



CALL FOR APPLICATIONS

Master project – Quantifying the Role of Greenhouse Gas Offset Credits in Achieving Carbon Neutrality

Context

Intending to achieve carbon neutrality, many organizations utilize offset credits to balance their greenhouse gas (GHG) emissions, whether at the organizational or product level. While accepted by the PAS 2060 standard on carbon neutrality, this practice raises numerous practical and ethical questions. This internship aims to assess the actual global capacity for offsetting GHG emissions, both currently and in the future. It seeks to address the issues of impact transfers (burden-shifting) and rebound effects, ultimately providing recommendations on the production and use of such credits.

Objectives

- What is an Offset Credit?
 - Define what an offset credit is
 - Differentiate between various types of carbon credits
 - Position offset credits within different carbon pricing mechanisms
- Credit Quality
 - Conduct a literature review on quality criteria for offset credits in international and regional standards and protocols
 - Catalog and analyze the verification and accreditation processes for credits
 - Identify gaps in credit quality understanding
- Offsetting Capacity
 - Examine historical data on available credits over time and credits purchased to identify trends
 - Assess offset GHG emissions over time
 - Estimate trajectories for the availability of credits (and their quality levels)
 - Estimate trajectories for using compensation through various approaches: SBTi, announced plans, etc
 - Discuss the coherence of these figures
- Rebound Effects
 - Analyze literature on the rebound effects of compensation, qualitatively and quantitatively



- Roughly estimate the potential transfers of environmental impacts related to compensation
- Discuss the socioeconomic impact of these transfers

Deliverables

- A project report in Word format with Zotero references
- Zotero bibliography
- Calculation spreadsheets
- Popular science article for The Conversation (country/language to be chosen)

Supervision and conditions

The project is supervised by:

- Anne de Bortoli, Ph.D., M.Sc., M.Ing.: Postdoctoral fellow at CIRAIG, Polytechnique Montréal, research affiliate at Ecole des Ponts ParisTech. <mailto:anne.debortoli@polymtl.ca>
- Manuele Margni, Ph.D., M.Sc. A., B. Eng.: Professor at Polytechnique Montréal, Professor at HES-SO Valais Wallis, and visiting academic at EPFL with the IPESE laboratory of Prof. François Maréchal located at Energypolis in Sion. <mailto:manuele.margni@hevs.ch>

Location: CIRAIG, Polytechnique Montréal, 3333 Queen Mary Road, Montreal, Canada.

Compensation: internship grant of 1750\$/month.

Duration: 6 months

Application: Interested students must send an application file including a CV, academic transcripts (bachelor's and master's), and a cover letter to anne.debortoli@polymtl.ca and manuele.margni@hevs.ch. Applications will be reviewed in chronological order, and positions will remain open until suitable candidates are found.

Skills and qualifications

- Having completed a Life Cycle Assessment (LCA) course at EPFL or equivalent
- Have a good English proficiency
- General knowledge or advanced knowledge of carbon offset credits and/or biogenic carbon quantification is a plus