

Overview of CERN strategies for the reduction of greenhouse gas emissions from particle detectors

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Different families of gaseous detectors used in particle physics experiments are operated with gas mixtures containing greenhouse gases (GHGs), like C₂H₂F₄, CF₄, C₄F₁₀ and SF₆. Given their high Global Warming Potential (GWP) and the increasingly stringent European regulations regarding the use and trade of these gases, different strategies have been implemented by EP-DT Gas Team to reduce GHG emissions at CERN LHC experiments.

The first strategy is based on the use of gas recirculation plants that allowed a reduction between 90% and almost 100% of GHG emissions in LHC Runs.

The second approach is based on the separation and recuperation of the GHG from the exhausting gas mixtures from the detectors. Nowadays four GHG recovery systems, based on different separation techniques, are operational at the LHC experiments for different GHGs.

Finally, studies on new eco-friendly gas mixtures are on-going for long-term operation.

The three strategies will be discussed in this contribution.

Alternate track

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Yes

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