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RECUITIVATION STRATEGIES FOR PEAT EXTRACTION FIELDS: A CASE STUDY IN LATVIA

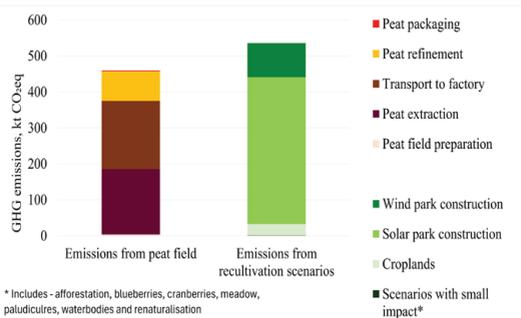
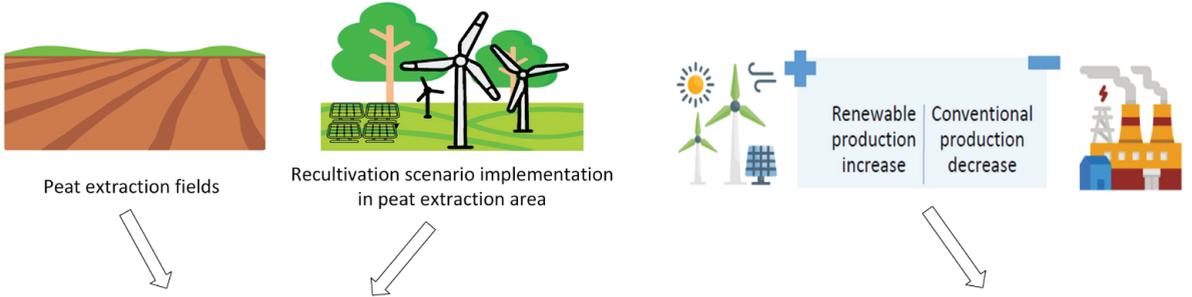
Dita KAZMERE^{1*}, Maksims FEOFILOVS², Francesco ROMAGNOLI³

¹⁻³ *Institute of Energy Systems and Environment, Riga Technical University, 12/1 Azenes iela, Riga, LV1048, Latvia*

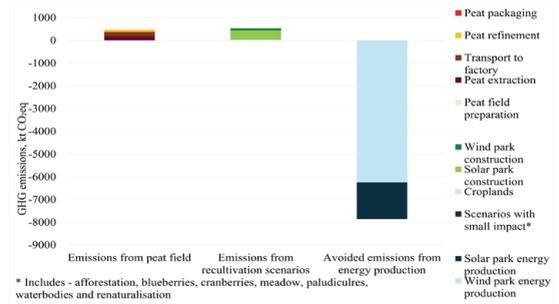
* **Corresponding author.** Email address: dita.kazmere@rtu.lv

Abstract – Peat bogs are serving as habitats for diverse species and essential components of the natural environment. Currently, peat extraction is actively carried out in various regions to meet the demands of industries such as horticulture and in some cases even energy production. To mitigate land degradation caused by peat mining, the European Commission, through the Nature Restoration Law (Regulation (EU) 2024/1991), has established a goal to restore habitats. This includes repurposing peat mining fields into areas designated for various restoration measures. When defining a repurposing strategy for a specific peat extraction field, an important aspect is to assess the environmental impact of the different scenarios. This study is made in cooperation with the Latvian peat extraction company with the goal of achieving climate neutrality by the year 2050. The company is a significant producer of peat substrate with a capacity of 115 thousand tonnes per year. Ten recultivation scenarios were identified for the company's peat extraction field: afforestation, blueberry cultivation, cranberry cultivation, paludiculture, waterbodies, croplands, grasslands, renaturalisation, solar parks and wind parks. These scenarios were compared with the baseline scenario, i.e. the situation if peat extraction were to continue in this field. The required data for the recultivation scenarios were collected and normalized to the functional unit of 1 ha. The obtained life cycle assessment results for each recultivation scenario were assigned to the respective planned area for each scenario foreseen by the company's climate neutrality plan. All scenario emissions have been attributed to 50 years of land use, starting from implementation of the scenarios in 2025. Three main emission reference points were identified for the 50-year greenhouse gas emissions assessment: short-term 2030 (when peat extraction for energy in Latvia must cease), medium-term 2050 when climate neutrality must be achieved and long-term - emissions after 50 years (2075), when the vegetative life of berry plants has reached its end and when forest stands have reached the optimum age for tree harvesting. The results show that the highest emissions per 1 ha over 50-year period are from the installation and reconstruction of solar panels. For each scenario, the emissions per respective planned area were calculated. It was determined that each scenario individually results in lower emissions compared to the baseline. However, when the emissions from all scenarios are added together, the sum is greater than the baseline. Therefore, it is necessary to investigate the recultivation scenarios further and optimise the land areas to optimise the recultivation scenario area and impact from them.

Keywords – *Environmental LCA; GHG emissions; nature restoration law; peatlands; recultivation*



Emission data comparison between peat extraction and reclamation scenarios



Emission data comparison between peat extraction, reclamation scenarios and avoided emissions from energy production

A comparative analysis of greenhouse gas emissions from peat extraction and reclamation

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