

Title: Development of a Novel Solvent for Post-Combustion Carbon Capture (CCUS)

Abstract: Carbon Capture, Utilization, and Storage (CCUS) is essential for mitigating CO₂ emissions from coal-fired power plants. This research proposes the development of a new, energy-efficient amine-based solvent for post-combustion CO₂ capture. The project will focus on synthesizing and screening novel amine blends with lower regeneration energy requirements, higher CO₂ absorption capacity, and greater resistance to thermal and oxidative degradation. The aim is to significantly reduce the operational cost and energy penalty associated with current CCUS technologies.