

---

# **Impact of the CO<sub>2</sub> quotas allocation mechanisms on the Chemical Industry in France between 2013 and 2020**

**European Social Dialogue  
Chemical Industry**

**29 September 2008**

## Objectives and issues covered by A.T. Kearney study

### Objectives of the study

Assess the economic impact of the ETS Directive proposal on the Chemical Industry in France between 2013 and 2020

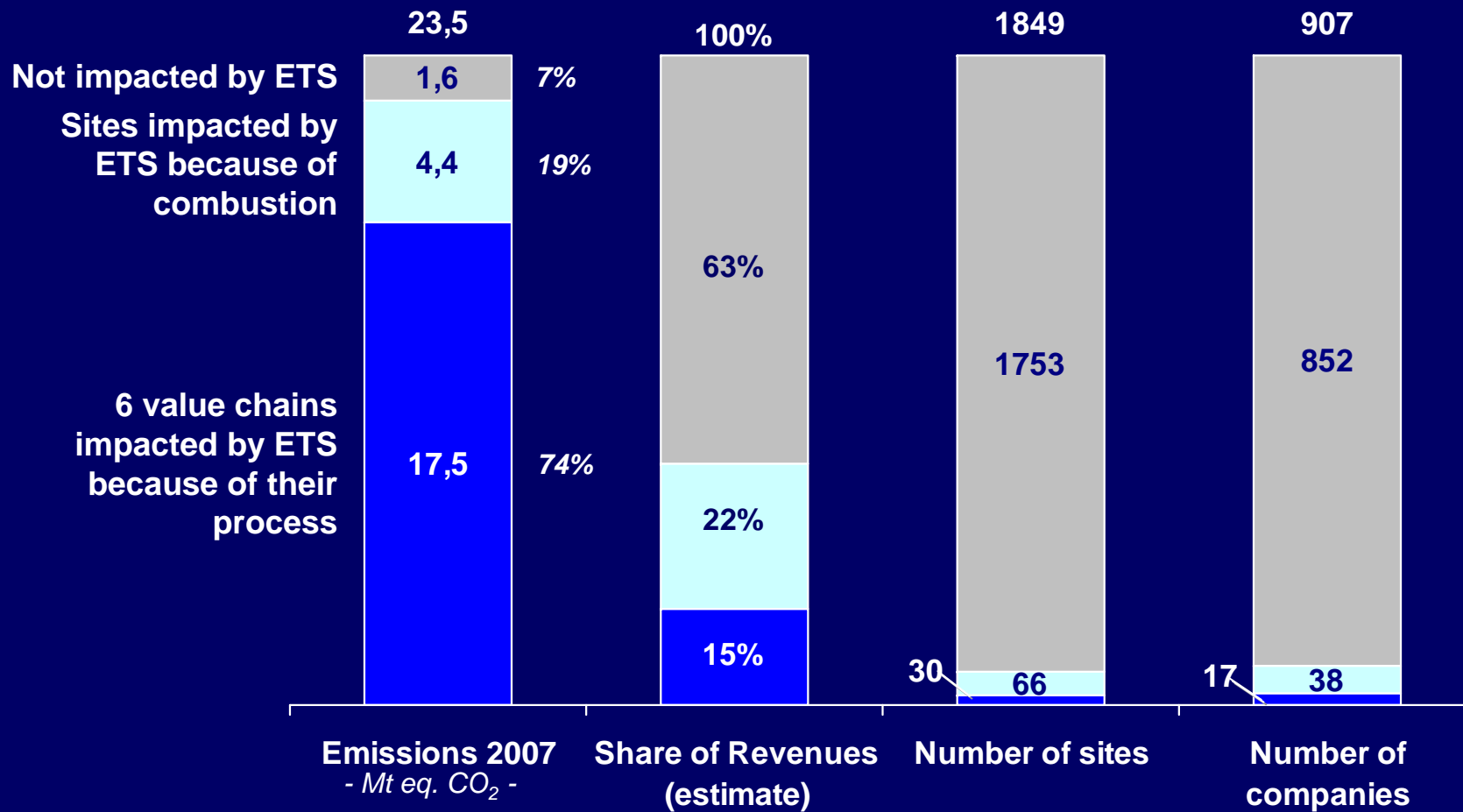


### Issues covered

- What is the technical and economical ability of the French Chemical industry to reduce greenhouse gases emissions?
- What is the impact on cost of the various CO<sub>2</sub> quotas allocation mechanisms?
- What are the threats of competitive distortion?
- How efficient would be a protective measure at European borders?

# The scope of this study covers 93% of the greenhouse gases emissions of the Chemical Industry in France

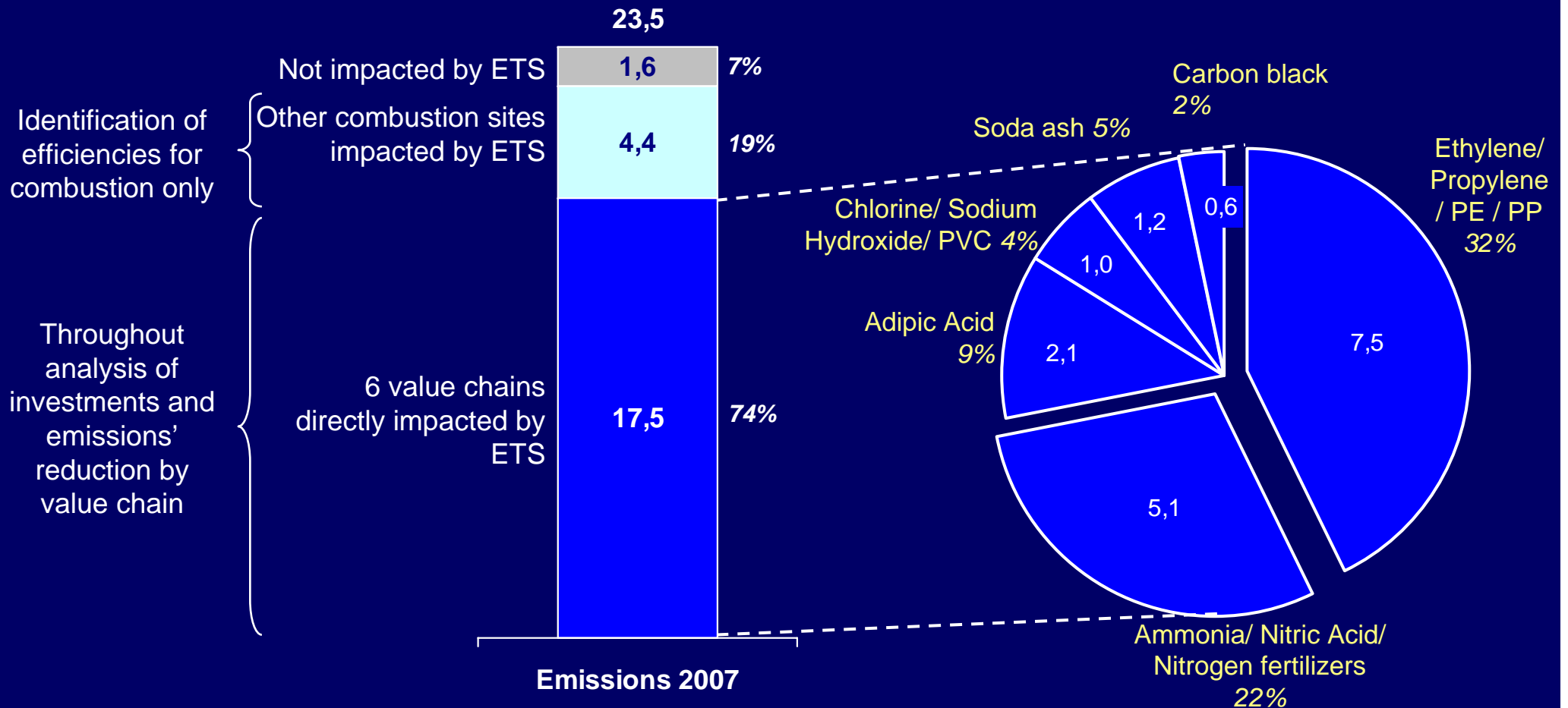
## Chemical Industry in France



**A detailed analysis of 6 chemical value chains was conducted, accounting for 74% of the industry's emissions**

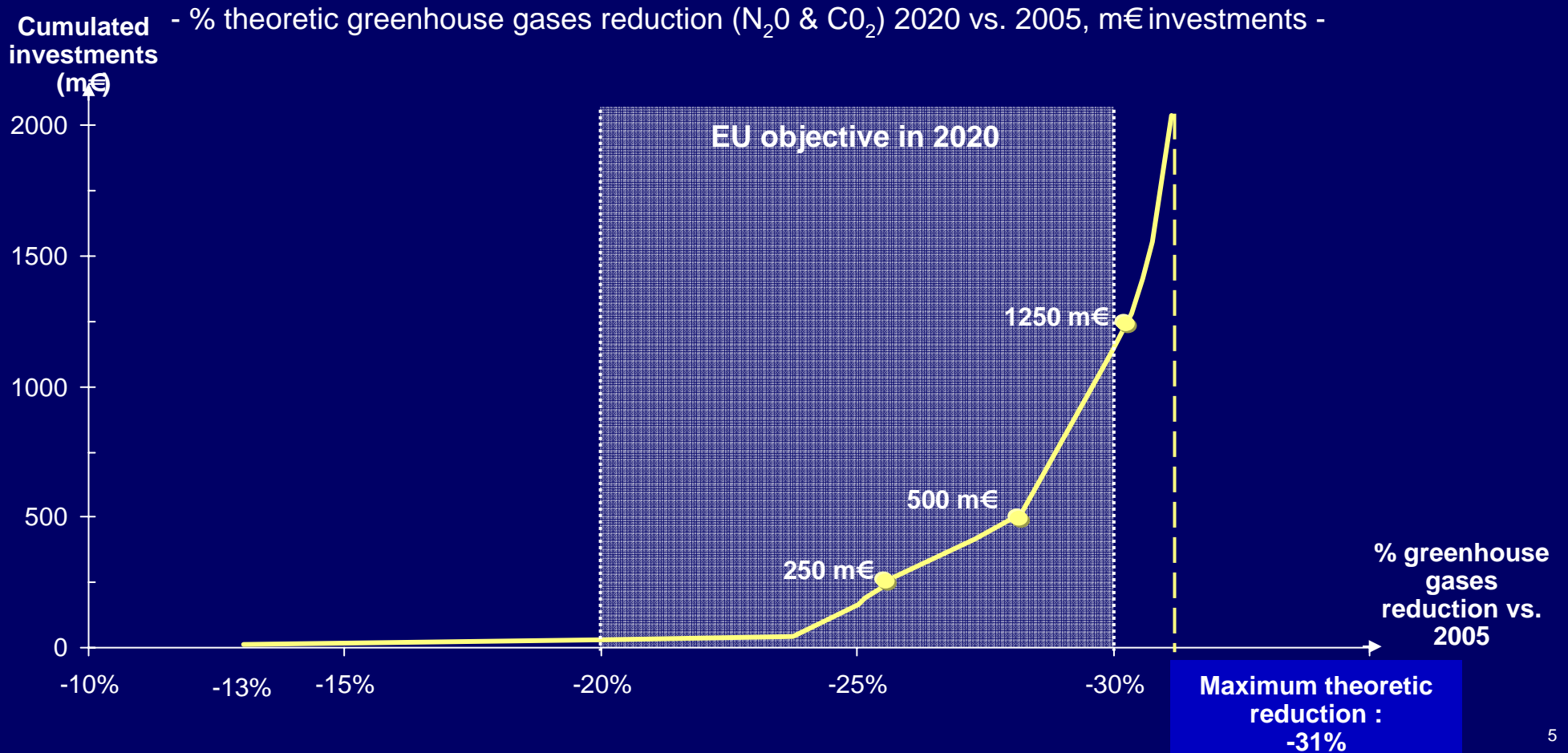
**Greenhouse gases emissions by value chain**

- Mt eq. CO<sub>2</sub>, ETS scope, 2007 -



# In order to reach the 30% objective of emissions' reduction, cumulated investments of the Chemical Industry in France increases exponentially

## Reduction of greenhouse gases emissions in 2020 vs. 2005 as a function of investments



# Given a CO<sub>2</sub> price of 56 €/t, a reduction of 3,6 Mt de CO<sub>2</sub> eq. is economically viable by 2020

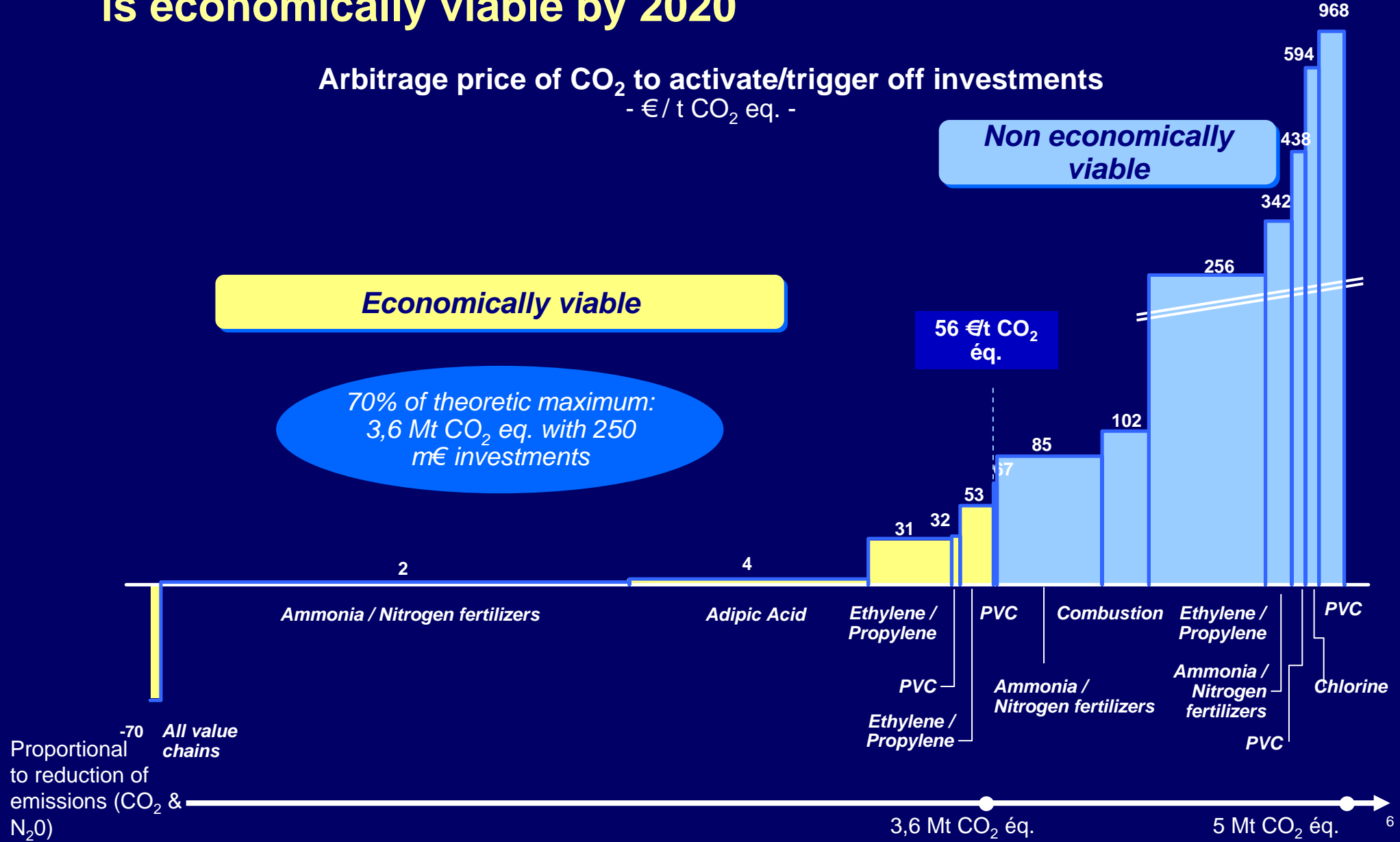
Arbitrage price of CO<sub>2</sub> to activate/trigger off investments  
- €/t CO<sub>2</sub> eq. -

**Economically viable**

70% of theoretic maximum:  
3,6 Mt CO<sub>2</sub> eq. with 250 m€ investments

**Non economically viable**

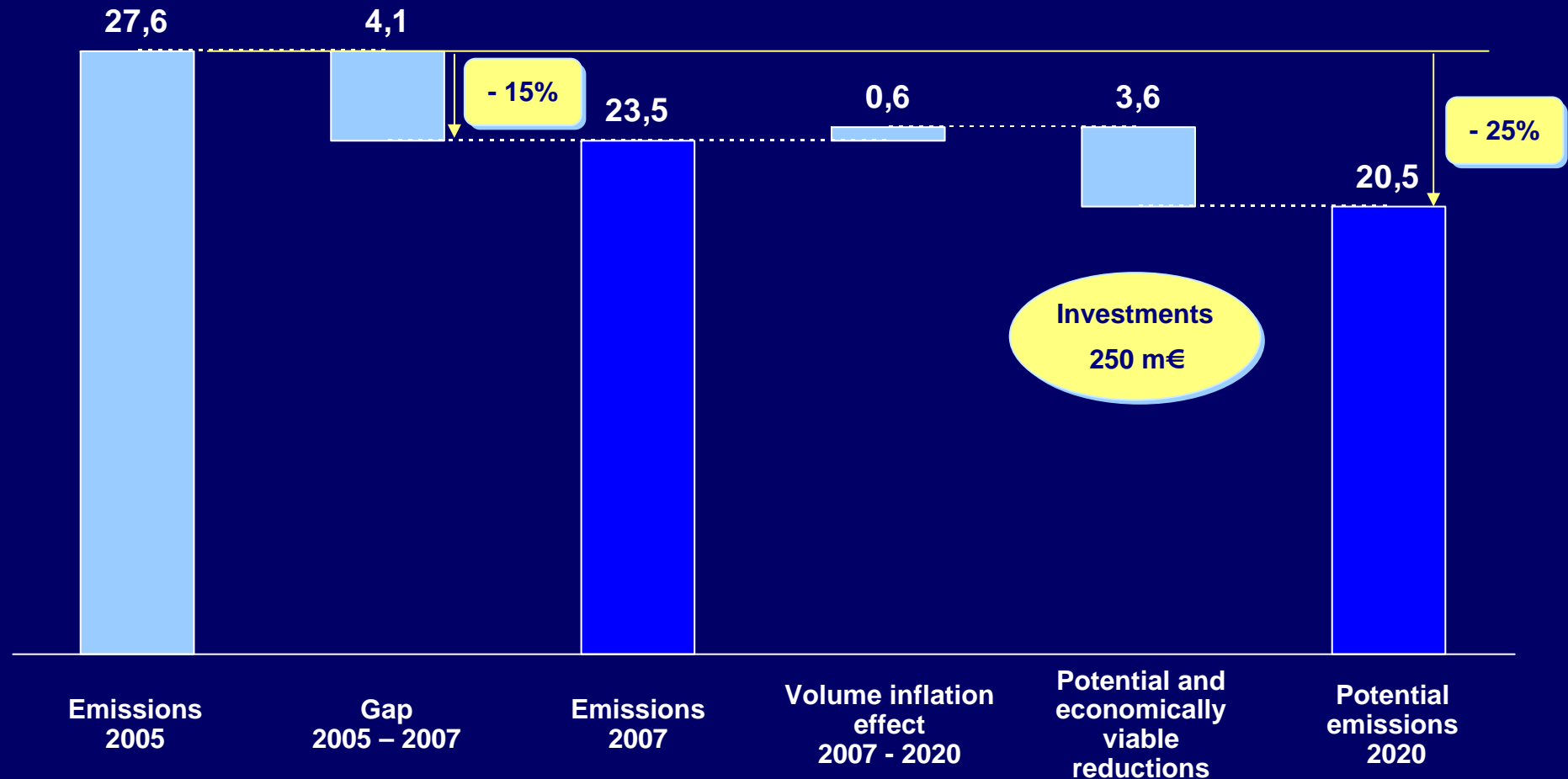
56 €/t CO<sub>2</sub> éq.



# The minimum economically viable level of emissions is 20,5 Mt CO<sub>2</sub> eq. in 2020, i.e. a 25% reduction vs. 2005

## Evolution of greenhouse gases emissions

- Mt eq. CO<sub>2</sub>, CO<sub>2</sub> and N<sub>2</sub>O, 2005-2020 -



# Quotas cost for the French Chemical Industry varies from 50 m€ to 1,1 G€ per year according to allocation conditions

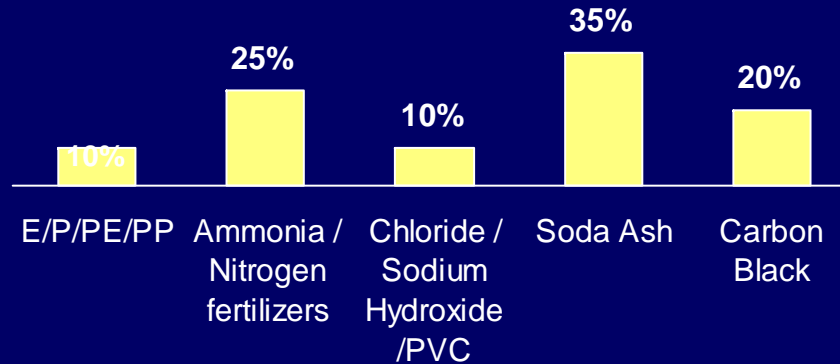
Scenario

Annual cost of CO<sub>2</sub> quotas

Increase in unit production costs from CO<sub>2</sub> quotas

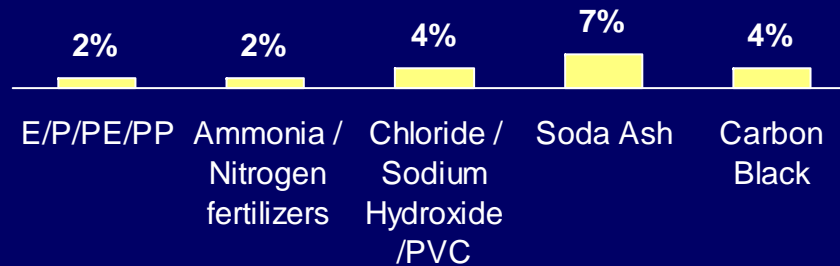
**Bidding Scenario**

**From 1 to 1,1 G€**  
- Depending on selected ETS scope -



**Benchmark Scenario**  
-20%

**From 50 to 100 m€**  
- Depending on selected ETS scope -



**Greenhouse gases emissions' reductions are identical in both scenarios**

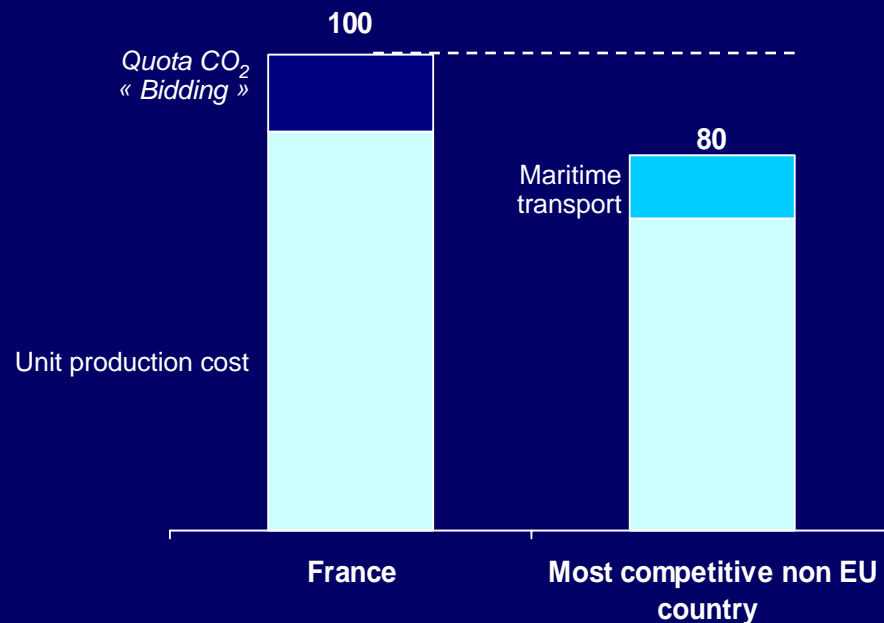


# Accentuation of competitive distortion weakens French producers' competitiveness in the "Bidding scenario"

**Example: Value chain Ammonia / Nitrogen fertilizers**

**Ammonium Nitrate production cost in 2020, delivery at harbor**

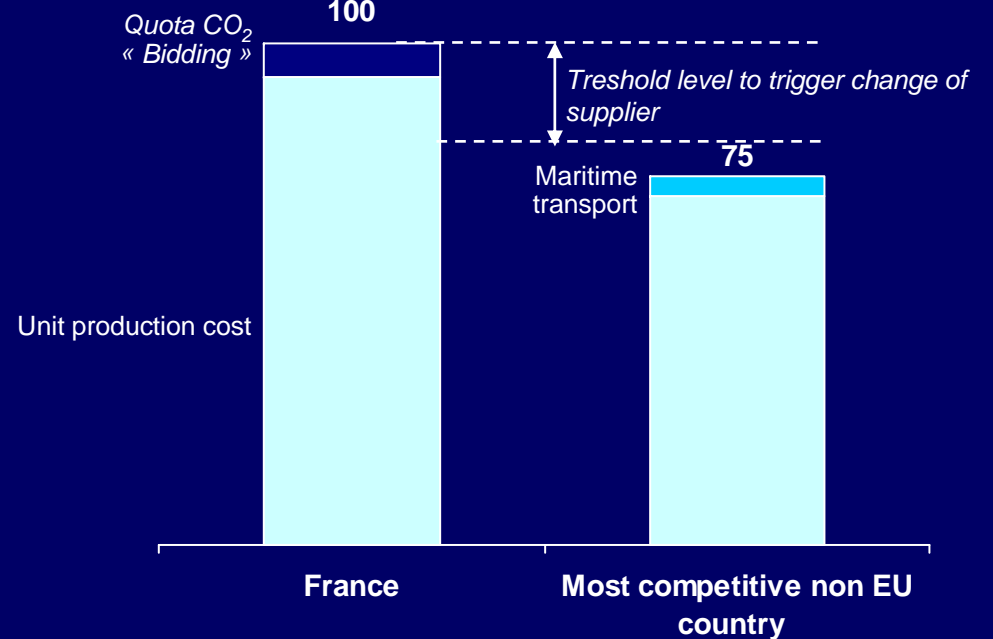
- Basis 100 France 2020 quota CO<sub>2</sub> « Bidding » -



**Example: Value chain Chloride / PVC**

**PVC production cost in 2020, delivery at harbor**

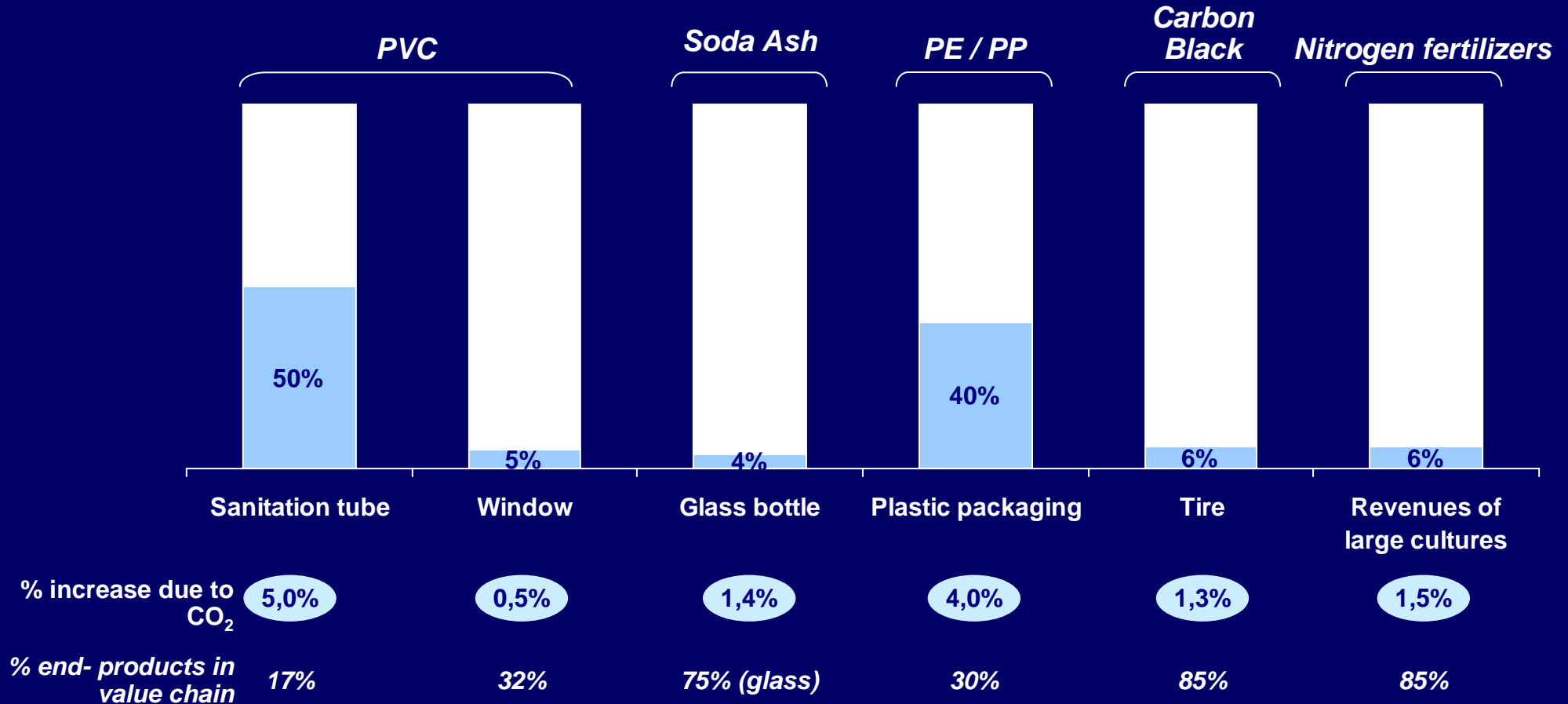
- Basis 100 France 2020 quota CO<sub>2</sub> « Bidding » -



**As illustrated above, gaps in production costs would make non EU producers competitive in the whole French territory**

**In the case of a protective measure at borders, CO<sub>2</sub> quotas costs are theoretically absorbable by direct downstream users**

Share of chemical product in the price of downstream products



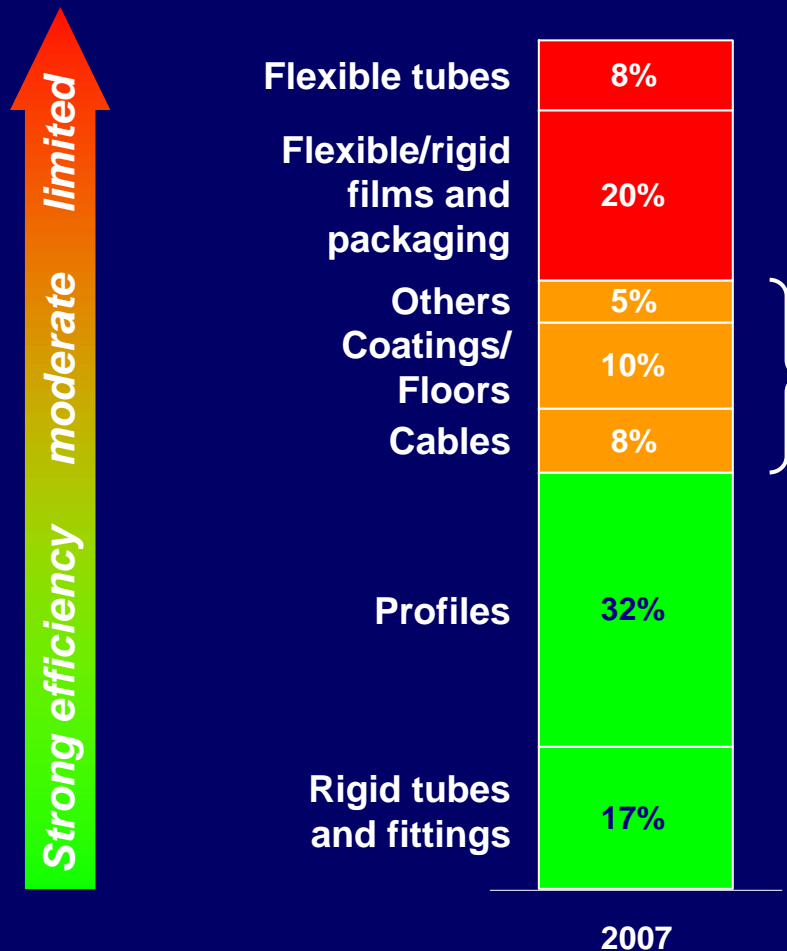
**Overall chemical products' cost represents a small share in the price of downstream products**

# However the complexity of a few value chains prevents an efficient protection against competitive distortion for all downstream products

PVC EXAMPLE

PVC end-usage worldwide  
- % volume of production, 2007 -

Impacts and rational



- **Presence of imports** and potential accentuation if importers conform to European technical standards
- Potential **imports** due to low transport costs
- Broad diversity of transportable products, at more or less significant value added
- Mostly **local** markets, **high transport costs** and **importance of quality labels**
- Low share in cost structure of downstream product
- High transport costs, and importance of **European technical certificates**

## Main findings of the study

- A reduction of greenhouse gases emissions of 7,1 Mt CO<sub>2</sub> eq. between 2005 and 2020 is economically viable, corresponding to a 25% reduction vs. 2005
- In the « Bidding allocation scenario » the additional yearly cost is about 1.1 G€, accounting from 10 to 35% of unit production costs
- In order to reach the same emissions' reduction level this cost would be reduced to 50-100 m€ in the allocation scenario based on benchmark
- The cost premium in the « Bidding scenario » will impact the industry competitiveness by weakening exports and by strengthening the profitability of non EU investments to serve the French market
- A protective measure at borders would have a disputable efficiency given the complexity of downstream value chains