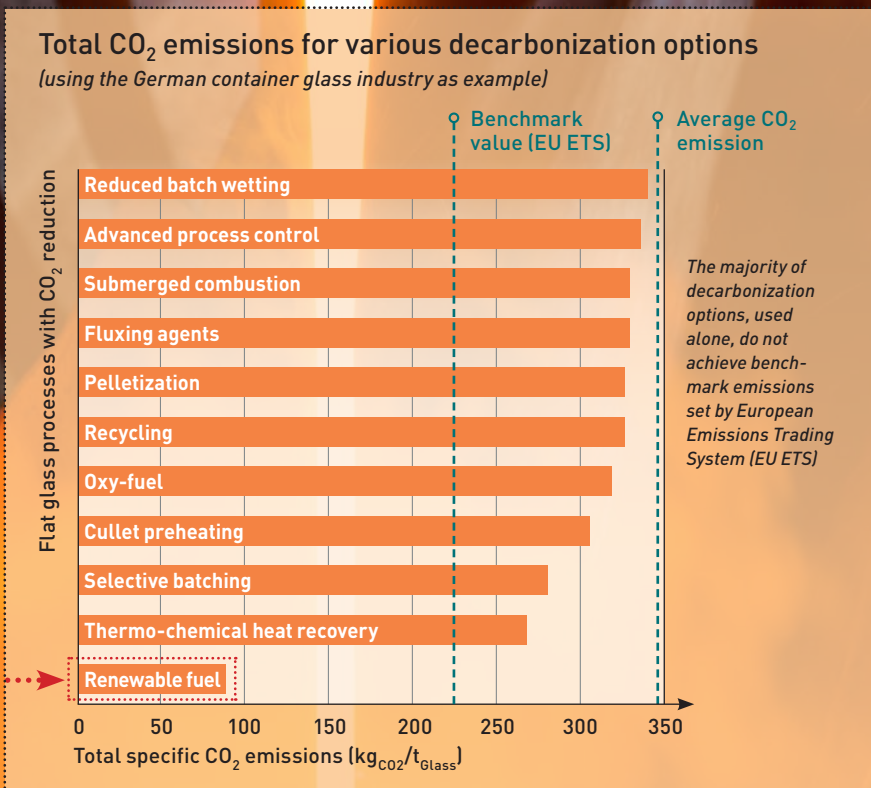


# Decarbonizing GLASS

The glass industry has one of the highest per-capita production volumes worldwide. Creating glass is also an energy-intensive process—requiring 4–17 GJ/tonne of product. Here we show some decarbonization options for a more sustainable future. For a look at the enabling role of glass in optical fiber, see this month’s cover story (p. 30).



Highest potential for CO<sub>2</sub> savings is achieved by switching from fossil to renewable fuels:



### Hydrogen

**ADVANTAGE:** Synergies with future H<sub>2</sub> infrastructure; co-firing

**DISADVANTAGE:** Different flame characteristics; technical change; needs to be marketed at affordable price



### Synthetic methane

**ADVANTAGE:** No technical change, can be fed into existing gas network

**DISADVANTAGE:** Additional investment costs and conversion losses may limit ability to sell at hydrogen and biogas price levels



### Biogas

**ADVANTAGE:** Existing/expanding market; co-firing

**DISADVANTAGE:** Limited resource; fluctuating gas compositions, which could lead to quality losses