

BIOENERGY – SCOPE AND FUTURE

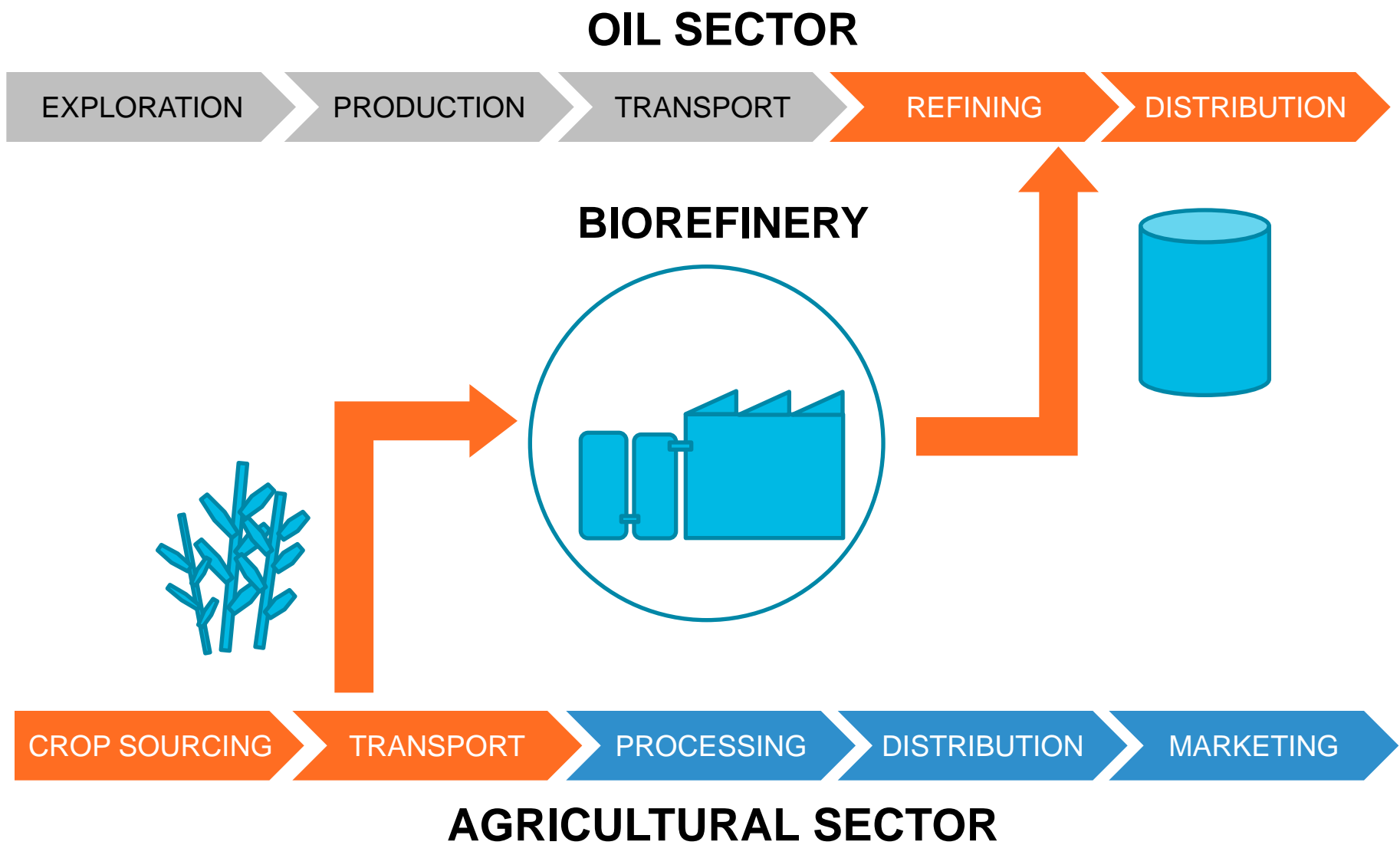
**WORLD AGRICULTURAL FORUM, TUESDAY
NOVEMBER 29 , BRUSSELS**

ROBERTO RODRIGUEZ LABASTIDA

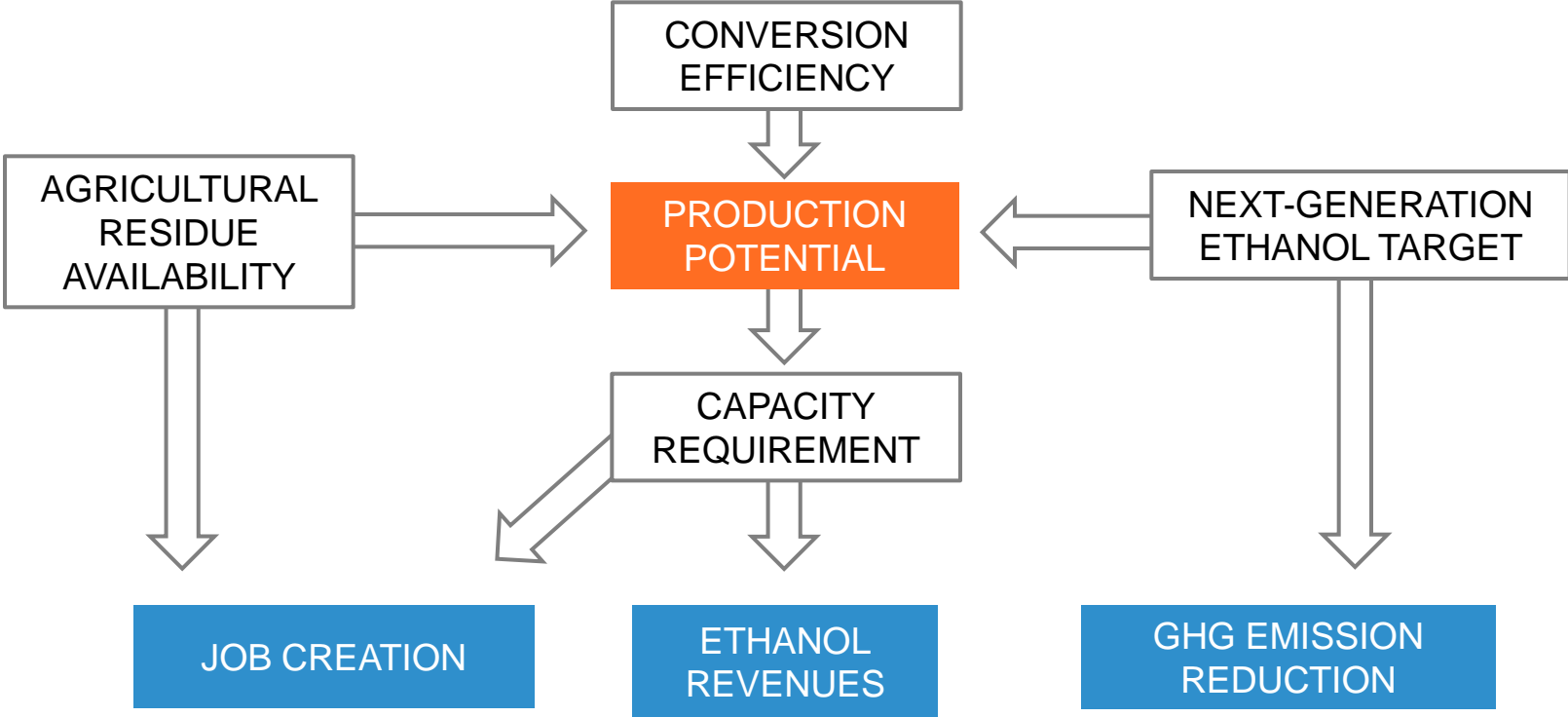
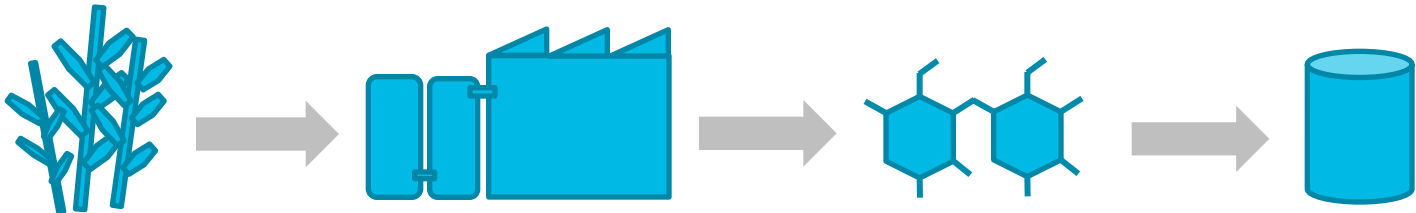
29 NOVEMBER 2011



INTERSECTION OF VALUE CHAINS



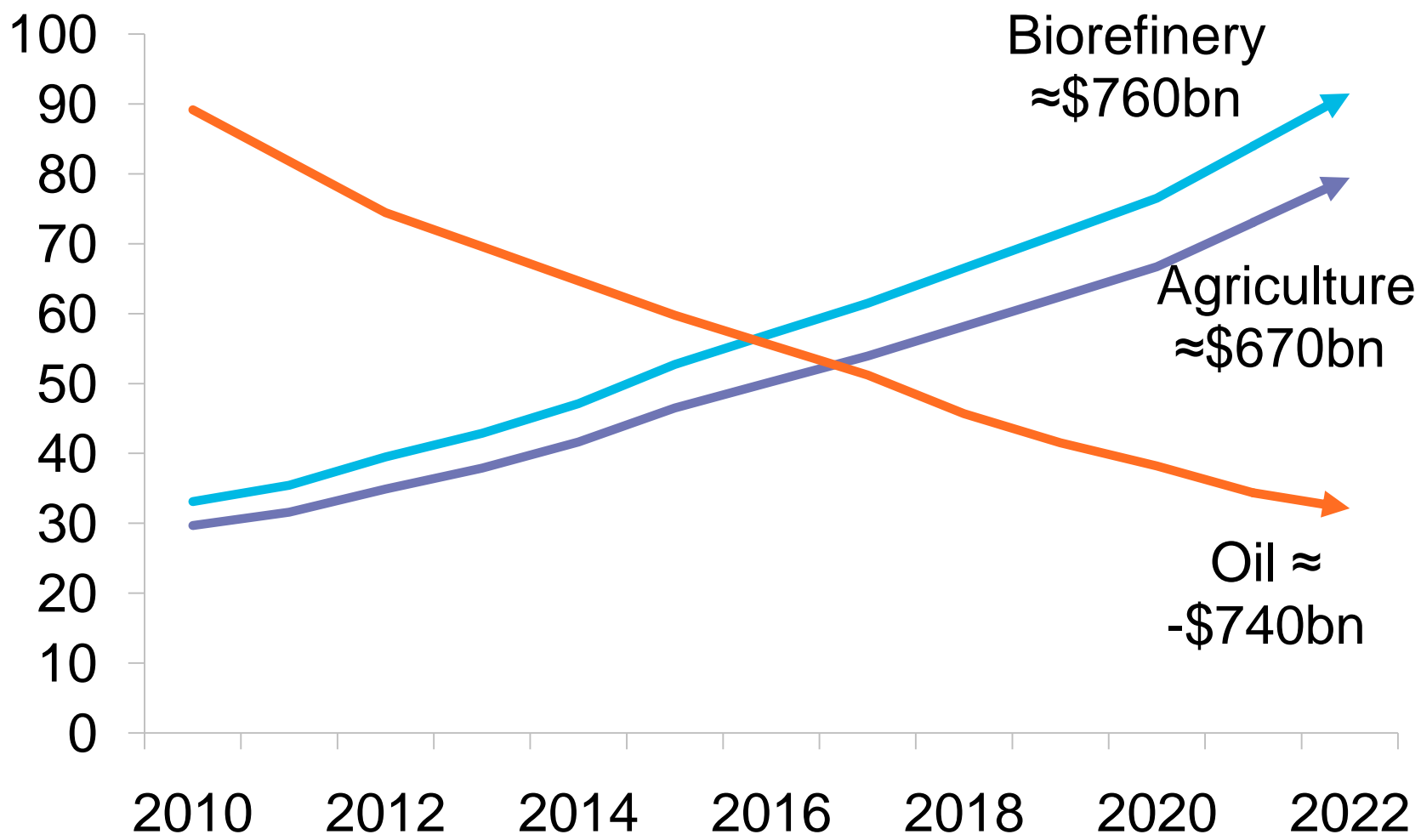
BENEFITS ACROSS THE NEXT-GENERATION ETHANOL VALUE CHAIN



Note: This study uses next-generation ethanol as an example for all bioproducts.

Source: Bloomberg New Energy Finance

US RENEWABLE FUEL STANDARD (RFS2) POTENTIAL REVENUES (\$BN)



Biorefinery
≈\$760bn

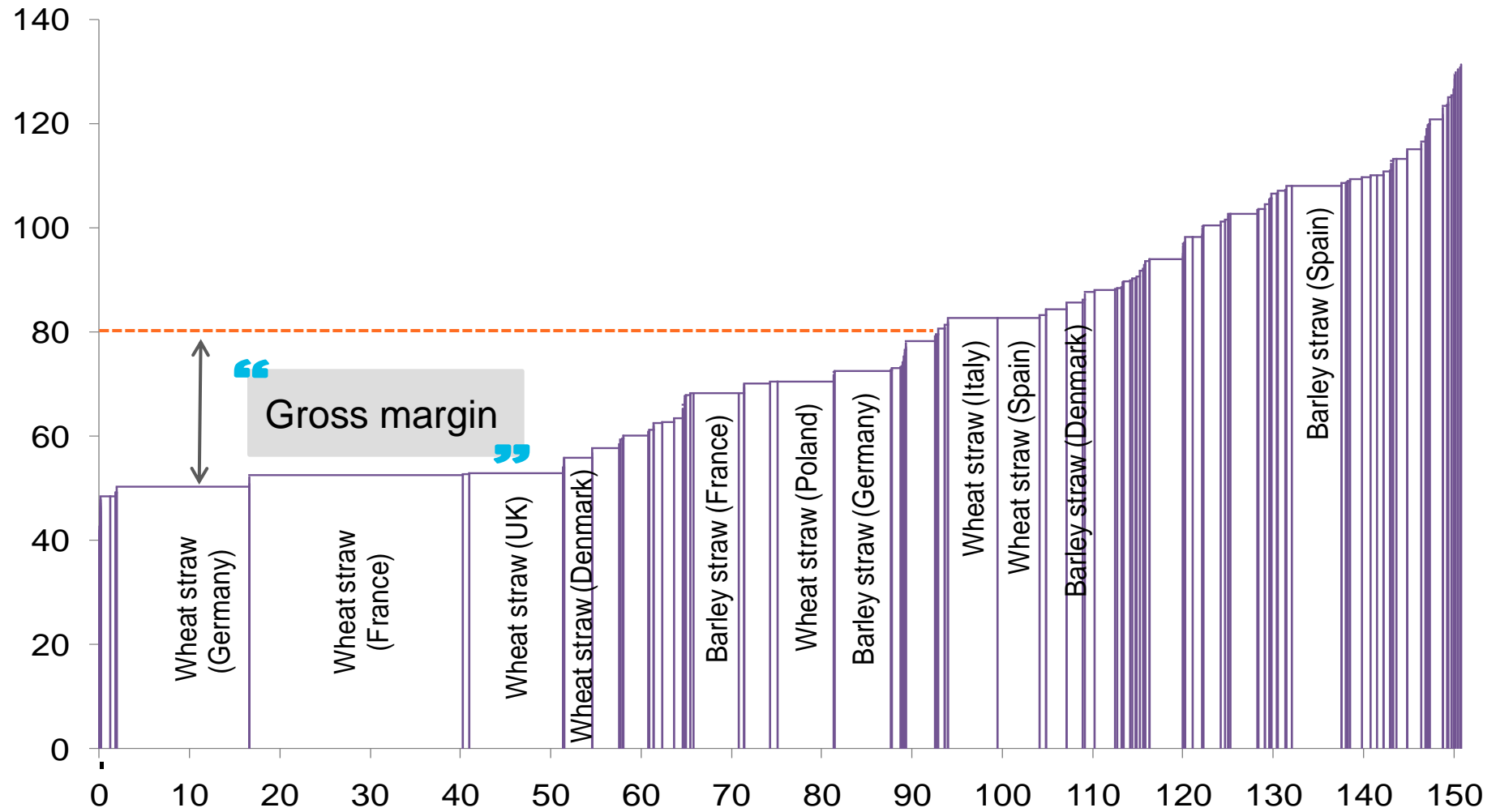
Agriculture
≈\$670bn

Oil ≈
-\$740bn

Note: Price assumptions (\$/gallon) : gasoline 3.5, ethanol 2.5, biodiesel 4, diesel 3.8 and corn \$6.5/bushel. Non-corn feedstock revenue assumed at 15% of biofuel price

Source: Bloomberg New Energy Finance

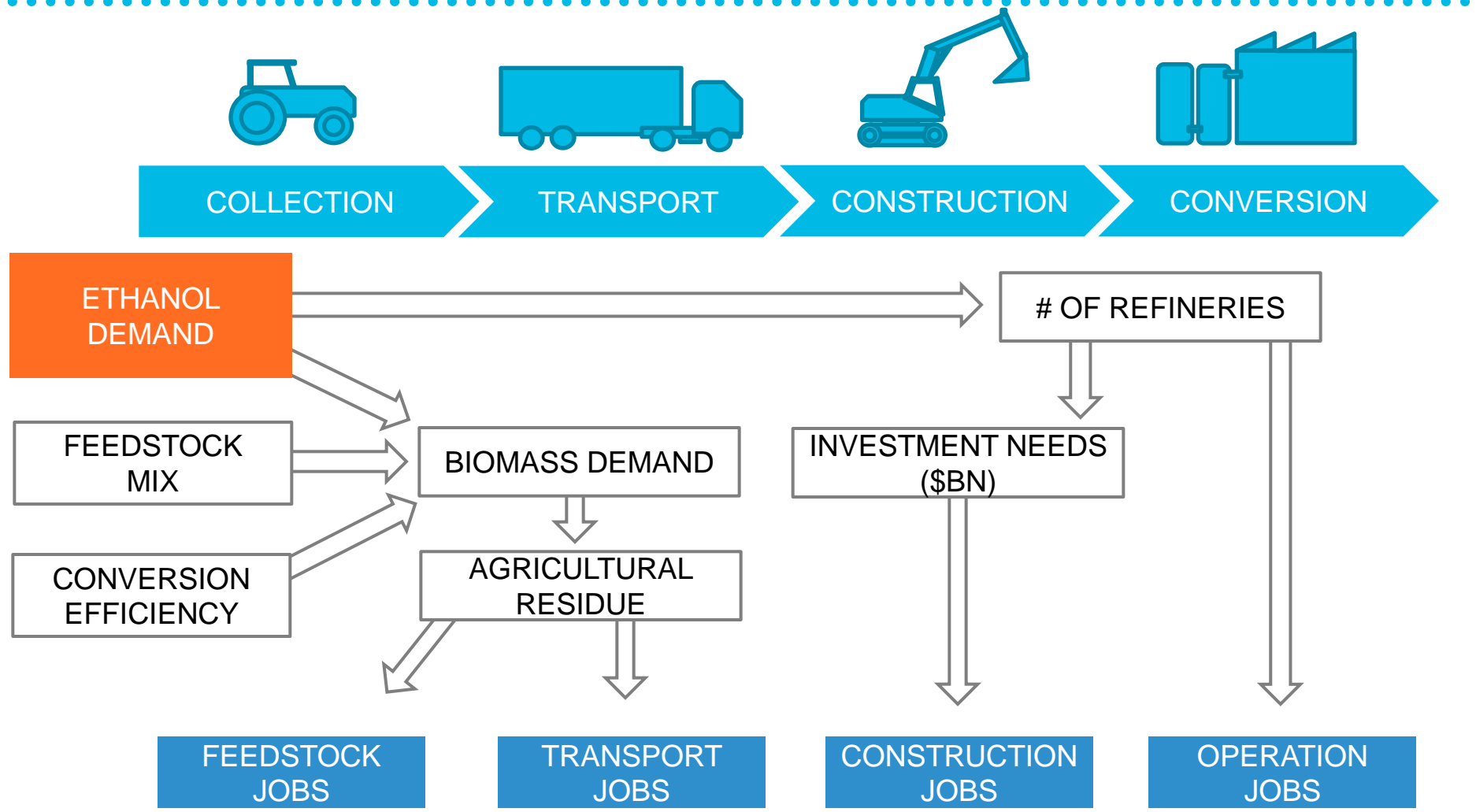
EU-27 AGRICULTURAL RESIDUE SUPPLY COST CURVE, 2015 (\$/TONNE; MILLION DRY TONNES)



Note: Supply costs represent the sum of all the collecting, transporting and loading agricultural residue costs; although, the EU27 2020 agricultural residues potential amounts to approximately 175m dry tonnes we had to limit our x-axis supply cost curve to 150m dry tonnes.

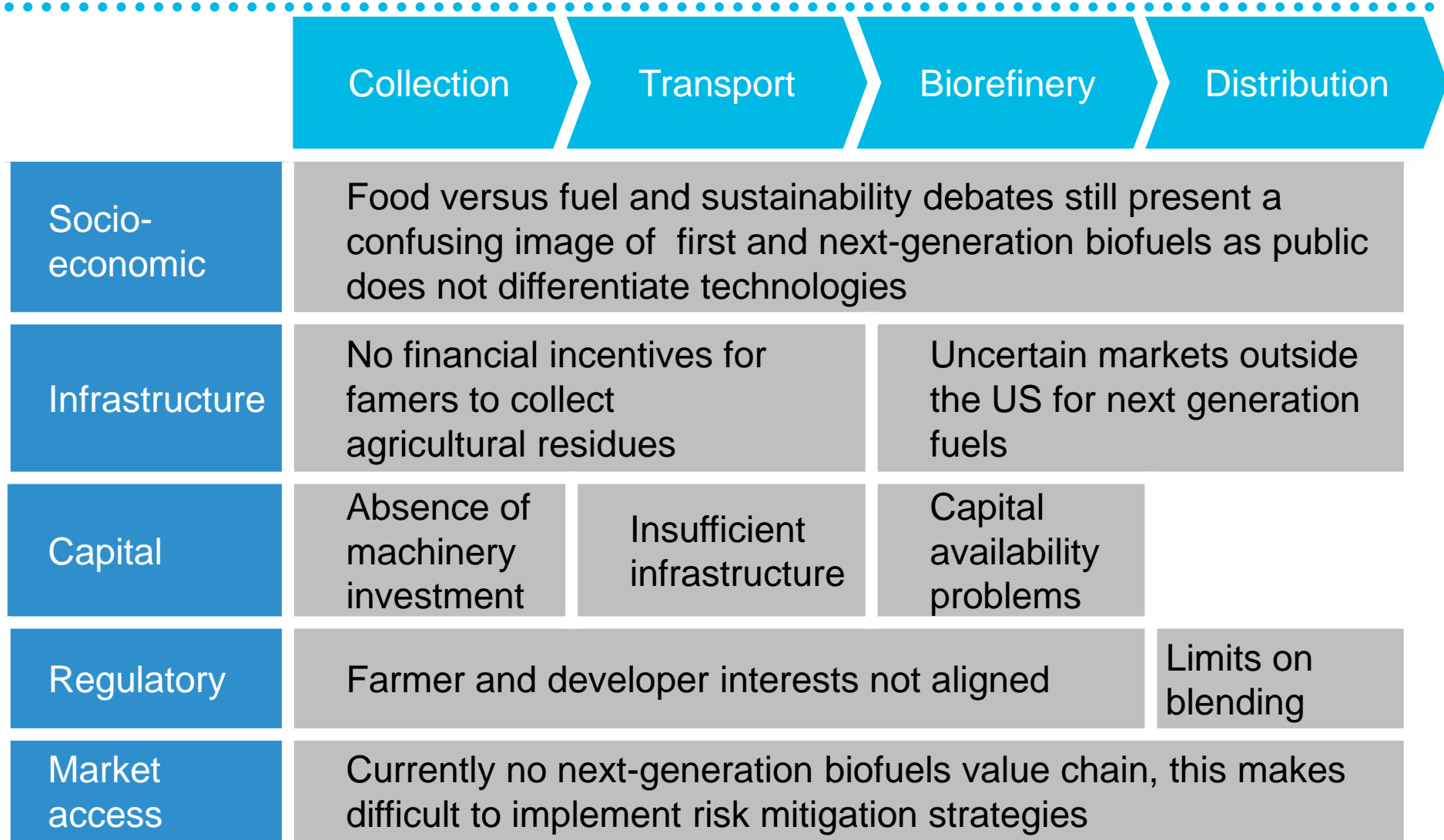
Source: Bloomberg New Energy Finance

JOB CREATION ACROSS THE NEXT-GENERATION ETHANOL SUPPLY CHAIN



Source: Bloomberg New Energy Finance

BIOENERGY INDUSTRY CHALLENGES



Source: Bloomberg New Energy Finance

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MARKETS

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Carbon Markets
Energy Smart Technologies
Renewable Energy Certificates
Carbon Capture & Storage
Power
Water
Nuclear

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