

# CEPC carbon footprint and CO<sub>2</sub> Reduction Optimization

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The Higgs factory is a kind of special energy consumer and the environmental impact for the given scientific outcome must be optimized carefully. The carbon footprint of CEPC was estimated based on simplified model including both construction process and operation process. The environmental impact of CEPC with different circumference, different energy source, different SR power and different Higgs number was studied. The carbon intensity of China electric grid will be reduced rapidly by 2040 due to the development of renewable energies. Some results to compare the future colliders, including linear colliders and circular colliders, are given. Assuming all the colliders will use the same clean energy (20 ton CO<sub>2</sub>e/GWh), CEPC has the lowest carbon emission to produce one Higgs boson.

## Alternate track

### I read the instructions above

Yes

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