

Before the Senate Commerce Committee
Presented by Zack Pistora, Kansas Sierra Club
Opponent to SB 114
2-1-23



Madam Chair Erickson and Honorable Members of the Committee,

On behalf of the ~5000 members of Sierra Club in Kansas, we thank you for the opportunity to submit testimony in opposition of SB 114; which would create definitions of 'advanced recycling' and exclude such facilities being regulated as solid waste processing.

'Advanced Recycling' is more like 'Advanced Incineration,' and often requires intensive energy and chemicals to work. Any 'advanced recycling' facility will more closely resemble a powerplant or refinery rather than the mechanical recycling center we know today.

To ease the public's concern on the plastic pollution crisis, the petrochemical industry is promoting 'chemical recycling' or 'advanced recycling' as a promise to reduce its waste problem. The idea is that 'advanced recycling' break down plastics – via gasification, pyrolysis, depolymerization, and solvolysis, and other processes – into their monomer components with heat, pressure, and solvents, in a low-oxygen chamber, after which the components could then be used, in principle, to make new plastic via repolymerization, creating a circular economy in plastic. However, the reality is that these processes are still underdeveloped, quite expensive, quite energy intensive, and produce toxic outputs.

A recent study, "Technical, Economic, and Environmental Comparison of Closed-Loop Recycling Technologies for Common Plastics" conducted by government energy lab researchers and published this January by the American Chemical Society's peer-reviewed journal *Sustainable Chemistry & Engineering*, demonstrated that "the economic and environmental metrics of pyrolysis and gasification are currently ten to 100 times higher than virgin polymers due to lower yields of monomers suitable for repolymerization and high energy requirements for the conversion and subsequent upgrading processes." The study went further to say that mechanical recycling, with its lower operational and capital costs, economically outcompetes all other recycling options at a statistically significant level.

There are not very many good examples of advanced recycling facilities being operational and doing what they promise.

Despite 50 years of experimentation, the technology for the economical chemical conversion of plastic is not mature and is not delivering on conversion of plastic to plastic, as there are very few of these 'advanced recycling' facilities that are operational and fulfilling its promise. According to a 2020 study by GAIA, a watchdog on incineration processes, of the of 37 chemical recycling projects advertised since 2000, only three are in operation and none of these are transforming plastic-to-plastic. There is no plastic-to-plastic operation that has been taken to scale. Almost all the plastic in these operations is being transformed back into contaminated fossil fuel and burned. A 2022 report, "Recycling Lies: Chemical Recycling of Plastic is Just Greenwashing Incineration" by the Natural Resources Defense Council, found that eight facilities met the criteria of advanced recycling, most of which fell into the plastic-to-fuel category. The report points out that numerous facilities had opened and then shut down a short time later, which is consistent with other reports.

The report concludes that 'of the eight selected "chemical recycling" facilities in the United States...the majority of facilities are not recycling any plastic; the facilities generate large quantities of hazardous waste; they release hazardous air pollutants; and they are often sited in communities that are disproportionately low income, people of color, or both. Given these issues, "chemical recycling" cannot be the solution to our plastic problem—no matter how the plastic industry tries to spin it.'

The report's author said in a subsequent media release that "Not only are 'chemical recycling' facilities failing at safely and effectively recycling plastic waste; they're releasing harmful pollutants into vulnerable communities and the environment. And the toxic trail doesn't end there--further pollution and health harm comes from burning the dirty fuels created in the process."

Advanced recycling still creates toxic byproducts that have to be dealt with. As such, we recommend that advanced recycling facilities must be required to do environmental impact assessments and air quality monitoring.

These processes may or may not produce a product that can be made back into plastic products, but the many of these processes, like pyrolysis, cause their own pollution and hazardous chemical emissions, including high concentrations of dioxin, furans, benzene, heavy metals (mercury, cadmium, and lead), and particulates. These toxic chemicals have are linked to multiple health concerns, from cancer to developmental issues, and organ damage. SB 114 allows for these processes to be regulated as outside of solid waste permitting and we worry that the necessary environmental assessments and air quality evaluation will not be fulfilled.

Ultimately, we feel that advanced recycling is a false solution for plastic waste because of its inefficiencies. Other approaches that aim to reduce single-use and non-recyclable plastics and/or promote plant-based materials that are easily compostable and non-toxic are the better solution to the problem for Kansas.

Plastic packaging and consumer items have been adopted for convenience, but we are realizing the full costs – including the extensive litter problem, microplastics, and the environmental problems associated with the production of petrochemicals from fracking as well as the heavy amounts of greenhouse gas emissions caused throughout the plastic life cycle. The Sierra Club feels that we shouldn't be wasting our time, let alone our taxpayer dollars, in advancing inefficient processes like advanced recycling in Kansas to address our plastic pollution problems. Instead, we'd much prefer we use our engineering and innovation expertise toward more natural, non-toxic, agricultural products for plastic and packaging alternatives. This is a way that Kansas can be a leader among states in dealing with the plastic pollution problem.

With all these concerns on advanced recycling, we'd urge you to oppose SB 114, or add significant guard rails like 1) no taxpayer subsidies, 2) assurances of environmental impact analyses, 3) siting standards, and a 4) a comprehensive materials reduction strategy to ensure we don't get our state into a plastic-based pitfall.

Sincerely,

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The Sierra Club is the largest grassroots environmental organization dedicated to enjoying, exploring, and protecting our great outdoors. The Kansas Chapter represents our state's strongest grassroots voice on environmental matters for nearly fifty years.