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INCENTIVES FOR INVESTMENT IN CLEAN TECHNOLOGIES

EXECUTIVE SUMMARY
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Executive summary

Climate change poses enormous challenges for the coming decades in transforming the economy towards an environmentally sustainable model, which achieves decarbonization through the deployment of clean technologies such as renewable energies and others related to eco-design, water management, or sustainable agriculture. It implies the need to address worldwide high volumes of investment in a context of uncertainty (technological, geopolitical, regulatory, etc.) and funding shortfalls, where the key is to optimize the allocation and use of available resources.

Incentives, understood as an incentive or advantage granted to a person, group, or sector to induce investments in clean technologies, are classified into six main categories:

(i) Economic: to help defray the costs of an investment,
(ii) Financial: to address and facilitate access to financing,
(iii) Fiscal: inducers of changes in agents' behavior such as environmental taxes and tax benefits,
(iv) Market: usually determined by regulations, but where the economic component is defined as a result of the intersection of supply and demand,
(v) Regulatory: standards with environmental, social, or other requirements,
(vi) Knowledge and collaboration: incentives of different nature such as information offices, public-private collaboration agreements, improved training, etc.

While all countries have been adopting policies related to the transition to an environmentally sustainable economy for years, since its communication in 2022, the Inflation Reduction Act (IRA) in the United States (U.S.) has triggered an avalanche of responses in the form of economic-financial or legislative packages (e.g., Powering up Britain, the European Green Deal Industrial Plan and the Net-Zero Industry Act, etc.).

The **European Union (E.U.)** uses mainly economic, financial and regulatory incentives. It pioneered the creation of an emissions market and, due to its competencies, has few fiscal initiatives.

The **U.S.** primarily uses tax incentives such as tax credits in its IRA, but it also uses economic and financial incentives to cover issues tax credits cannot address.

Canada could be considered a combination between the E.U. and the U.S., having made a big bet on tax credits accompanied by economic and financial incentives.

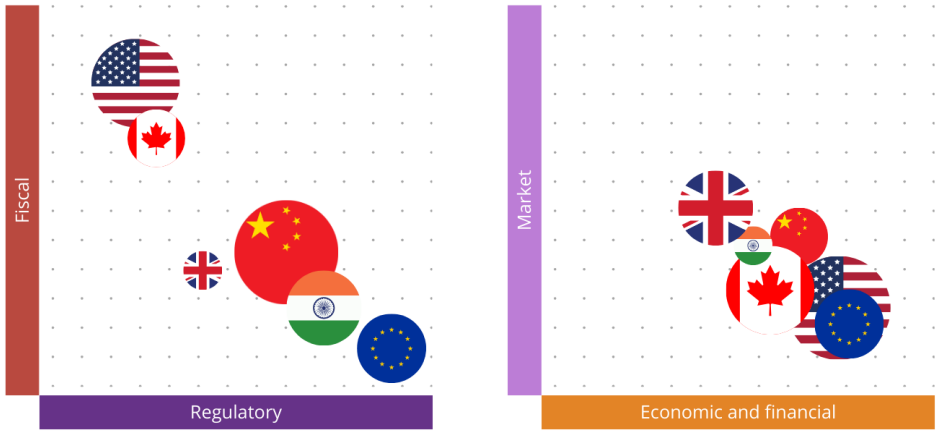
The **United Kingdom**, on the other hand, combines economic, regulatory, and market instruments. In fact, of the countries analyzed, it is the one that uses the greatest number of market incentives in relation to the other types of incentives.

China seeks to decarbonize by ensuring the security of supply and based on regulatory incentives.

Similarly, **India** employs, to a large extent, regulatory incentives, in addition to having a strong commitment to market incentives, as it looks to the transition to sustainability as a key driver for economic growth.

In summary, the following figure shows the different types of incentives for investment in clean technologies that were detected in the review of each territory, ordered according to the number of programs of each type.

Implementation of incentives for investment in clean technologies per territory



Note 1: The coordinates are calculated based on the number of programs in each category. They do not take into consideration the total volume of incentives. In the case of the E.U. and the USA, programs or incentives at the national or state level, respectively, are not considered.
Note 2: in the figure on the left, the size of the circles is in accordance with the level of GHG emissions of each territory. On the other hand, in the figure on the right, the size of the circles is a function of the GDP per capita of each territory.
Source: own elaboration.

In the analysis of the cases, problems and difficulties have been observed in developing and implementing incentives, which have led to reflection on possible recommendations for the design, implementation, monitoring, and evaluation of incentives for investment in clean technologies. These recommendations are summarized in the following figure.

Recommendations for designing, implementing, monitoring and evaluating incentives for investment in clean technologies.

Who receives? ☑	• Incentives should be targeted to individuals or entities that are **affected** by market distortions that prevent them from making the necessary investment decisions.
Who grants? ☑	• There is a wide variety of programs and institutions that grant investment incentives within a territory. Thus, those granting incentives must be **coordinated** among themselves in order to optimize the use of funds.
When is it received? ☑	• The incentive must come at the **right time**, maintain a **duration** that allows the necessary investments to be made over time and be **sustainable** in the long term.
What or how much is received? ☑	• The amount of incentives is relevant because large volumes of investment are required, but it is important to **avoid a race or war of incentives** that could harm all countries (to a greater or lesser extent).
Why are they received? ☑	• When applying for incentives there is a whole set of requirements that must be met. These requirements **should not become obstacles** for agents without adequate resources to apply.
How are they implemented and monitored? ☑	• Once the incentives reach their recipients, the entities that provide them must **follow up** to ensure their correct use, implementation and effectiveness.
How are they evaluated? ☑	• It is advisable to have **a body that assures** taxpayers that the incentive design, granting, monitoring and evaluation processes are rigorous. • It is necessary **to evaluate the impact** of the incentive programs being developed, **beyond their environmental objectives**.

Source: own elaboration.

However, it is important to note that incentives affect not only the economy, industry, and people in the territory where they are implemented but also the international panorama. For example, they can promote the relocation of companies to territories with better incentives or lower energy prices, as is happening in the United States, which, after the IRA, has become much more attractive for clean technology companies. They can also generate dependence on a country's production, as in the case of China, which, due to its specialization and sustained aid to its industry over time, has made the rest of the world dependent on its raw materials and products to develop clean technologies.

Because the goal of containing global warming is common and cross-cutting to countries' economic and financial interests, the need to close financing gaps for clean technologies to decarbonize the global economy must be met based on **cooperative frameworks that level the playing field and enable collaboration between countries and territories** in an area of fair competition.

This collaboration and cooperation should seek to **optimize the resources available to** each territory, **streamline the implementation** of incentives, and **coordinate programs** to avoid subsidy spirals that can generate risks at the geopolitical level and ultimately make the goal of sustainable

development focused on people's well-being less feasible. For this reason, progress must be made in implementing incentives and aid programs based on **"coopetition" schemes**, where competition and cooperation between countries enable the achievement of climate neutrality as soon as possible.

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