

Renewable Energy Institute

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Comments on Bioenergy Power Generation under the FiT Scheme

Ensure Fuel Sustainability and Proper Generation Technologies

Bioenergy power generation capacity registered under the Feed-in Tariff (FiT) scheme is growing rapidly. Particularly, new registration for the “ordinary wood” category has shown steep growth between March 2016 and March 2017, from 2.95 GW to 11.47 GW, mainly because of the decision to lower purchase prices after April 2017 for new power plants using ordinary wood as fuel with a capacity of 20 MW or more. This has caused serious concerns over the sustainability of biofuel. The sharp increase was identified as a problem by the Procurement Price Calculation Committee (“the Committee”) at its meetings in FY2017 and some revision is likely to be made to the FiT scheme in order to secure sustainability of fuel.ⁱ

It is indeed a great step forward in itself. However, some issues still remain, such as posing mandatory audit by third parties. In addition, clearer directions should be provided indicating which generation technologies are to be encouraged under the FiT scheme —for instance, to promote combined heat and power (CHP), but exclude newly constructed coal power plants from the FiT support for biomass co-firing.

Here in this document, we review the discussions of the Committee so far, and summarize the points at issue to suggest some specific improvements to the Committee before it prepares its recommendations for this fiscal year. First, we propose some immediate measures to be taken, and suggest some improvements for the FiT scheme to ensure sustainability of biofuel. We then call for an improvement with the support scheme for power generation technologies.

I. Issues concerning sustainability of biofuel

1. Immediate measures by fuel type

(1) Palm oil

Consumption of palm oil carries a wide range of risks, and it is highly problematic to allow its usage as fuel under the FiT scheme.ⁱⁱ The Committee intends to oblige all power plants using palm oil, including plants which have already been registered for FiT, to obtain relevant sustainability certifications, such as RSPO. That would be logical from the perspective of ensuring bioenergy sustainability performance.

However, the move to obtain such certification has just started with food and daily necessitiesⁱⁱⁱ. Given the potential harm that may be caused to such moves, as well as the unproven effectiveness in greenhouse gas (GHG) reduction,

it still seems questionable to allow FiT registration to plants running on palm oil. At the least, no new registration should be allowed to any plant before it obtains certifications demonstrating sustainability in fuel procurement and operation. In addition, in order to confirm sustainability in procurement and operation, third party audit must be conducted.

(2) Wood pellets and other imported fuels

Power plants running on pellets and other imported woody biofuels are allowed FiT registration only when their relevant certifications, such as FSC, are confirmed. The Committee intends to implement these registration rules more strictly by, for instance, asking plant operators to present the contracts with local fuel suppliers. On top of that, some system should be established for third parties to assess the sustainability performance in the actual procurement and operation stages of the plants after the FiT registration.

(3) Domestic wood

For power plants using domestic wood for fuel, FiT registration is allowed only after the relevant prefectural government confirms that fuel procurement will be conducted in an appropriate manner. However, as part of the recommendations made in July 2017,^{iv} the Ministry of Internal Affairs and Communications pointed out that some timber had been inappropriately classified as “unutilized wood”, a category for which higher purchase prices are set. This would demonstrate that classification management of fuels, or traceability, must be audited by third parties.

2. Proposed FiT scheme improvements to ensure sustainability of biofuel

(1) Risk evaluation of fuels before including in the FiT scheme

We will probably see FiT applications filed by power plants running on various types of biofuel. In the case of palm oil, plant operators will be required to confirm their sustainability retrospectively, even after registration is allowed. Any similar situations should be avoided.

Some mechanism should be available for the Committee to evaluate fuels in terms of characteristics and risks, and decide whether to include them in the FiT scheme before setting prices and accepting applications. To that end, the Committee should receive proposals on appropriate certification schemes that can prove sustainability of the fuel.

(2) Careful design of tender systems linked with management of total fuel consumption

Given the finite nature of biofuel, the FiT scheme should be designed to control the installed capacity (fuel consumption) across the entire system. For the category of “ordinary wood”, tenders are scheduled for FY2018. So far, the accumulated capacity of bioenergy power plants that have come into operation is merely 500MW, including those with transitional registration. A rapid surge of commercial operation is expected in the coming years, but it remains unclear whether any sustainability can be ensured in terms of fuel procurement and operation. For any large-scale projects that may have a significant impact on the fuel market, the amount of fuel procured through

tenders and other requirements should be examined carefully to control the installed capacity and the pace of adoption, and establish sustainability.

Small- and medium-scale projects, in contrast, should be offered continued support under the FiT scheme because most of them burn unused resources in the category of ordinary wood, such as remnants generated through lumber and construction debris, which are unlikely to have any significant impact on the fuel market.

(3) Full disclosure of information and audit by third parties

What is critical, in addition to confirming sustainability certifications before allowing FiT registration, is to monitor the power plants' performance after they come into operation. At present, however, no data is released about the consumed fuel of individual plants. Plant operators should be obliged to disclose information on the biofuel they consume, including for instance, monthly consumption by fuel type together with their certifications. In addition, they should be audited by third parties, and release annual audit reports as of each fiscal year end.

To secure credibility as third parties, auditors should be appointed from those who satisfy certain requirements, including (1) that they are not an industrial association or similar organization with any interests in the auditee, and (2) that they have sufficient experience and expertise in the relevant sector.

(4) Improvement of sustainability criteria in phases

Sustainability of fuel will be maintained for the time being using existing certification schemes, such as FSC and RSPO. However, these schemes have been developed for items to be used as raw materials, and take no account with GHG reduction.

Indeed, biofuels, produced appropriately, would be much more effective for GHG reduction than fossil fuel(s). However, some types of biofuel and that produced using certain methods may emit a large amount of GHG. The government should develop sustainability criteria in phases, based mainly on the verified effect of biofuels for GHG reduction and the standards set out. These measures are expected to form a scheme that promotes CHP, a method which is much more effective for reducing GHG. (Support measures under the FiT scheme will be described later in Section II. 2.)

In terms of the applicability of sustainability criteria, a flexible approach could be adopted. For instance, they may at first be only applicable to large-scale power plants.^v Outside Japan, some certification schemes, such as SBP and GGL,^{vi} have been developed solely for biofuel, which could possibly be adopted in Japan's FiT scheme effectively.^{vii}

II. Issues concerning power generation technologies

1. Biomass co-firing at newly constructed coal-fired power plants should be excluded from the FiT scheme

First, FiT is still applicable to co-firing at newly constructed coal-fired power plants, a catalyst that has contributed to the increase of this type of plant. In the first place, bioenergy is characterized as an immediate substitute for fossil fuel(s), designed to help reduce fossil fuel(s) consumption. Biomass co-firing at newly constructed coal-fired plants obviously comes with increased consumption of fossil fuel(s). It should be excluded from the FiT scheme immediately.^{viii} However, power plants designed to run mainly on biofuel and be supplemented by coal could be made eligible for support under the FiT scheme if they satisfy some conditions set at the same level as those for existing power stations, described below, such as the share of biofuel being 90% or more.

Meanwhile, policy programs which allow existing fossil fuel power plants to be converted for biofuel power production under certain conditions could exploit the characteristics of biofuel mentioned above. A condition the Committee has suggested in terms of eligibility for support, "replacing 90% or more of the fossil fuel with biofuel," would be reasonable. Another condition, "large-scale retrofit" should be examined in detail separately as there are a great variety of retrofit patterns.^{ix}

2. Promotion of CHP should be reaffirmed as the intended direction, and CHP should be made practically mandatory

Second, the promotion of CHP should be defined as one of the intended directions of the energy policy. The Committee has also discussed this issue repeatedly. Now that the significance of biofuel sustainability has been made obvious, the advantage of CHP in resource/energy-efficiency should be reaffirmed, and the promotion of CHP should be clarified as the direction to take.

One possible approach would be to pose a standard of GHG reduction effectiveness, which will make CHP practically mandatory. Among the support measures by the FiT scheme could be some premiums granted to those plants which adopt CHP; or purchasing prices could be lowered for plants without heat sales, while preparing a subsidy program to help them cover the additional initial cost for making heat available.^x Many bioenergy power plants have been built near high-voltage power lines in hilly and mountainous areas as their priority lies in better grid connections. In order to encourage developers to build bioenergy plants closer to heat consuming areas, it would be effective to guarantee grid connections.

III. Conclusion: For the development of bioenergy into the future

As solar PV and wind power generation is deployed on a greater scale globally along with declining generation costs, bioenergy will see its role shifting and act more as a supplement to them while finding its own unique position. Bioenergy is expected to make great contributions to short-term decarbonization policy programs as, for instance, an immediate substitute for fossil fuel(s). As pointed out here, the sustainability of biofuel, and the efficiency and

strategic perspective of power generation (energy transformation) technologies are critical as fundamental elements when looking over the development of bioenergy into the future. Japan should incorporate them into its FiT scheme and any other energy policy programs it develops.

(End)

ⁱ Takanobu AIKAWA, Senior Researcher of Renewable Energy Institute, attended the 31st meeting of the Committee to explain the manner in which sustainability criteria are implemented in Europe and other regions.

(http://www.meti.go.jp/committee/chotatsu_kakaku/pdf/031_07_00.pdf).

ⁱⁱ Aikawa (2017 a) “Great Risk Involved in Palm Oil Power Generation: Sustainability Standards Are Urgently Needed.”

(https://www.renewable-ei.org/en/column/column_20170912.php)

ⁱⁱⁱ For instance, See “Palm Oil Buyers Scorecard 2016” (Ranking of Japanese companies)

(http://www.gpn.jp/files/Palm_Oil_Scorecard_Japan.pdf)

^{iv} The Ministry of Internal Affairs and Communications, “Administrative Evaluation and Supervision of Management and Utilization of Forests: Findings and Recommendations” (http://www.soumu.go.jp/menu_news/s-news/107317_00005.html)

^v The EU is likely to apply its sustainability criteria, which covers solid biomass, only to plants with a capacity of 20 MW or more.

^{vi} Stands for Sustainable Biomass Partnership and Green Gold Label, respectively. They are both used in combination with FSC or other forest certificates. Their design, in terms of traceability management and other features, assumes their application to biofuel.

^{vii} The Netherlands has set up a committee of experts who review certification schemes and determine which of them the state should approve. (<https://www.adviescommissiedbe.nl/english>)

^{viii} This issue has been mentioned in the column below. Aikawa (2017 b) “Biomass co-firing: For the reduction of coal-fired power plants” (<https://www.renewable-ei.org/activities/column/20170927.html>)

^{ix} Among the great variety of different options are the conversion of a burner for using biomass powder as a substitute for gas, etc., and using pyrolysis oil as a substitute for heavy oil.

^x Germany's CHP Act has a similar structure as it allows the preferential purchase of power generated by CHP plants in combination with subsidies granted for the construction of local heat supply systems. (<http://www.decentralized-energy.com/articles/print/volume-17/issue-1/features/germany-s-new-chp-act-explained.html>)