Yukon

Regulating air emissions from commercial and institutional biomass burning systems

What We Heard

February 2025

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Background

The Air Emissions Regulations under the Environment Act regulate air pollutants in the Yukon. The Government of Yukon committed to amending the Air Emissions Regulations to capture air emissions from commercial and institutional biomass burning systems by 2025 in Our Clean Future: A Yukon's strategy for climate change, energy and a green economy (action H24).

Biomass burning units use energy from the combustion of organic materials to generate heat and sometimes electricity. Biomass burning units typically use wood, including cordwood, wood chips and wood pellets, as fuel sources.

Biomass burning units can release air pollutants of concern, such as particulate matter (PM), carbon monoxide (CO) and nitrogen oxides (NOx). Air pollutants of concern are typically released in higher quantities due to poor combustion from factors like low combustion temperatures, poor fuel quality, excessive moisture content in the fuel and/or improperly maintained equipment. Air pollutants may also be generated from the chemical elements present in the fuel itself.

The Government of Yukon is interested in regulating commercial and institutional biomass units in response to the growing interest in these systems. Regulating air emissions from these systems focuses on minimizing the release of harmful particulate matter being released into the air.

Engagement process

Purpose

The Government of Yukon is planning amendments to the *Air Emissions Regulations* to require that owners and/or operators of commercial and institutional biomass burning systems obtain an air emissions permit under Schedule 1 of the regulation. To help inform this change, the Government of Yukon invited input on:

- the proposal to define commercial and institutional biomass burning units as units over 150 kilowatts of heat output;
- considerations for permitting systems that meet these criteria; and
- current systems in use and interest in future use of commercial and institutional biomass burning systems.

How we engaged

We reached out to 102 representatives from Indigenous governments and groups, municipal and territorial government representatives, operators and suppliers of existing biomass burning units, industry representatives and conservation and resource management groups through e-mail and letters. In addition, we issued a news release and social media ads to further reach these representatives and to invite feedback from the general public. A Discussion Document was shared with representatives and Indigenous governments and groups and posted on Yukon.ca with a public invitation to provide feedback on the proposed amendments to the *Air Emissions Regulations*.

Industry representatives, stakeholders and Indigenous governments and groups were invited to two online information sessions to learn more about the proposed amendments, ask specific questions, and provide general feedback. In addition, one-on-one calls were held as requested. The online information sessions were also listed on Yukon.ca and the public were welcome to participate.

Who responded?

A combined total of 16 participants attended the two online information sessions. Additionally, 10 participants provided written feedback and 2 one-on-one phone calls with participants were conducted upon request. One field visit was also conducted at a site with an existing biomass burning unit above 150 kilowatts. Participants included Yukon and First Nation government representatives, current and future operators of biomass systems, industry representatives and private citizens.

What we heard

Defining commercial and institutional biomass burning systems

Air emissions from biomass burning units below 150 kilowatts of heat output are regulated under the National Building Code of Canada (CSA B415.1-10), and therefore already meet minimum air emissions requirements.

The majority of respondents supported the Government of Yukon's focus on biomass units equal to or greater than 150 kilowatts. Some respondents felt the definition was too simplistic or suggested that the amendments apply to biomass units that are 100 kilowatts and greater.

Permitting considerations

Air emissions permits outline specific operational conditions and may set maximum limits on the release of specific pollutants of concern.

Respondents indicated preference for a simple permitting process that is not too strict and only requires information that is readily available from the supplier of the biomass unit and site owner. There was also a desire for a clear complaint process that would enable an efficient way to investigate complaints and avoid unnecessary disruptions to the operation of a biomass system.

Respondents requested clarity around how biomass burning systems with multiple units would be treated under the proposed amendments and whether permitting would focus on a system's cumulative heat output capacity or be based on individual unit capacity.

Respondents highlighted the importance of proper equipment maintenance stating that poorly maintained units can result in an increased release of harmful air pollutants.

Respondents supported the Government of Yukon's proposal to use the Canadian Council of Ministers of the Environment's (CCME) tier 1 approach, as outlined in the guidance manual on managing air emissions from small solid biomass combustors. The

tier 1 approach was developed for lower density populations in rural and northern communities, which do not have any regulations for biomass burning systems in place. However, one respondent suggested following the tier 2 approach due to air quality concerns caused by frequent weather inversions in the Yukon. Tier 2 of the CCME guidance applies to medium densely populated areas that have basic regulations for air emissions from biomass burning systems in effect.

Some respondents identified challenges with mandatory stack testing for units above 1000 kilowatts of heat output, as there are no stack testing services in the Yukon and costs can be prohibitive. Another respondent wanted clear details on testing requirements.

There were questions about implementation of the proposed amendments, such as consequences of non-compliance with the regulation and how the emissions would be monitored. Concerns were raised about potential challenges with maintaining biomass units and the variability in quality of available fuel, which can both impact emissions.

Understanding existing biomass burning systems

There are several biomass burning units that are greater than 150 kilowatts of heat output already operational. The Government of Yukon wanted to hear from those operators to understand the anticipated impact of the proposed amendments.

Some respondents felt that existing units that were tested under older protocols should be accommodated in a new regulatory framework. Another respondent expressed concern that upgrading their system to meet new requirements could be costly, and someone else asked if there would be financial support to bring existing systems into regulatory compliance if needed.

To further understand the operation and maintenance requirements of biomass units, Department of Environment officials toured an existing biomass system at Elijah Smith Elementary School. Topics discussed included equipment maintenance, record keeping and operator training with Department of Highways and Public Works representatives

and the contractor overseeing the system. No potential issues were raised around the proposed permitting considerations.

Understanding future commercial and institutional biomass burning systems

A few respondents indicated they were considering installing a biomass burning unit larger than 150 kilowatt hours of heat output. Responses were mixed about whether the requirement for a permit would influence their decision to purchase a biomass burning unit.

Additional feedback

The benefit of regulating emissions from biomass burning systems was acknowledged, with one respondent indicating that emissions controls on modern commercial biomass burning systems will reliably result in acceptably clean emissions. One respondent suggested that the proposed amendments may negatively impact the biomass industry, another supported the amendments and emphasized the need to have a regulatory framework in place for a growing industry. Two respondents expressed they were pleased with the proposed changes and noted their support for the requirement of a permit.

Next Steps

The feedback gathered during this engagement will help inform the development of proposed amendments to the *Air Emissions Regulations*.