

Supplementary

Table S1 Region division of China

Figure S1 Illustration of meta-frontier technology and group-frontier technologies

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Regions	Provinces
Eastern region	Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Hainan, Guangdong
Central region	Henan, Anhui, Jiangxi, Hubei, Hunan, Shanxi
Western region	Sichuan, Chongqing, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Guangxi, Inner Mongolia
Northeast region	Liaoning, Jilin, Heilongjiang

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