

November 12, 2024

Circular Supply Chains

Semicon Europa



Water use in semiconductor manufacturing

On average, a semiconductor Fab uses 10 million gallons of ultra purified water each day.

10 million

This is the equivalent of 33 thousand households in the United States.

33 thousand

A new Fab in Arizona expects to reclaim 65 percent of the water it uses.

65 percent

Date Source: World Economic Forum

The Circular Supply Chain

- 1 Overview of the circular supply chain
- 2 How to get started
- 3 Real world examples in the semiconductor industry - Cymer
- 4 Policy and collaboration
- 5 Learn more – we can help!

From linear to circular supply chains



The journey to circular

Circular Strategy

- Current state linear assessment
- Desired goals for circular
- Potential partners and collaborators

Continuous Improvement

- Communicate and educate team
- Align metrics and incentives
- Measure and report on progress
- Adapt and change with technology and market

Integration at Scale

- Build out successful pilots
- Enable partnerships for recovery and recycling
- Embed throughout operation

Circular Design

- Identify circular model opportunities for your business
- Redesign products, services and processes for reuse, repair, and recycle
- Target partnerships for reverse logistics and recovery

Pilot Programs

- Use small scale projects to test redesigned products and services
- Consider limited releases or trials
- Measure, observe, refine pilots



Cymer ReUse saves 11 subway cars in weight and reduces CO₂ by volume of 8000 hot air balloons*

Reuse applies to > 40% of Light Source's parts

Cymer ReUse average is 407000kg in fabricated parts, annually

- This is roughly equal to the weight of 11 New York City subway cars (Model R211: 37000kg)

Cymer ReUse of also equates to an off-set of ~ 8metric tons of CO₂ released into the atmosphere

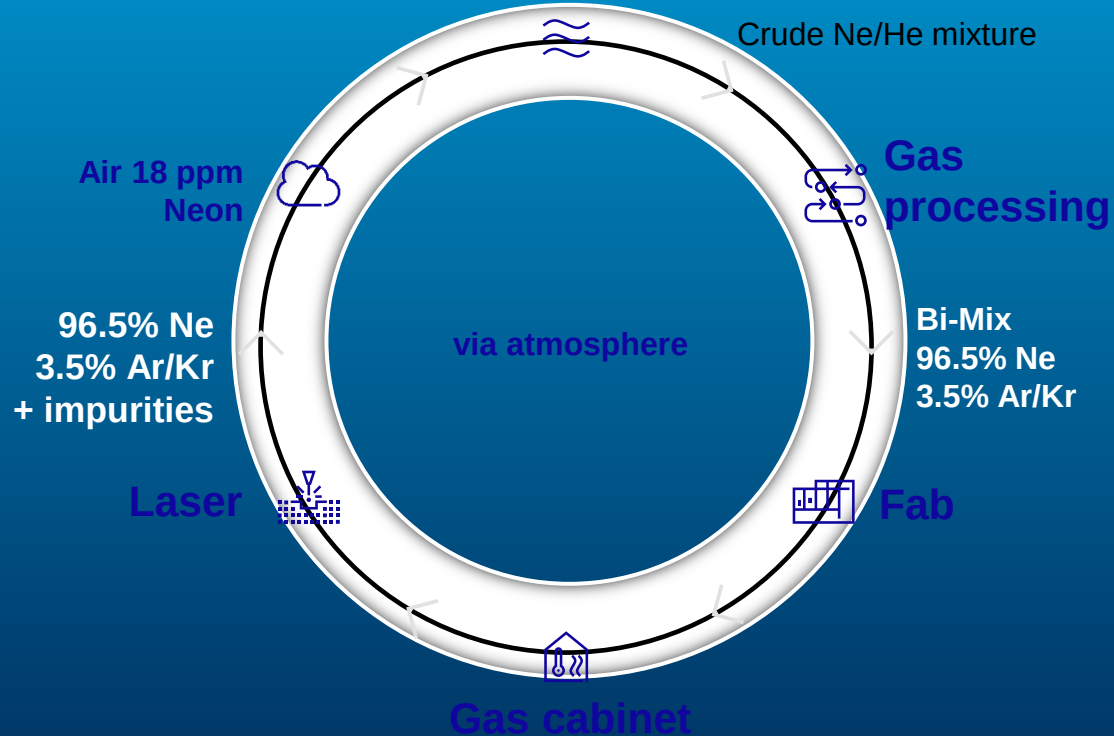
- This is enough gas to fill 7,956 hot air balloons (1metric tons of CO₂ gas can fill one ~500 cubic meters hot air balloon)



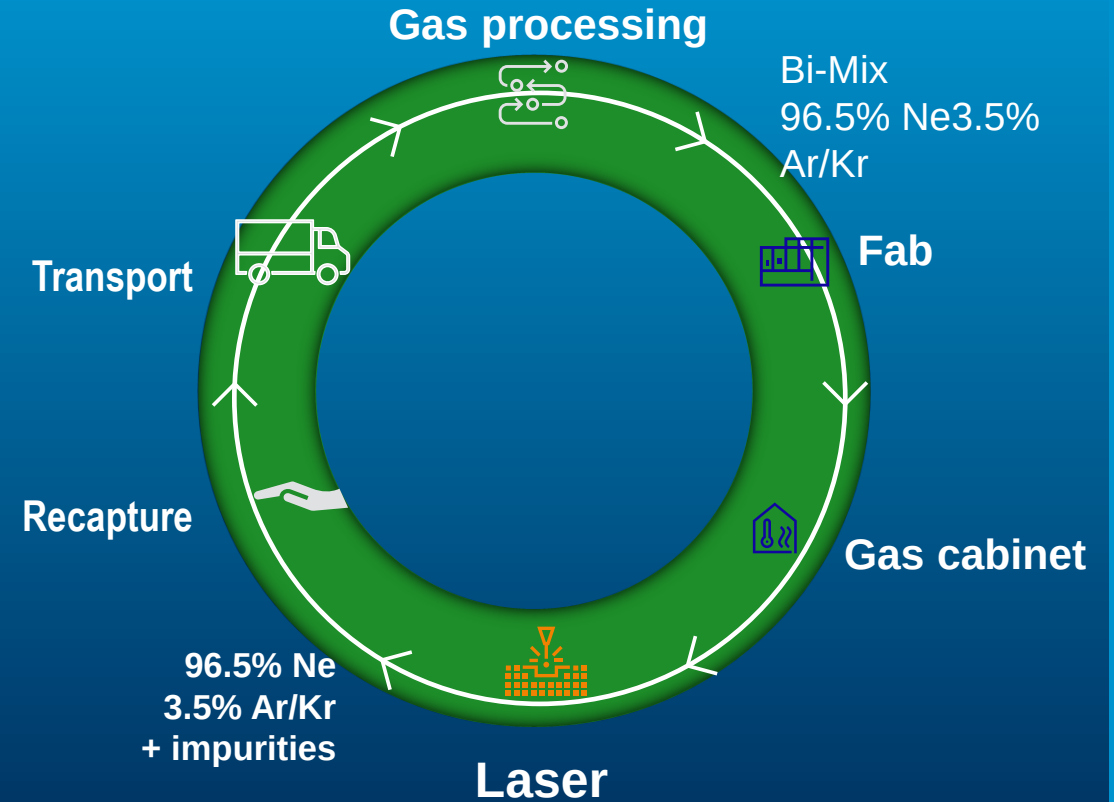
Recapture, Reprocessing , Reuse Neon: avoid waste of Energy Resource

Current Neon use case

Air Separation Unit (ASU)

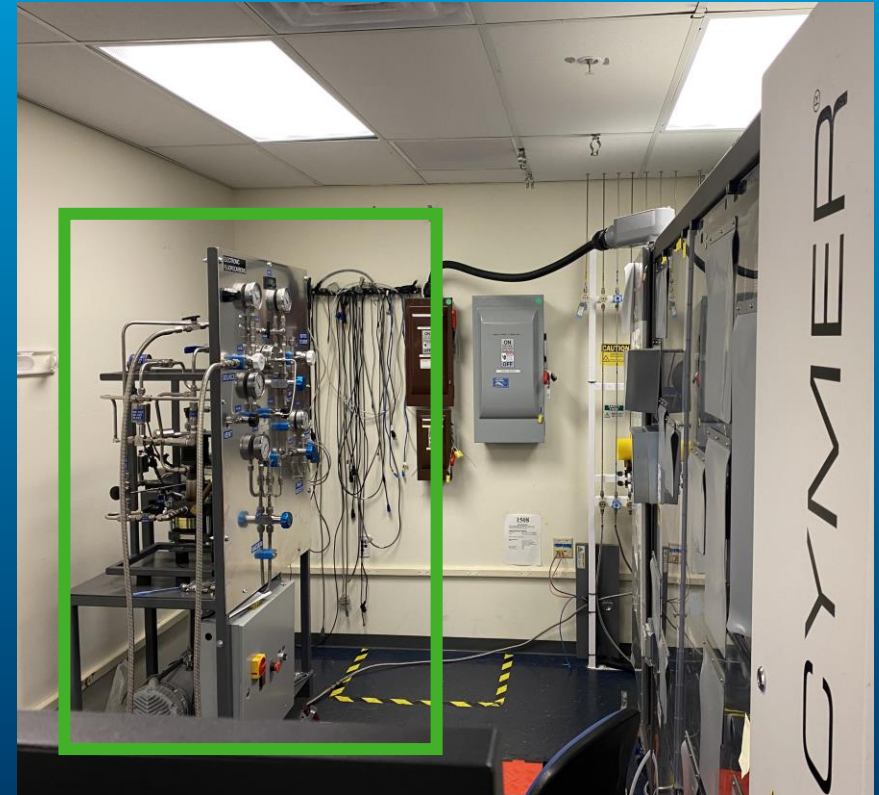
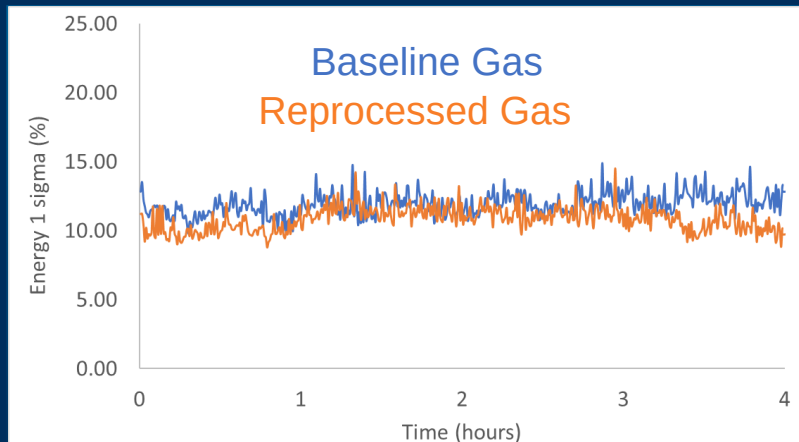


Neon recapture and reprocess



Successful demonstration of Technical and Collaboration concept

- Cymer and EFC Gases & Advanced Materials collaborated on a **prototype neon recapture** system at Cymer's San Diego site.
- Successfully qualified recapture system.



Good news from Semiconductor manufacturers

SAMSUNG

Samsung to use recycled neon gas in chip manufacturing

The Korean memory chip giant will be the industry's first to use recovered neon gas in the photolithography process

By Jeong-Soo Hwang Mar 07, 2024 (Gmt+09:00) | ⌚ 2 Min read

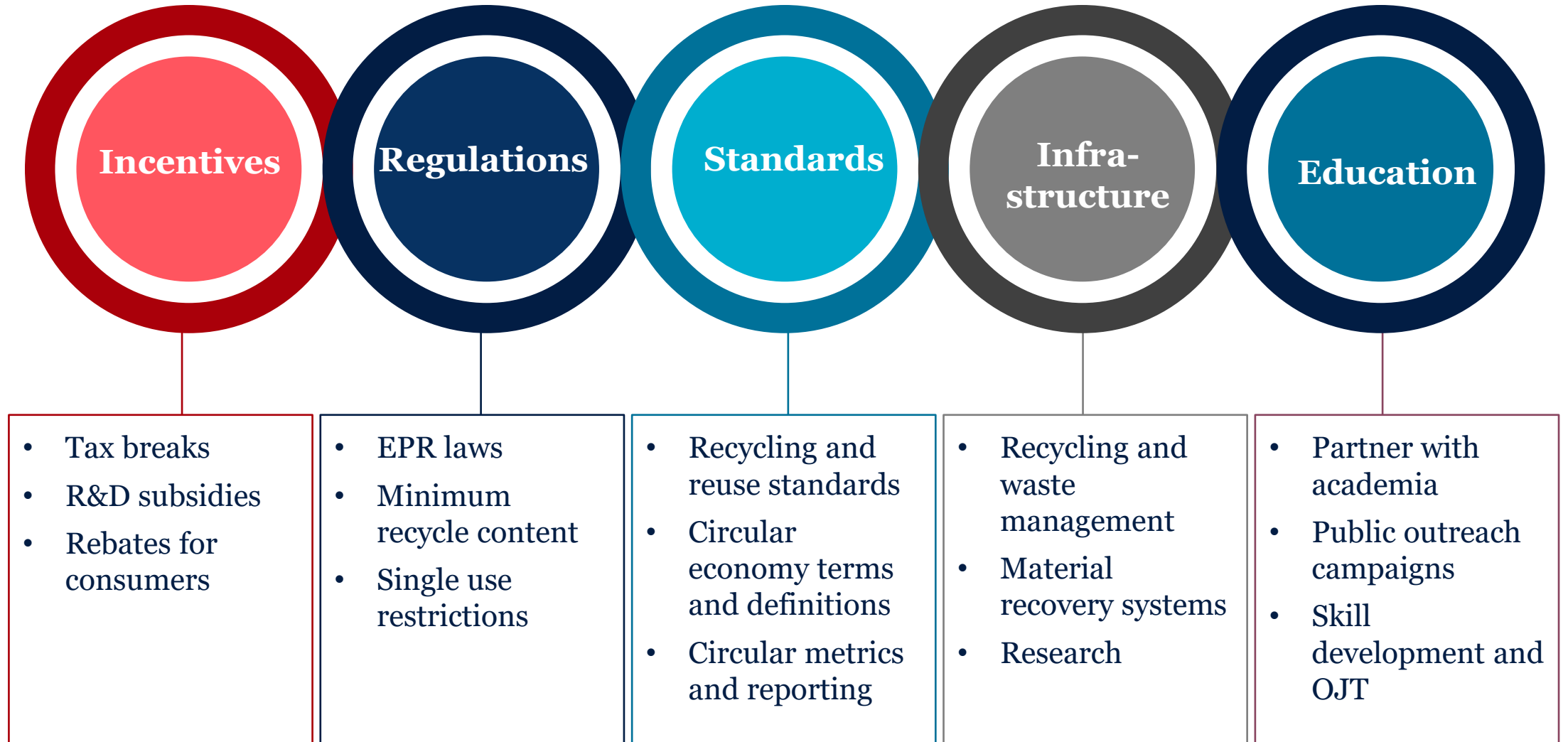
Industry's first Neon Gas Recycling Technology developed by SK Hynix and TEMC

2. MAY 2024



- More Semiconductor manufacturers are expected to follow this sustainable strategy.
- Cymer will continue support efforts of our customers and Gas suppliers.

The role of policy and collaboration



Sustainability, consulting, and technology are at heart of solutions that transform and run the world's biggest supply chains



The relentless pursuit of a world
that works better for people



We would love to talk about your circular journey!



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Thank you

