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## Center-of-mass energy and boosts for various RF-configurations

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The Future Circular electron-positron Collider, FCC-ee, is designed for unprecedented precision for particle physics experiments from the Z-pole to above the top pair threshold. This demands a precise knowledge of the center-of-mass energy (ECM) and collision boosts at all four interaction points.

Synchrotron radiation losses range from 40 MeV per turn at the Z-pole with 45.6 GeV beam energy, and reach up to 10 GeV per turn at the highest beam energy of 182.5 GeV. The radiation losses lead to a variation of the beam energies over the circumference and thus to different ECM and boosts at each interaction point. Beamstrahlung enhances this asymmetry further. These losses are compensated by the RF-cavities, the location and settings of which

impact the energies. The ECM and boosts for various RF-configurations are presented here for different FCC energy stages.

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