

Master Thesis: Risk Assessment for Carbon Capture, Utilisation and Sequestration (CCUS)

The topic of this Master Thesis is the risk assessment for Carbon Capture, Utilisation and Sequestration (CCUS), e.g. <https://www.iea.org/fuels-and-technologies/carbon-capture-utilisation-and-storage>. CCUS is a potential technology to reduce CO₂ emissions of fossil energy carriers. In this study, the risk posed by accidents triggered by technological failures or human factors, which could affect the human health or the environment, should be assessed. The thesis is subdivided in two main phases:

- Based on the prior study performed at the Paul Scherrer Institut (PSI) and a literature survey related to the up-to-date information on CCUS technologies to be performed by the candidate, the potential accidental risks should be identified for the different stages of a CCUS project.
- Definition and calculation of the impact on the environment and on the human health through risk indicators during the different stages of a CCUS project. The latter will be done by collecting historical events from different type of commercial and non-commercial sources, which will also be used to update the PSI's ENergy-related Severe Accidents Database (ENSAD).

The research is to be performed within the Technology Assessment group in the Laboratory for Energy Systems Analysis and the Paul Scherrer Institute in Villigen, Switzerland. For further information please contact Dr. Matteo Spada (matteo.spada@psi.ch) or Dr. Peter Burgherr (peter.burgherr@psi.ch). We are looking forward to receiving your application with a short academic background on yourself including study program and list of the courses.