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Swiss Property

Scope 3: Grey energy and embodied carbon

The three new replacement buildings ATMOS, Clime and B2Binz were analysed and compared in terms of their grey energy, also known as non-renewable primary energy (NRE). Grey energy is the total amount of non-renewable primary energy required for all upstream processes, from the extraction of raw materials to manufacturing and processing through to disposal, including the associated transport.

We also calculated embodied carbon emissions (measured in kg CO_2e/m^2a). The calculations assume a life cycle of 60 years. The greenhouse gas emissions of building elements and materials with a shorter service life are therefore taken into account several times. It should also be noted that the tenant fit-out was not considered in this calculation.

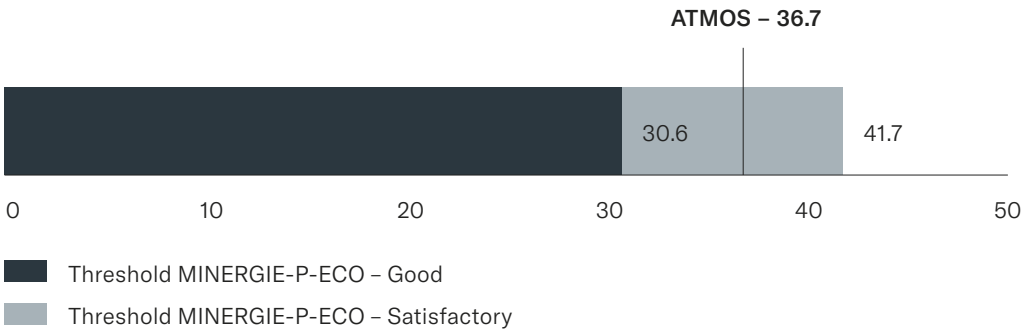
The calculations were carried out on the same basis (SIA Merkblatt 2032:2020, life cycle assessment data from KBOB) by three different providers in each case, which can lead to deviations in a comparison and must be taken into account. The aim was to create a basis for better assessing the ratio of embodied CO_2 emissions compared to CO_2 emissions during operation and, based on this, to identify the various levers for reducing embodied emissions.

The diagrams show the non-renewable primary energy and the embodied greenhouse gas emissions in comparison to the upper and lower Minergie limit values. With Minergie-ECO, the limit values are dynamic, i.e. dependent on the characteristics of the property being calculated (Minergie Switzerland, 2021).

ATMOS – Zurich
Hardturmstrasse 181, 183 / Förrlibuckstrasse 160, 190, 192

In Zurich-West, we have built the ATMOS business park with a total of 24 000 m^2 of flexible office and commercial space. The construction project by the renowned architectural firm EM2N blends harmoniously into the industrial environment of Zurich-West. The new building replaces the old Orion buildings and offers contemporary office use with well thought-out interior design, daylight and attractive meeting zones such as loggias, an outdoor terrace and a green roof garden. ATMOS fulfils high sustainability standards, is heated with district heating and is equipped with comprehensive energy monitoring.

Non renewable primary energy (NRE)

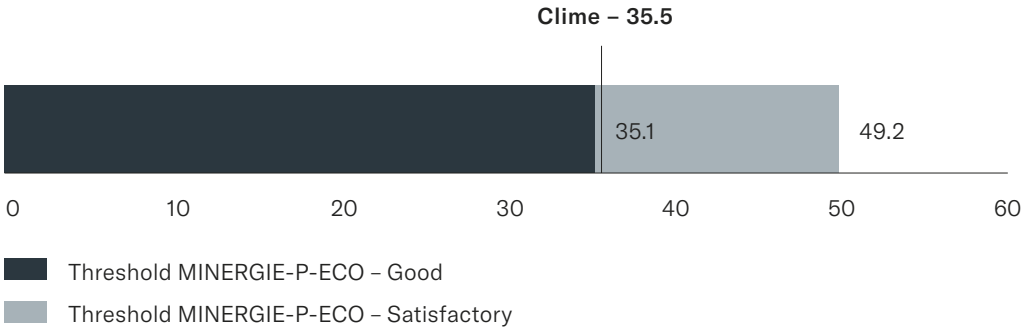


Embodied carbon emissions (office use, without tenant fit-out)

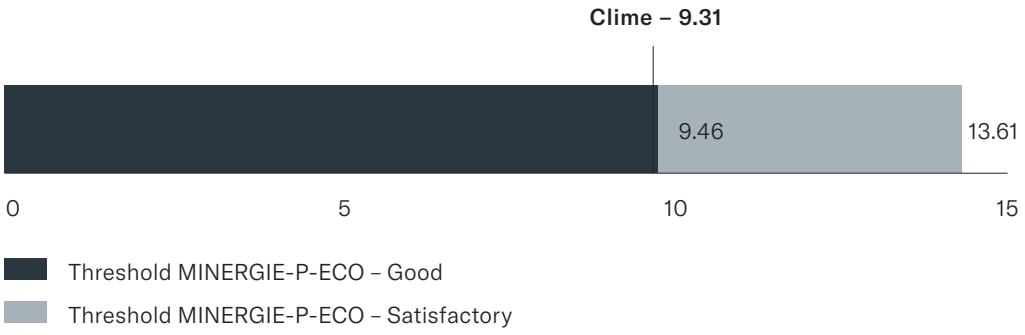
Clime – Basel, Grosspeterstrasse 18

The Clime office building in Basel was completed in June 2022 and the first tenants moved in in spring 2023. It is characterised by a striking architectural timber hybrid construction and offers 5 631 m^2 of flexible, divisible and expandable space with state-of-the-art infrastructure. The timber construction not only has a favourable CO_2 balance, but also creates a pleasant working atmosphere. The building offers flexibility for different working models and features innovative solutions such as electrochromic glazing for sun protection. Thanks to the timber construction method and the lower weight of the wood, the existing underground car park could be retained and there was no need to reinforce the underground components.

Non renewable primary energy (NRE)



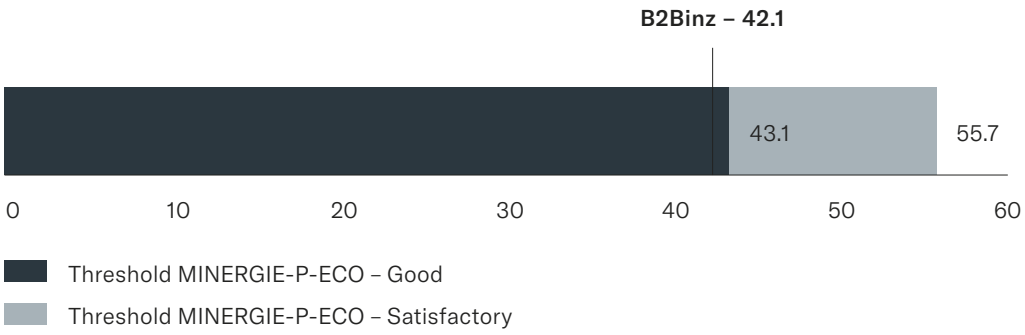
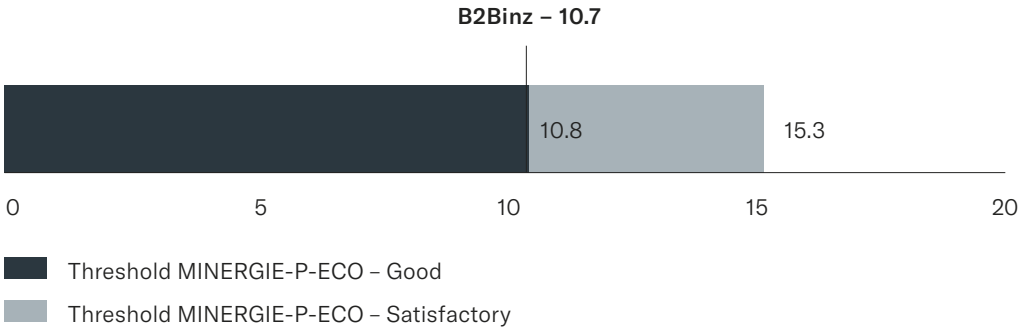
Embodied carbon emissions (office use, without tenant fit-out)



B2Binz – Zurich, Grubenstrasse 6/8

As part of the B2Binz project in Zurich, the commercial property on Grubenstrasse acquired in March 2020 is being replaced by a new mixed-use building with around 5 200 m^2 of office space and 6 100 m^2 of commercial space. The new building is scheduled for completion at the end of 2023. The project places great emphasis on sustainability and environmental compatibility, including the use of ECO cement to save CO_2, a simple and well-insulated façade construction and state-of-the-art energy and thermal insulation standards. Green terraces and roof structures, electric charging stations in the multi-storey car park and the operation of the building's own photovoltaic system on the roof round off the sustainability profile.

Non renewable primary energy (NRE)



Embodied carbon emissions (office use, without tenant fit-out)