assets, materials and semi-finished products that are not domestically produced for the first 4 years followed by a 50% reduction in the next 9 years. |
| | Other Incentives | Land use, capital, and fees for environmental protection activities |
| | Investments | Loans of up to 70% of the total investment cost from the Vietnam Development Bank (VDB) at an interest rate equivalent to that of a 5-year government bond plus 1% per year. |

**Table 3: List of Support Mechanisms for RE sector in Vietnam**

| Legal Documents | Issued Year | RE | Download |
|---|---|---|---|
| Decision No. **18/2008/QD-BCT**, dated 18th July, 2008 approved by the Ministry of Industry and Trade on promulgation of regulation on avoided cost tariff and standardized power purchase agreement for small renewable energy power plants (invalid, replaced by the Circular No. 32/2014/TT-BCT as below). | 2008 | Small Hydro Power | EN<br>V2N |
| Decision No. **37/2011/QD-TTg**, dated 29th June, 2011 approved by the Prime Minister on the mechanism supporting the development of wind power project in Vietnam. | 2011 | Wind Power | EN<br>VN |
| Circular No. **96/2012/TT–BTC**, dated 08th June, 2012 approved by the Ministry of Finance on guiding the financial mechanism to support electricity price for grid connected wind power projects. | 2012 | Wind Power | VN |
| Circular No. **32/2012/TT-BCT**, dated 12th November, 2012 approved by the Ministry of Industry and Trade on implementation of wind power project development and power purchase and sale contract form for wind power | 2012 | Wind Power | EN<br>VN |

| | | | |
|---|---|---|---|
| projects. | | | |
| Circular No. **06/2013/TT–BCT**, dated 08th March, 2013 approved by the Ministry of Industry and Trade regulating the content, process and procedures for Preparation, Validation and Approval of Wind Power Development Planning. | 2013 | Wind Power | EN VN |
| Decision No. **24/2014/QD-TTg**, dated 24th March, 2014 approved by the Prime Minister on the support mechanism for the development of biomass power projects in Vietnam | 2014 | Biomass | EN VN |
| Decision No. **31/2014/QD-TTg**, dated 5th May, 2014 approved by the Prime Minister on the support mechanism for the development of solid waste power projects in Vietnam | 2014 | Solid Waste | EN VN |
| Circular No. **32/2014/TT-BCT**, dated 09th October, 2014 approved by the Ministry of Industry and Trade provides the construction sequence and applies the avoidable cost tariff and issuance of power purchase contracts for small hydropower plants (replaced for the Decision No. 18/2008/QD-BCT). | 2014 | Small Hydro Power | VN |
| Circular No. **29/2015/TT-BCT**, dated 31st August, 2015 approved by the Ministry of Industry and Trade on prescribing contents, sequence and procedures for preparing, appraising and approving the Biomass Energy Development and Utilization Plans. | 2015 | Biomass | EN VN |
| Circular No. **32/2015/TT-BCT**, dated 08th October, 2015 approved by the Ministry of Industry and Trade on project development and Standardized Power Purchase Agreement for power generation projects using solid waste. | 2015 | Solid Waste | EN VN |
| Circular No. **44/2015/TT-BCT**, dated 09th December, 2015 approved by the Ministry of Industry and Trade on project development, avoided cost tariff and Standardized Power Purchase Agreement for biomass power generation projects. | 2015 | Biomass | EN VN |