

Can environmental legislation kickstart a market for premium, low-carbon, LNG?

Kateryna Filippenko

Research Director, Global Gas Markets Wood Mackenzie



The focus on LNG's environmental credentials is growing







LNG emissions vary substantially across projects and regions

Emission intensity across the LNG value chain



■ Range – Average

Source: Wood Mackenzie LNG Emissions Tool *kg/CO2 equivalent, wellhead to LNG loading point

Wood Mackenzie

GHG emissions intensity* by region



■ Methane only ■ CO2 only ● Max (overall emissions) ● Min (overall emissions)



What happens when an emissions tax is introduced?



Introduction of emissions tax

Costs increase Prices increase with the costs of marginal supplier Producers reassess: decarbonize or optimize?

Trade reshuffle Premium reduces





A methane and a broader GHG emission import tax will impact some LNG projects more than others

LNG project cost*



Source: Wood Mackenzie LENS Gas and LNG; Wood Mackenzie LNG Emissions Tool *LNG project breakevens delivered to Netherlands (GATE), DES 12%





A methane and a broader GHG emission import tax will impact some LNG projects more than others

LNG project cost*: methane and carbon import tax scenario



Source: Wood Mackenzie LENS Gas and LNG; Wood Mackenzie LNG Emissions Tool

*LNG project breakevens delivered to Netherlands (GATE), DES 12%. Carbon tax: US\$100/tonne of CO₂. Methane tax: US\$2,800 per tonne of CH4, equating to taxes of US\$100/ tonne of CO₂e, assuming a global warming potential (100-year GWP) of 28, in line with the IPCC Fifth Assessment Report.

Gastech Climatetech & Al

drogen



EU emissions tax will reshuffle the trade, splitting the market into a premium and a non-premium one



European LNG imports – scenarios

■ Others ■ US

Source: Wood Mackenzie LENS Gas and LNG Market Model Overall CO2e taxes calculated based on US\$100/te



What are the options to reduce emissions?

Costs of LNG decarbonisation options



Gastech Climatetech & Al Hydrogen

*CCS low range includes 45Q tax credit



Key takeaways



A bifurcated LNG market: a premium and a non-premium LNG markets emerge. But the importance of premium markets declines over time.



Low-carbon LNG suppliers benefit: projects with the lowest carbon emissions will gain from an import tax on emissions. Trading capability and project location will also be key.



High carbon taxes and broader scope needed to decarbonise LNG at scale: an EU methane tax can encourage methane emissions reduction – a relatively lowcost abatement option. But a high – and wide – carbon tax is required to really decarbonize at scale.







Gas & LNG

LNG Carbon Emissions Tool

A detailed independent evaluation of carbon emissions along the LNG value chain

- A comprehensive view from source to final consumption
- Benchmark, compare and evaluate LNG projects emissions along the entire value chain



