

# SÉMINAIRE

## DES DOCTORANTS

Célia Escribe & Lucas Vivier: Evaluating the Impact of a Fossil Fuel Ban in Buildings: an Integrated Demand-Supply Approach

### ABSTRACT

Buildings are significant contributors to greenhouse gas emissions, primarily due to their heavy reliance on fossil fuel boilers. To meet ambitious climate targets, it is imperative to achieve substantial emissions reductions within this sector. This can be accomplished through a combination of energy efficiency improvements, sufficiency measures, transitioning to low-carbon heating systems, and the decarbonization of heating fuels. Traditionally, incentives were the go-to solution to tackle market failures in existing residential buildings, but governments are now recognizing their limitations and considering regulatory instruments, such as completely prohibiting fossil fuels. Critics, however, question the cost-effectiveness of such bans and their impact on both the energy mix and household energy costs.

To explore these concerns, our study adopts a novel, integrated method, utilizing detailed models of both the residential sector and the energy system. We investigate the broader implications of implementing a fossil fuel ban in France, comparing it with other plausible strategies to achieve carbon neutrality by 2050. Our initial results reveal that the ban is more cost-effective than other strategies examined. Notably, we find that the anticipated surge in peak electricity demand from the ban is less significant than the pressure on the energy system from continuing to use fossil boilers. Our detailed analysis is the first to examine how this ban affects different social groups. Furthermore, we demonstrate that the ban is more adaptable to challenging conditions in the energy supply, especially regarding the availability of renewable gas for heating.

[BRAINSTORMING]

**WEDNESDAY DECEMBER 13, 4:30-5:30 - MEETING ROOM + ZOOM**

ORGANIZERS: CLÉMENT BOYER, THIBAUT BRIERA, BERTILLE DARAN, SIMON JEAN & BAPTISTE PARENT