The research of the VILLUM Center focuses on solving two of the major challenges in order to meet the political objective of achieving a fossil-free society by 2050. The transition from fossil fuels to renewable energy sources call for:

1. More efficient storage of renewable energy
2. Viable alternatives to chemicals, plastics and other materials which are currently produced by using oil and coal—as well as finding alternatives to fossil-based fuels for aircraft, for example, which cannot be electrified and thus exploit renewable energy.

The key to both challenges is to develop better catalysts to promote the various chemical processes. The center will develop a systematic methodology to accelerate the discovery process for new catalysts. It will do that in a concerted effort, which is composed of six interdependent sub-projects closely interlinked.

Denmark is the international leader within both catalyst research and production. The research center hopes to achieve a research breakthrough in the area, which in turn can pave the way for further technological development ensuring that the exploitation of renewable energy in future will be so efficient that it can compete with fossil fuels and in the long term completely replace them.