

# **Joint submission from environmental groups on EA requirements for “advanced recycling” facilities**

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## **Re: ERO #019-4867 Environmental assessment requirements for advanced recycling facilities under the Environmental Assessment Act (EAA)**

Thank you for the opportunity to comment on the proposed changes to environmental assessments under the *Environmental Assessment Act* (EAA) for projects that claim to engage in “advanced recycling.”

We oppose the proposal to reduce environmental assessment requirements for any thermal treatment or waste management facilities. We also oppose any move to reclassify projects that purport to turn waste to fuel as anything other than disposal.

### **The importance of the environmental assessment process**

The environmental assessment process is intended to allow for public scrutiny of facilities that are likely to have an impact on the environment and the local community. The phrase “Advanced recycling” covers a wide range of technologies that remain experimental for the purposes of treating waste. That means each project requires a fulsome assessment to determine whether it is able to deliver what the proponent suggests and what the emissions profile is likely to be and therefore whether the project should go ahead and, if so, what mitigation efforts are needed. For this reason, a project of any size should be subject to public scrutiny, monitoring and reporting to ensure it is not creating unintended harm to the environment and the health of the surrounding community.

## **“Advanced recycling” does not merit regulatory streamlining**

The backgrounder accompanying the Notice indicates that the purpose of “advanced recycling” is to “recover and recycle materials back into our economy.” This approach to “advanced recycling” is much broader than the definition of recovery set out in the *Resource Recovery and Circular Economy Act* (RRCEA) and accompanying regulations for packaging, which state that “recovered resources must be (i) marketed for re-use for their original purpose or function, or (ii) marketed for use in new products or packaging. The purpose of “advanced recycling” does not correspond to a circular economy approach.

“Advanced recycling” is promoted by the plastics and petrochemical industries as a solution for “hard-to-recycle” plastics.<sup>1</sup> It is not contemplated or needed for other materials that are covered under the RRCEA, including metals, paper, glass or organics. These materials can be recycled through mechanical recycling processes and turned back into similar or the same products.

“Advanced recycling” is an umbrella term, sometimes also called “chemical” or “molecular recycling” that encompasses an ever-growing list of technologies that are speculative when it comes to recycling plastic. The reality is that there is no known commercial example of an “advanced recycling” facility anywhere in the world that turns plastic waste back into plastic products or packaging.<sup>2</sup>

The most common form of “advanced recycling” uses gasification or pyrolysis technology to turn waste into fuel.<sup>3</sup> This is, in essence, a thermal

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<sup>1</sup> See the American Chemistry Council: <https://www.americanchemistry.com/chemistry-in-america/news-trends/blog-post/2021/what-is-advanced-recycling-and-why-is-it-so-important-for-meeting-the-growing-demand-for-recycled-plastics>

<sup>2</sup> [https://www.no-burn.org/wp-content/uploads/2021/11/All-Talk-and-No-Recycling\\_July-28-1.pdf](https://www.no-burn.org/wp-content/uploads/2021/11/All-Talk-and-No-Recycling_July-28-1.pdf)

<sup>3</sup> Waxes and lubricants are sometimes also produced from “advanced recycling” processes.

waste-to-energy proposition. Thermal waste treatments are expensive, energy-intensive and polluting and require robust public oversight, environmental safeguards and community consent.<sup>4</sup>

As noted above, other technologies contemplated under the “advanced recycling” banner are experimental and little information is available publicly about the yields from existing operations or the amount and nature of waste byproducts, which include toxic slag and ash that require disposal in specialized landfills.<sup>5</sup>

The Notice reflects the goal of reducing waste going to landfill but makes no mention of the need to reduce waste for final disposal. The most likely projects that the proposed changes are intended to encourage must still be considered final disposal, as noted in the recent decision to reject a gasification and “advanced recycling” project for plastics in Lewisporte, Newfoundland.<sup>6</sup>

Producing fuel from plastic waste does not displace the raw materials needed to make new plastic products or packaging. It is also unlikely to produce a fuel clean enough to displace virgin fossil fuels. Despite fanfare about producing alternative fuels for aviation fuel from waste, only 0.3% of aviation fuels come from alternatives to crude oil.<sup>7</sup>

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<sup>4</sup> Takada, H. and Bell, L. Plastic Waste Management Hazards. International Pollutants Elimination Network (IPEN), June 2021.

<sup>5</sup> Hann S. and Connock, T. Chemical Recycling: State of Play, Chem Trust/Eunomia, December 2020.

<sup>6</sup> <https://www.cbc.ca/news/canada/newfoundland-labrador/lewisporte-waste-energy-plant-rejected-1-6344970-1.6344970>

<sup>7</sup> [https://www.no-burn.org/wp-content/uploads/2021/11/Jet-fuel\\_technical-briefi](https://www.no-burn.org/wp-content/uploads/2021/11/Jet-fuel_technical-briefi)

What's more, fuels produced from plastic waste contain more toxic substances, including carcinogens, than regular diesel.<sup>8</sup> There is no provision for monitoring emissions from these fuels if they are burned in a different location from where they are produced.

In addition, "[t]he process of converting plastic waste to fuel demands considerable energy, which is supplied by burning fossil fuels. Burning the resulting fuel releases additional greenhouse gas emissions. Instead of conserving the material in a circular process, burning plastic-derived fuel adds to the carbon footprint of the plastic lifecycle and stimulates further virgin plastic production to replace the plastic lost as fuel."<sup>9</sup> In other words, plastic-to-fuel is not a climate solution.

We believe the net effect of streamlining approvals for experimental "advanced recycling" projects will result in at least three harmful outcomes:

1. Increased pollution, including greenhouse gas emissions, from thermal waste treatment.
2. A missed opportunity to focus on reduction and reuse of plastic packaging and products, including through elimination of plastics that are not fit for conventional recycling, by pretending that these can be effectively recycled another way instead.
3. Continued growth of throwaway plastic use and waste.

For these reasons, we urge you not to proceed with the proposed changes to environmental assessments for waste projects.

### **Answers to the questions posed in the Notice:**

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<sup>8</sup> Patel, D., Moon, D., Tangri, N., Wilson, M. (2020). All Talk and No Recycling: An Investigation of the U.S. "Chemical Recycling" Industry. Global Alliance for Incinerator Alternatives.

<sup>9</sup> Ibid.

- ***Is the proposed approach to EA streamlining reasonable?***

No. “Advanced recycling” is an umbrella term for a set of speculative processes about which there is little data available on things like emissions and yields. In our view, these projects are experimental at best, unproven and pose risks to the environment and to the health of workers and nearby residents. For these reasons proposals require significant public and environmental oversight and should not be “streamlined” into existence.

- ***Is an 80% recovery rate based on the ministry’s proposed criteria realistically achievable for companies proposing this technology?***

We have absolutely no way of knowing whether an 80% recovery rate is achievable, and we argue the ministry would also have no way of judging whether a proponent could reach such a recovery rate considering the experimental nature of the broad range of technologies covered by this proposal. ChemTrust and Eunomia have noted that virtually no data is available on yields and emissions from “advanced recycling” projects in operation.<sup>10</sup>

The rate of recovery will also depend on what is measured as input. We would argue that net recovery is the value to be considered. The input would need to include all of the waste delivered for processing, including any materials removed prior to processing that are sent for disposal in landfill or an incinerator, as well as the energy inputs required to run the process.

In any case, recovery rates will be impossible to assess until a facility is up and running and receiving and processing waste. We don’t believe there are any yield measures, verified by a third party, that could be used as a proxy recovery rate in applications. Each situation is very different depending on the exact technology to be used and the exact waste input. That means the recovery rates are also likely to vary according to the composition of waste inputs over time.

We believe the ministry cannot possibly base assessment requirements on a recovery rate claimed by a proponent.

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<sup>10</sup> Hann S. and Connock, T. Chemical Recycling: State of Play, Chem Trust/Eunomia, December 2020.

- ***Do the proposed definitions for advanced recycling site and recovered materials accurately capture advanced recycling technologies?***

“Advanced recycling” is a moving target with no accepted definition across jurisdictions. It is also misleading: The phrase implies that the processes are good for the environment when, as we’ve described above, that’s not the case. A range of technologies are associated with “advanced recycling,” including pyrolysis, gasification, solvolysis, thermal and/or chemical depolymerization, plasma arc gasification and, as in the recent proposal in Newfoundland cited above, hydrothermal liquefaction. These processes generally employ some combination of heat, pressure, controlled oxygen and catalysts and/or solvents, to break down plastic waste and produce chemicals, fuels and waste byproducts (including slag, tar and/or ash) fit for disposal.<sup>11</sup>

Any project that turns waste into fuel, or lubricants and waxes, is not recycling and should not be included in the definition of “advanced recycling.”

We thank you once again for the opportunity to comment on this proposal and ask that you not proceed to streamline the environmental approvals process for experimental and potentially hazardous facilities that are, in any case, not consistent with recycling and the circular economy.

Sincerely,

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<sup>11</sup> GAIA, Technical Briefing, 2020: [https://www.no-burn.org/wp-content/uploads/CR-Briefing\\_June-2020.pdf](https://www.no-burn.org/wp-content/uploads/CR-Briefing_June-2020.pdf)

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