CIGRE Study Committee A3 held a Workshop on SF6 alternatives jointly with Current Zero Club (CZC) on Monday, 22 August 2016 during the 2016 Paris session. Sixty experts attended. The purpose of the Workshop was to collect the available information on interrupting and switching performance with state-of-the-art of alternatives to SF6 and then to evaluate their interrupting capabilities in comparison with SF6 in order to decide whether any new actions are required in CIGRE, besides the recently published SF6 paper in 2014 [1]. After opening remarks by the chairs of SC A3 and CZC, the results of the latest investigation conducted by the CZC members were presented. Five manufacturers then presented developments and on-going pilot projects with SF6 alternatives. The amount of information presently available to make comparisons of the main properties and of the switching performance to SF6 is very limited and is often only from a single source. The most promising new gases are perfluoroketones and perfluoronitriles. Due to the high boiling point of these gases, in HV applications mixtures with CO2 are used. For MV insulation perfluoroketones are mixed with air, but also other combinations might be possible. The dielectric and switching performance of the mixtures, with mixing ratios that allow sufficiently low operating temperatures, is only slightly below that of SF6. Minor design changes or de-rating of switchgear are therefore necessary. The new gases decompose under the influence of arcing but do not recombine like SF6. Physical differences between the gas mixtures are mainly in the boiling point and the GWP.