Compared with conventional diesel refining process, GTL diesel offers significant environmental advantages such as less carbon emissions and improvement of air quality. However, the GTL technology often requires intensive energy and resources input.

This paper applies Life cycle assessment (LCA) method to quantify the environmental impacts of gas-to-liquid fuel processes. LCA is a tool for the analysis of environmental impacts of a product or a system, taking into account the complete life cycle of a product. Data are collected from the literature for the current “common practice”. Impact assessment was carried out considering 18 impact categories classified into three damage categories: human health, ecosystem quality and resources.

This paper will present results of environmental burdens of GTL diesel in comparison with biomass biodiesel processes. The results indicate how much of each process’s contribution to environmental burdens, thus suggesting where efforts shall be placed in order to improve the environmental performance. Source of the environmental burdens will also be identified and suggestions will be made how the environmental impacts of GTL technology can be minimize through improved design and energy integration.