Electrification: a key avenue for climate stabilisation

Laszlo Varro, Chief Economist

IEA

Mars colonization versus the internet – the asymmetry of technological progress

The so called “decentralized” renewables

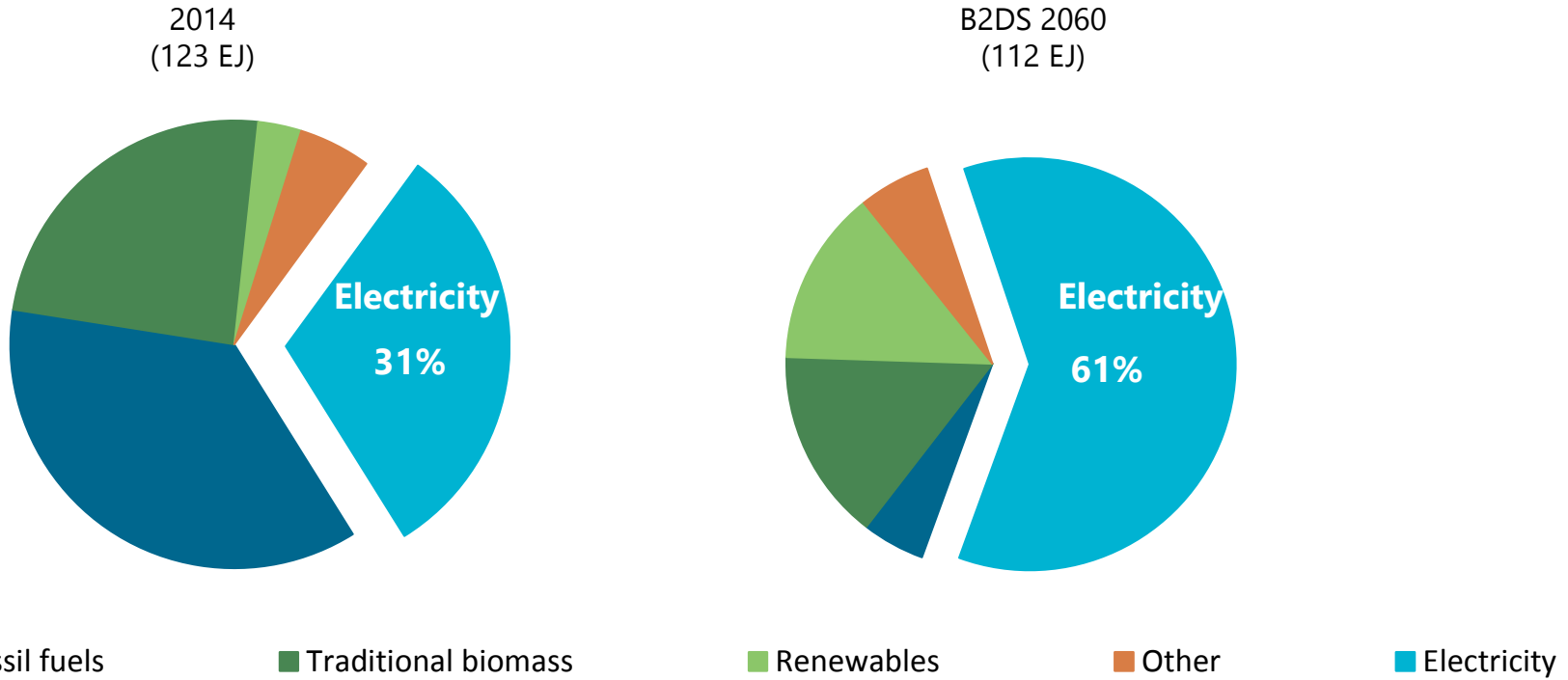
All of wind and the large majority of solar deployment relies on an interconnected network

Electrification of transport: beyond commodity prices

Cars are heavily influenced by branding and fashion which could benefit EVs

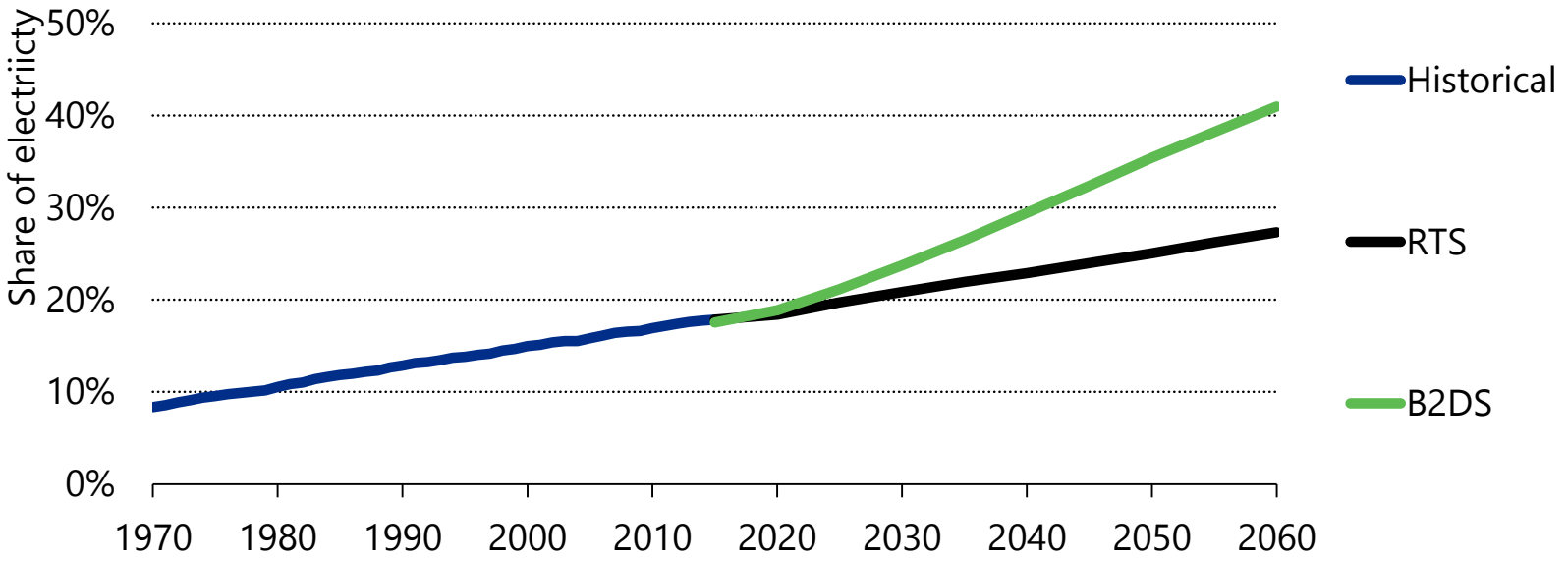
Enhanced buildings efficiency with high electrification

Energy use in the buildings sector under different scenarios



Efficiency technologies can provide the same level of comfort while reducing energy demand despite doubling floor area

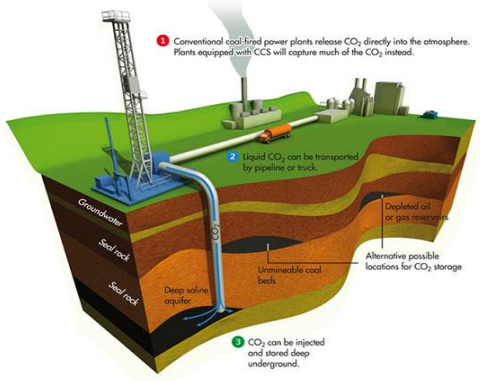
Climate policy strongly accelerates the historical trend of electrification



Rapid decarbonization of electricity opens new opportunities on a well below 2 path

Why not 100% electricity even on a well below 2 path?

150 EJ bioenergy = twice the global coal industry today



10 Gt CCS = 2.5 times the global gas industry today

The non-electricity parts of a well below 2 path face significant challenges

Bioenergy: ecological and social constraints, technology disappointments

Heavy duty transport: no easy routes but electricity is possible

Overhead lines are a mature technology than needs policy driven rollout whereas fuels cells still need innovation and R&D but less infrastructure

Is it really impossible to electrify aviation?

Electric aircraft would require radical light weighting and new battery technology

Low carbon jet fuel from electricity?

Gas to liquids, Qatar

Power to gas, Germany

Pilot projects already produce synthetic jet fuel from electricity/H2 and captured CO2

Recent progress with CCS

Status	Gate
DELAYED	B3
DELAYED	C12
CANCELLED	C14
DELAYED	A4
DELAYED	B9
DELAYED	C9
CANCELLED	A7
DELAYED	B11
DELAYED	C6
CANCELLED	B3
DELAYED	C17
CANCELLED	A10
DELAYED	C5

An electric future, this time for real

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