Accelerating Circularity for Plastics

Paul E. Hagen, Russell LaMotte, and Nicole J. Waxman

The past several years have seen a dramatic surge in public and political attention, both domestically and internationally, to the challenge of plastic waste entering the marine environment. We have also more recently seen those concerns expand to include enhanced scrutiny of the potential impacts of plastic pollution beyond the oceans, including the evaluation of potential harms from exposure to plastics and microplastics in air, soil, and food chains.

Yet even as concerns about their impacts grow, the global demand for plastics is increasing, not decreasing. Plastics play an integrated role in global value chains in virtually all sectors of the modern economy, a role that is unlikely to fundamentally change in the foreseeable future. Among their other attributes, they can help to achieve sustainability objectives in areas such as climate change (through product light-weighting) and food security (by increasing food shelf life). Reducing plastic pollution and the impacts of the plastics value chain, therefore, will require a shift in the legal and policy environment to actively promote product innovations, improved waste management, and a more circular economy for plastics. We focus here on the evolving legal frameworks relevant to circularity for plastics. A robust circular economy will allow for society's reliance on the functionality and utility of plastic products, while also helping to reduce the volume of plastic waste that is diverted into landfills or lost to the environment.

Advancing circularity can proceed in parallel with other policy responses and will require, among other things: (1) improved collection and waste diversion programs; (2) an enabling regulatory environment for technologies that can produce recycled resins at scale, including front-end design initiatives to improve recyclability; (3) incentives to create additional demand for such recycled resins, including reducing barriers to market access for products that contain such recycled resins; and (4) removing barriers for feedstock to move to advanced facilities to produce those recycled content resins. Many of these efforts have been under way for years through voluntary initiatives and industry commitments such as those promoted by the Ellen MacArthur Foundation. But lasting and material changes that accelerate and scale the circular economy for plastics cannot rely on voluntary initiatives alone, and will require updates to law and policy, at the local, national, and global levels.

U.S. Federal, State, and Local Initiatives

Some of these initiatives are already underway in the United States. At the federal level, the U.S. Environmental Protection Agency (EPA) has launched a series of strategies on building a circular economy, starting with a national recycling strategy released in 2021, to be followed by a national plastics strategy expected by the end of 2022. The National Academies of Sciences, Engineering, and Medicine published a landmark report evaluating the U.S. contributions to global ocean plastic waste, prompted by the Save Our Seas 2.0 Act. Nat'l Acad. of Sci., Eng'g & Med., *Reckoning with the U.S. Role in Global Ocean Plastic Waste* (2022).

The Recycling Enhancements to Collection and Yield through Consumer Learning and Education (RECYCLE) Act was signed into law as part of the Infrastructure Investment and Jobs Act in 2021. It provides up to $15 million in funding for recycling education initiatives, granting EPA authority to award grants for programs that provide information to the public on recycling programs, accepted recyclable materials, and increased collection rates. Relatedly, the federal House of Representatives is considering the bipartisan Realizing the Economic Opportunities and Values of Expanding Recycling (RECOVER) Act. The bill would allocate up to $500 million over five years to improve state and local recycling infrastructure and related educational programs, including through projects to expand or support recycling-related technology or

Published in *Natural Resources & Environment* Volume 37, Number 1, Summer 2022.

infrastructure, transition curbside recycling programs to more efficient collection practices, enhance the performance of recycling programs, or provide consumer education or marketing opportunities for recyclable materials.

Several states have been advancing legislation designed to promote a circular economy for plastics and increase market demand for recyclable and recycled materials. For example, multiple states have adopted legislation to impose extended producer responsibility (EPR) mandates for plastic packaging, establish recycled content requirements for certain plastic containers, and expand collection and recycling opportunities. *See, e.g.*, S. 2515, 219th Leg. (N.J. 2020) (imposing post-consumer recycled content mandates for certain products); L.D. 1541, 130th Leg. (Me. 2021) (imposing EPR requirements for certain products); S.B. 582, 81st Leg. (Ore. 2021) (imposing EPR requirements for packaging); Washington S.B. 5022, 67th Leg. (Wash. 2021) (enacting minimum recycled content requirements and an expanded polystyrene ban for certain products).

In addition, several states, including California, Washington, and New Jersey, have recently adopted recycled content mandates for certain plastic products that will likely serve as models for other states. These measures typically establish minimum recycled content requirements as a percentage of the covered products' weight, with the minimum increasing over a period of years. The laws enacted and bills proposed in this area vary in the scope of products covered (e.g., beverage containers only or an enumerated list of products including all rigid plastic containers), the covered producers, definitions of "recycling" and "recycled content," and how recycled content is to be calculated, verified, and reported.

In terms of innovation and investments to promote the deployment of technologies to provide plastic recycling at commercial scale, EPA's 2021 National Recycling Strategy recognizes "chemical recycling" as an option for sustainably managing materials. Chemical recycling, also known as advanced recycling or molecular recycling, has the potential to significantly increase the amount of plastic that can be recycled and to reduce the amount of virgin plastic needed for the manufacture of products. Chemical recycling can take many different types of plastics, including some that cannot currently be mechanically recycled, or that require uneconomic pre-processing, and break them down to their molecular structure to be used in the manufacture of new products. By using chemical recycling, discarded plastics can be a resource rather than a waste product. As EPA moves to implement this strategy, it will take public comment, providing a prime opportunity to support and incentivize chemical recycling. EPA will also need to ensure pollution control measures are in place to minimize the environmental impacts that may be associated with the operation of new chemical recycling facilities.

Despite the potential for this technology, traditional solid waste rules at the state level treat the discarded plastic used in molecular recycling as a waste product, subjecting these processes to stringent waste-related regulatory requirements and burdens. One encouraging trend at the state levels is a rethinking of this approach, under which recyclable plastics are considered a feedstock—as raw material needed for the chemical recycling process. To date, 18 states have enacted a regulatory framework that classifies "chemical recycling" or "advanced" recycling as a manufacturing process rather than a solid waste process. The legislation in these states varies somewhat, but essentially excludes certain plastic feedstock from the definition of solid waste and exempts chemical recycling facilities from the definition of "solid waste disposal facility."

Even with all of the activity to address plastic pollution at the federal, state, and local levels, however, the United States is far from a global leader in its physical and legal infrastructure to promote a circular economy for plastic. Legal and policy barriers at the federal and state levels affect collection, recovery, and reuse of plastics in the United States today, where less than 10% of plastics are recycled.

Moreover, federal legislative authority over nonhazardous solid waste is very limited. There is no national extended producer responsibility regime for plastic packaging, unlike the regimes in place in many other countries (both developed and developing). Instead, the production, sale, use, and disposal of plastics are subject to countless disjointed state and local regulatory regimes across the United States.

Several states, including California, Washington, and New Jersey, have recently adopted recycled content mandates for certain plastic products that will likely serve as models for other states.

In addition, many of the recent actions to address plastics have been taken in response to public pressure and not necessarily as part of a coherent policy strategy. The state-level progress in promoting "sustainable packaging" mandates, for example, has in some cases included restrictions that limit the types of recycling facilities available to generate recycled content. *See, e.g.*, Cal. Code Regs. tit. 14, § 17989 (newly adopted CalRecycle regulations implementing the Sustainable Packaging for the State of California Act of 2018, which define "recycling" for purposes of food packaging materials served at state facilities to exclude pyrolysis, among other plastic waste recycling options). Constraints on what counts as "recycling" for purposes of state mandates, and differences among the states, will only serve to complicate the emerging market for recycled content in the United States.

At an even more basic level, states and the federal government have inconsistent definitions or limited official guidance

for how to make recyclability and recycled content claims. These gaps, conflicts, and ambiguities raise compliance challenges and costs for producers of products and packaging seeking to implement recycled content commitments. Although the Federal Trade Commission (FTC) recently announced a pending update to its Green Guides, which provide guidance on these issues and will likely include an overhaul and updating of its plastics-related guidance, that review has not even started publicly and will undoubtedly take months or even years to complete. In the meantime, states have been moving on legislation, like that adopted in California to limit how the "chasing arrows" symbol and other recyclability symbols can be used. *See* California S.B. 343, 2021–2022 Sess. (Cal. 2021) (Truth in Labeling for Recyclable Materials) (signed into law Oct. 6, 2021). Still other states have adopted legislation, like the recycled content mandates discussed above, that may affect what qualifies as recycled content at the national level in practice, even if those laws do not directly target labeling and marketing practices.

A global solution to the challenge of plastic pollution will require a global circular economy, not a Balkanized collection of individual circular economies.

Although comprehensive bills have been introduced in recent Congresses that are ostensibly aimed at addressing these gaps in national policy, such as the Break Free from Plastic Pollution Act of 2021 (S. 294), they have included controversial elements, such as controls on new plastic production facilities. Lacking bipartisan support, unless they are significantly adjusted, they are unlikely to be enacted at the federal level in the foreseeable future. Instead, we are likely to see a mosaic of state and local initiatives, some modeled on elements of the Break Free from Plastic Pollution Act, together with a limited federal overlay in the form of grant-making from EPA and guidance from the FTC.

On the whole, therefore, the regulatory and nonregulatory marketplace for circular plastics is likely to be marked in the United States by continued uncertainty and opacity for the foreseeable future. That uncertainty is likely to depress rather than accelerate the needed transitions in this space, particularly with respect to like-virgin resins that are produced from advanced recycling facilities that are still at their nascent stage of technological and commercial development in the United States.

Global Initiatives

Meanwhile, the market for products that contain plastics is inherently global. As other countries examine and impose product regulatory restrictions, design mandates for labeling, or limits on particular plastic additives, they increasingly establish de facto standards and specifications that affect global product manufacturers, including in the United States. Moreover, the technologies for advanced recycling require capital-intensive investments in new recycling infrastructure. Large integrated markets such as the European Union or United States might be able to sustain their own domestic circular economy, with investments in new recycling capabilities and sufficient domestically generated feedstock to supply them. But it is not realistic or efficient to expect that most countries will have the capacity to follow a similar path. Instead, a global solution to the challenge of plastic pollution will require a global circular economy, not a Balkanized collection of individual circular economies. We summarize in this section the challenges and opportunities for building such a global circular economy, and the implications for the United States.

Basel Convention Controls over Plastic Waste Imports and Exports

One potentially significant impediment to a well-functioning global circular economy for plastics is the recently adopted controls on transboundary movements of plastic wastes, which are beginning to significantly constrain the flow of plastic wastes for recycling. While these controls can, in many instances, reduce the risk of improper dumping of plastic wastes, the Convention's current controls and trade bans also make it difficult to move plastic wastes across borders to high-performing recycling facilities.

In 2019, parties to the Basel Convention adopted amendments to the Convention that dramatically expanded the scope of plastic wastes covered by the Convention. The Basel Convention is a global agreement ratified by 188 countries that obligates parties to regulate—through a prior informed consent (PIC) procedure—the import and export of covered wastes. Parties are also required to ban certain shipments, including trade in covered wastes with nonparties absent an alternative arrangement or agreement under Article 11 of the Convention—a requirement that disproportionately affects the United States as one of a small handful of countries that are not yet party to the Convention.

The plastic waste amendments, which took effect in January 2021, expanded the scope of covered plastic waste to include most types of nonhazardous plastic wastes. Under a new listing in Annex II of the Convention, most nonhazardous plastic wastes are now covered as "other wastes" under the Convention and subject to all of the control procedures and most of the trade bans that apply to hazardous wastes.

Only a small category of plastic wastes is excluded from these controls, if they fall under the narrowly drawn waste entry B3011 in Annex IX. They include certain types of presorted single polymer shipments of nonhalogenated polymers and resins (plus a handful of fluorinated polymers), provided the wastes are destined for environmentally sound recycling

and "almost free" from contamination and other types of wastes. Mixed baled plastics are all subject to Basel controls unless they comprise exclusively a mixture of polyethylene (PE), polypropylene (PP), or polyethylene terephthalate (PET), and only if each polymer is destined for "separate recycling" and likewise "almost free" from contamination and other types of wastes.

These amendments thus extended the Convention's robust and sclerotic waste shipment controls—including time-consuming consent procedures, documentation and contract requirements, and financial burdens—to most international trade in plastic wastes, even where those shipments are destined for high-performing recycling operations.

In addition, as noted above, the United States is uniquely affected. Under the amended Convention, many Basel parties now have an obligation to ban trade in most types of nonhazardous plastic wastes with the United States. The United States has preserved import trade flows for recycling with members of the OECD through a 1992 OECD Council Decision that qualifies as an Article 11 Agreement—in effect an alternative arrangement that allows trade in valuable recyclables with the United States to continue. There are provisions that link the Basel and OECD waste lists in the OECD Decision to help align the respective waste lists. However, a lack of consensus among OECD members on the changes that should be made to the OECD Decision following the Basel plastic amendments has led to new legal uncertainty as to the status of even this intra-OECD trade.

In response to the new trade barriers and legal uncertainties, the United States and Canada (a party to the Basel Convention) concluded a new bilateral arrangement to govern trade in nonhazardous plastic wastes (and other nonhazardous wastes) between the two countries in late 2020. The agreement insulates U.S.–Canada recycling trade from the trade barriers and frictions arising under Basel and the OECD Decision. It does not, however, resolve the challenges companies face with regard to other future trade flows that now fall under the Basel nonparty trade ban or otherwise remain legally uncertain.

The Senate provided advice and consent to Basel Convention ratification in 1992, but several successive administrations have failed to persuade Congress to pass implementing legislation needed to ensure the United States has all the legal authorities required to meet its obligations under the agreement. Concerns over the mismanagement of plastic waste exports and growing recognition among stakeholders that recycling and circularity can help reduce plastics pollution could prompt Congress to again consider the benefits of ratification. U.S. ratification of the Convention is long overdue and would likely further circularity for plastics and other critical minerals and metals. Ratification would also remove the party to nonparty trade ban, thereby ensuring the United States has the ability to trade in responsibly managed plastics for recycling.

Ratification would also allow the United States to import wastes from less developed countries that may not have the infrastructure or regulatory capacity to properly recycle plastic wastes domestically. This need is most acute in the Caribbean countries, which face challenges in taking new action to address plastics pollution. As countries in the region invest in new waste collection and cleanup programs, having the option of exporting plastic wastes to the United States for recovery could contribute to more cost-effective and sustainable solutions. As a party to the Basel Convention, moreover, the United States would also have greater influence over the evolution of the Convention, which governs not only trade in plastics for recycling but also trade in other end-of-life products managed for recovery, such as electric vehicle batteries, electronics, solar panels, and automobiles.

U.S. ratification of the Basel Convention is long overdue and would likely further circularity for plastics and other critical minerals and metals.

Even if the United States were to become a party, however, the Basel Convention's controls on plastic waste, and the related characterization and discussion around trade in plastic waste feedstock, would continue to pose a challenge to the development of a global circular economy for these materials. The logistical burdens of Basel Convention compliance, while not impossible to navigate, add sufficient time and expense to make trade in plastic feedstocks unattractive to traders where the plastic material is classified as Y48. And although there is a narrow category of "B3011" presorted and cleaned plastic waste feedstocks that can continue to be traded outside of Basel Convention controls, that category is subject to a variety of interpretive ambiguities that the Basel Convention parties have made little progress on clarifying or resolving.

For example, the Basel Convention controls apply by their terms only to materials that are "wastes." Wastes are defined in a way that clearly includes feedstock materials that are destined for recycling operations. But neither the Convention nor the parties at the national level have clarified the point at which plastic feedstocks that are the *product of* such recycling operations—i.e., cleaned and processed PET flakes, for example, or virgin-quality PET resin pellets from thermal melt compounding processes—are no longer wastes and instead can trade as nonwaste products outside of Basel Convention controls. Although guidance on this issue may be forthcoming at the Convention level, the draft guidance that has been produced to date will do little to clarify these ambiguities, and instead traders will be required to take risks or invest heavily in navigating varying country-by-country interpretations. As a result, post-recycled resins that are being traded for direct incorporation into new plastic products during a manufacturing process—in other words, precisely the type of trade that the

Basel Convention should be promoting to foster a global circular economy in plastics—are currently subject to trade frictions and regulatory uncertainty.

These problems are worse for unprocessed plastic feedstocks that are destined for recycling. Clearly it is sensible for the Convention parties to impose guardrails around such shipments to ensure that they are limited to environmentally sound operations at facilities that are fit for that purpose, and to clamp down on prior abuses where such shipments were merely a pretext for waste dumping. But to enable legitimate shipments to move, the Basel Convention parties must clarify (either collectively or at the national level) how ambiguous and open-ended terms will be applied in practice. For example, the term "almost free from contamination and other types of waste" is susceptible to a very wide range of specifications and threshold levels. There is no clear guidance at the Convention level, and very little guidance available in a handful of countries at the national level, on this essential definition that will determine the scope of tradeable plastics. More broadly, parties will also need to modernize the Convention's cumbersome PIC procedure to ensure valuable recyclables can be moved safely and more efficiently to pre-approved recycling facilities capable of ensuring environmentally sound recovery.

Business and nongovernmental organization groups will be able to participate at these early meetings as observers and are likely to do so in large numbers.

The pressure around these shipments has resulted in a narrowed scope for even legitimate shipments for useful recycling operations that can contribute to improved management of plastic wastes and the global circular economy. Compounding these challenges, global shipping companies have come under pressure to stop all shipments of plastic waste, without any distinction between shipments that contribute to a global solution and those that do not. For example, CMA CGM (one of the largest container shippers globally) announced this year that it would stop carrying plastic waste consignments. It recently issued a statement clarifying this commitment and identifying June 1 as the start date for its prohibition. This prohibition does not appear to allow any exemptions for plastic waste feedstocks for valuable and responsible recycling operations.

However well-intended, these ambiguities in the Basel Convention and indiscriminate private sector commitments to stop all plastic waste trade regardless of destination may inadvertently inhibit the type of commercial activity that could form the backbone of a circular economy for plastics.

A New Global Instrument on Plastics

Looking ahead, the launch of UN negotiations toward the newest multilateral environmental agreement may provide both the impetus for a comprehensive approach to plastic regulation and recycling at the federal level and an opportunity to realign the Basel Convention's amendment in a manner that promotes rather than inhibits responsible plastic recycling and feedstock trade.

The UN Environment Assembly, in early March 2022, approved a "mandate" for negotiations on a treaty on plastic pollution. That mandate, which defines the scope of the negotiations, is broad and open-ended. It will encompass measures to address plastic pollution broadly (not just marine plastic litter) and will be based on a "comprehensive approach that addresses the full lifecycle of plastic." It will also include provisions to "promote sustainable production and consumption of plastics, including, among others, product design, and environmentally sound waste management, including through resource efficiency and circular economy approaches." That element is a potential hook for treaty provisions that promote global convergence around key definitions and control measures on single-use plastics as well as recyclability and recycled content measures, which could be voluntary or mandatory. It is also a potential hook for treaty provisions that relate to chemical recycling (whether helpful, unhelpful, or neutral).

Substantive negotiations will start in late 2022, continue through roughly five formal negotiating sessions, and likely finish in late 2024. The last session will likely hammer out all the hard issues that have been deferred until the end for a final compromise (including financial commitments and final core substantive obligations that are controversial). The final text will then be translated into all UN languages and adopted at a "diplomatic conference" where government delegations will sign the instrument (indicating an intention to be bound, although the signature itself is not binding). The treaty could enter into force as soon as late 2025.

In the meantime, governments have already been consulting informally with each other bilaterally, and on the margins of other related multilateral meetings, to try to parse likely positions or build allies for their approaches. Business and NGO groups will be able to participate at these early meetings as observers and are likely to do so in large numbers.

Many aspects of the treaty, once finalized, are likely to directly affect the vibrancy and viability of a global circular economy for plastics. The treaty might, for example, set global standards for the use of recycled content materials in at least some categories of plastic products. At a minimum, the treaty is likely to encourage the global use of recycled content by encouraging policies and measures that favor recycled content (such as promotion of extended producer responsibility schemes that provide reduced fees for recovery of products made with recycled plastics). The treaty will also likely serve as a global center of gravity for convergence around key definitions and design attributes for "recycled" and "recyclable" materials.

Negotiators understandably will be tempted to put aside issues relating to trade in plastic wastes, on the theory that those issues are already comprehensively addressed in the Basel Convention, and out of concern of creating overlapping or even conflicting obligations in the two agreements. But if the scope of the new instrument includes the full life cycle of plastics, that necessarily includes their management at end-of-life, including tradability. There are several steps that the new instrument could take to improve the functioning of the Basel Convention's controls on trade in plastic feedstock. For example, the new instrument could adopt clear and reasonable criteria for defining "end-of-waste" status for processed plastic wastes, to facilitate the reentry of these materials into commerce. It could also encourage the adoption of regional plastic waste management plans for recyclable plastics to encourage efficient use of advanced recycling infrastructure in regions like Southeast Asia.

Ultimately, the parties to the Basel Convention may need to revise the treaty again to better position it as an enabler of the global circular economy. *See* Paul Hagen et al., *The Circular Economy Runs Through Basel*, 38 Env't F. 5 (Sept. 2021). In the meantime, however, the next three years are likely to focus intensive governmental and private attention on the new treaty negotiations, which offer the opportunity for improvements on the margin.

Implications for the United States

The Biden administration, noting that "[t]he negative effects of plastic pollution on sea life and human beings are serious," has supported the launch of the new UN treaty negotiations. Unlike the Basel Convention meetings, where the United States participates only as a nonvoting "observer," the United States will participate on equal footing with all other UN member states in the negotiation of the new instrument. That standing provides the United States with a new opportunity to influence this emerging global plastics agreement, which is likely to have a significant impact on U.S. companies whether or not the United States is eventually able to become party to the instrument.

Along the way, the treaty negotiating process is likely to serve as a useful action-forcing event to get U.S. federal agencies, and state counterparts, to step back and focus comprehensively on plastics-related laws and policies in the United States. Whether the United States is able to join the resulting agreement without additional implementing legislation, and without the need for Senate advice and consent to ratification, will depend to a significant extent on the nature of the final obligations in the instrument, and on the available federal legal authorities for regulating plastics that are in place in 2025 and beyond. A top-down treaty model, with detailed command and control obligations, will make it less likely that the United States will have sufficient domestic legislative authority (or appetite) to implement the treaty. By contrast, a bottom-up approach, in which parties' obligations are tied to national plans that allow for flexibility to respond to national circumstances (including legal constraints on authority), would enhance the chances that the United States is able to become a party without new legislative authority and without the need for advice and consent (following the approach adopted for the Paris Agreement and Minimata Convention on Mercury). The end agreement will likely be a mix of both types of obligations, and so a careful review of the final instrument will ultimately be required for this purpose.

The global attention on plastics pollution could also prompt Congress to revisit implementing legislation for the Basel Convention.

The global attention on plastics pollution could also prompt Congress to revisit U.S. implementing legislation for the Basel Convention. Passage of implementing legislation would allow the United States to become a party, reduce trade barriers to responsible trade in plastics for recycling, and allow the United States to shape the future global circular economy for plastics and many other valuable recyclables.

Mr. Hagen and Mr. LaMotte are principals and Ms. Waxman is an associate at Beveridge & Diamond in Washington, D.C. They may be reached at phagen@bdlaw.com, rlamotte@bdlaw.com, and nwaxman@bdlaw.com, respectively.