

Mining Intensity Target: Discussion Paper

Objectives

As part of *Our Clean Future*, the Government of Yukon committed to work with the mining industry to set an intensity-based target for greenhouse gas emissions from placer and quartz mining by the end of 2022. We know that critical minerals are essential to make the transition to a clean energy future.

An intensity target works with a changing industry continuing to reduce emissions even as mining activity goes through peaks and valleys. Overall Yukon government has set a goal of net-zero by 2050, including for the mining sector. What we need now is an interim target that is roughly halfway between today and net-zero in 2050.

Our target is for the mining sector to reduce 45% of greenhouse gas emissions per unit of production by 2035.

This aligns with our territory wide greenhouse gas target of 45% reduction outside of mining by 2030. These targets are a road map towards net-zero.

Proposed Approach

Why is the Government of Yukon setting a greenhouse gas intensity target for mining?

The Government of Yukon is committed to taking action on climate change to make the transition away from fossil fuels over the coming decades. Through *Our Clean Future*, we've set an economy-wide greenhouse gas reduction goal of 45 per cent by 2030, for all sectors and industries, except mining. A mining intensity target will set a goal for the industry, and help the Government of Yukon assess emission reductions activities while considering the unique characteristics of the mining industry.

What is an intensity target?

When we developed *Our Clean Future*, an intensity-based approach emerged as the best option for the mining industry to meet emissions targets. The year-to-year variability of Yukon's mining activity makes it difficult to set a maximum level of greenhouse gas emissions from mining to be reached by a certain date. If mining activity were to decrease, total mining emissions could reach the target without requiring any improvements to how mines operate. If mining activity were to increase, the target could become unachievable.

Unlike an absolute greenhouse gas reduction target, an intensity-based target establishes a desired level of greenhouse gas emissions per unit of material produced or volume of activity. This will encourage operational efficiencies, regardless of how many or how few mines are in operation at any one time. The ultimate goal of net-zero by 2050 is the same for both intensity and absolute targets.



What does it do?

These mining intensity targets will help the Government of Yukon track industry's progress in lowering emissions. It will also help direct future programs and policies to support industry in meeting these goals. Our aim is to encourage mines to find innovative ways to reduce emissions over time.

How will this target impact me?

You may be asked for more information on your fuel use and mineral production as part of the permitting process, or as part of a new reporting process.

Yukon government officials will also look to industry members to collaborate with government to identify ways to reduce emissions through programs and future policies.

What targets are you proposing?

A reduction of 45% of greenhouse gas emissions per unit of production by 2035.

Our general approach to establishing an emissions target:

1. **Establish emission intensity baseline(s).** We can use Yukon specific data when available and the federal Output-Based Pricing System research when applicable. Baseline options are outlined below.
2. **Decide on clear guidelines for what falls under mining intensity targets.** The simplest way to think of it is using types of activity, e.g. the mining intensity target could begin as soon as there is a license to operate through reclamation with other activities captured under our economy-wide absolute target.
3. **Investigate potential to reduce emissions in the sector.** We need to consider what is achievable now with respect to emissions reductions and what we can expect in the coming decade(s). We're working with Navius Research to model greenhouse gas reduction options for the sector.
4. **External review.** We're sharing our work with a local consultant to have them complete an external review and propose suggestions.

Q1: What do you think is achievable now with respect to reducing mining emissions? What can we expect over the next 15 years? What supports would be needed to make the transition away from fossil fuels?

What mining operations does this target apply to?

Right now, we are proposing a target for mines in production where greenhouse gas emissions are based against a unit of a mineral produced. There are changes underway to mining regulations and legislation that may codify existing policies and practices to ensure reclamation activities are conducted alongside production. This will mean that some emissions associated with reclamation activities will likely need to be incorporated into the intensity target.



Emissions from exploration and reclamation do not typically generate a mineral product. They would require another method of determining a baseline for an intensity target, or else be part of the economy-wide absolute target.

Q2: Should exploration be part of the mining intensity target, or under the economy-wide absolute target? If exploration were part of the mining intensity target, what would work as a baseline?

Q3: Should reclamation be part of the mining intensity target, or under the economy-wide absolute target? If reclamation were part of the mining intensity target, what would work as a baseline?

Q4: Are there other operations which should be included under the mining intensity target?

Q5: Do you have recommendations for reducing emissions from exploration and reclamation or for other stages of mining?

Emissions will be calculated from fuel purchases. Fuel use for activities related to mining, such as transportation for crew changes to/from the mine site or shipping ore, are scoped into economy-wide emissions accounting.

How will we assess mine baselines?

For intensity targets, greenhouse gas emissions need to be assessed against a baseline. There are different ways to calculate these baselines. Several options are outlined below.

Option 1: Product Specific Baselines

This option proposes distinct mineral types, derived from the federal government's divisions for Output Based Pricing System, or Yukon specific data for placer. The categories for assessment would be:

1. Gold: placer
2. Gold: quartz
3. Silver
4. Base metals (copper, zinc, lead, etc.)

A mine would be assigned to a category based on the mineral they produce the most. There could be an option for developing an equivalency process, to convert additional mineral products into the main assessed product for inclusion.



Proposed Mineral Targets:

Mineral	Proposed Baseline	Proposed 2035 Target
Gold: Placer	t CO ₂ e / kg derived from Yukon placer reporting data.	Deduct 45% from the baseline.
Gold: Quartz	Use the federal output-based pricing system industry average. This includes a second emissions target for fossil-fuel derived electricity generation.	Deduct 45% from the baseline, and 45% from the electricity generation allowance.
Silver	TBC.	TBC.
Base Metals	Use the federal output-based pricing system industry average. This includes a second emissions target for fossil-fuel derived electricity generation.	Deduct 45% from the baseline, and 45% from the electricity generation allowance.

Q6: Currently, there is limited guidance on how to approach silver mines in the federal system. How do you recommend we set a baseline? Could silver be grouped in with a different target?

Q7: The federal system does not incorporate multiple mineral products. It is possible to have an equivalency established (e.g. based on emission baselines, or \$ value) to transform secondary minerals into the primary output for consideration in the calculations. Is allowing for that equivalency helpful, or too complicated?

Option 2: Mines grouped together

Under this scenario, production is converted into mineral types, using an emissions equivalency. In this way we could group quartz mines into one group and placer mines into another group. This allows the mine groups to be assessed as a whole, and could allow for multiple products from the same mine to be incorporated.

For example, mine output could be converted to a “gold equivalency” and assessed collectively against the gold emissions intensity baseline, described above.

Q8: What considerations should we take into account if we are developing an equivalency approach?

Option 3: Baselines based on mine operation type

Targets could be defined based on mine operation type. In the event that a category does not fit, there would be a process established where we work with a prospective



mine to establish a relevant baseline. For example, the federal Output-Based Pricing System has a proposed framework that sets a baseline after the first two years of operation.

Categories for assessment could be:

1. Placer
2. Heap-leach
3. Milling
4. Other

Q9: Are these categories sufficient? If we were to add categories, what should we consider as part of this process and who should be part of this process?

Q10: With respect the three options outlined above for establishing baselines, which option do you prefer and why?

How will progress be communicated?

As part of annual *Our Clean Future* reporting, we report on emissions from all sectors. We have other sector specific targets, such as energy used for heating to be 50% from renewable sources. There will be a section explaining the most recent year's mining intensity figures, for each relevant category and actions taken to reduce emissions.

Mines would be asked to share information on fuel use and their production. This will allow for industry-wide calculations of emissions, and an assessment if the industry is on track to meet the 2035 overall target.

How will the Government of Yukon support you to reduce emissions?

The Government of Yukon is looking to develop a suite of policies and programs to support emissions reductions across the whole sector after finalizing the target and measuring approach.

We are working with Navius Research to model options that would result in reducing emissions and test the viability of this target. We expect to have draft results in the summer.

Q12: What do you think are the best solutions for reducing mine emissions, and what supports would help?

Timeline

Formal engagement to occur August-October 2022.

Sessions will be arranged with industry, environmental organizations and First Nation governments to receive feedback and share the latest work. We aim to have the targets and supporting policies and programs presented publicly by the end of 2022.

