

strategy&

CBAM Executive Summary of findings related to the fertilizer industry

Confidential














28th October 2020





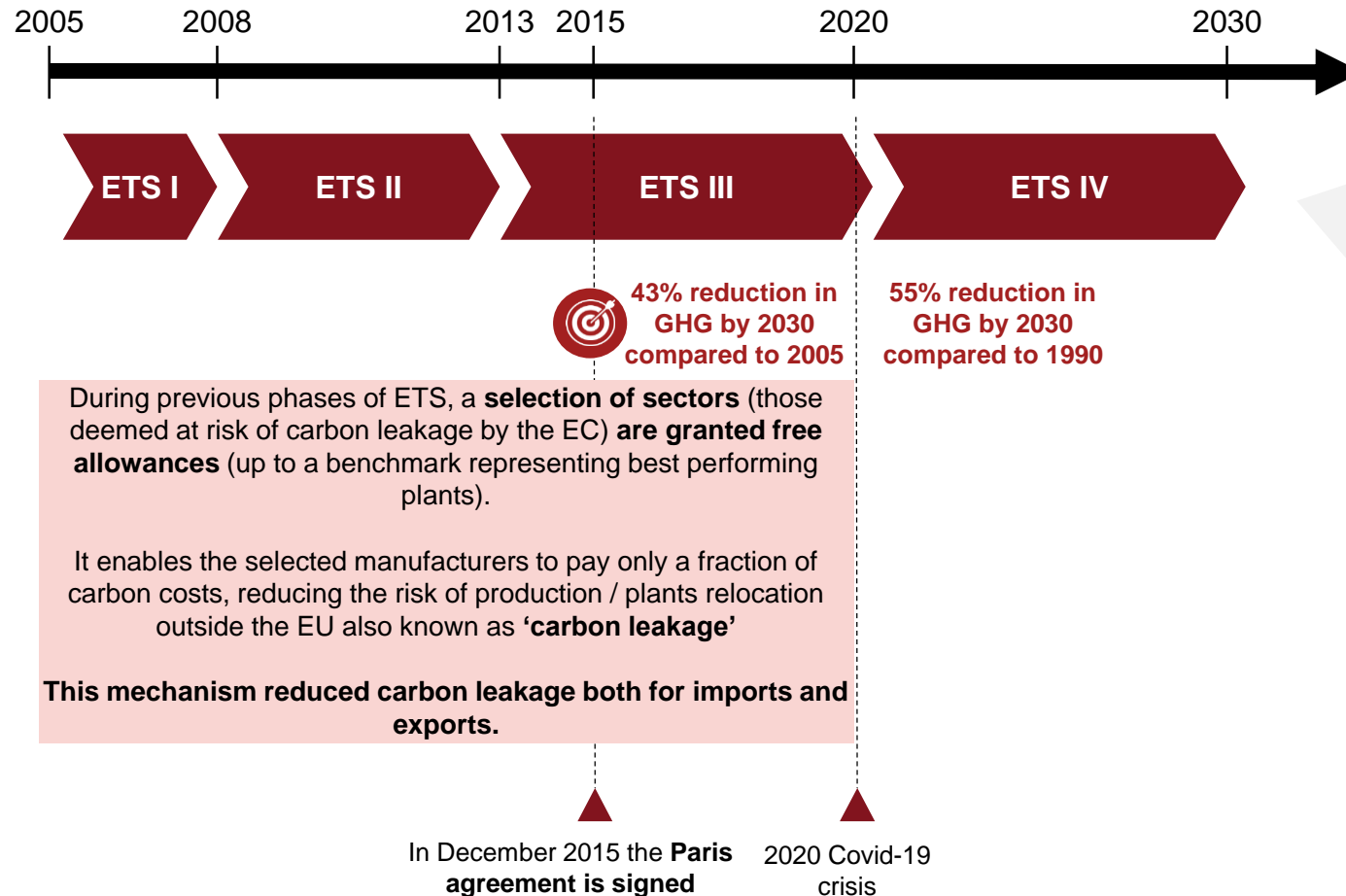
This study focuses on ammonia and 3 fertilizers mainly used in agriculture and with significant EU global market share

Presentation of analyzed products and EU market share estimates

	Anhydrous ammonia	Urea	Ammonium nitrate	NPK
APPLICATIONS	<ul style="list-style-type: none">Fertilizer productionHouse or metal cleaningDrug manufacturingNitrogen Oxide (Colours and Pigments)Amines (Polyamides 6, Polyurethane, Process Chemicals)	<ul style="list-style-type: none">Fertilizer productionAdblueMelamineWater treatment chemicalsCosmetics	<ul style="list-style-type: none">Fertilizer productionExplosive	<ul style="list-style-type: none">Fertilizers Production
CLIENT INDUSTRY	<div></div> <div>Agriculture Industry Chemicals Pharma</div>	<div></div> <div>Agriculture Industry Consumer goods</div>	<div></div> <div>Agriculture Mining</div>	<div></div> <div>Agriculture</div>
PRODUCTION	<div>World 150.3 Mt N</div> <div>8%</div> 	<div>World 81.3 Mt N</div> <div>4%</div> 	<div>World 21.0 Mt N</div> <div>23%</div> 	<div>World Unavailable data</div> <div>~10%</div> 

In the ETS IV period, the EC is considering developing a Carbon Border Adjustment Mechanism to further prevent carbon leakage

Timeline of the EU carbon policy



Among the new ambitions for the European Union, the **European Green Deal** aims at **effectively reducing CO2 emissions by 2030.**

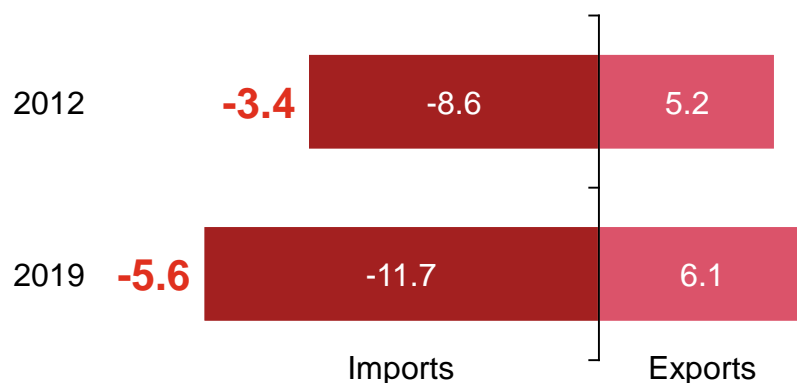
Aside investments in decarbonization and the new ETS IV (with updated carbon leakage list and mechanisms), the EC wishes to develop a Carbon Border Adjustment Mechanism (CBAM) to stimulate global climate action.

A CBAM would introduce pricing mechanism to ensure at least part of the carbon costs currently by EU manufacturers would also be applicable for products coming from 3rd countries (CBAM imports).



The net trade balance of the analyzed fertilizers has worsened in ETS III, and the industry is increasingly at risk of carbon leakage during ETS IV

EU28 Net Trade Balance (2012-19, MT) *



Over the ETS Phase 3 period, the industry has suffered from a worsening net trade balance

Considering free allowances until 2030 and no CSCF applied.

Assumptions and key hypotheses detailed in appendix

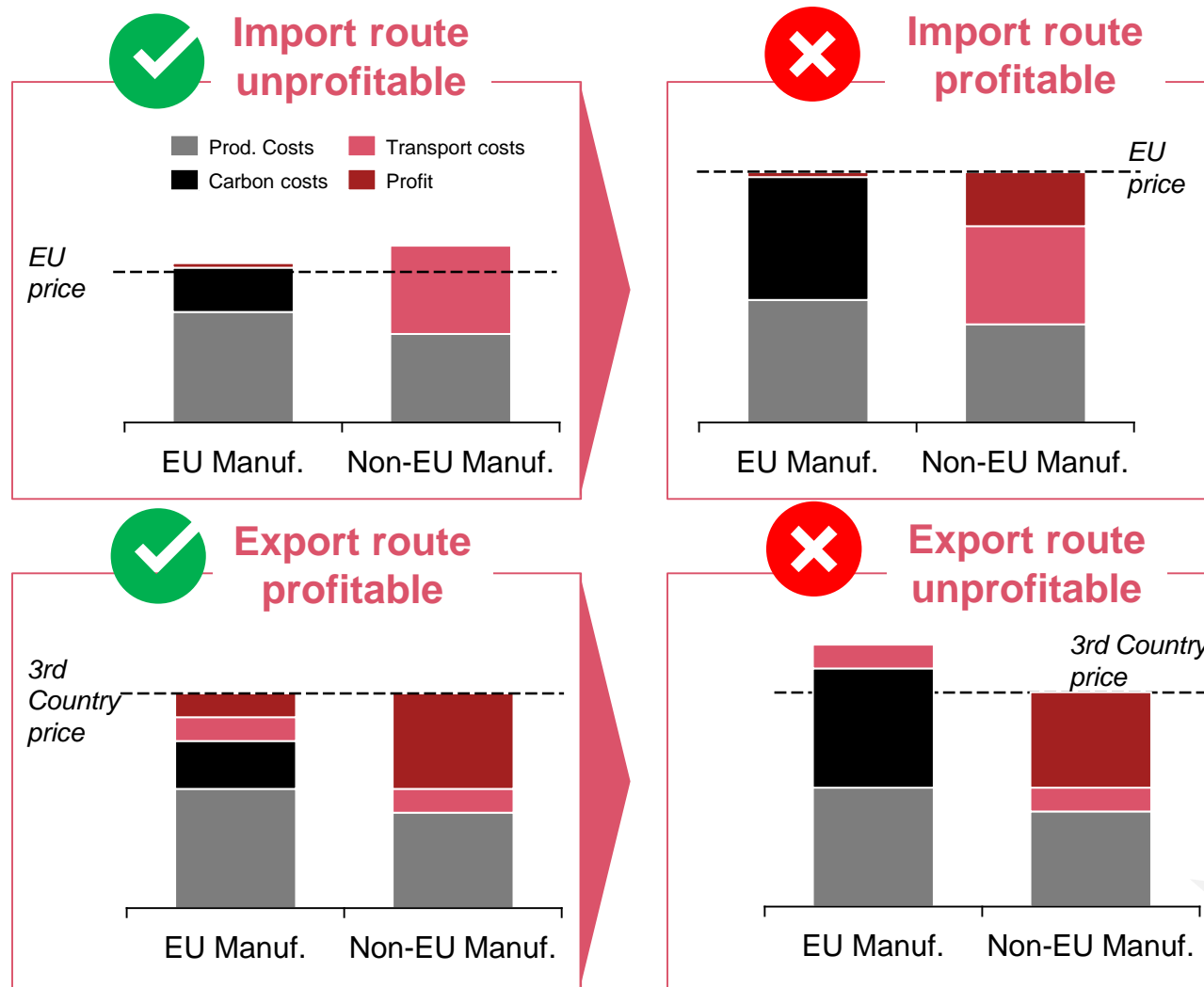
Total carbon costs (direct + indirect) products by 2030

	Free allowances until 2030		No Free Allowances from 2023 on		Current product price
Product	€ m	€/T	€ m	€/T	€/T
Anhydrous Ammonia	764	52	2,510	171	285
Urea	441	59	934	125	235
Ammonium Nitrate	383	26	1,273	87	221
NPK	670	56	993	93	345

In the ETS Phase IV period, carbon costs are expected to increase significantly, which could increase even more carbon leakage

Carbon costs can reach up to 60% of current price, at very high levels in case of no free allowances from 2023 on.

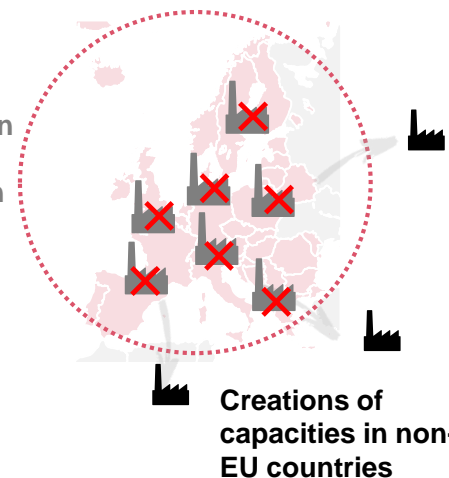
Without preventive measure, as carbon costs increase, the EU fertilizer industry becomes increasingly exposed to carbon leakage with increased imports and decreased exports



Following carbon costs increase, **manufacturers from 3rd countries will become profitable on the EU territory** unless specific mechanisms are implemented.

Potential future trends in manufacturing

Destruction of plants and jobs in the EU



Following carbon costs increase, **EU manufacturers will not be profitable enough to sell to 3rd country markets** unless specific mechanisms are implemented.

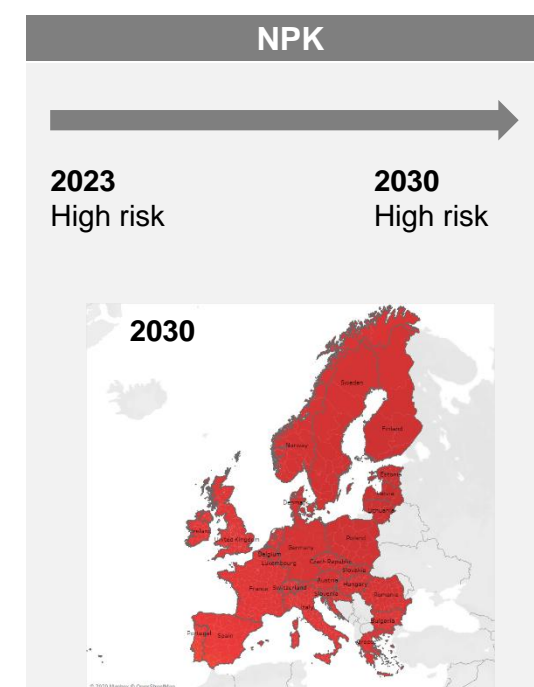
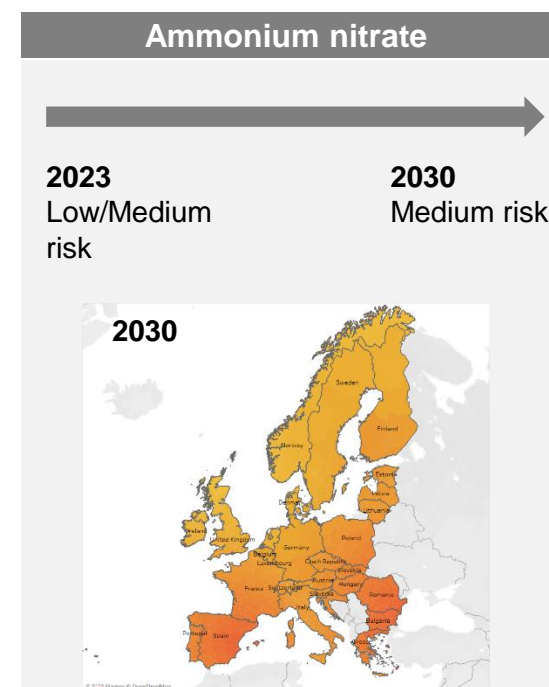
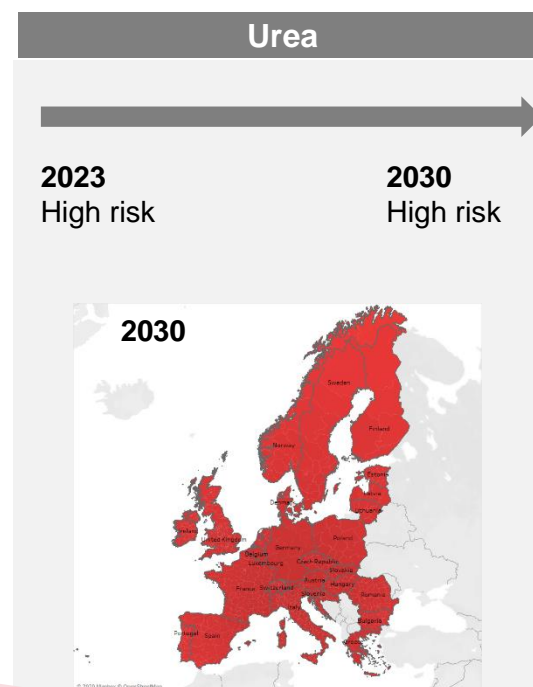
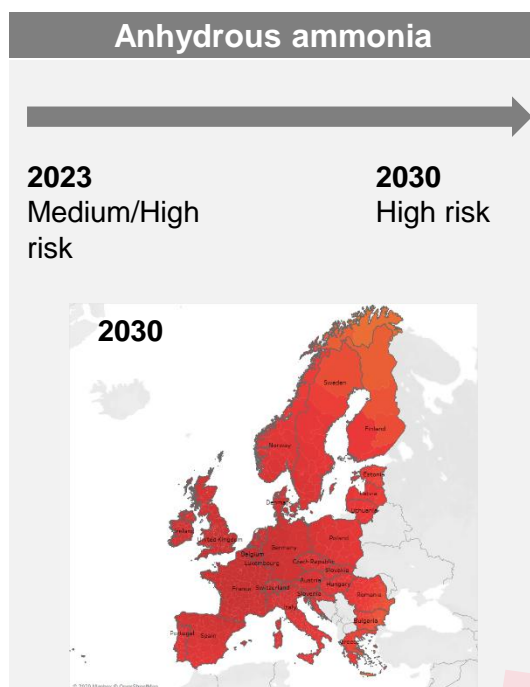
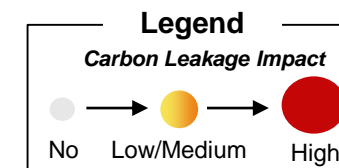


Notwithstanding free allowances in ETS IV, the EU fertilizer industry continues to be increasingly exposed to medium / high risk of carbon leakage for imports and exports on the whole EU territory by 2030.

Overview of the estimated impact of carbon leakage on defined scenario in 2030

PRELIMINARY

Variables used					
CO2 price (€/t CO2)	30€	50€	30→80€	Free Allowances	FA on ETS IV
Base CSCF factor (2026)	100%	78%	No CSCF	CBA mechanism	no
					yes



In 2021 at the beginning of ETS IV, the carbon leakage impact is already material for most products

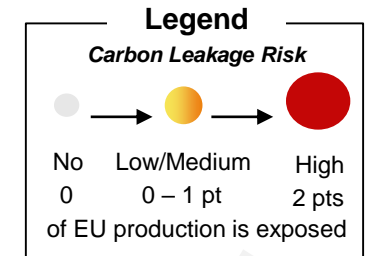
The map reflects that the Ammonium nitrate sector is supported by antidumping duties. If they are removed, the carbon leakage risk would be much higher



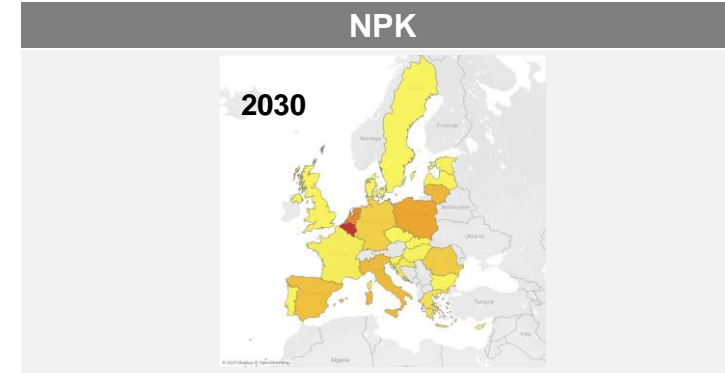
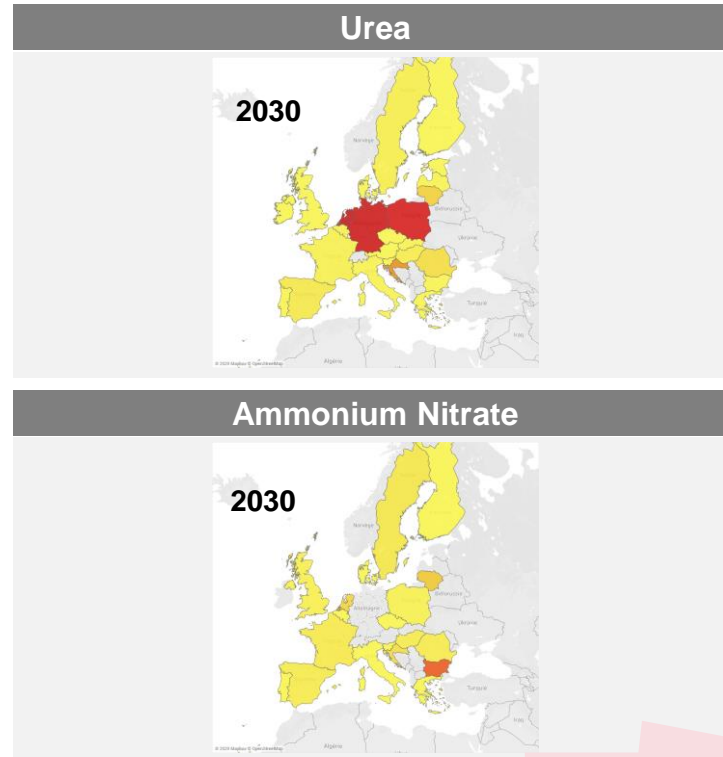
Over the ETS IV period, carbon leakage is currently mitigated by free allowances; FA are expected to end if a CBAM on imports is introduced

Overview of the estimated impact of carbon leakage on defined scenario in 2030

Variables used					
CO2 price (€/t CO2)	30€	50€	30→80€	Free Allowances	FA until 2030
Base CSCF factor (2026)	100%	78%	No CSCF	CBA mechanism	no yes



A country colored in **red** means that the loss of exports volumes will be strong, increasing the carbon leakage risk



The map reflects that the Ammonium nitrate sector is supported by antidumping duties. If they are removed, the carbon leakage risk would be much higher

CBAM could contribute to restore a level playing field and reduce carbon leakage for imports and exports



Applicable to both imports and exports

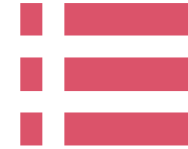
- The EC is focusing mainly on imports, which is only a part of the carbon leakage
- **Exports are key to the EU climate policy:** in case carbon costs are applied to EU manufacturers, or avoidance costs arise, they wouldn't be competitive enough in external markets



Includes all carbon costs in the value chain

- EU Manufacturers are enduring several carbon costs: **direct, electricity costs but also costs supported upstream in the value chain and passed through the manufacturers.**
- An effective CBAM would include all carbon costs borne by EU players.
- A CBAM should apply consistently on all levels of the value chain (covering basic, intermediate and finished products)

This is particularly important for complex products with global value chains.



Balance environmental impact to comply with WTO regulations

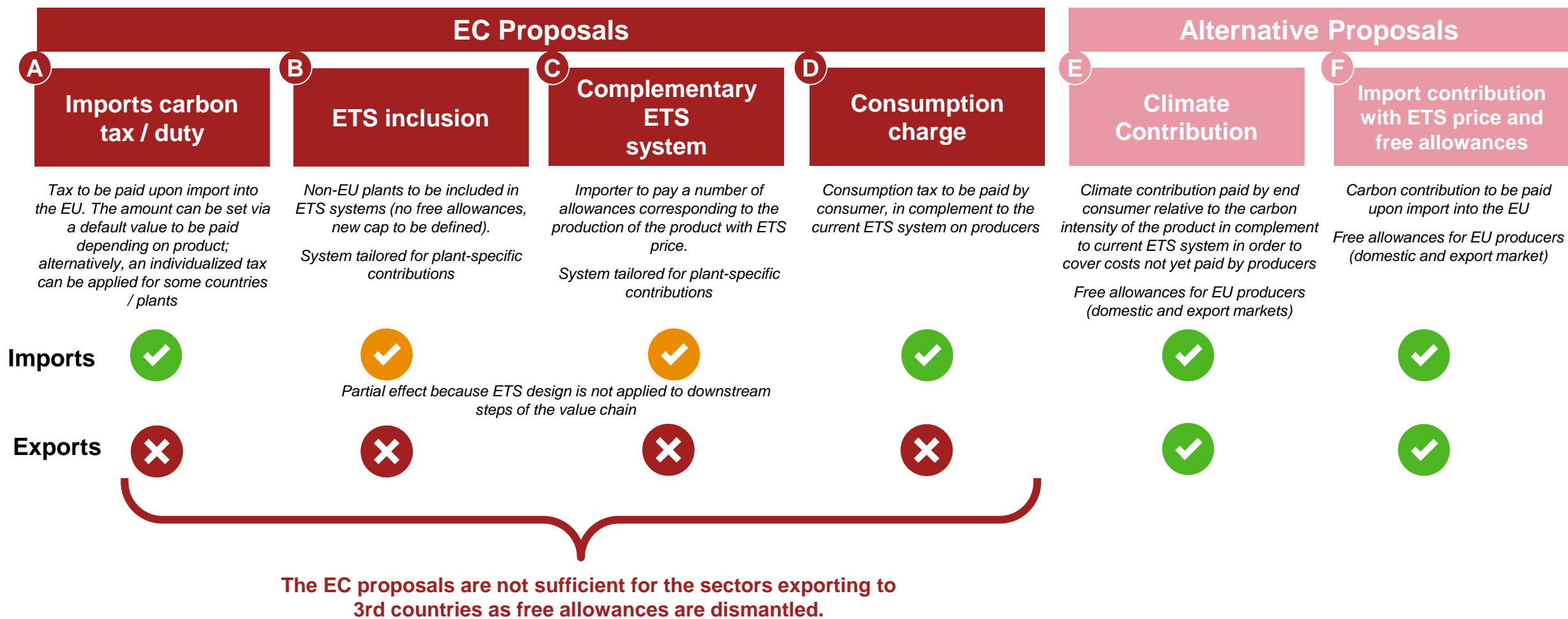
- **A CBAM must be compliant with WTO regulations**
- The system should take into account country and plant-specific verified emissions, to ensure WTO compliance and fostering cooperation with 3rd countries



Approach ensuring predictability and stability of the system

- A CBAM is a new approach with limited precedents
- It should be carefully put in place, **maintaining current ETS mechanisms such as free allowances** to ensure predictability and stability for EU manufacturers

The study considered four EC CBAM design options and two alternative CBAM options combining free allowances and consumer/import carbon contribution

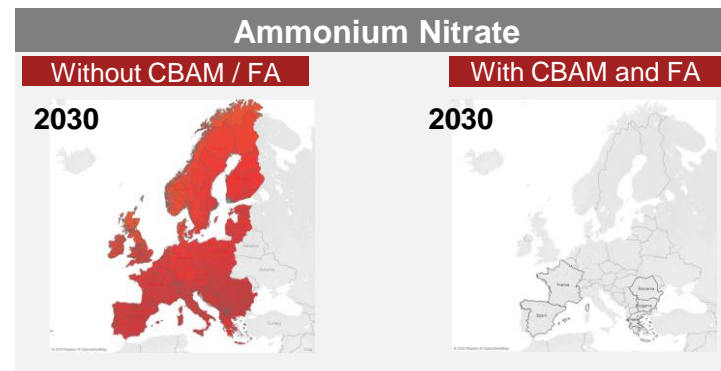
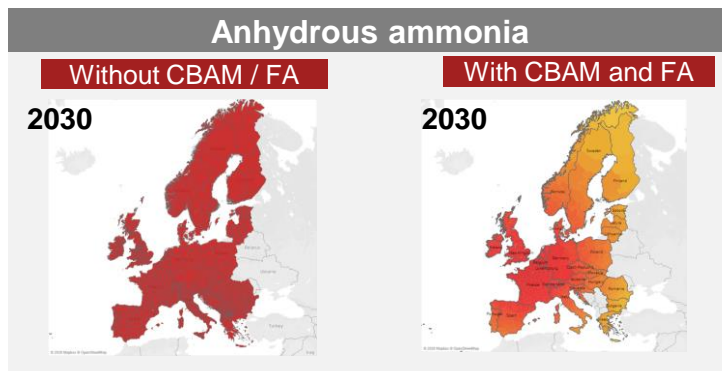
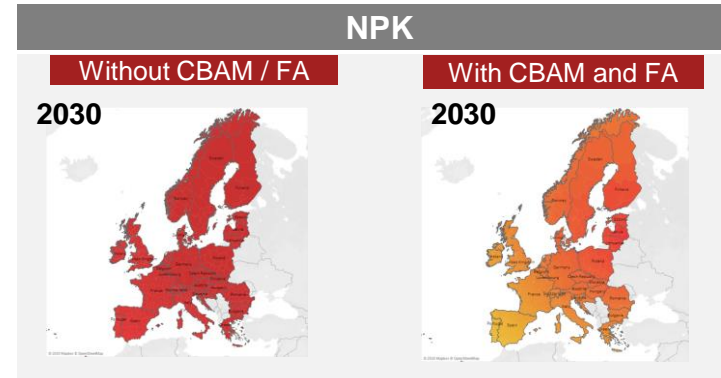
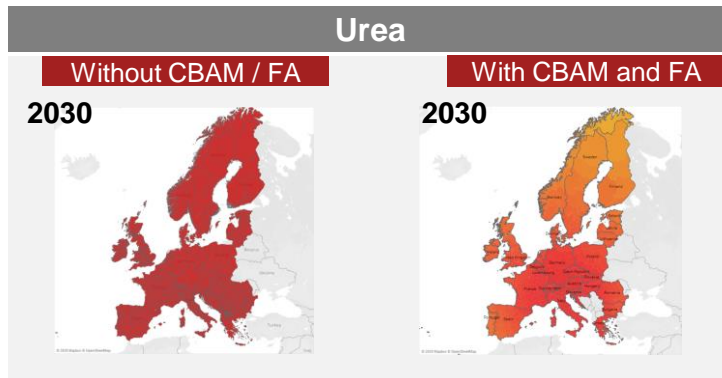
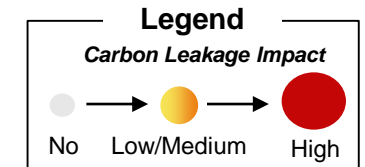




The combination of a CBAM and FA enable to reduce potential carbon leakage impact and maintain competitiveness of the downstream value chain

Overview of the estimated impact of carbon leakage on defined scenario in 2030

Variables used			
CO2 price (€/t CO2)	30€	50€	30→80€
Base CSCF factor (2026)	100%	78%	No CSCF
CBAM	no	yes	incentive-based emission factor*



Without Free Allocation, the carbon leakage risk is increased and could impact the downstream value chain.

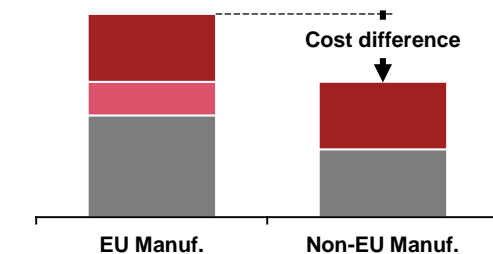
The map reflects that the Ammonium nitrate sector is supported by antidumping duties. If they are removed, the carbon leakage impact would be much higher

To be truly effective, in any design option, exports would need an equivalent mechanism to ensure playing level field and avoid carbon leakage

The considered CBAM options by the EC are not sufficient as carbon costs are not reduced for exports

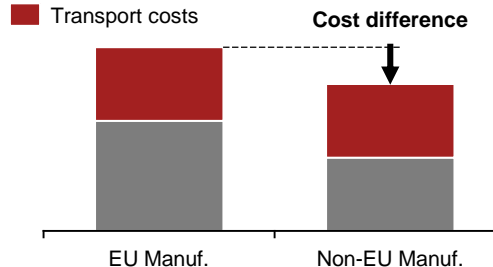
Free allowances enable manufacturers to reduce the gap in carbon costs between EU and 3rd countries

No carbon cost correction mechanism



No correction mechanism on exports leads to a **non-level playing field environment**, reducing the industry's ability to finance decarbonization and reach 2030 targets.

Including a carbon cost correction mechanism



Carbon correction mechanism compensates a part (free allowances for example) or total of the carbon costs

Potential options for reducing the gap:

- **Pay-back schemes** (such as VAT rebate for exports)
- **Free Allocations (FA) – preferred option:**
 - As FA are currently in place, it would be operationally and legal preferable to chose stability with the current system
 - The free allocations system is a tool in place for years, enabling long-term investments for decarbonization on the domestic market and predictability.
 - Maintaining Free Allocations wouldn't disrupt domestic end markets as the solution has been already testes



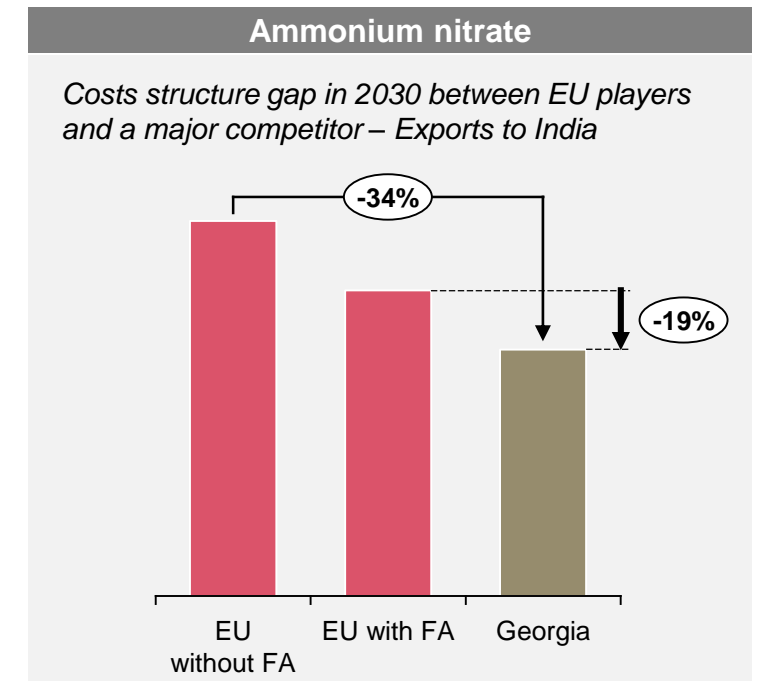
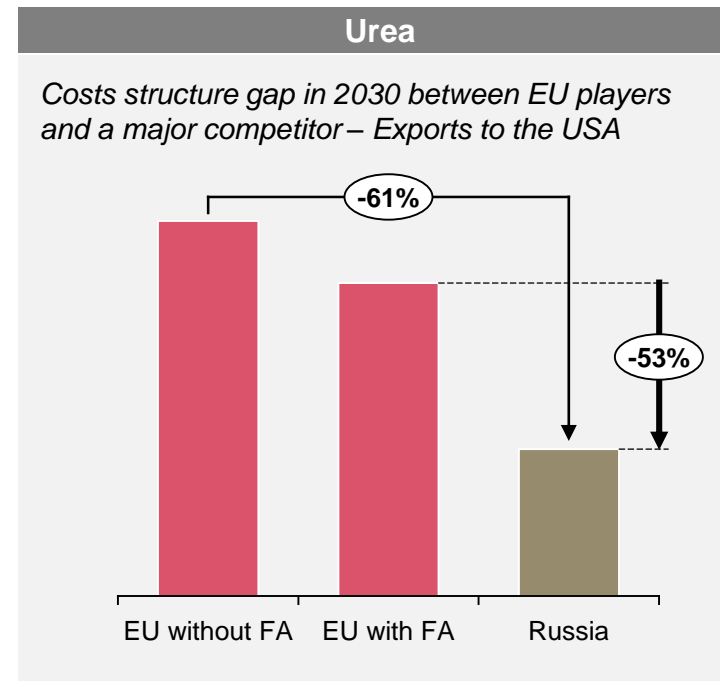
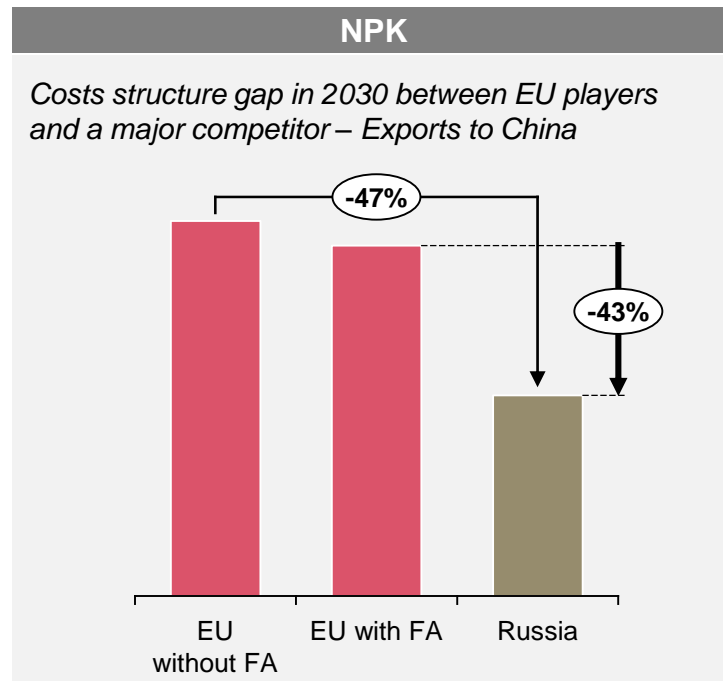
Additional mechanism of CBAM modelled in the next pages



The 3rd countries' competitive advantage on export markets will persist in all scenarios, but free allowances enable reducing the gap

Costs supported by EU and non-EU countries to export Fertilizers outside Europe (€/ton; 2030)

Variables used			
CO2 price (€/t CO2)	30€	50€	30→80€
Base CSCF factor (2026)	100%	78%	No CSCF

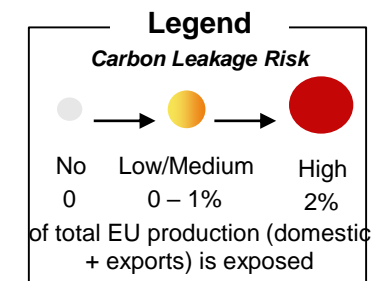




The model of FA and carbon contribution enables to minimize carbon leakage for the fertilizer sector, as well as to ensure competitiveness of exporters at current level (FA) or reinforced (full rebate)

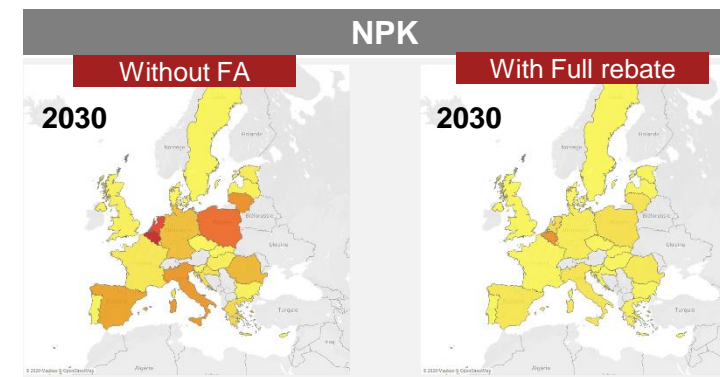
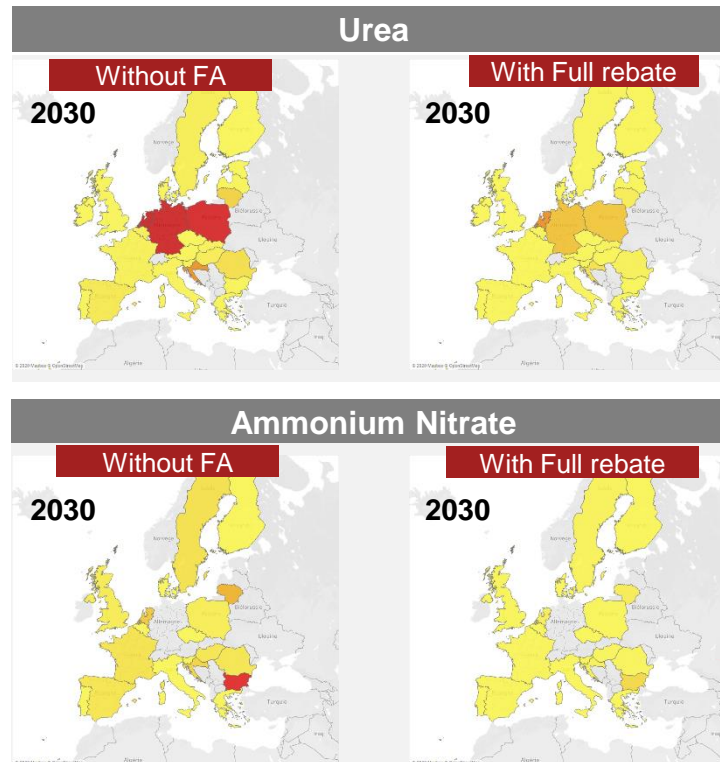
Overview of the estimated impact of carbon leakage on defined scenario in 2030

Variables used			
CO2 price (€/t CO2)	30€	50€	30→80€
Base CSCF factor (2026)	100%	78%	No CSCF
Free Allowances	No FA as from 2023		
Mechanism applied	Full rebate of CO2 costs		



In EC considered options, the imports CBAM would lead to the **end of free allowances, with significant threat on EU exports.**

A full rebate on export carbon costs (benchmark + difference with real emissions) **would reduce the carbon leakage risk** – still present on the whole EU territory in 2030.



A country colored in **red** means that the loss of exports volumes will be strong, increasing the carbon leakage risk

The map reflects that the Ammonium nitrate sector is supported by antidumping duties. If they are removed, the carbon leakage risk would be much higher



In conclusion:

- The net trade balance of the analyzed fertilizers has worsened in ETS III, and the industry is increasingly at risk of carbon leakage during ETS IV
- Without preventive measure, as carbon costs increase, the EU fertilizer industry becomes increasingly exposed to carbon leakage with increased imports and decreased exports
- Notwithstanding free allowances in ETS IV, the EU fertilizer industry continues to be increasingly exposed to medium / high risk of carbon leakage for imports and exports on the whole EU territory by 2030.
- CBAM could contribute to restore a level playing field and reduce carbon leakage for imports and exports.
- To be truly effective, in any design option, exports would need an equivalent mechanism to ensure playing level field and avoid carbon leakage.
- Without free allocation, the total carbon cost could impact the competitiveness of the downstream value chain.
- The study analysed two alternative models combining free allowances and consumer/import carbon contribution.
- Due to its operational and efficiency characteristics, the model combining free allowances with a carbon contribution presents, with Alternative Proposals E and F, potential solutions to minimise carbon leakage for the fertilizer sector, as well as to ensure competitiveness of exporters at current level (free allowances) or reinforced (full rebate).