# Carbon tax, EU ETS versus Charge on Emissions

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# *1.1 Uncontrolled pollution as a result of industrial revolutions*

- With the industrial revolutions the *environment* was considered as a container of useful resources ready to be used for economic purposes. With **large-scale use of coal, oil and gas** the level of $CO_2$ started to increase steadily.

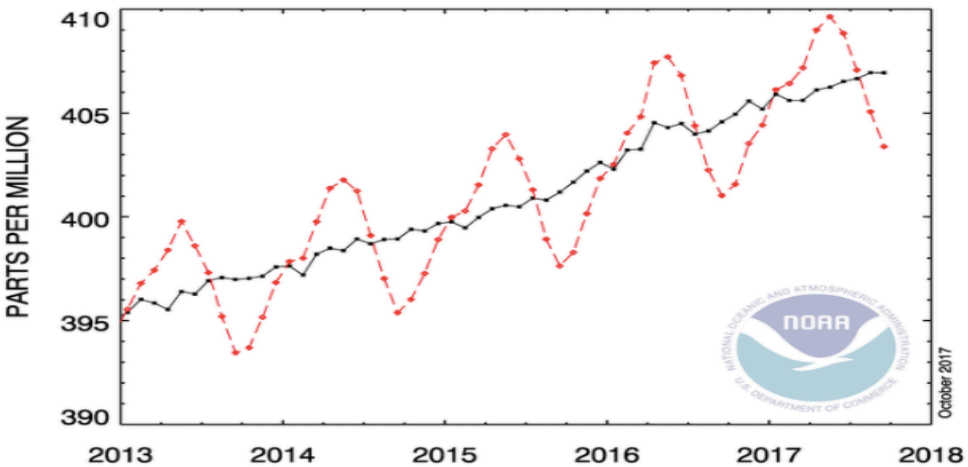



***Figure 1**:* Global average surface temperature *Source:* Mauna Loa Observatory Hawai

How Figure 1 shows, in **September 2017** the mean carbon dioxide measured was **403 PPM**.

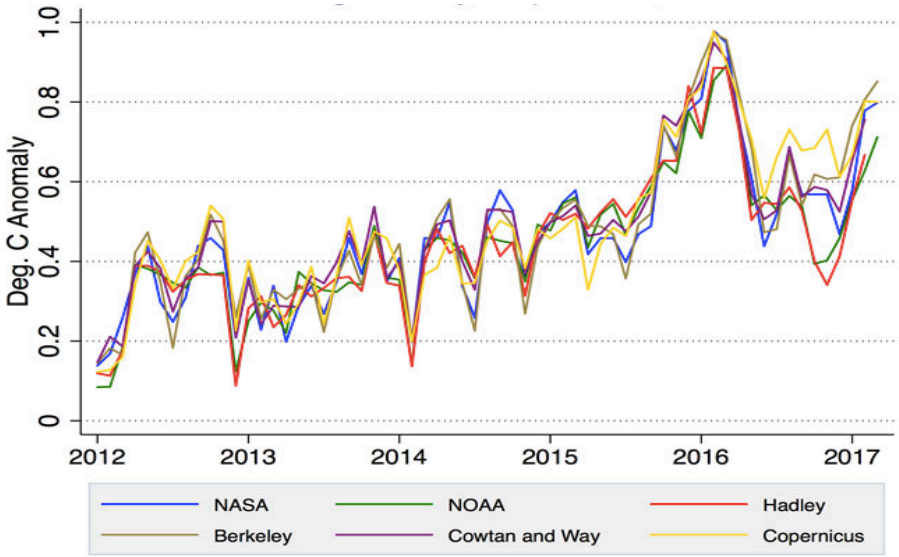
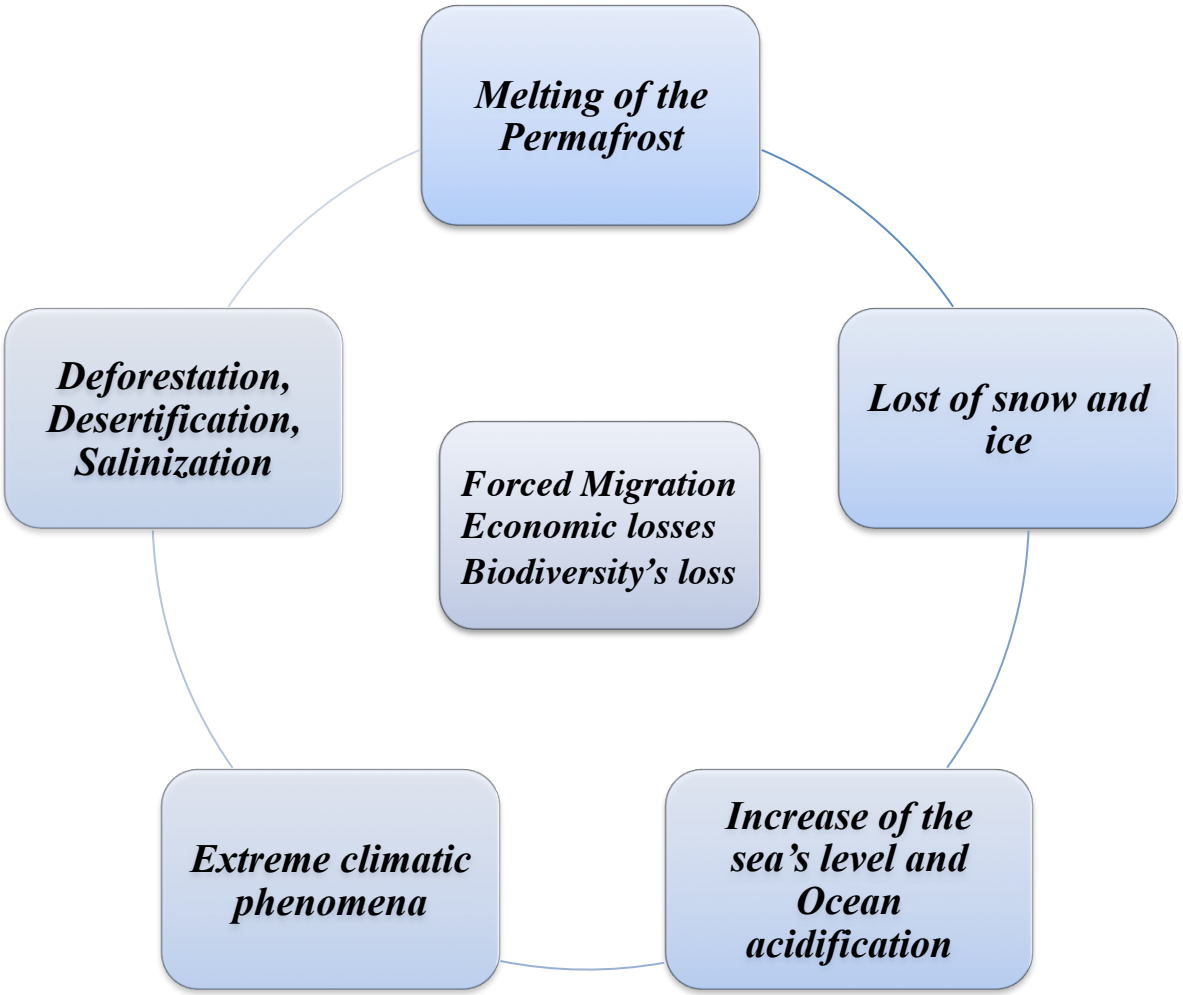



***Figure 2:** Global average monthly temperature 2012-2017 **,** Source: YALE Climate conections*

If the emissions will keep on increasing at this rate, within the year **2100** the world will have to face rise of the **temperatures estimated between 2 and 4,8 degrees**.

# *The consequences of global warming*




***Emissions are considered as negative externalities*** *because they influence directly the welfare of the community* causing the biggest **failure of the market**.

*In order to fight Global warming countries have to cooperate to limit and eliminate the emissions in a global way.*

# *2. The international goals to contras global warming*

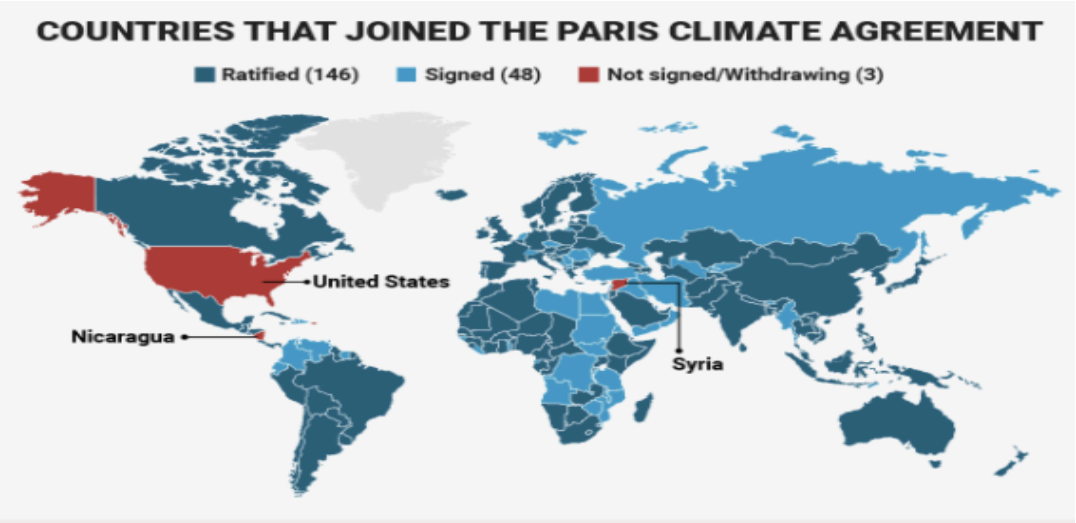
- To address climate change the countries of the United Nation Framework convention on Climate Change (UNFCCC) adopted the ***Paris Agreement*** during the COP-21 in Paris on December 12th, 2015.
- It entered into force on November 4th, 2016.

***Reducing emissions*** keeping temperature below 2°

***Adaptation*** learn to cohabit with the attended climate variations

***Support*** developing countries to reach sustainable growth

- It has created the **Carbon Pricing Leadership Coalition** to support the implementation of an effective carbon pricing.




Source: UNFCCC

*Syria* did not participate because the civil war;

*Nicaragua* did not sign the agreement, "it was not enough";

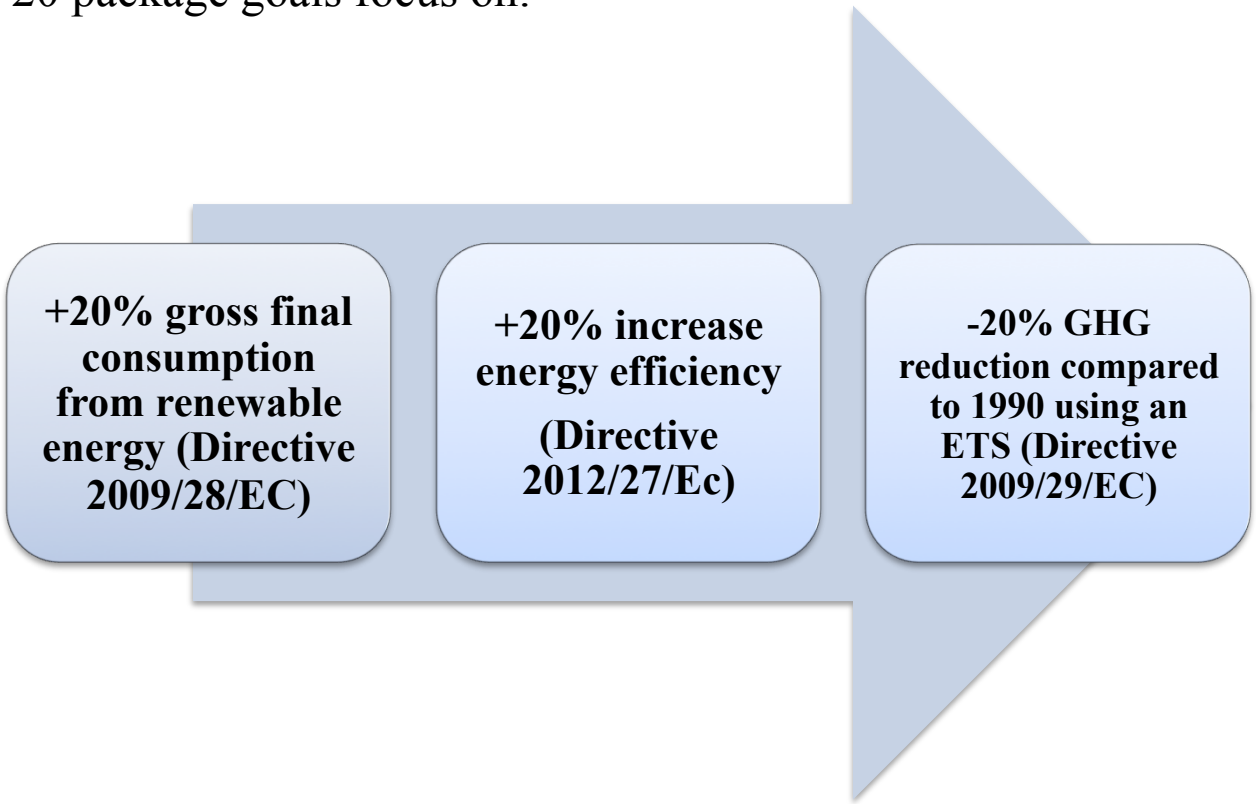
*US* left it in June 2017 (Trump's withdraw).

## *3. The strategies adopted by the European Union to reduce emissions*

EU covers a fundamental and exemplary role in promoting a globally sustainable development at international level.

The ***20-20-20 Package "Climate – Energy"*** emphasises smart and sustainable growth.

The 20-20-20 package goals focus on:

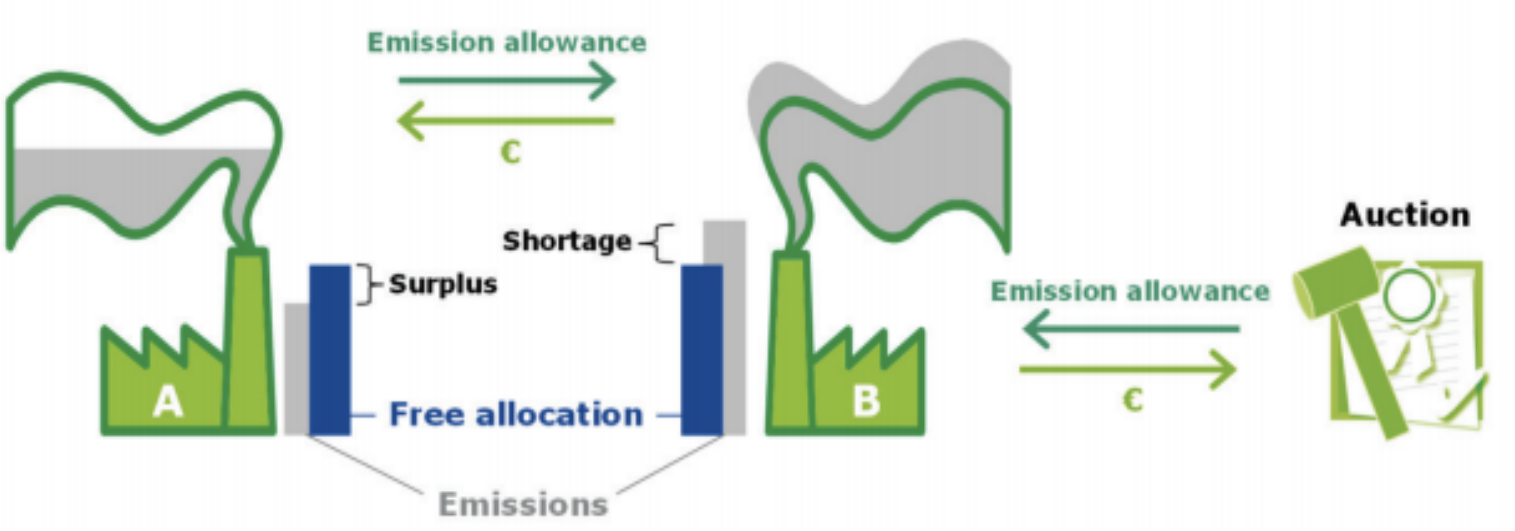



*EU has developed norms and regulations that are among the most rigorous in the world.*

# *3.1 The European Emission Trading Scheme*

- It is a **Cap & Trade** system that establishes a maximum level of GHG emissions (**Cap**) and allows companies to **trade** Europeans Union Allowances depending on their personal interest (1EUA= 1 Ton $CO_2$.).

- The limit on the total number of allowances available on the market ensure their value.




a) **Reduce their carbon emissions**, having a surplus of EUA, and sell (**trade**) allowances (case A).

b) **Produce emissions**, having a shortage of allowances, and need to **buy** (trade) **negotiable permits** from other companies or by through auction (case B).

- The ETS is characterized by four phases, the current phase (the 3rd) began in 2013 and will end in 2020. It is regulated by the Directive 2009/29/EC:

It abolishes the National Allocation Plan **creating a Community Cap for all EU emissions** that is managed by an auction.

It puts **aluminium** production( $N_2O$) **and the chemical industry** (PFC) **under** the **ETS** carbon price.

It introduces the goal to **reduce the number of allowances across 1,74% per year.**

***Phase 4***

- The negotiations at EU level are not still in place. In July 2015, the European Commission has proposed to **reduce** greenhouse gas **emissions by** at least **40%** by **2030**.
- The total quantity of emission **allowances will decrease from 2021** at an annual rate of **2.2%**.

# *3.1.1 The EU ETS's Carbon Market*

- The **price** of carbon in the C&T can be **difficult to forecast** because the level of emissions varies for several reasons, such as **variations in economic growth rates or in fossil fuel prices**.

- The free allowances of the first two phases add to the economic crisis started at the end of 2008 put in crisis the ETS. Enterprises **reduced their productivity** consequently **decreasing** their **emissions** and so **diminishing** the **allowances demand**.


*Source: European Commission*

***This volatility make EU ETS less effective***

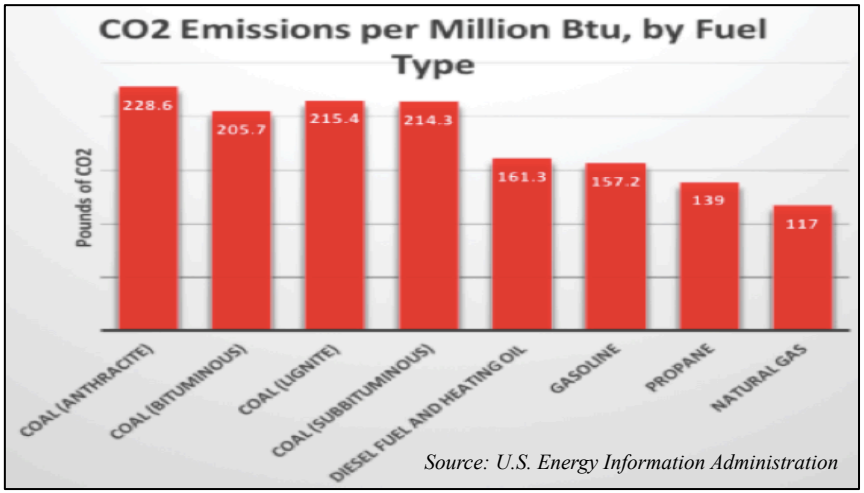
- *Having to face a very low cost to obtain new permits, companies are not encouraged to introduce new "environment friendly" production technologies.*

# *4. Other international tools to mitigate Climate Change*


*Source: World Bank*

- *ETS implemented or scheduled*
- *Carbon Tax implemented or scheduled*
- *ETS or Carbon Tax under consideration*

# *4.1 The Carbon tax*




It is a **tax** imposed **on the burning of fossil fuels** (coal, oil, gas) proportional to the **$CO_2$ emissions**.

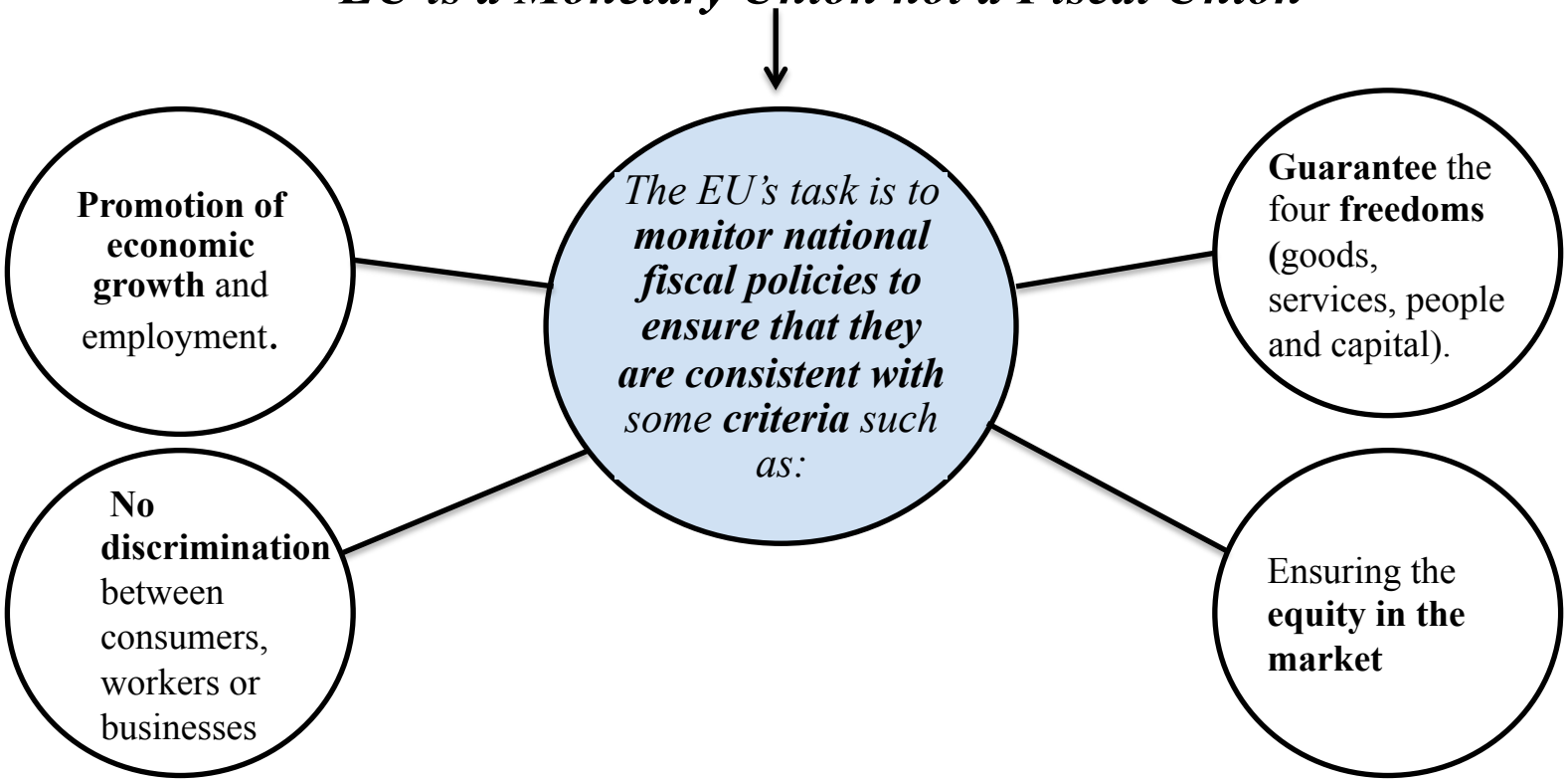

The **government establishes** a **price for each ton of carbon produced,** making the use of dirty fuels more expensive.

It is the core policy for **reducing** and eventually **eliminating** the use of **fossil fuels** whose combustion is destabilizing our climate **investing on carbon-free energy**.

# *4.1.2 Why does EU do not adopt a Carbon Tax?*

The European Union decisions on fiscal policies and the imposition of taxes require the unanimous consent of all the governments of the member countries.

***EU is a Monetary Union not a Fiscal Union***




To reach the best scenario, **each Member state should implement its own carbon tax to add to Cap & Trade**.

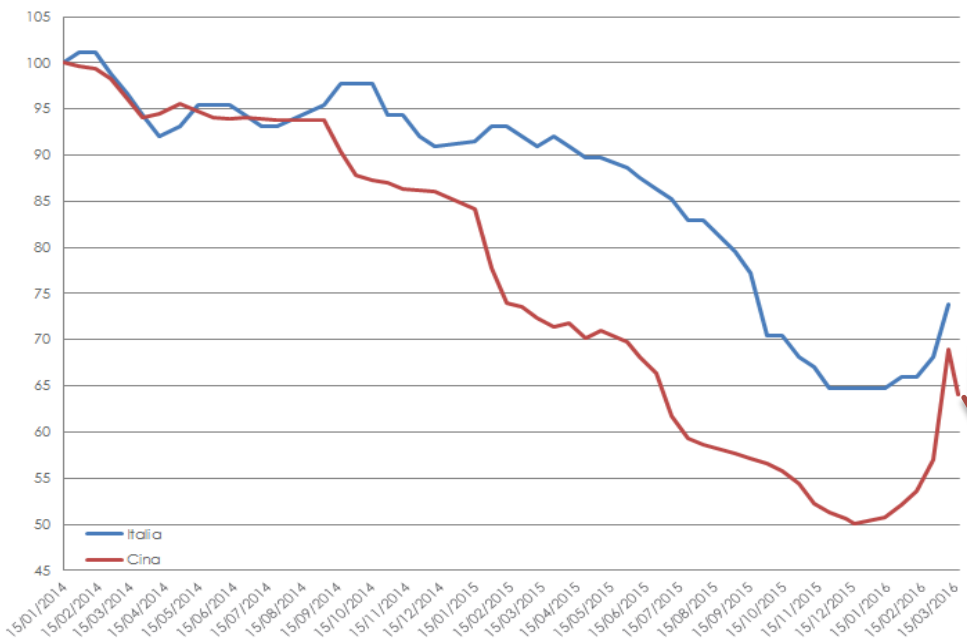
# *4.2 Charge on emission*

- It is a tool proposed and conceived in EU by the Professor Agime Gerbeti illustrated in her book "A symphony for energy".

- It **considers emissions as a part of the product**.

- *Introducing a CoE, imports and exports will face a charge on the VAT, for each emission in excess at every single phase of the production.*

*The graph below represents the cost of the hot rolled coils in China (Red line) and Italy (Blue line)**:***




*Source: Siderweb and Mysteel*

*The China's price reduction can be easy **linked** to the **lower cost of:***

- workforce;
- raw materials;
- infrastructures;
- taxation;
- lack of carbon policies to mitigate emissions.

*Using CoE, the final consumers will have to face a **higher VAT** for the hot rolled coils manufactured in **unsustainable** way (*China) *and a lower VAT for enviornmental-friendly products (EU).*

# *4.3 Cap&Trade, Carbon Tax or Charge on emission?*

| C&T | | CT | | CoE | |
|---|---|---|---|---|---|
| **Advantages** | **Disadvantages** | **Advantages** | **Disadvantages** | **Advantages** | **Disadvantages** |
| ***CaP of Emission*** | ***Affected by economic crisis*** | ***Generates high revenues*** | ***CaP of Emission*** | ***Emission reduction incentive*** | ***CaP of Emission*** |
| ***Easy to control*** | ***Excess n° of EUA*** | ***Boosts carbon free production*** | ***More expensive life*** | ***Pushes carbon free production*** | ***It is not implemented*** |
| ***Generates high revenues*** | ***Affected by fossil fuels price*** | ***Gives back compensation*** | ***Cascading effect*** | ***Covers all countries*** | ***Not Easy to control*** |
| | | ***Easy to control*** | ***Against the principle of non-discrimination*** | ***Increases price of fossil fuels*** | |
| | | ***Avoids volatility of the market*** | | ***respects the principle of non-discrimination*** | |
| | | ***Increases price of fossil fuels*** | | | |

- ***Cap-and-Trade*** **even** if it **establishes a** maximum **Cap** tolerated by the society, it **is inefficient** for the **excess** of the **allocation allowances,** the **price volatility and** the **energy price inflation**.

- ***Carbon Tax*** **can** be structured to avoid all those problems while providing a more reliable market **incentive to produce clean-energy technology**. Nevertheless in the Carbon Tax there is no provision for input tax credit, which means that the **final consumer may pay fee on an input that has already been taxed previously** (**Cascading effect**).

- ***Charge on Emissions***, imposing a value addition at every single phase, can be the proper **solution to resolve the cascading effect**. In this way, the **final consumers will face only the cost of the value added tax**, which will vary depending on the emissions produced for manufacture the product.

Even if the tools used to decrease emissions have been substantial **in the last decade**, until now, **any of them has succeeded in modifying in depth the behaviours of the industries**.

# *5. Conclusion*

The current carbon prices are insufficient to induce a consistent decrease of the temperatures:

The **85%** of global **emissions are not priced**.

**Three quarters** of the emissions priced are covered by a carbon price lower than **US $10/t$CO_2$**.

To achieve the Paris Agreement's goal the countries may:

Pay at least **US $40–80/**t $CO_2$ by **2020** and US**$50–100/** t$CO_2$ by **2030**.

**Implement** different **carbon policies simultaneously (Mix)** with the right price.

The **target** should be **common and global in order** to prevent firms' migration to countries that lack any environmental regulation.

“Peace, development and environmental protection are interdependent and indissoluble”

*Rio Declaration on Environment and Development, 1992*

# *Thank You*

# *for Your attention!*