

## CIRCE's new paper explores flexibility potential in Energy-Intensive Industries



*This FLEXINDUSTRIES study highlights innovative strategies to enhance energy market flexibility and support EU climate goals*

In an effort to support the European Union's ambitious goals of reducing emissions by at least 55% by 2030 and achieving climate neutrality by 2050, [CIRCE](#), a member of the [FLEXINDUSTRIES project](#), has published a comprehensive paper that sheds light on **industry decarbonization strategies**.

As the EU intensifies its shift towards cleaner energy technologies to meet rising electricity demands, this study provides crucial insights into **overcoming the limitations posed by climatic dependencies of renewable energy** and the **significant investment required for electrical infrastructure expansion**.

The paper, titled "**Exploring Flexibility Potential of Energy-Intensive Industries in Energy Markets**" is a thorough evaluation of the **flexibility mechanisms applicable to seven key sectors** and



FLEXINDUSTRIES pilots: automotive industry, biofuel production, polymer manufacturing, steel manufacturing, paper mills, pharmaceutical industry, and cement production. Conducted within the framework of the project, the research examines the **current state of flexibility technologies**, industries' participation in **energy markets**, and their **technical and operational readiness** for implementing these mechanisms.

Key findings from the study emphasize the **viability of enhancing energy market flexibility through demand-response programs**, which can offer substantial energy savings and operational benefits. Furthermore, the paper identifies specific regulatory and technical hurdles that must be addressed to fully leverage these opportunities.

The study reveals that while industries often limit their interaction with energy markets to simple energy purchasing, significant opportunities exist for explicit flexibility mechanisms, such as **providing capacity and "power to x"** in sectors like automotive, biofuel, and pharmaceuticals. Additionally, **most industries can contribute to balancing services** through aFRR/mFRR engagement. Implicit flexibility, such as optimizing manageable loads in response to price signals, shows potential, especially in Bulgaria and Türkiye, and in industries like automotive, pharmaceuticals, and paper mills **when tied to renewable energy sources or storage availability**.

For more detailed information, you can [read the full paper here](#).

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