

# Responsibly producing soda ash for a sustainable future

▼ WE Soda's Eti Soda facility in Ankara, Turkey.



WE Soda is a large producer of natural soda ash. Its CEO Alasdair Warren discusses the manufacturer's operations, and how responsibly producing soda ash will secure the future of the industry.

**A**t the 2023 World Soda Ash Conference, there was one priority for all participants: the need for sustainable soda ash supply to support the energy transition and help tackle climate change.

It's not surprising - after all, the outlook for our planet is bleak. Despite all the efforts so far to reduce CO<sub>2</sub> emissions, climate change is still accelerating; extreme weather events are becoming the norm, and "climate refugees" look likely to be the next global humanitarian crisis in many parts of the world.

As a result, the climate crisis and our collective actions to tackle it will become the most prominent issue in society and business for generations to come.

Current emission and water use reduction targets will have to drastically accelerate and timelines for achieving net zero will have to be brought forward.

At a national level, the growing importance of these issues will mean stronger environmental commitments, on which governments will get elected and be held accountable, and ever

tightening regulations.

The entire global commercial ecosystem is about to undergo an even more dramatic transformation to accelerate change, and the soda ash industry is no exception.

Indeed, our industry has an increasingly important role to play in supporting the energy transition and tackling climate change.

This is because soda ash is an essential energy transition material, used in the manufacture of thousands of everyday products including lithium carbonate for EV batteries and, most importantly, glass.

Glass is an essential element of the energy transition used in photovoltaic (PV) solar panels, which are increasingly used in construction to improve thermal efficiency. The material is also vitally important in the circular economy through the manufacture of recyclable and reusable containers.

## Soda ash production

Soda ash is produced using two main methods: "natural" and "synthetic".

Natural soda ash is processed from

naturally occurring trona ore.

The largest commercially exploitable deposits of trona are found in the US and Turkey, the two regions in which WE Soda is currently active.

WE Soda has a unique production method called solution-extraction, and it is the only producer to use this method on a commercial scale outside China.

As a result, it already produces sustainable soda ash - with low CO<sub>2</sub>e emissions intensity, one of the lowest water intensities and almost no waste.<sup>1</sup>

Synthetic production, on the other hand, is far more energy and water intensive, requiring a lot of heat to react chemicals together to manufacture soda ash, resulting in high CO<sub>2</sub> emissions, high water usage and considerable waste.

We have already seen tightening environmental regulations, in both Europe and China, that will likely prohibit any substantial new capacity additions using current synthetic process technologies. And so, for environmental issues alone, natural trona-based production is the future.



◀ Eti Soda processing facility, based in Turkey.

The world's largest trona deposits are located in Wyoming, US, with an estimated 23 billion metric tonnes of soda ash equivalent resources – representing hundreds of years of global soda ash supply.

In October 2022, we announced Project West - a new greenfield project which will use a combination of solution-extraction, renewable electrical power and/or carbon capture technologies to further reduce our already low CO<sub>2</sub>e emissions intensity.

## Sustainability

Sustainability is, and will continue to be, the key driver of change in our industry. Some of the changes that are needed will be forced upon us – and rightly so.

Inevitably, this will present some significant challenges for many producers, but sustainability also presents a great opportunity to “high grade” our industry – to be an agent for change in sustainable raw material supply, and to produce better and more sustainable products for our customers.

Sustainability will accelerate soda ash demand and it will also constrain supply, changing the industry dynamics.

The global demand for soda ash is currently around 65 million metric tonnes per year and this looks set to increase over the next decade to approximately 85-90 million metric tonnes per year, with around three-quarters of this driven by sustainable applications facilitating the energy transition.

Substantial additional supply will be needed to meet this growing demand, most of which (for environmental reasons) will have to come from natural soda ash, with almost all of the new supply coming from Wyoming after 2030.



▲ Alasdair Warren, WE Soda CEO.

But producing and delivering these new supply volumes won't be easy.

Reliability of supply will become increasingly important, and the movement away from synthetic to natural soda ash production to fulfil sustainability priorities has the potential to increase the chances of supply shortages and price volatility.

As a result, transparent and reliable spot and derivative markets will need to develop, allowing customers to better hedge their raw material input prices.

## Future outlook

Even with the growth in new natural soda ash production, synthetic plants will still represent around 60% of global supply in ten years' time and will still set the reference price for soda ash, directly or indirectly, in most markets.

But the cost of synthetic production will increase, mainly due to sustainability-related investments associated with changing the fuel mix of synthetic plants, many of which still rely on coal for their energy needs.

Equally, natural soda ash will likely dominate the sustainability agenda, and become the preferred raw material for customers, particularly those with a high level of sustainability focus.

As a result, I believe that the pricing of natural soda ash should command a “sustainability premium” in the future.

We are approaching an inflexion point – for the sustainability of our planet as we know it, and for the soda ash industry. We must all recognise the essential role that we each have to play in supporting the energy transition.

We need to make sure the world we are creating will be better than the world we have today. If we get it right, this will be a fantastic legacy and, for our children's sake, we have to make this our collective goal. ■

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<https://www.wesoda.co.uk/>

## References

1. <https://www.wesoda.co.uk/assets/documents/we-soda-sustainability-factsheet-vf.pdf>