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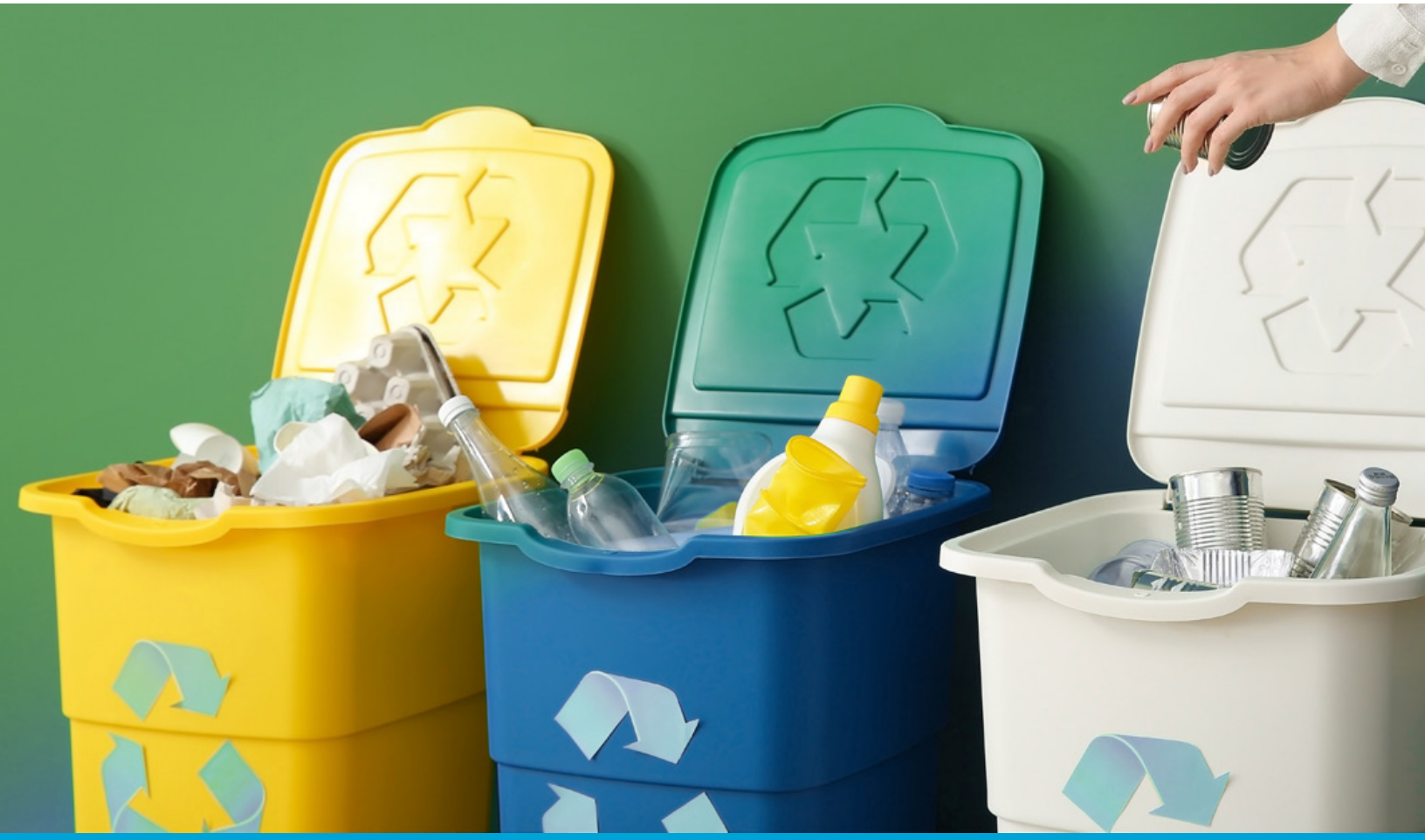

10 Questions With... Ross Bergman

Director of the Recycled Material Standard, GreenBlue

By **Kathy Hall** Executive Director,
Global Petrochemicals

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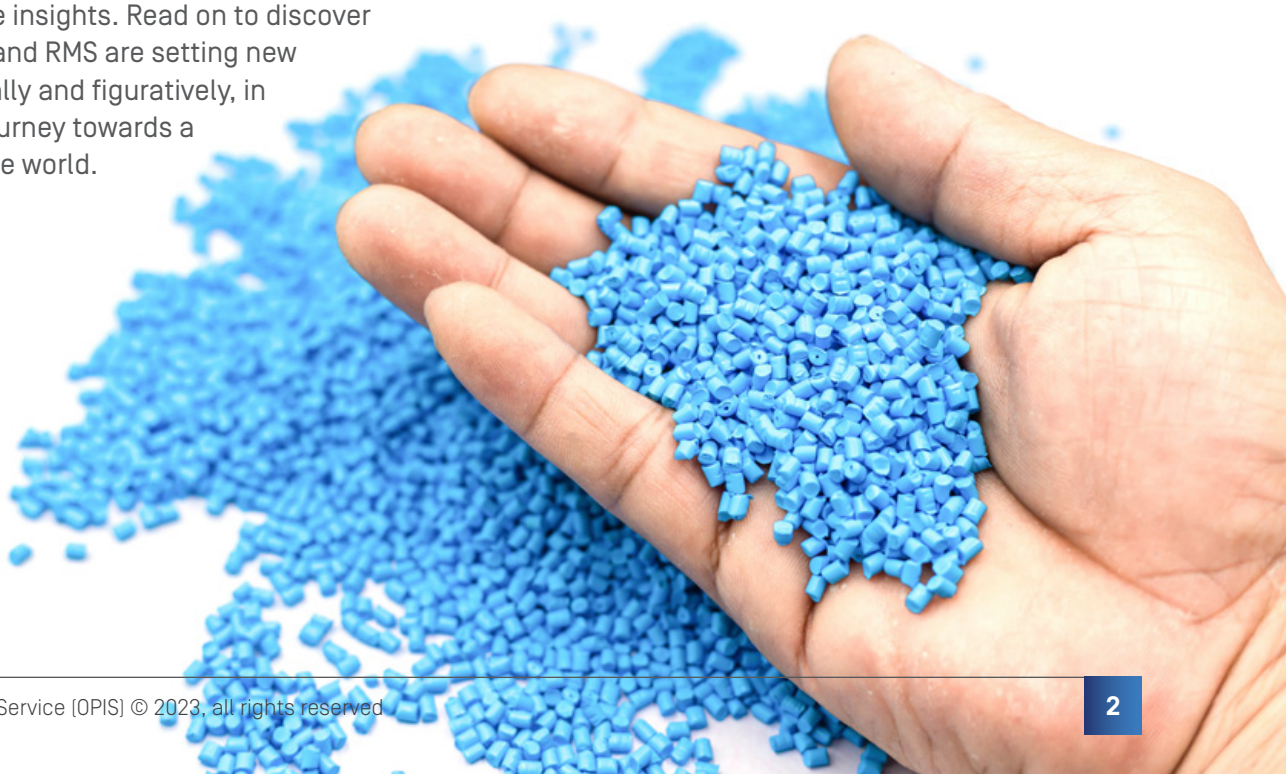
Executive Summary:

In an era where sustainability is no longer a buzzword but a business imperative, the quest for a circular economy has never been more urgent. Yet, the path to a greener future is fraught with complexities, especially when it comes to the recycling ecosystem. How do we build trust and traceability in recycled materials? How can companies transition from having green values to running a green business that is financially sustainable? And what role do new innovations like environmental commodity certificates play in this landscape?

To answer these questions and more, we bring you an exclusive Q&A with experts from GreenBlue and the Recycled Material Standard (RMS). This interview dives into the intricacies of the RMS, a Chain of Custody certification system designed to bring transparency and value to recycled material supply chains. We explore the groundbreaking concept of Attributes of Recycled Content (ARCs), a financial instrument that promises to revolutionize the way we think about recycled materials. We also touch upon the challenges and opportunities in both mechanical and chemical recycling, and how RMS aims to align standards across the board.

But this conversation is not just about the technicalities; it's about a vision for a sustainable future. We explore collaborative efforts between non-profits, industry leaders, and policymakers to create a system that is not just environmentally responsible but also financially viable. It's about the role each one of us can play in building a truly circular economy.

So whether you're a sustainability enthusiast, a corporate leader, or simply someone interested in understanding the future of recycling, this interview offers invaluable insights. Read on to discover how GreenBlue and RMS are setting new standards, literally and figuratively, in our collective journey towards a more sustainable world.



1 KATHY HALL: Tell us about GreenBlue & RMS, as well as your partnership with NSF International - and it is important to note that GreenBlue and NSF are non-profits?

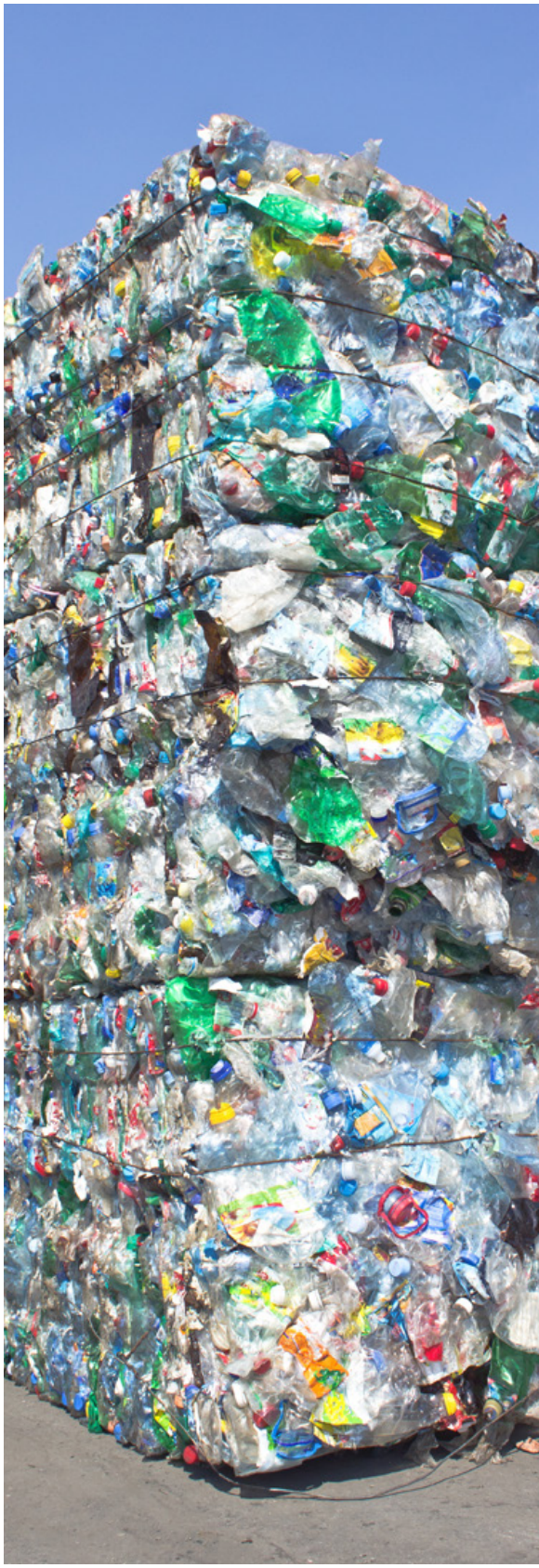
ROSS BERGMAN: The Recycled Material Standard (RMS) is a Chain of Custody certification system that traces the path of recycled material from the processor, through manufacturing, to the final consumer. Recycled material supply chains were missing the value brought by this type of program(like FSC offers for wood and paper), so we set out to develop a suite of options that brings value to recyclers, consumer products brands, retailers, and consumers.

GreenBlue is RMS's parent company and is a member-based nonprofit, where industry members and other organizations come together to develop sustainable material solutions. GreenBlue is perhaps best known for two of our flagship programs: the Sustainable Packaging Coalition (SPC) and North America's labeling program for consumer packaging, How2Recycle (H2R).

The RMS and H2R grew out of SPC working groups. Both programs enable the growth of the recycling system in different ways. H2R helps people at home get recyclable materials back into the value chain, and the RMS provides trust and value so the materials can be put back into usable end markets.

In developing the RMS, we wanted the assurance of a group that has managed and built similar certification programs, so NSF International was a natural partner. Their experience was vital when considering the necessary components for a standard and guiding through the development process in the most responsible, transparent way.

It is important not only that GreenBlue and NSF are non–profits, but it's more important that the Recycled Material Standard was developed with an uncompromised background. It was built upon ISEAL and ISO standards for Chain of Custody Certification, broad stakeholder engagement, and public comment. The intent was to make the most comprehensive and rigorous standard to bring trust and traceability into the recycled material value chain.



2 KATHY HALL: How does GreenBlue & the RMS help companies & industry leaders move from having green values to making a green business that is financially sustainable?

ROSS BERGMAN: The Recycled Material Standard helps individual companies by supporting the health and viability of the entire recycling ecosystem. Financial stability for recycled resins is

based on trust of quality streams, high-performing material, and traceable claims. By providing a standardized accounting and tracking method for recycled flows, better prices can be gained and every player in the supply chain benefits. Certified recycled material has value because it provides third party assurance for corporate reporting and on-product labeling. Brands are hesitant to make claims in case they lead to customer deception per the FTC Green Guides, however, through certifying the supply chain, they can have a safe means to verify their material and claims.

The second way that the RMS provides financial assistance is perhaps the most interesting. We are the only standard that allows recyclers to generate tradable environmental commodity certificates based on infrastructure investment. We call these certificates ARCs (Attributes of Recycled Content) and they are used to transfer the environmental claims associated with using recycled materials directly to another party separate from the actual material. Think of it like a renewable energy certificate (REC) but for recycled material.

Like RECs, ARCs are based upon strict additionality requirements and are tied to a vintage year. Each ARC represents the environmental benefits from one metric ton of recycled material (currently just plastic, but this may expand to other materials). ARCs are only issued when actual inputs are processed into a usable manufacturable form, so there's no future-based crediting like some carbon offsets. We have a growing number of recyclers generating these certificates, and with 2025 virgin plastic reduction commitments rapidly approaching, we have seen a lot of interest in the purchasing and retiring of ARCs by consumer brands and retailers as a transitional component of virgin reduction or recycled material goals.

A recycling system that is financially viable will need to meet the needs of the end users, which is mostly the CPG space for the moment. They are increasing demands for certified recycled material and ARCs, so the RMS is the perfect ecosystem for companies to get involved in building the certified material space.

3 KATHY HALL: Tell us about the timing of the start-up of the Recycled Material Standard in 2021. What was happening in the industry (or the world) that you feel created the urgent need for its creation?

ROSS BERGMAN: The concept started brewing in 2018 - at the same time that the China "National Sword" was dramatically impacting recycled material markets in North America. We were also aware of the potential of chemical recycling investments and knew that if claims from chemical recycling were to be trusted, they would need to rely on a chain of custody standard.

We saw that a very widely accepted system for ensuring sustainable material supply chains, chain of custody, was somewhat unheard of in the plastics recycling industry. Whereas wood and paper, agricultural products, and fair trade associations have been using chain of custody for decades, recycled materials were being treated on a product level of certification. Either resins or specific manufactured goods were being certified, but not the transfer of all forms of that material from recycler to consumer.

It was really important to provide a framework to build traceability and trust in recycling systems, so the material could reach its potential in value. At its essence CoC is a very simple accounting and claim transfer process that is successful when audited and doesn't rely on expensive

technology to manage. It has taken longer than we anticipated for this model of certification to catch on, but we believe in its value and understand that consensus building is the proper way to provide recycled resins.

4 **KATHY HALL: Let's talk about Attributes of Recycled Content (ARCs), which appear to be central to the purpose of the RMS. What is an ARC's role in the supply chain and how is it different from other types of credits, such as plastic offset credits and carbon credits that are certified by registries?**

ROSS BERGMAN: There are many instances when recycled material is sold on price or into a market where the recycled material claim is simply not valued. In this instance it would be beneficial for the recycler who is putting this material back into products to obtain some financial reward for the environmental benefits of their efforts. ARCs are the perfect mechanism to transfer that value to those who need the claim - CPG brands, or other corporations with virgin plastic reduction commitments. They're also useful in markets where recycled material may not be available at the scale desired, e.g., food-safe packaging, or other challenging performance requirements like optical clarity.

Just like RECs transfer the environmental benefits of renewable energy, not the energy itself, ARCs are the benefits from recycling material, separated from the physical material. Trading ARCs introduces liquidity into the recycling value chain, providing ROI for recyclers who are building new facilities, or investing in new equipment to increase output or quality of material.

It's important also to note that an ARC's value also lies in what it is not. They are not an offsetting mechanism and can't be used for any claim of "plastic-neutrality". ARCs are material specific, so a company can't purchase an ARC for HDPE and claim the benefit is being put towards PET. They could still utilize the ARC credit, but it would have to be reported in their HDPE value stream. ARCs are different from other collection credits because of strict additionality requirements: newness, quality, production efficiency, and financial feasibility to name a few.

We typically refer to ARCs as an environmental commodity, traded as certificates - they are modeled off the ISO Book and Claim accounting method.The recycled material that is used to generate the ARC certificate is then required to be sold as "base" material with no recycled status. This prevents double counting and confusion about the material's source.

5 KATHY HALL: Walk us through an ARC transaction - and if you can note what types of companies are already trading ARCs and what types of companies CAN trade ARCs, that would be very helpful. How does a company get involved with ARCs?

ROSS BERGMAN: ARC transactions are managed through a secure registry built by APX, a leading technology provider that has built other trading platforms. Any company can establish an account in the registry to trade ARCs or retire ARCs, but our strongest controls are around who can actually generate ARCs. Eligibility for issuing ARCs is restricted to recyclers with active RMS certification and approved generation projects. A new investment is allowed to generate ARCs for 15 years past its go-live date. This makes the new revenue stream for recyclers a stable and long-term benefit.

The registry tracks the transfer of certificates, however, it is not an "exchange" - there is no money transferred within the registry. We're currently working with commodity trading firms to facilitate the contracts for pricing and financial transactions associated with ARC sales.

There is a wide range of motivations for purchasing ARCs. In the broadest sense, environmental commodities are transferred among parties for the ultimate purpose of meeting an environmental obligation or a goal. Retirement represents the consumption of a certificate at which point the certificate is used to meet the goal (and may also be expressed by making a claim). The first major purchase of ARCs was made by Veritiv, a major packaging distributor, with the purpose of attaching the claim to a specific product line. This way a material that may not otherwise have positive environmental attributes can come bundled with a recycled material claim (much like purchasing bundled RECs with grid electricity.)

Our strongest point of interest is from consumer product brands and retailers looking to utilize ARCs to contribute to 2025 plastic reduction goals. While ARCs do not take the place of reducing plastic packaging or incorporating recycled material directly, they can play an important role in the transition away from virgin material sourcing. Companies can report their volume of ARCs procured and claim that they have supported investments in recycling that have resulted in that particular amount of material being put back into other products.

To get involved, a company can check out the ARC registry on rmscertified.com or contact us at *rms@greenblue.org*. We can connect them to an environmental commodity trader who manages ARCs and get the process rolling.

6 **KATHY HALL: You've written about chemical recycling (or advanced recycling) and challenges in that arena can be addressed through alignment of standards. How is RMS addressing this alignment? To quote a piece you wrote last year, "Converting waste to energy is a waste mitigation strategy, but it is not recycling." Can you expand on that and how that is playing out since you've written it?**

ROSS BERGMAN: We believe all types of recycling have their place in the circular economy, whether mechanical or chemical, post-consumer or post-industrial, our goal is to provide a means to track where all the material goes and provide value through third-party certification. The comprehensive structure of the RMS allows for mass balance accounting, which is the only meaningful way to track the flows of material from some chemical recycling pathways - like pyrolysis followed by a cracking process. Mass balance takes a longer time view of accounting recycled material inputs and outputs and allows companies to apply material claims to outgoing products as long as the claims balance with the amount of materials processed. Each batch does not need to physically contain the same percentage of recycled content as claimed in a mass balance system. With the RMS, products using mass balance can apply a certified on product label claiming "a mix supporting recycled plastic."

The area where we have seen the most debate regarding certification of chemical recycling is in accounting for material that is turned into fuel. It's widely known that chemical recycling processes are used to make a breadth of fuel products, including Sustainable Aviation Fuel; however, the problem arises when outputs of fuel are accounted for and certified as "recycled material". In line with the growing consensus in industry, many environmental groups, and some legislative acts, the RMS has what's often referred to as a "fuel exclusion", meaning any recycled outputs that are classified as fuel are not counted as recycled material.

There are other certifications that allow fuel to support recycled material claims and to be transferred to supply chain partners in the plastics stream. This, to us, is against the principles

and classifications of recycled materials and is potentially deceptive if communicated to downstream customers. It's fine to create fuel from a resource such as plastic, but it should be labeled as fuel, not as recycled plastic. There is a lot of discussion in the Chemical Recycling space about developing standards around responsible production. A program like the RMS could certify renewable fuels so they can carry a green premium.

I think we've seen alignment in support of that position. More and more environmental groups and industry coalitions are supporting the delineation of recycled materials from fuel streams. As time goes on and more people and companies become aware of the practice of fuel manufactured from waste plastic, they're going to distance themselves and ensure they're not compromising or conflating their environmental plastic claims with another emission source.

7 **KATHY HALL: Also, with respect to the emerging py oil market, do you think that its promise to provide mass balancing from the chemical feedstock point will overtake the demand for py oil for a multitude of uses in the energy & transportation fuels markets?**

ROSS BERGMAN: We're seeing increasing utilization of these feedstocks in products and packaging, not just the existing uses. As mechanical recycling technology advances we may be able to optimize yields on many plastics, and use chemical recycling for difficult end uses where near-virgin properties are required. ARCs can be a valuable tool in the chemical recycling space as well. If producers can find customers desiring their chemically-recycled resins based on performance, then perhaps the "recycled" nature is less important and they can utilize ARC sales to support continued growth of py oil use in materials.

In the discussions we're having with brands and manufacturers, the major shift to py oil as plastic feedstock is already happening and will continue to grow.

8 **KATHY HALL: With respect to the mechanical recycling industry, which currently appears to have significant constraints inasmuch as there are not enough machines & infrastructure to support the explosive growth in consumer recycling initiatives, how can ARCs ultimately help that industry grow?**

ROSS BERGMAN: We are seeing lots of great work being done on collection and sortation - from NGO efforts like TRP's cart grants, Closed Loop Partners' investments in MRF sortation, to legislative commitments like EPR coming into law in several US states. The ARC platform was developed specifically to help the processing point in the supply chain. With a history of challenging markets, volatility, and inconsistent demand - we wanted a mechanism that supports the reprocessors and actually builds the recycling system as a whole.

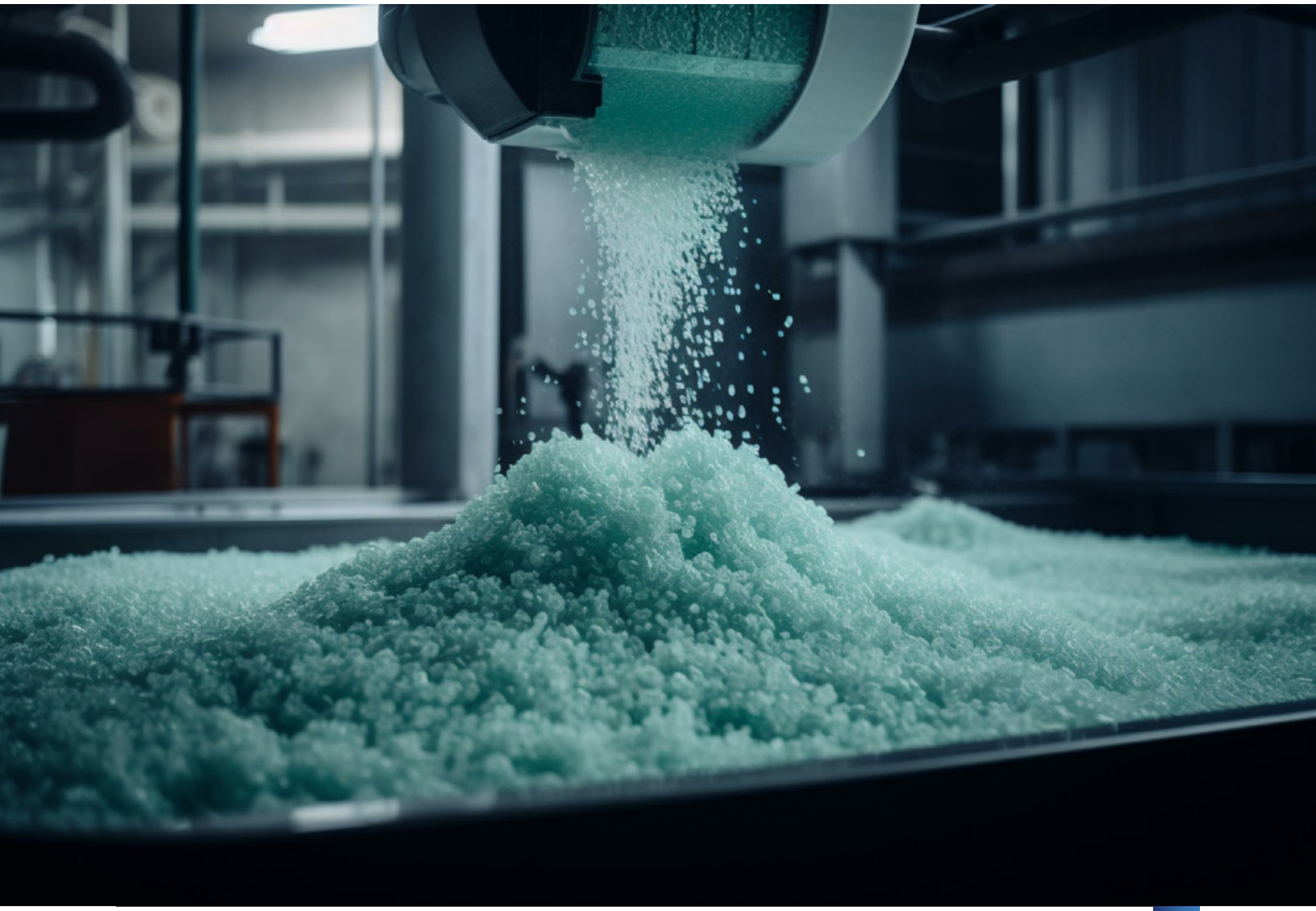
ARCs most definitely help because they are directly tied to individual investments that combine to increase recycling production across North America. This gives mechanical recyclers an additional source to fund growth into new facilities and expansion of existing processing. Ultimately you'll see the volume and quality of recycled materials increase because there is a liquid way to initiate growth. Once they are certified, recyclers can determine which materials they wish to remain certified as recycled or strip the claim for ARCs. Recyclers can determine the best balance for them based on end market demand and specific material uses.

ARCs also help spur the growth of more nuanced recycling streams with less value. We've heard from recyclers of opaque and colored PET who are interested in ARCs because they can provide the combination of sending the material to an end customer that does not require the claim with this additional revenue stream because CPG brands desire the ARC for PET that they can't put into bottles.

9 **KATHY HALL: Do you foresee RMS and ARCs extending into bioplastic use?**

ROSS BERGMAN: We have certainly explored the potential of including bioplastics into the RMS certification. The great part about our standard is that it is modular in its construction. We have a framework that would apply to any material, with additional material-specific considerations addressed through new modules.

Currently, our focus has been centered on traditional plastics. We're looking into developing a paper module by the end of 2024. Bioplastics are definitely on the horizon and there are standards that address bio-plastics, like the Roundtable on Sustainable Biomaterials (RSB). However, the

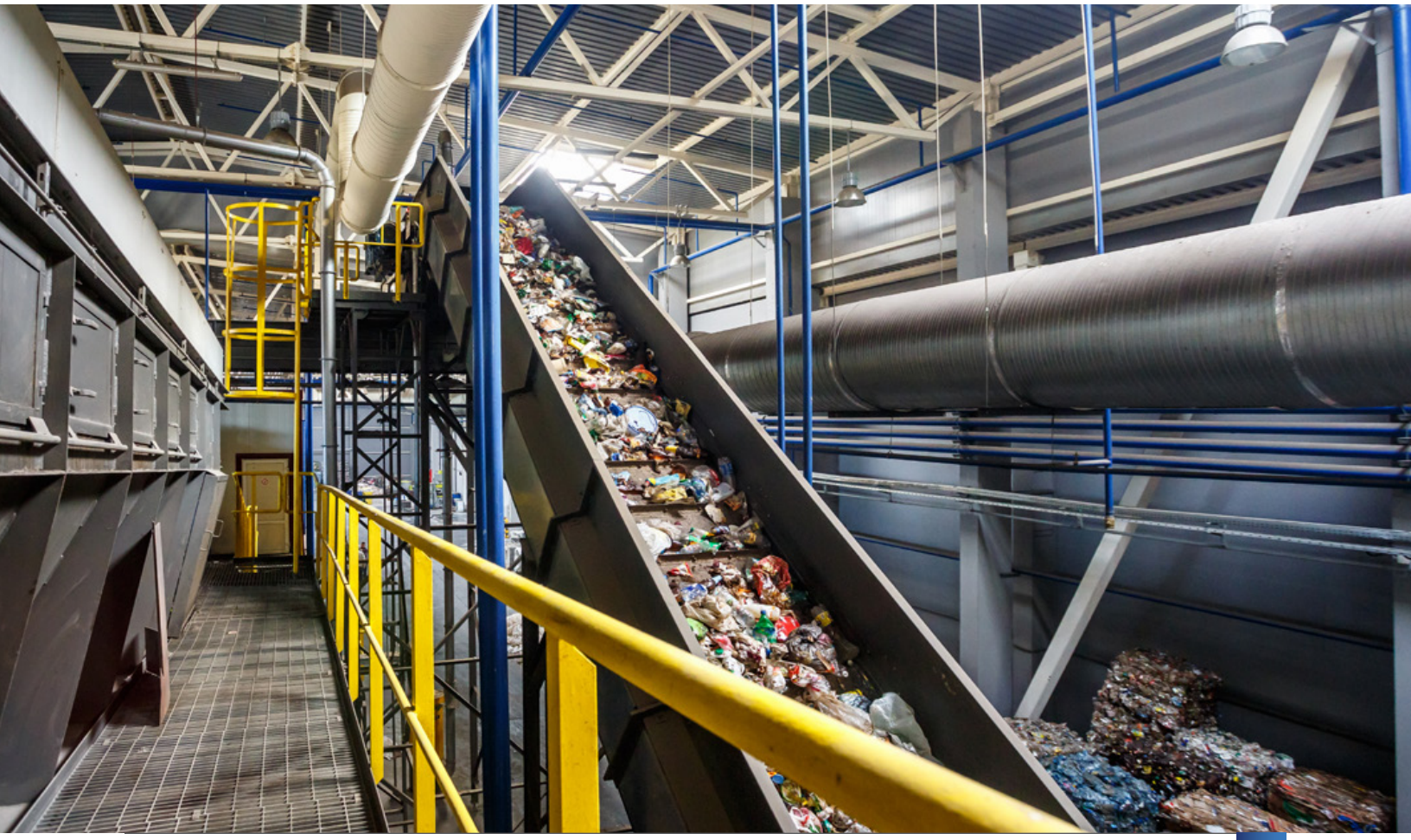


RSB does not currently have a book & claim system and if our stakeholders call on us to fill that gap, we are capable of doing so. We need to be sure we're taking in feedback appropriately and addressing necessary considerations to ensure that we use our capacity strategically. But yes, the same mechanisms of ARCs for plastic could be mirrored in a bioplastic module.

10 **KATHY HALL: What are some of the most encouraging trends that you have seen during your time in the markets and is there anything on the horizon that you are keeping your eye on?**

ROSS BERGMAN: One of the most exciting developments related to ARCs and the recycled certification landscape is the inclusion of book & claim certificates in corporate plastic commitments and reporting frameworks. Many of these will become public in the coming months. We expect these to increase the demand and interest for ARCs significantly.

We've also had a lot of conversations with policy makers. While the RMS was developed as a voluntary mechanism, we could create a similar program to support different pieces of legislation. We are starting to see certification as a requirement in some policy and we envision a future where an ARC type of trading system is written into law as one form of meeting compliance requirements.



About the Author

Kathy Hall, Executive Director, Global Petrochemicals

Kathy Hall is the founder of PetroChem Wire, a daily news and pricing service dedicated to the US olefin and polymer markets that began in 2007. PetroChem Wire is now a part of OPIS, a Dow Jones company. PetroChem Wire's US ethylene and propylene assessments serve as benchmarks for futures contracts that trade on the Chicago Mercantile Exchange (CME) and the Intercontinental Exchange (ICE) and are widely used by the petrochemical and plastics industries as a reference in supply contracts and spot market transactions. PetroChem Wire has also been assessing recycled plastics markets since 2010 when it launched its Recycled Plastics Weekly report. Kathy has been assessing commodity markets for more than 25 years. There are few types of financial journalism more demanding than that of the price reporter, and Kathy is a recognized expert in this field.

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