



Beyond Scarcity: Achieving a Resource-Secure Future through Circularity

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Over the past two years, the vulnerabilities of the American economy have been laid bare. Resource constraints faced across the economy reflect the risks of over-relying on a system designed around efficiency without considering resiliency. For example, the shortage of textile required for medical supply during the COVID-19 pandemic and the lack of semiconductor chips and minerals like lithium as the economy recovers severely disrupted the ability of the economy to respond to market signals. Despite near-term headwinds, the United States is striving to achieve a resource-secure future by attempting to reshore and diversify key supply chains. The outcome of these efforts will hinge on whether we continue to be reliant on a few key foreign suppliers for our economic inputs (Santacreu & LaBelle, 2021). As of now, resource chokepoints impair downstream production capability, which in turn constricts supply and affects the entire economy.

An economy designed around circularity can play a critical role in alleviating upstream resource constraints and enhance America's resource security. This is because rather than relying solely on virgin materials, a circular economy reuses waste streams as inputs to manufacture new products. This significantly reduces the demand for virgin materials – often imported – and consequently decreases the risks of upstream resource chokepoints. In order to achieve a resource-secure future and insulate America against future supply shocks, it is essential to integrate the concept of circularity into supply chain resilience.

A Circular Economy Enhances Resource Security

America's existing economic system is largely a linear process. Resources are extracted from natural systems, processed, manufactured, consumed, and eventually end up in landfills. Based on data from the Environmental Protection Agency, the recycling rate in America in 2018 is about 32% (EPA, 2022). This means that large amounts of imported materials such as glass, plastics, metals, wood, and textiles are discarded after their useful lifespans instead of recirculating back into the economy.

The current linear economic system requires a constant reliance on imported virgin resources to create new products. This creates vulnerabilities in the economic system that foreign suppliers of virgin materials and refined products can exploit. An economic system that is designed around circularity will significantly reduce the risk of such vulnerabilities, as discarded materials can be collected, treated, and reused from local and regional waste streams to create new products, thereby reducing the need to import new virgin materials from overseas.

Yet, despite a high level of support among Americans for a circular economy, the lack of a standardized national recycling program, recycling capacity, and corporate responsibility have hindered its emergence (Morgan, 2021). A recent Committee on Environment and Public Works hearing has noted these issues and is attempting to address these shortcomings. It has introduced the Recycling Infrastructure and Accessibility Act of 2022 to establish a pilot grant program that will improve recycling accessibility (Carper, 2022). While the main motivation



for the act focuses on environmental sustainability, it is also important to highlight that circularity, when scaled up across the entire economy, can play a critical role in ensuring resource security.

Circularity is Emerging but Requires Policy Push

Many forward-thinking companies and startups have already begun to embrace the concept of circularity. In the clean technology space where critical minerals are essential, startups are focused on recycling lithium-ion batteries, wind turbines, and solar panels so that a reduced quantity of imported critical minerals would be required (Canary Media, 2022). Technology behemoths like Apple and Samsung are also integrating circularity into their business models. Apple has committed to using “only recycled and renewable materials” in their products and packaging and has pledged to enhance material recovery (Apple, 2022). Samsung is “striving to shift towards a circular economy where resources are reused and recycled efficiently from the linear economy that follows a take-make-dispose paradigm” (Samsung, 2022).

However, some companies are still adopting a wait-and-see approach and are not willing to adopt circularity (Fast Company, 2019). Policymakers should thus consider a policy framework for a circular economy in order to nudge the private sector. For a start, the framework can focus on products that contain imported critical minerals and enhance both resource security and environmental sustainability. In the longer term, policymakers should consider legislation that phases in extended producer responsibility (EPR) across the economy so that manufacturers are legally obliged to recycle products after their useful lifespans (OECD, 2022). EPR legislation will have the added benefit of encouraging high-quality product designs and new business models since products will have higher residual and resale values at the end of their useful lifespans. EPR will also raise the bar for foreign manufacturers and prevent them from flooding the market with cheap imports that are unsustainably produced and which would undermine America’s resource security through a reliance on such imports.

Conclusion

An economic system structured around circularity will allow America to move towards a resource-secure future. Materials from waste streams can be treated and recirculated into the economy. This will reduce America’s reliance on imported virgin materials. A circular economy has a high level of public support, enhances America’s resource security, and is more environmentally sustainable than the existing linear economy model. Companies are already starting to embrace circularity and adapting their business models. A circular economy, supported by a considered policy framework and which include extended producer responsibility in the longer term, is thus a winning proposition that policymakers should, and many businesses would, support.

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The contents of this article express the views of the author alone.



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