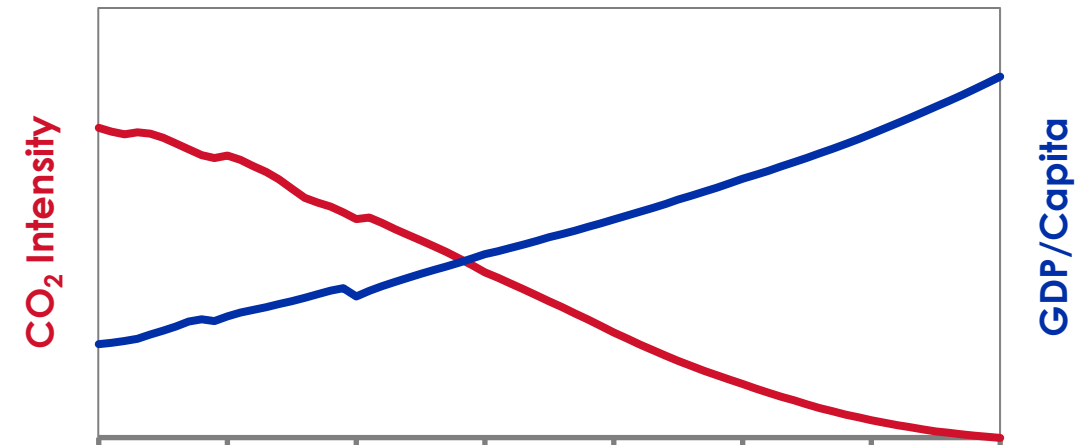


Can Developing Countries pursue the dual goal of Carbon Neutral and Economic Growth?

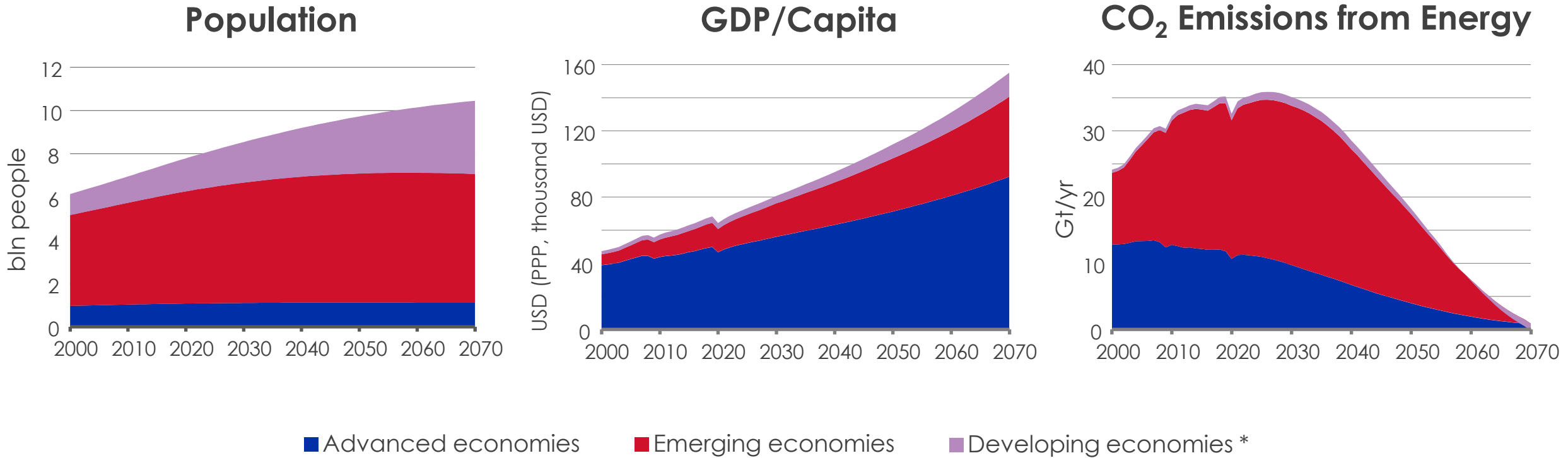
IEEJ/APERC International Energy Symposium

Tokyo, 23 April 2021

Wim Thomas
Distinguished Fellow IEEJ



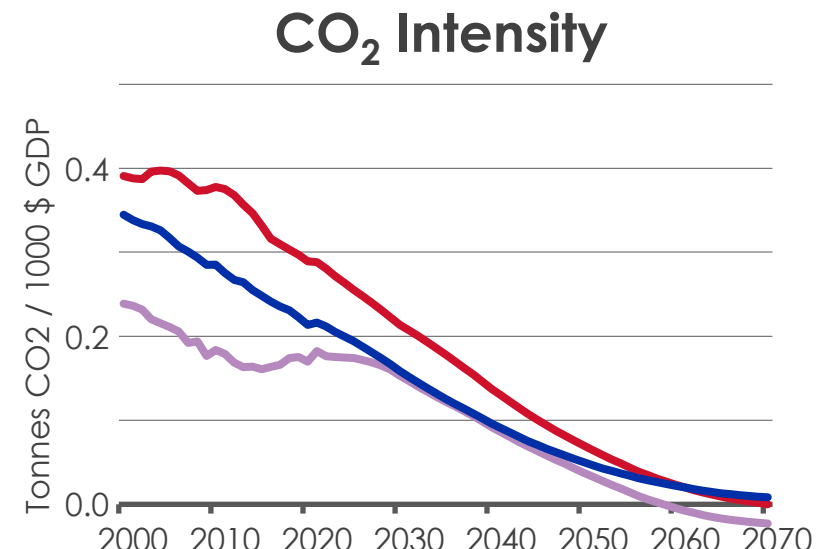
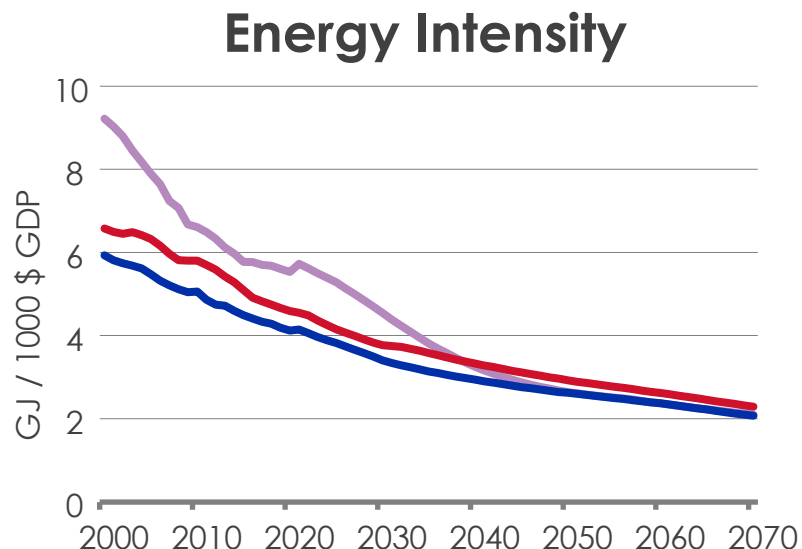
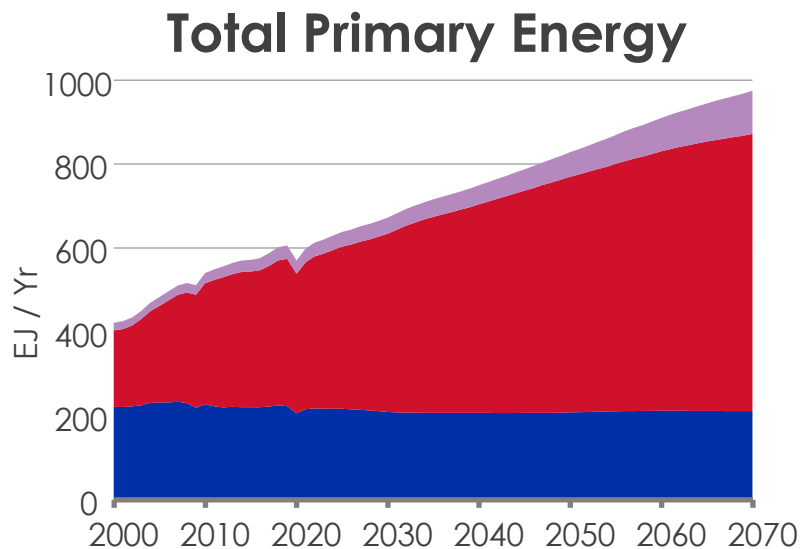
The energy transition to a 1.5 °C world is mainly an Advanced and Emerging Economies' problem to solve



Sources: UN, IEA, Shell Energy Transition Scenarios Sky1.5

*: IMF Classification 2020

Globalisation and efficiency drive energy & CO₂ intensity reduction and conversion



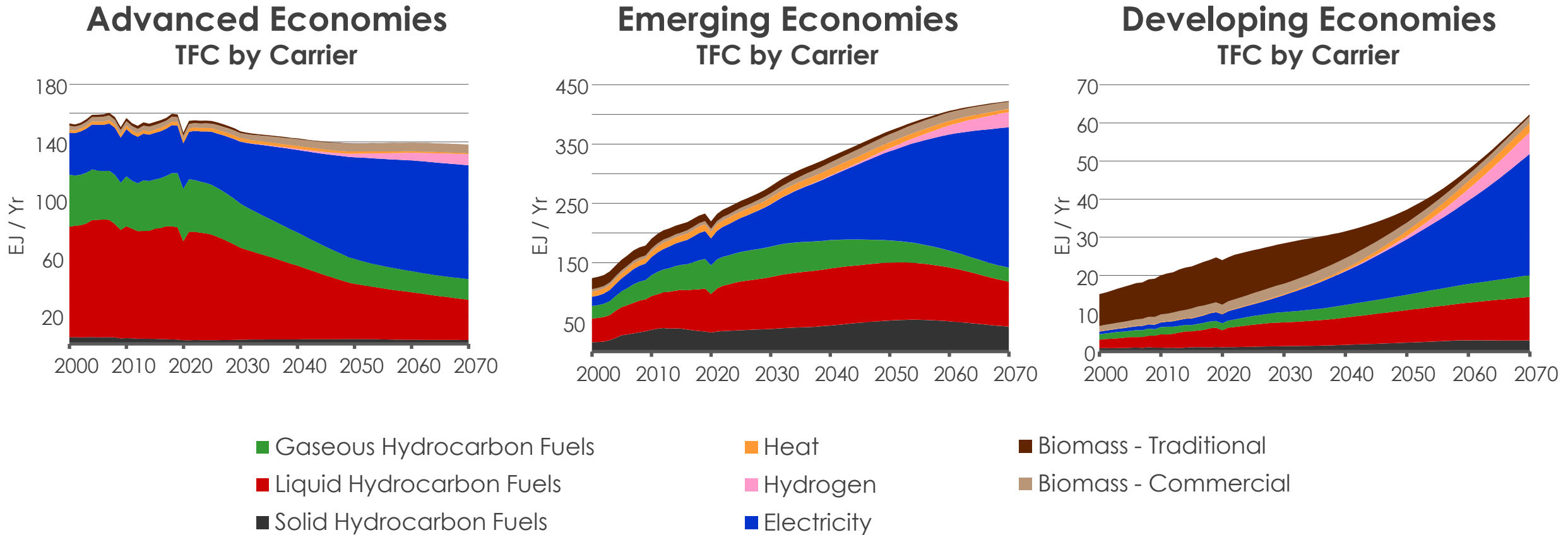
■ Advanced economies
 ■ Emerging economies
 ■ Developing economies *

Sources: IMF, IEA, Shell Energy Transition Scenarios Sky1.5

*: IMF Classification 2020

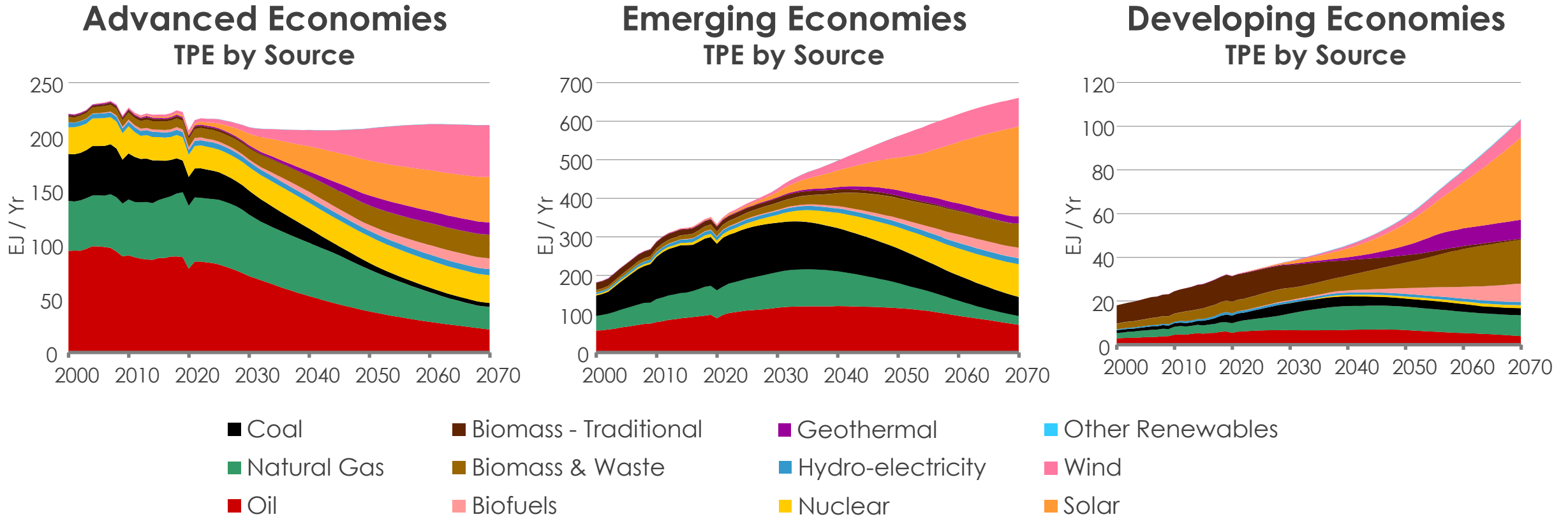
Efficiency & lower CO₂ emissions go hand in hand with electrification

All type of economies see an acceleration of electricity and bio-mass/fuels use



Sources: IEA, Shell Energy Transition Scenarios Sky1.5

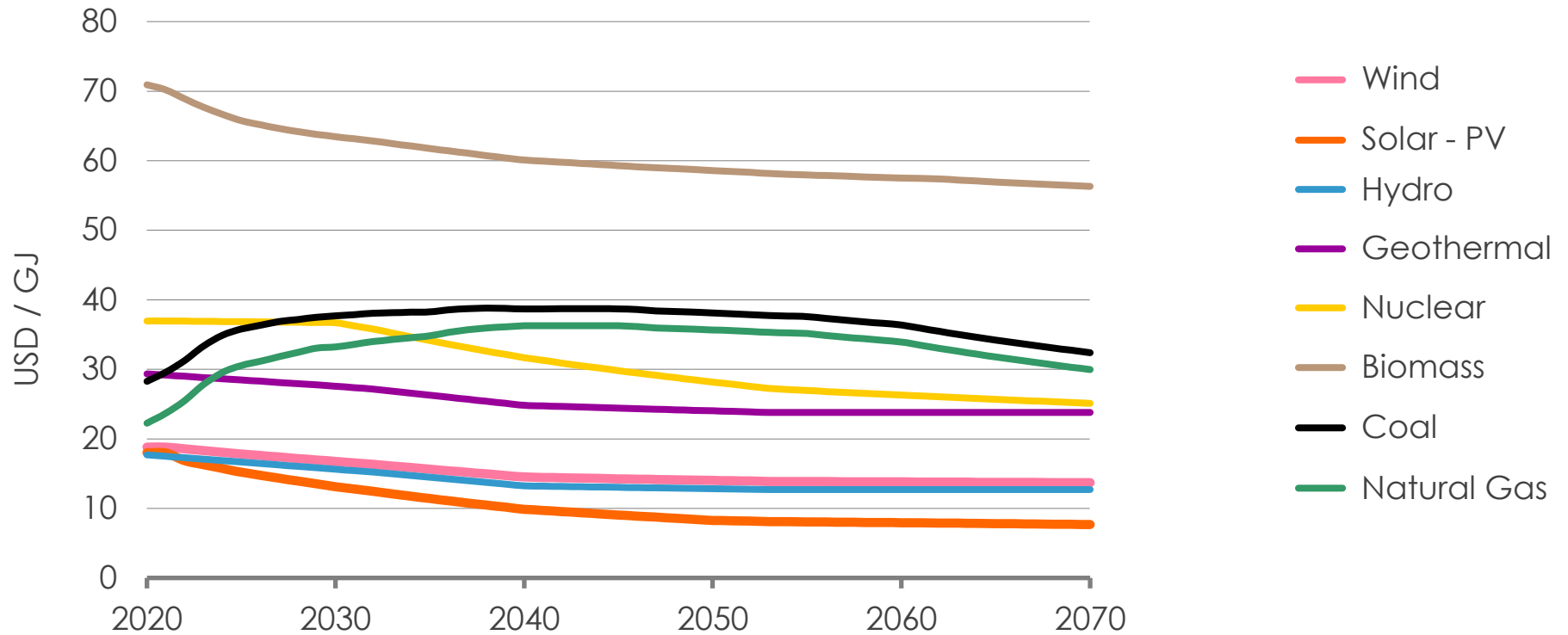
Wind, Solar and Biomass are the new energy sources



Sources: IEA, Shell Energy Transition Scenarios Sky1.5

Economics of new power generation has already turned the corner in favour of Wind and Solar PV.

Emerging Asian Economies Electricity Prices by source*

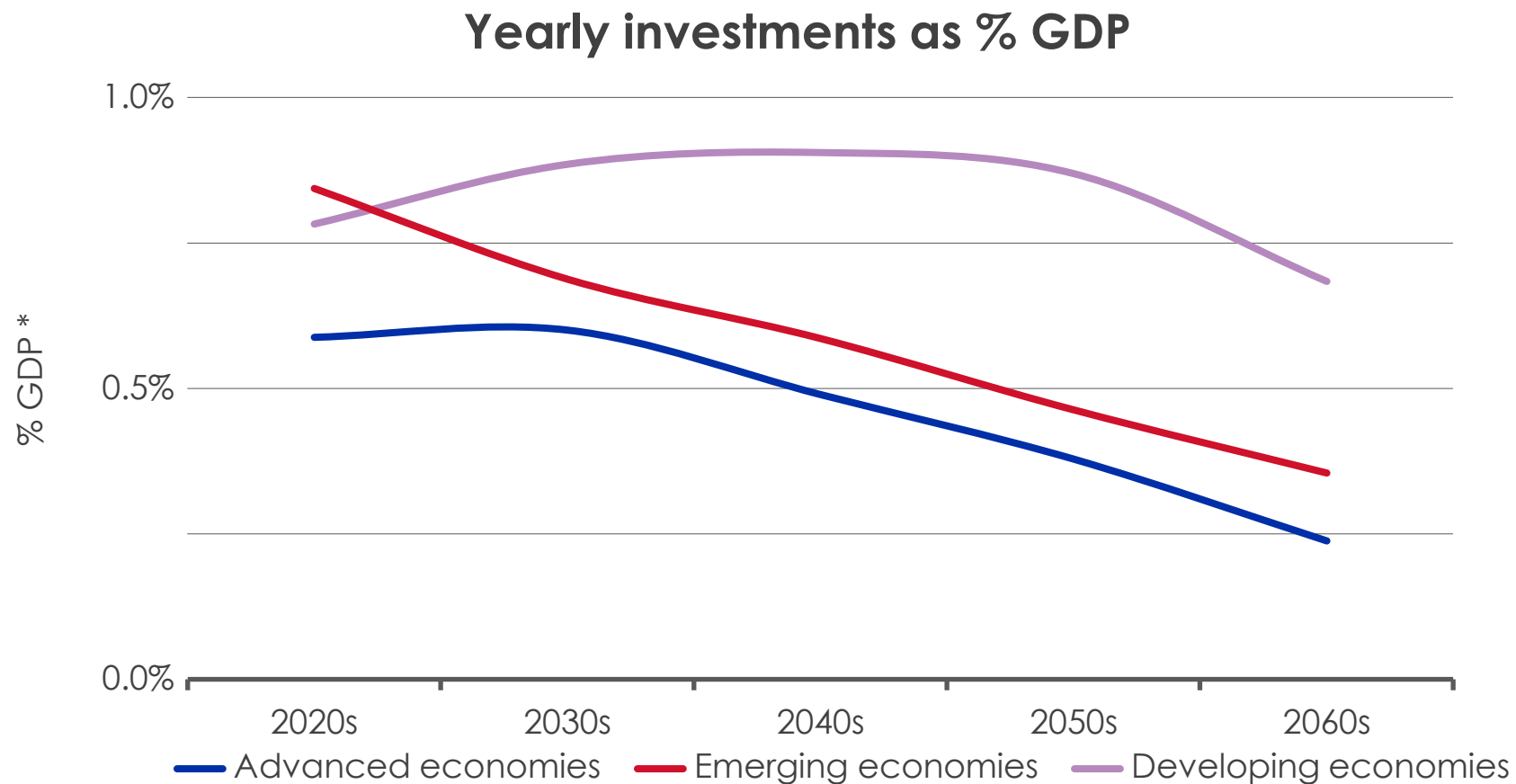


Source: Shell Energy Transition Scenarios

*: Indicative, depending on many (price) assumptions over time

The energy transition is affordable

Could the benefits to Developing Economies be accelerated?

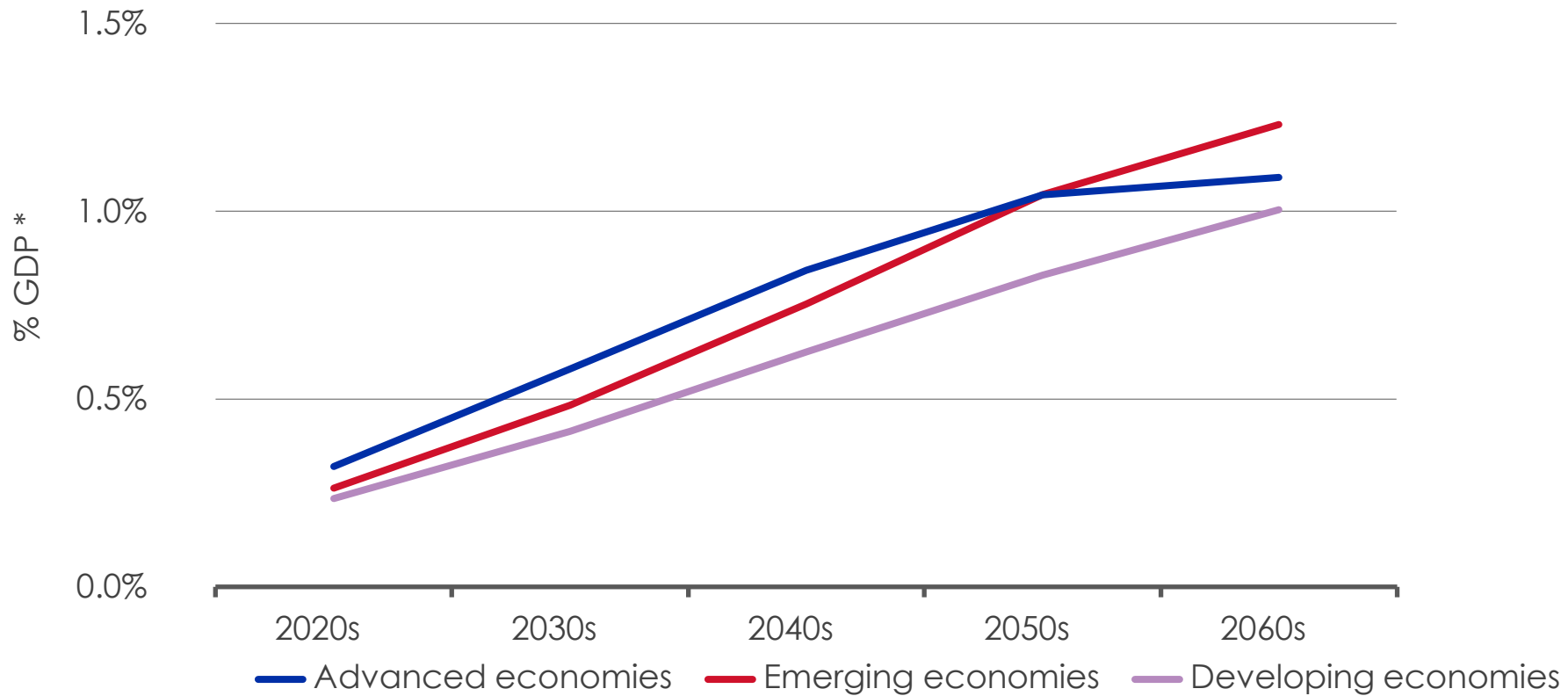


Source: Shell Energy Transition Scenarios

*: Indicative, mainly Energy supply, excluding upstream, depending on many assumptions over time

Reduced fuel costs to the economy compensates for investment costs over time

Avoided HC Fuel Costs – Renewables



Source: Shell Energy Transition Scenarios

*: Indicative, depending on many (price) assumptions over time

Can Developing Countries pursue the dual goal of Carbon Neutral and Economic Growth?

Yes they can!

Supply Side

- ❑ Economics of new electric energies has already turned the corner in favour of wind and solar PV.

Demand Side:

- ❑ Energy efficient appliances are key for lowest total cost of ownership, but the initial hurdle of higher purchasing costs may inhibit rapid & large scale application.
- ❑ Infrastructure (re)design key for large scale electrification, enabling accelerated economic growth

Mitigation

- ❑ CCUS remains indispensable (Steel / cement production is likely to remain largely coal based)
- ❑ NBS has scope as it (also) improves habitats, but (BE)CCS difficult in relation to higher priority social spending.

With great thanks to Shell Scenarios Quantification

THE ENERGY TRANSFORMATION SCENARIOS (FEBRUARY 2021)

EXPLORE MORE



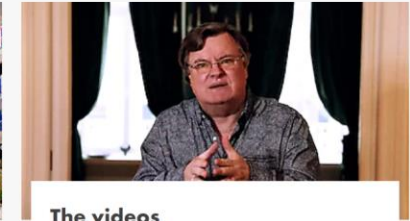
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Three new scenarios extend across the century and consider the pace of energy transitions and the impact on the climate.



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Download a summary of our new long-horizon scenarios.



The videos

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Infographic (PDF, 750 kB)

Explore the Energy Transformation Scenarios infographic.



The underlying data (XLSB, 1 MB)

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