

CLIMATE NEEDS CIRCULARITY

COP28

RAGN  SELLS

CLIMATE NEEDS CIRCULARITY

Join Ragn-Sells different sessions during COP28 and take part in the discussions.

4 DECEMBER

15.00–15.30 | ESTONIAN PAVILION

Unlocking the Potential of the Circular Economy:
Does Legislation Accelerate the Transition or Slow it Down

- **Kai Realo**, Ragn-Sells Estonia CEO
- **Keit Kasemets**, Chancellor of the Climate Ministry of Estonia
- **Peep Siitan**, Zero Terrain CEO (Energy Company 500MW underground battery)
- **Gunter Pauli**, Entrepreneur & Author of Global bestseller - Blue Economy

Moderator: **Annika Arras**, Milton Estonia CEO

5 DECEMBER

12.00–12.30 | ESTONIAN PAVILION

Europe's Largest Circular Project: An Amazing Example of How 600 Million Tons of Ashes Become a

- **Alar Saluste**, Board member and project Lead of OSA Project

15.00–15.30 | ESTONIAN PAVILION

Is the European Green Deal delivering - and what's next?

- **Kadri Simson**, European Commissioner for Energy
- **Alar Saluste**, Ragn-Sells OSA project manager
- **Annela Anger-Kraavi**, Head of Climate Research of Cambridge Institute

Moderator: **Pär Larshans**, Head of Sustainability and Innovation of Ragn-Sells Group

AGENDA

9 DECEMBER

12.00–12.30 | ESTONIAN PAVILION

Estonia's Global Initiative: Industrial Waste Must Be Researched as Material Banks to Achieve Climate Goals

- **Alar Saluste**, Ragn-Sells OSA project manager.
 - **Kristen Michal**, Minister of Climate of Estonia
- Moderator:* **Pär Larshans**, Head of Sustainability and Innovation of Ragn-Sells Group

10 DECEMBER

16.00–16.30 | ESTONIAN PAVILION

How Circular Innovations Can Solve the Biggest Challenges of Our Time – Sustainable Food & Fertilizers Production

- **Pär Larshans**, Director of Sustainability and Public Affairs at Ragn-Sells Group
- **Alar Astover**, Professor Land Use Economics, Soil Science at Estonian University of Life Science
- **Jan Svärd**, CEO of Easy Mining / Circular nutrients technologies

**ESTONIAN + SWEDISH + NORDIC
PAVILION**

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Europe's Largest Circular Project: An Amazing Example of How 600 Million Tons of Ashes Become a Critical Raw Materials Bank for the EU

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Estonia's Global Initiative: Industrial Waste Must Be Researched as Material Banks to Achieve Climate Goals

13.00–13.40 | SWEDISH PAVILION

Havbruk – enables increased food production in our oceans

17.00–17.40 | SWEDISH PAVILION

Heated talks: Avoid huge N2O, NH4 and CO2e emissions

10 DECEMBER

10.00–10.45 | NORDIC PAVILION

The 10 Billion Challenge, the Nordics can lead the way

12.00–12.40 | SWEDISH PAVILION

Recirculation of phosphorus – Planetary boundaries

14.00 –14.40 | SWEDISH PAVILION

Feeding a megacity within the Planetary boundaries and what will it mean for the built environment

16.00–16.30 | ESTONIAN PAVILION

How Circular Innovations Can Solve the Biggest Challenges of Our Time – Sustainable Food & Fertilizers Production

ABOUT RAGN-SELLS

1881

Established

6.3

million tons of materials treated per year (2022)

2030

Ragn-Sells will be Climate positive 2030 by reducing our own carbon emissions by at least 50 percent compared to 2019. Added to this, our new circular innovations contribute positively so that carbon emissions are avoided or stored.

The 144-year-old family business Ragn-Sells has, in the last 10 years, shifted its entire focus towards developing Circular solutions. We are developing unique circular-based, low-carbon technologies that enable the extraction of critical raw materials from industrial, hazardous and mining waste.

Ragn-Sells is leading one of Europe's largest circular economy projects. In Estonia, there are 600 million tons of energy production ashes that have been lying in nature for the past 100 years. Ragn-Sells, in collaboration with universities, has developed innovative technology that allows the extraction of calcium from these ashes and, by using CCU+S (Carbon Capture and Utilization with Storage) technology, produces the world's first climate-positive precipitated calcium carbonate (PCC).

But this is just the beginning! The plan is to further extract several critical raw materials from these ashes, such as magnesium, aluminum, and silicon.

In addition, Ragn-Sells has a special focus on producing the food the world needs while staying within the planetary boundaries by using circular solutions. That's why Ragn-Sells is developing several Circular based solutions that enable to produce fertilizers and animal feed from sources like wastewater, sewage sludge, fish poop, and more. Ragn-Sells believes that all industrial and mining waste all over the world should be seen as material banks.

WHY RAGN-SELLS IS ATTENDING COP28?

We have an amazing opportunity to create a sustainable future by transitioning to a society based on circular principles keeping critical resources in the loop instead of throwing them away. This is what we at Ragn-Sells, together with our partners, are going to showcase at COP28.

Today, half of the world's emissions are caused by the production of common goods such as food, clothing, cars, etc, according to the UN. This is largely a consequence of raw materials being mined, used, and then thrown away, rather than being recovered and used over and over again.

The climate simply needs more circularity to conquer climate change. Therefore, Ragn-Sells is committed to continuing to develop solutions that enables to bring resources back into the production cycle again. Here are just a few of our circular economy and low-carbon innovations:

- Industrial salts produced from waste incineration ashes.
- The world's first climate-positive ultra-pure PCC from electricity production ashes by using CCU+S technology.
- Supplying Europe with magnesium using the 600 million tons of ash stockpiles generated from electricity production in Estonia.
- Sustainable nutrient production by extracting phosphorus (P) and nitrogen (N) from wastewater, sludges, and fish poop.



KAI REALO

Kai is one of Estonia's most highly rated opinion leaders and top executives. She was also selected as Estonia's best leader in 2018. Kai holds a Bachelor's degree in economical engineering and an MBA in marketing and leadership. Her true passion lies in Marketing and Sales, and she has dedicated a significant part of her career to top management, primarily in both the retail and fuel industries. She has also served as the CEO of Circle K Estonia.

In 2022, Kai made a U-turn and took over the leadership of the environmental company Ragn-Sells. Her aim is to lead the path towards the circular economy in Estonia.



ALAR SALUSTE

Alar Saluste is a highly experienced project manager in large-scale projects, transitioning from R&D to engineering and construction. Alar has been involved in the construction of several large wastewater treatment plants worldwide. Today, he leads the largest circular economy project in Europe, with the goal of producing the world's first climate-positive calcium carbonate from the ashes generated during electricity production in Estonia. Additionally, he leads CCU+S solution project and R&D projects aimed to at extracting magnesium, aluminum, and silicon from industrial stockpiles.

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