

Re: COMFIT Biomass Eligibility

1. PURPOSE. The following directive establishes criteria that will be used to evaluate COMFIT biomass project applications.

2. POLICY RATIONALE. The policy intent of the government is that, generally, biomass for renewable low-impact electricity should complement, not compete with, the existing high value added forest products industry. However, it is recognized that in a market-based system there will be interaction between existing and new markets. This interaction provides more options and strengthens opportunities for forest managers and forest product manufacturers—especially those operating mills and combined heat and power (CHP) biomass facilities. As a matter of precaution, the Government of Nova Scotia has established a cap of 350,000 (currently 500,000) dry metric tonnes of annual, incremental primary forest harvest to be used for the generation of electricity as indicated in Subsection 8(1) of the *Renewable Electricity Regulations*. The regulations will be amended to reflect this new cap later this year. It is recognized that emerging improvements in production methods may allow non-forest sourced biomass producers to participate in CHP opportunities as part of a CEDIF or other not-for-profit, municipal, First Nations, or university projects.

3. LEGAL AUTHORITY. Under Subsection 28(1) of the *Renewable Electricity Regulations*, the Minister may approve or reject an application for a Feed-In Tariff approval that satisfies the requirements of the Act and the regulations. This directive provides guidance on the approval process as it relates to biomass fuel procurement plans required under Clause 24(o)¹ of the regulations and the requirement that biomass as a source of renewable low-impact electricity must be harvested or produced in a sustainable manner as required under Subsection 3(1).² In

¹ **24** An application for a feed-in tariff approval must include all of the following information or documentation: ...

(o) for a biomass project, a biomass fuel procurement plan outlining how the applicant intends to ensure that its fuel supply will meet sustainable harvesting requirements;

² “renewable low-impact electricity” means electricity produced from any of the following:

- (i) solar energy,
- (ii) wind energy,
- (iii) run-of-the-river hydroelectric energy,
- (iv) ocean-powered energy,
- (v) tidal energy,
- (vi) wave energy,
- (vii) biomass that has been harvested in a sustainable manner,
- (viii) landfill gas,
- (ix) any resource that, in the opinion of the Minister and consistent with Canadian standards, is able to be replenished through natural processes or through sustainable management practices so that the resource is not depleted at current levels of consumption;

addition, this directive addresses matters of air quality and efficiency, which may form the basis for terms and conditions to which Feed-In Tariff approvals will be subject as provided in Subsection 28(4).³ This directive is made under the authority of Subsection 2B(2)⁴ of the *Electricity Act* and Clauses 43(1)(b)⁵ and 43(2)(e)⁶ of the *Renewable Electricity Regulations*.

4. DIRECTIVE.

The Minister of Energy, in consultation with the Departments of Natural Resources, Agriculture and Environment, has made determinations about the following biomass considerations with respect to eligibility for the COMFIT program:

Primary Forest Biomass

Forest biomass used to generate renewable low-impact electricity will be harvested in a sustainable manner. Proponents must also be registered with the Department of Natural Resources' (DNR) Registry of Buyers and, as such, will be subject to the same legislation, regulations and sustainable forest resource management obligations pertaining to the regular forest industry. Forest biomass used to generate renewable low-impact electricity will be limited to stem wood only of non-merchantable trees. No coarse or fine woody debris from primary forest harvesting will be considered to be sustainable biomass feedstock. Proponents or suppliers shall not harvest or acquire fuel from tree crowns, tops, or stumps from forest management operations. The sole exemption would be for such material generated from land development or urban sites.

Agricultural Energy Crops/Residues

Energy crops are non-food crops grown specifically for their fuel value, including electricity generation. These sources include: short rotation woody crops (e.g. willow), and herbaceous energy crops (e.g. miscanthus). While the EcoLogo Standard CCD-003 provides general guidance on ensuring that crops are produced with low-impact, sound environmental

³**28(4)** On approving an application, the Minister must issue the applicant a feed-in tariff approval subject to any terms and conditions that the Minister determines are appropriate.

⁴ **2B (2)** The Minister may establish and administer policies, programs, standards, guidelines, objectives, codes of practice, directives and approval processes under this Act.

⁵ **43 (1)** The Minister has all the power and authority necessary to implement, administer and enforce these regulations, including the power to issue directions or orders, and must do all of the following: ... (b) establish a process for approving and re-approving renewable low-impact electricity generation facilities and renewable low-impact electricity generators;

⁶ **43 (2)** In addition to the powers and duties set out in subsection (1), the Minister may do any of the following:...(e) prepare interpretations of these regulations, or policies, standards and guidelines under these regulations.

management practices, the NS Environmental Farm Plan (EFP) and Nutrient Management Planning (NMP) are more appropriate references in the Nova Scotia agricultural context.

These crops may provide an economic basis for heating applications, but the business case for use in a combined heat and power situation may not be economic at this time. In addition, potential project using energy crops must demonstrate sustainable agricultural practices.

Other

Sawmill and Wood Processing Residues

The wood wastes from the manufacturing of other wood products are always preferred feedstocks over additional harvesting of more primary forest biomass. Proponents should demonstrate that they have secure arrangements or control over this portion of any wood biomass fuels. In addition, proponents must also be registered with the Department of Natural Resources' (DNR) Registry of Buyers.

Farm-based

Farm-based biogas systems that use their own feedstock are eligible for COMFIT.

Those wishing to explore the option of consolidating their feedstocks on a farm and operating a Cooperative/CEDIF COMFIT Combined Heat and Power Biogas facility should contact the Department of Energy's Renewable and Sustainable Energy Branch early in the planning stages. The Department of Energy will work with the Department of Environment to guide proponents in their planning.

Liquid, solid, and gaseous fuels made from biomass

This category includes the material(s) used in the process to create products such as pyrolysis oil, syngas, pellets, and eligible liquid biofuels. The relevant issue for eligibility is whether the material comes from sustainable sources consistent with the EcoLogo™ definitions. Liquid, solid, and gaseous fuels made from biomass raise issues with respect to source that are similar to those with respect to primary forest biomass and the related fuel procurement plans; therefore, proponents considering the use of non-harvested biomass sources (i.e., waste) should have an early discussion with the Department of Energy about the eligibility of the sustainable source, plans for its collection, and any requirements to demonstrate the source is, and continues to be, sustainable.

Eligible liquid biofuels are liquid fuels that are derived from eligible biomass and that can be shown to provide a net environmental benefit, or that are derived from waste feedstocks, which include, but are not limited to, waste vegetable oils, waste animal fats, substances derived from wastewater and the treatment of wastewater, or grease trap waste.

Biosolids

Biosolids, or sewage sludge, may or may not be eligible. In the determination of eligibility, the Department notes that the Canadian Council of Ministers of Environment Biosolids Task Group has drafted a policy statement and guidance document for the beneficial reuse of biosolids. Those documents state that incineration that does not result in a positive energy balance or that emits significant amounts of nitrous oxides (greenhouse gases) is not considered as "beneficial use." The Department of Energy will work with the Department of Environment to explore this energy opportunity in the future.

Pilot or experimental projects that are willing to share environmental, operating, and commercial data to assist in the examination of the opportunities in this area may be eligible to operate as a COMFIT Combined Heat and Power facility and receive payments under the biomass rate established by the UARB. Those wishing to explore this option should contact the Department of Energy's Sustainable and Renewable Energy Branch very early in their planning.

Air Quality Considerations

In order to be eligible for the biomass CHP COMFIT, all new, refurbished, or replaced biomass boilers must be rated to achieve the air emission performance rate (below, Table 1). To achieve such performance, it is anticipated that boilers will likely require emission control technology. In the application for the COMFIT, proponents must identify the rated particulate matter emission level, the manufacturer's emission testing method, and the type of pollution control equipment.

Table 1: Rated particulate matter emission numbers upon installation required for eligibility of biomass boilers for the COMFIT.

Size Range (MW _{input})	PM Emission Cap (mg/m ³)*
0.25 to 1	120
1 to 3	50
3 to 10 (upper COMFIT MW)	35

*tested under normal operating conditions at standard conditions of 20 degrees Celsius, 101.3kPA and 8% oxygen

Existing boilers that are not subject to alteration, upgrade, modification, etc. must be rated to meet 120mg/m³*, and pollution control equipment will likely be needed.

Efficiency Considerations

While the Department of Energy has not implemented efficiency standards for biomass CHP projects, it is important to note that the COMFIT rate structure will incent proponents to obtain the highest overall efficiency possible. Proponents must report their annual overall efficiency as

part of the Biomass Fuel Procurement and Use Plan annual reporting requirements. During the 2012 review, the Department of Energy may consider whether formal efficiency standards are required for biomass CHP projects. These standards would apply only to new projects applied for after the review is complete.

Further Considerations on Eligibility

Community Based District Heating Projects

Community-based biomass projects are required to be CHP; however, they are permitted to sell excess heat to others.

An industrial “private company” biomass project is not required to be a community-based project; however, they must use the heat themselves on site in an industrial process. If there is an additional surplus, they may sell to others.

For the purposes of COMFIT, eligible biomass projects must:

- Apply only to the electricity produced and sold from a combined heat and power (CHP) plant;
- Produce renewable low-impact electricity, as defined above; and
- Conform to air emission performance standards and/or operating approvals, where applicable.

All biomass project proponents are encouraged to take the following steps in planning their projects:

1. Proponents should seek early guidance on the availability of primary forest biomass within the cap by contacting the COMFIT Administrator at the Department of Energy. The COMFIT Administrator will provide a current assessment of biomass allocated and anticipated.
2. Proponents should then approach the Executive Director of the Renewable Resources Division at Department of Natural Resources to discuss their fuel procurement and use plans. This opportunity will provide proponents with a Preliminary Assessment of their plans and identification of any issues prior to formal submission. A comment by DNR that the plan is in compliance with all DNR requirements can be filed with the application for the COMFIT. In cases where the use of primary forest biomass has been identified, the Department of Natural Resources Preliminary Assessment will include advice to the Minister of Energy to enable the Department of Energy to give a proponent a Preliminary Allocation of a portion of the 350,000 dry metric dry tones biomass cap. This Preliminary Allocation will expire if an application for a COMFIT CHP project is not filed within 12 months.

3. Upon filing the COMFIT application, all proponents must formally submit their multi-year biomass fuel procurement and use plan. The plan must indicate both the current use and the incremental supply required to produce electricity. Proponents must demonstrate how the incremental supply meets the biomass eligibility criteria listed above. The plan must outline anticipated sources for biomass, region of harvest, land tenure type (i.e., private, industrial or Crown land), species (softwood or hardwood species), fuel types (i.e., bark, sawdust, chips, pellets, etc), moisture content, and dry tonnes required for the project.
4. Once a Feed-In Tariff Approval has been issued, a Final Allocation of the primary forest biomass will be given to the project. If there is a scarcity of resource to be allocated, priority will be given to projects in order of their notice from DNR that their fuel procurement plan is in compliance with Departmental requirements. A Final Allocation will be subject to the normal timeline requirements for project in-service.

5. DEFINITIONS.

Section 3(1) of the *Renewable Electricity Regulations* states renewable low-impact electricity includes electricity produced from:

- biomass that has been harvested in a sustainable manner; and
- any resource that that, in the opinion of the Minister, and consistent with Canadian standards, is able to be replenished through natural processes or through sustainable management practices so that the resource is not depleted at current levels of consumption.

Under the regulations, sustainably harvested biomass covers forest and agriculture crops as well as biogas that may be derived from those crops. Finally, with respect to other resources, the guidance below outlines where these other resources may be considered. In all cases, it is important to obtain the various permits and approvals that apply specifically to biomass/bioenergy projects and, more generally, to constructing and operating projects.

Sustainably Harvested Biomass and its Derivatives

While the formal definition for “biomass” comes from the *Renewable Electricity Regulations* as noted earlier, the Department considers EcoLogo™ definitions to be an important Canadian Standard that provides very useful advice to the Minister when making judgments on eligibility. In general terms, biomass means vegetative/animal matter or its derivatives including:

- a) Forest biomass removed from forests, which are managed by following sound environmental management practices. Forest biomass is limited to tree stems or any part of the bole, including bark;
- b) Non-food portions of agricultural crops and farm-animal residues that are not needed for soil nutrient balance and management;

- c) Waste from clean manufactured wood products and industrial by-product residues (such as sawmill or wood working residues) arising from the processing of forestry, wood or paper products;
- d) Dedicated agricultural energy crops which are managed by following sound environmental management practices; and
- e) Liquid, solid, or gaseous fuels made from biomass as defined in items (a), (b), (c) and (d) above (including among other things pyrolysis oil, syngas, pellets and eligible liquid biofuels).

Specifically Excluded Materials:

For further clarity, where thermal processing of biomass is being considered, COMFIT eligibility is not extended to:

- 1. wood coated with paint, plastics or formica;
- 2. wood treated with preservatives containing halogens, chlorine or halide compounds like chromated copper arsenate or arsenic;
- 3. wood that has been treated with adhesives; and
- 4. railroad ties.

In addition, as per the Province's *Solid Waste-Resource Management Regulations*, Schedule "B", the following components of the Municipal Solid Waste stream are banned from Landfills and Incinerators:

- 1. corrugated cardboard;
- 2. newsprint;
- 3. leaf and yard waste; and
- 4. compostable organic materials.