



# The Impact of Carbon Investing

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How investing in  
carbon allowances  
creates permanent  
environmental impact

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# The Impact of Carbon Investing: How investing in carbon allowances creates permanent environmental impact

## Executive Summary

Investing in physical emission allowances (EUAs) in the EU Emissions Trading System creates a quantifiable, permanent environmental impact that lasts after divestment.

According to scenarios based on models developed by the LSE's Grantham Research Institute, as well as a proprietary market model developed by ICIS, temporarily withholding 1 EU emission allowance from the market for 10 years results in a permanent reduction of 0.92 – 1.48 tonnes of CO<sub>2</sub> emissions. There are additional environmental benefits created by withholding allowances, which this paper qualifies.

## Creating environmental impact

Temporarily withholding EU allowances (EUAs) from the market results in four positive environmental outcomes.

Two of these outcomes create a direct, measurable reduction in CO<sub>2</sub>:

1. **A pre-defined EU law** (called the Market Stability Reserve) triggers the automatic cancellation of other emission allowances permanently as long as an investor withholds EUAs from the market,
2. **An increase in the price of carbon allowances** renders carbon-removal technology more economically viable

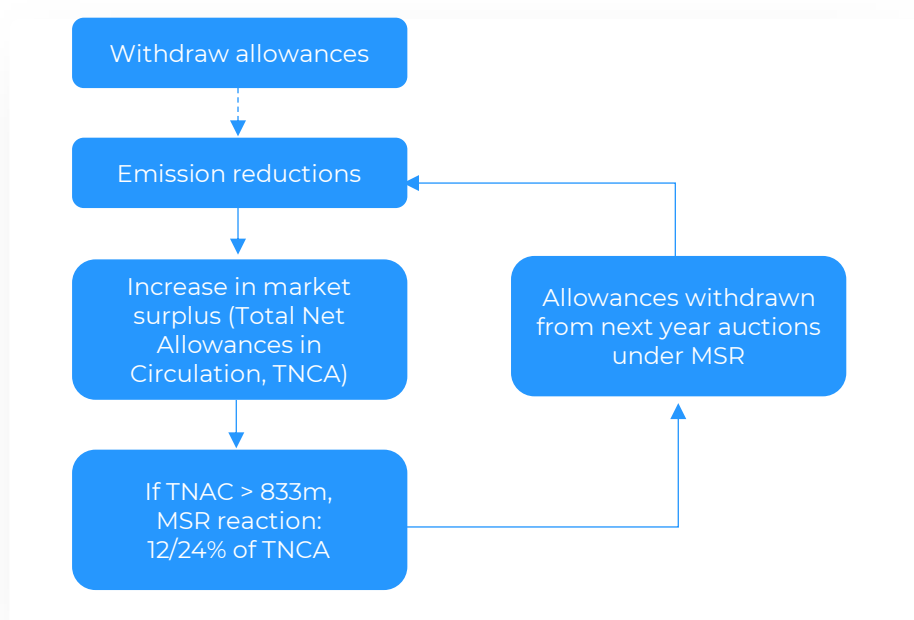
Two further outcomes create additional environmental benefits that are not quantified as part of this research:

3. **A delay in emissions**, as clearly 1 tonne of carbon emitted per year over 100 years is better than 100 tonnes emitted in year one,
4. **A financial incentive to adopt greener solutions** creates permanent infrastructure change that can be leveraged over time

## Measurable impact created by (1) EU law (Market Stability Reserve)

Withholding EUAs from the market reduces the capacity to pollute, triggering emission reductions. These emission reductions, in turn, through a pre-defined mechanism called the Market Stability Reserve (MSR), create a reduction of future EUA supply too. The longer the EUAs are withheld, the more the future supply is curbed. As less allowances become available, emissions continue to decline. This effect is permanent because the reduction of supply through the MSR is not reversed when the withheld EUAs are released back into the marketplace.

The environmental impact builds up during the holding period, via a 'feedback loop' as a result of triggering the Market Stability Reserve. This response is fully automated, without any discretion for the regulator, as it is written into EU law<sup>1</sup>.



We use two different market models to quantify this effect:

- 1) "[Emissions trading with rolling horizons](#)" model created by Simon Quemin at The Grantham Research Institute on Climate Change and the Environment, a leading research institute at the London School of Economics
- 2) "[Timing Impact](#)" model created by ICIS, which is a leading market model developed around the unique characteristics of the EU Emissions Trading Scheme (ETS)

Both models were run using the same scenario: Buying 10m EUAs in 2021 and selling back to the market in 2030, all else being equal (using the base case assumptions).

Table 1: Emissions delta in millions due to Market Stability Reserve

Emissions delta in millions due to MSR	2021-2030	2031-2100	Total
MSR base	-9.2	N/A	-9.2
LSE model <sup>[2]</sup>	-14.552	+4.004	-10.547
ICIS model <sup>[3]</sup>	-15.94	N/A	-11.558 <sup>[4]</sup>

Source: ICIS, Simon Quemin

## Measurable impact created by (2) Carbon price increase

Both models also calculate the price impact of withholding EUAs: Since the total quantity of allowances available is fixed under EU law, holding permits for investment reduces the supply available to polluters, causing prices to increase once allowances are withheld from the market. However, the prices decrease less once the allowances are sold back into the market, creating a lasting effect of increased prices<sup>5</sup>:

Table 2: Average EUA price delta in €/tonne

Average EUA price delta in €/tonne	2021-2030	2031-2100	2021-2100
LSE model	+0.177	-0.006	+0.010
ICIS model	+0.59	N/A	N/A

Source: ICIS, Simon Quemin

The ICIS model quantifies additional emission reductions due to the lasting effect of increased carbon prices (as well as the impact created by the MSR, discussed earlier). According to the ICIS model, the reduction of emissions for holding 10m EUAs in 2021-2030 is 19.19m tonnes CO<sub>2</sub>. After deducting the MSR induced effect, this leaves an additional emissions impact of 0.325 tonnes CO<sub>2</sub> per EUA withheld for the ten-year period.

## Impact created by (3) delaying emissions

Delaying emissions slows the build-up of greenhouse gas concentration in the atmosphere, which delays global warming and its catastrophic consequences for our ecosystem.

## Impact created by (4) financial incentive

Temporarily withholding allowances from the market delays capacity to pollute from the point of purchasing the allowances to the future time when they are released back into the marketplace. Aside from the abovementioned effect, while

this does not impact the total amount of permits to pollute (the “carbon budget”) by 2050, it does increase ambition and price in the short term, by changing the annual availability of permits. This incentivises the reduction of more emissions earlier on, triggering economies of scale and bringing costs down. Delaying the availability of EUAs to emitters, brings down the overall costs to society to meet a carbon budget.

## Conclusion

Withholding 10m EUA from 2021 to 2030 creates a lasting environmental impact that comprises:

- 1) 10.55m – 11.55m tonnes CO<sub>2</sub> reduction created by EU law (Market Stability Reserve)
- 2) 3.25m tonnes CO<sub>2</sub> reduction created by price appreciation
- 3) Additional benefits created by reducing costs to society through financial incentivisation and delaying emissions

Overall, per EUA, the impact is in a range of **0.92 – 1.48 tonnes CO<sub>2</sub>** plus the additional benefits to society (economies of scale by early action and delay of climate change effects).

<sup>1</sup> The MSR was enacted through [EU Decision 2015/1814](#)

<sup>2</sup> [Emissions trading with rolling horizons](#)

<sup>3</sup> [ICIS report](#)

<sup>4</sup> The ICIS model currently does not extend beyond 2030. However, as evidenced in the LSE results, there is a pendulum effect once allowances are divested of around ~27%. Applying the same effect to the ICIS result, we conclude an emissions delta of 11.558m

<sup>5</sup> SparkChange can provide a more detailed explanation of the price effect upon divestment



## Contact Us

Combining extensive industry experience across carbon markets, financial products and data analytics, our 25+ team shares a passion for our company's mission: To link the financial world to carbon markets.



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