



Converging Towards net-zero emissions

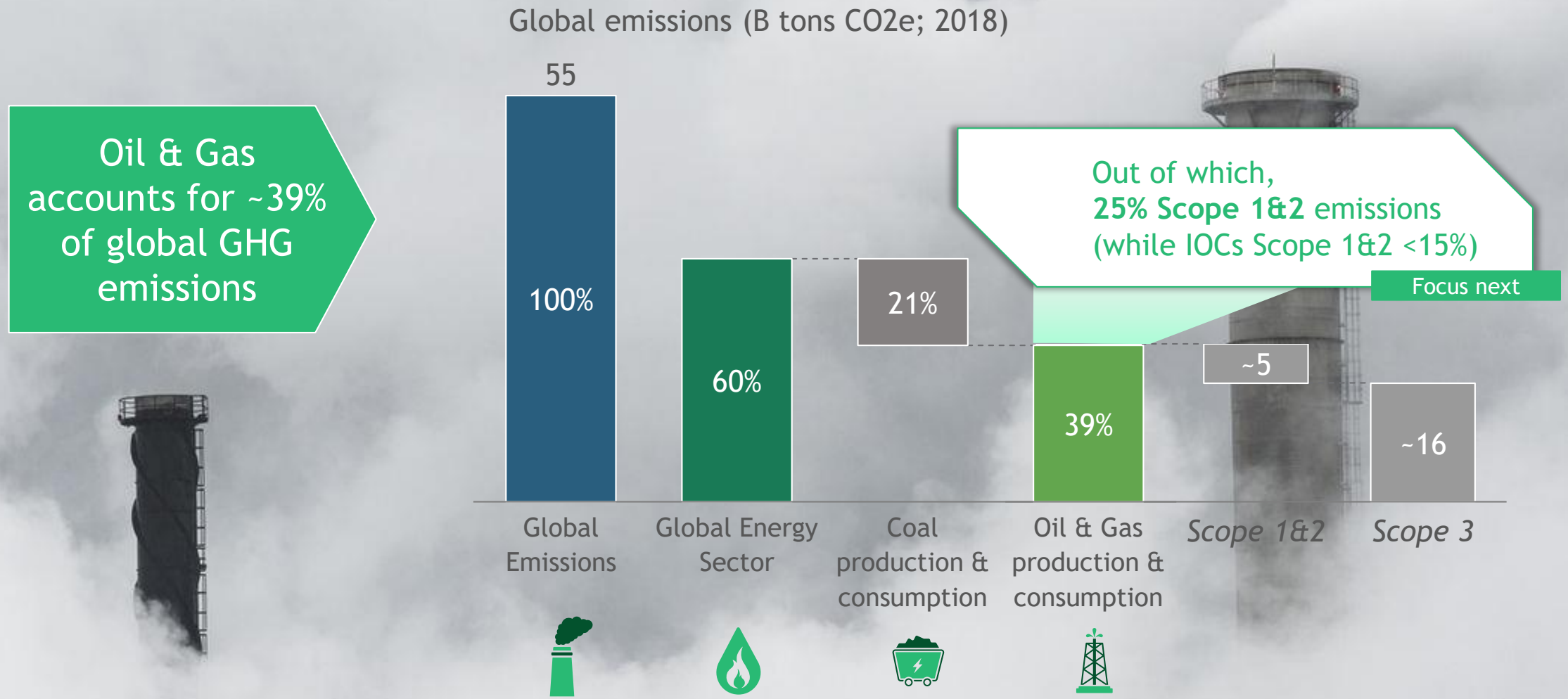
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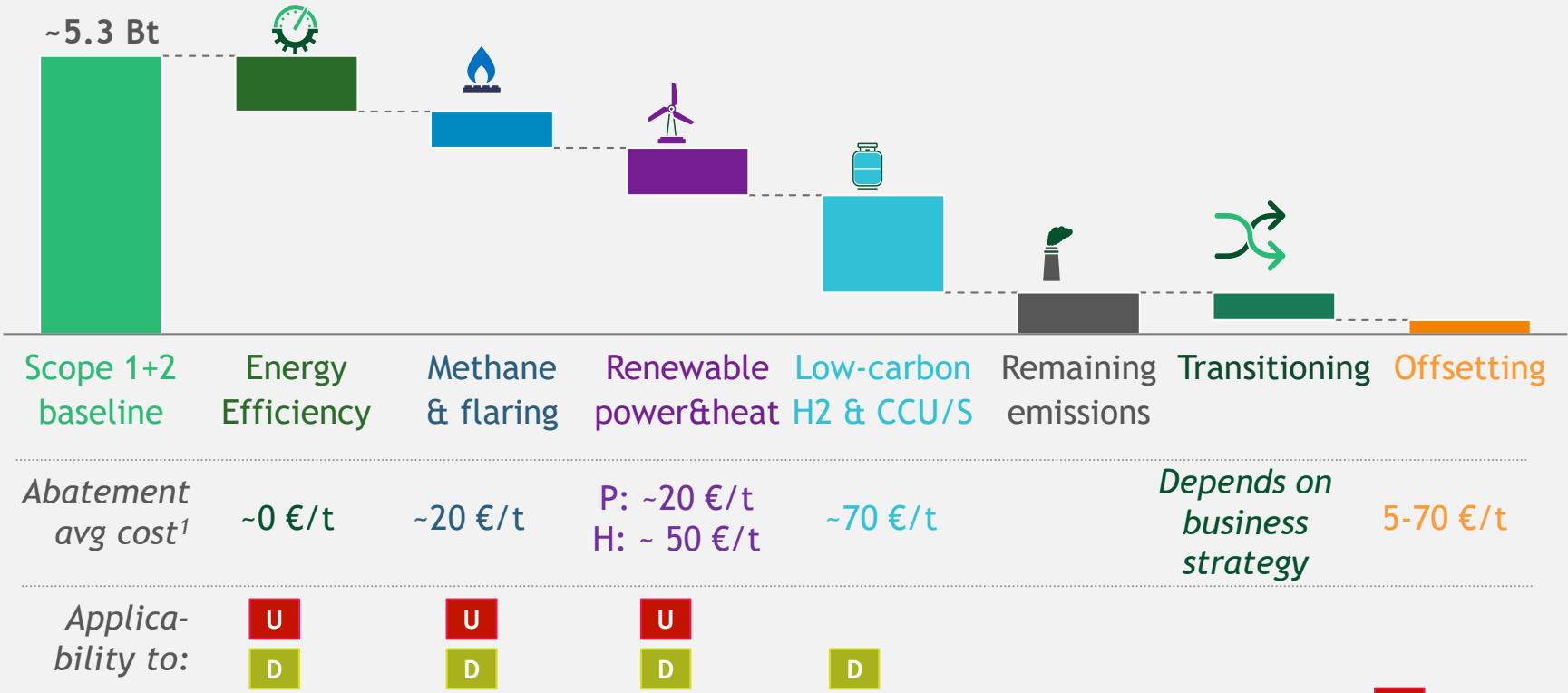


The emission reduction challenge starts with O&G



For zeroing Scope 1+2 "only", 2.5-3.0 €T required - in next 30y

Abatement levers & avg. cost in O & G industry, Scope 1+2 (B ton CO₂e)



Plus other 4-5€T to neutralize Scope 3... which represent 85+% of IOCs emissions!

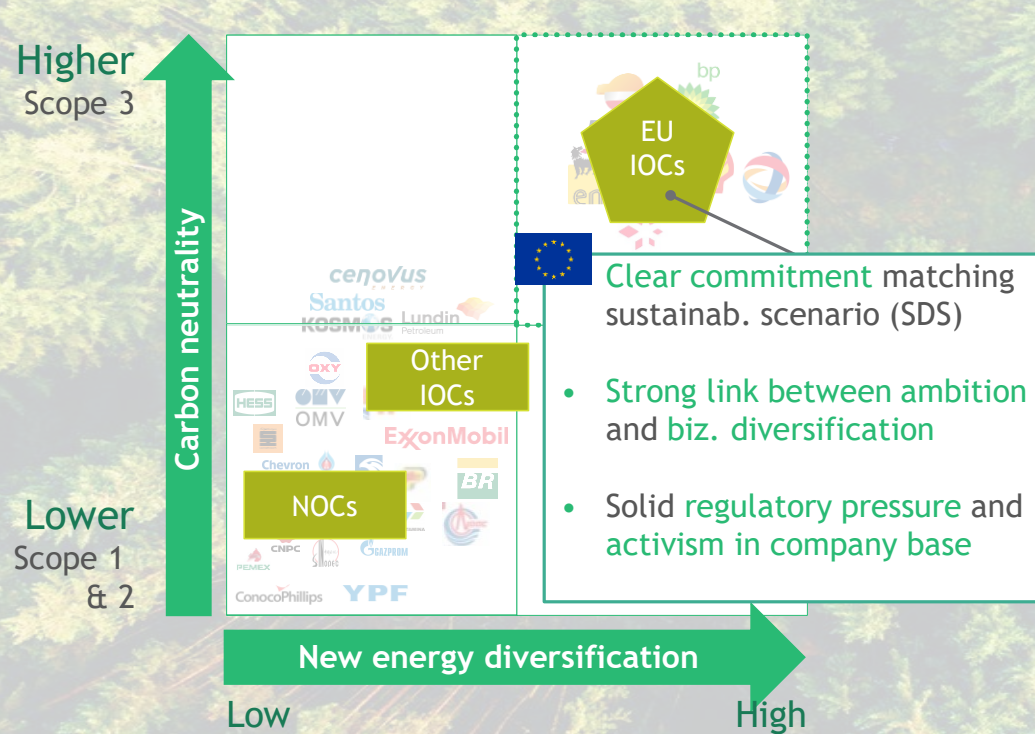
1. Average throughout 2020-2050 based on technology and commodity / feedstock cost evolution
 Source: IEA The Oil and Gas Industry in Energy Transitions 2020; IEA World Energy Outlook 2018 & 2019, BCG analysis

U Upstream
 D Downstream

European IOCs drive the sector's climate action

EU IOCs drive climate action....

....with a portfolio of intervention with different Capex & maturity



But still obstacles to reach the targets...



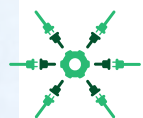
Overwhelming targets to reach Paris' goals (e.g. CCU capacity should grow >150x in 20yy); bold moves required... in current "*delicate*" scenario



Huge investment need in tech & ventures - not O&G tradition...and not in capex-cut period; business cases limited today to very few applications



... mainly depending on a **regulatory context** - frequently not "strict & consistent" or still limiting the willingness to "switch"



A **hub or value chain logic** (and therefore hub economics) is required: a frontman + many players to contribute to success of large investment...



... and frequently implies a **need for infrastructure** (being collection, transmission, transport ... depending on business and supply chain)



For largest IOCs & Petchem inheriting prevalent "brownfield" fleet, new **portfolio logic** can bring organizational challenge - w/out right *incentives*



..but a
confluence of
mutually-
reinforcing
factors can & will
drive material
change in the
2020s

Though progress is non-
linear, momentum
across the 3 factors will
accelerate the move to
de-carbonization

