The Role of Biofuels (and highly efficient ICE) in Transport

BP Biofuels a growing alternative

James Primrose

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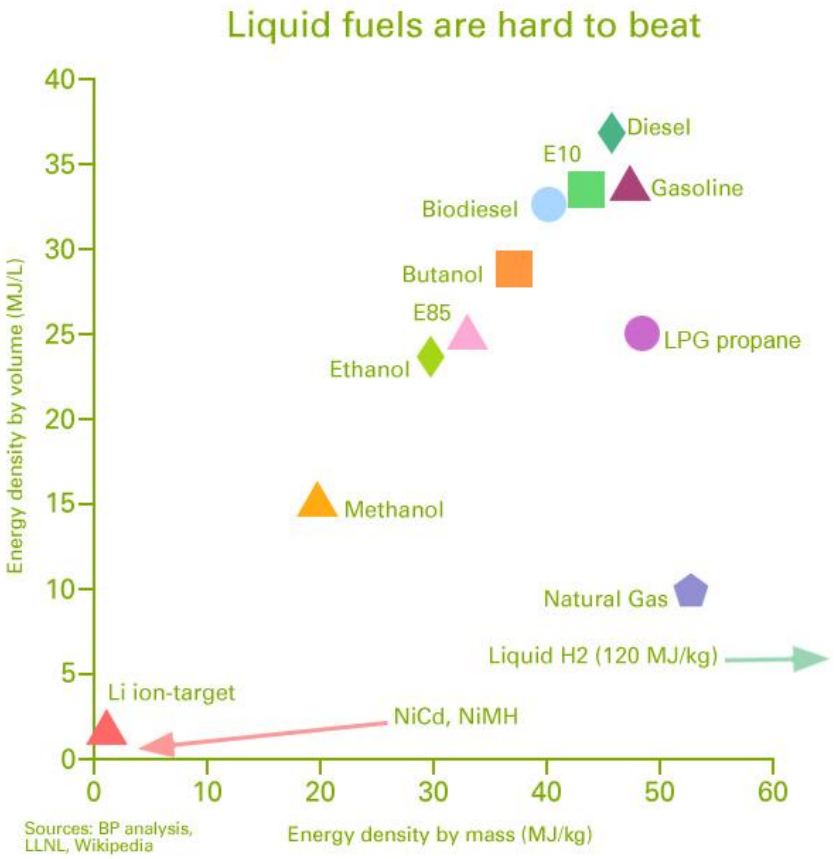
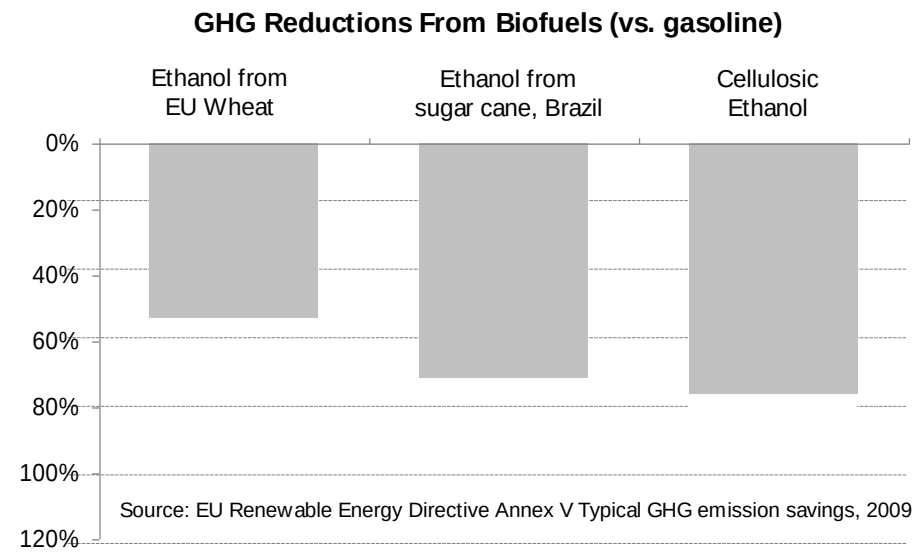
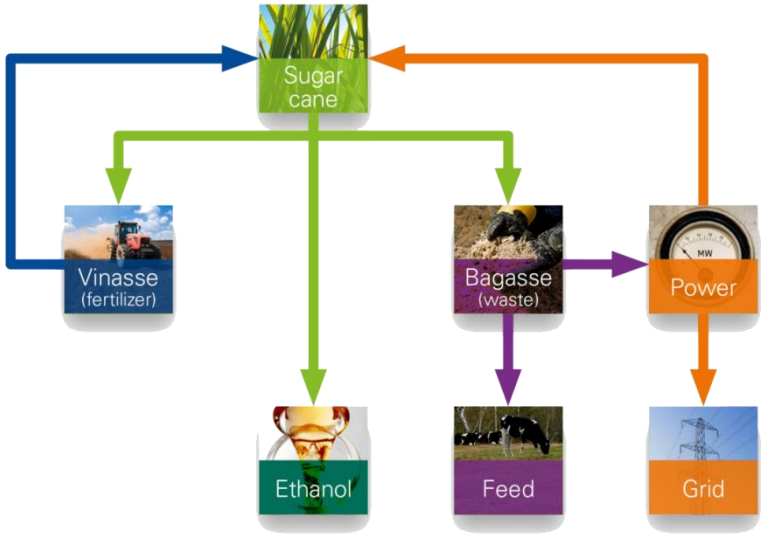
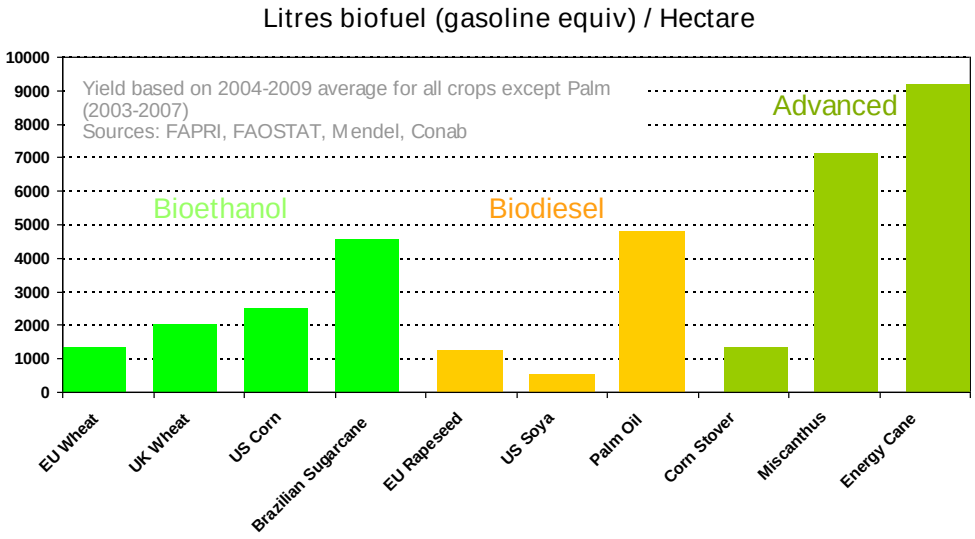
- High energy density per unit volume and mass - to give required range



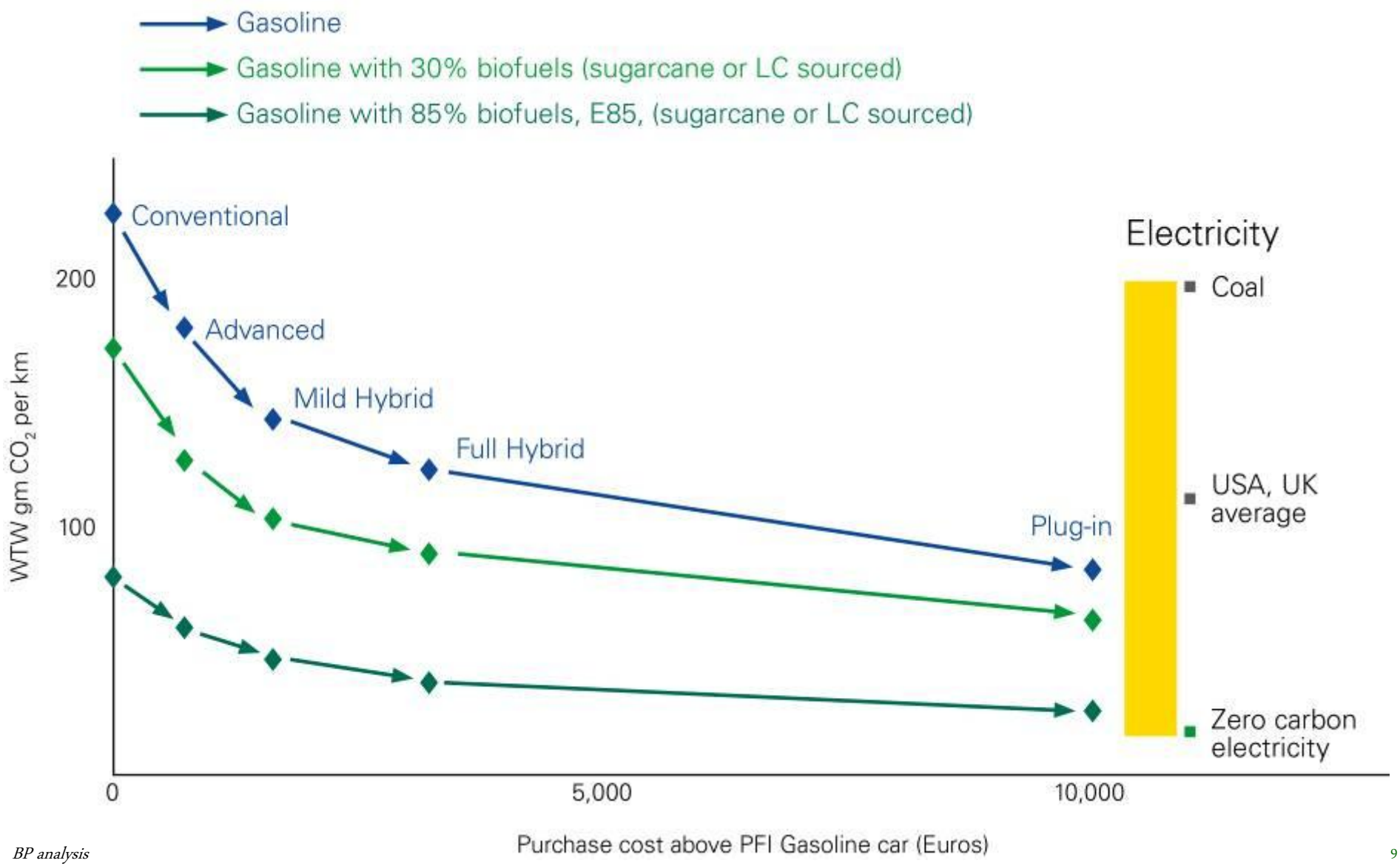
Biofuels Done Well







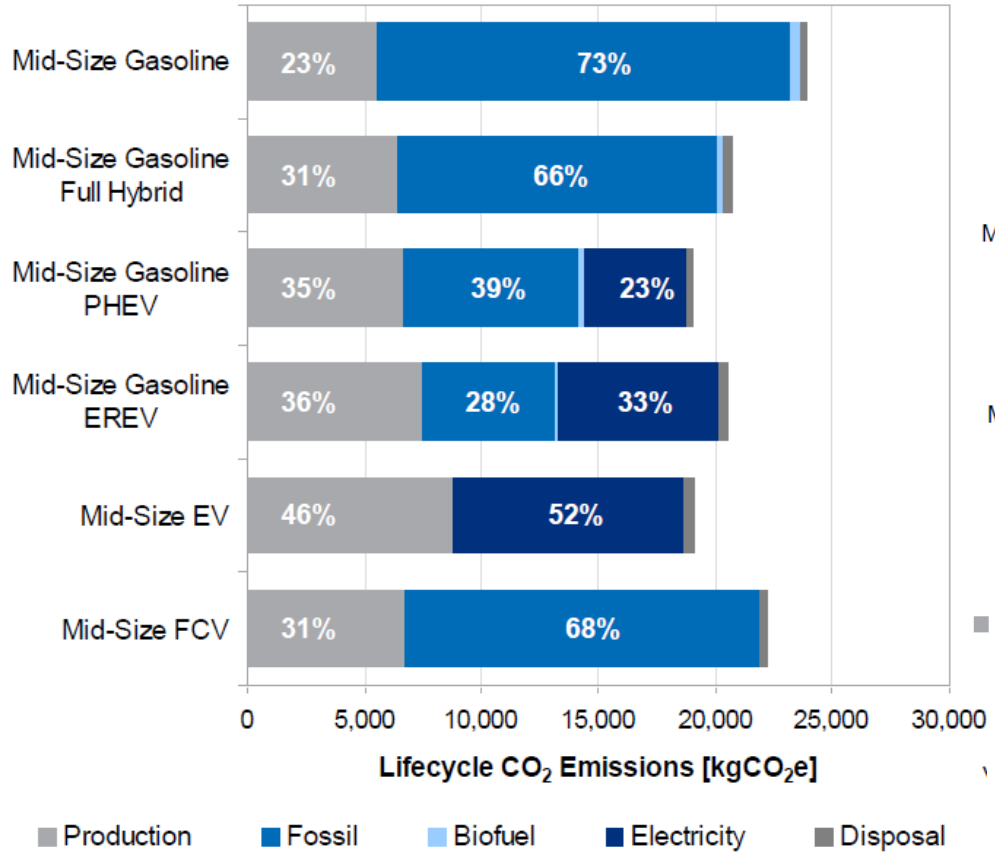
Bio-fuelled vehicles make significant contributions to decarbonizing transport, even compared with electric vehicles



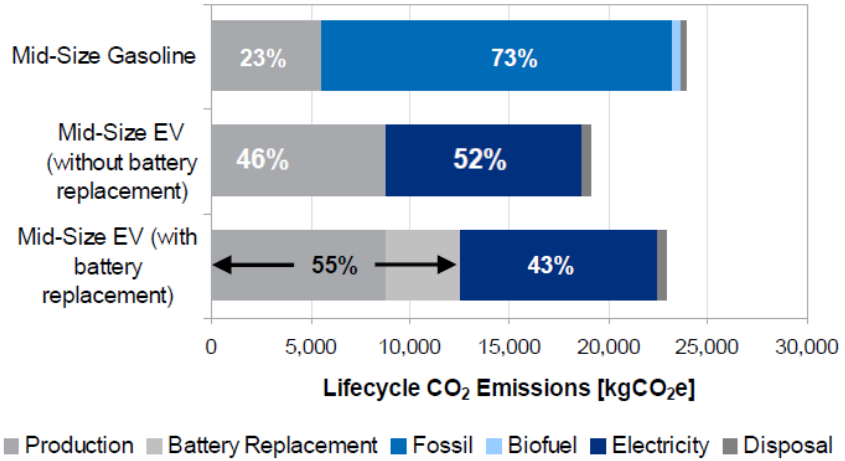
BP analysis

Full LCA analysis shows that hybrids and EVs do deliver lower GHG emissions, but embedded emissions are more significant. Battery reliability is a key factor…..

Comparing Technologies



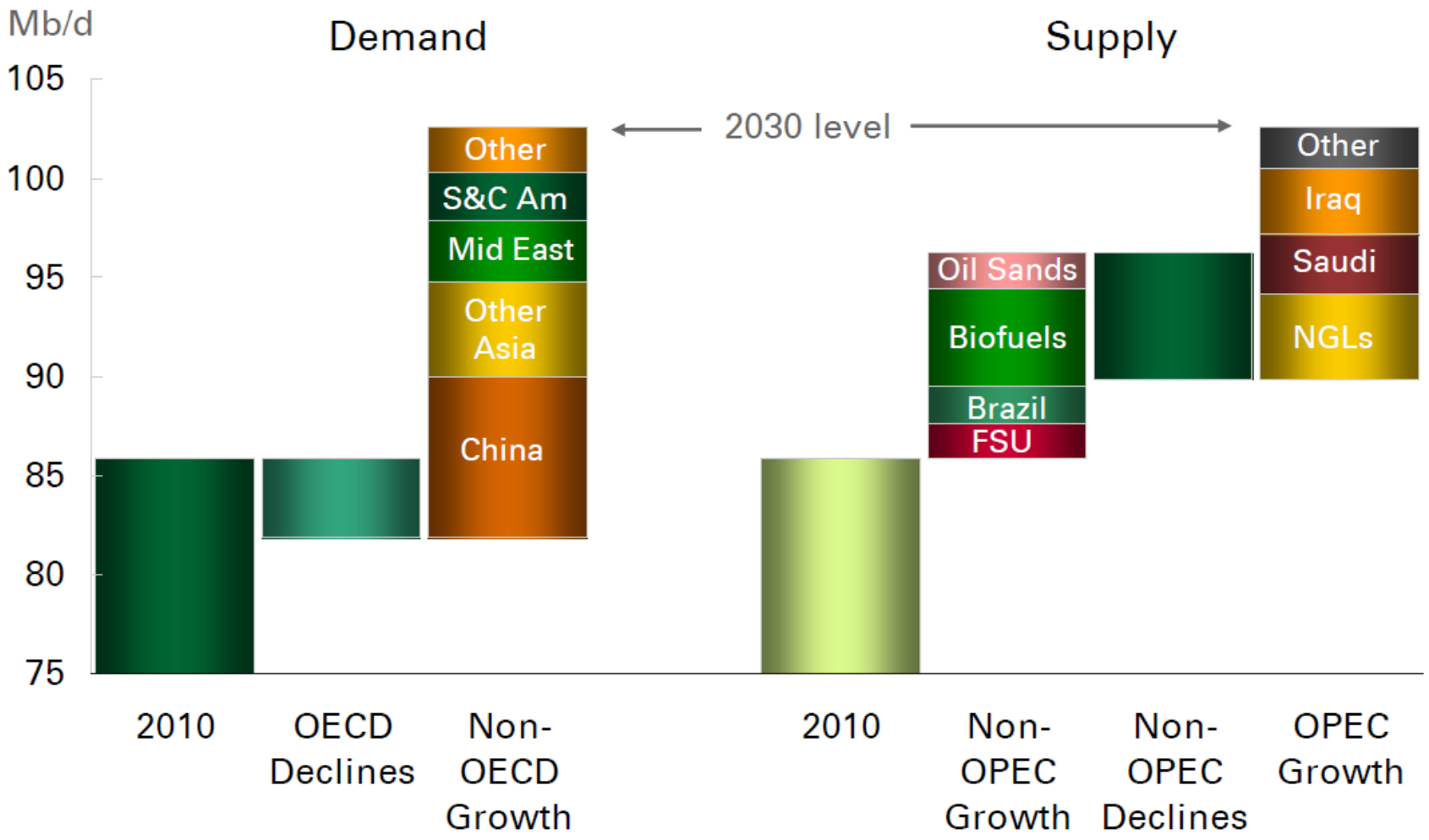
Impact of battery replacement



Vehicle specifications based on roadmap projections for 2015.
Assumed lifetime mileage 150,000 km. Fuels E10 and B7.
Electricity carbon intensity assumed to be 500 gCO_2/kWh.

Source: Ricardo / Low CVP: Preparing for a CO2 Life-cycle measure – August 2011

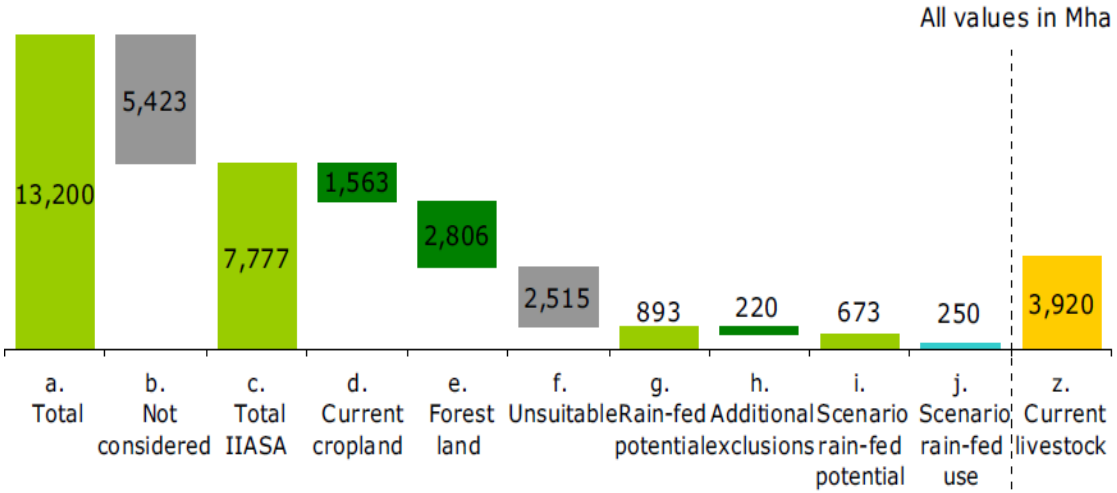
Liquids demand growth from Non OECD countries will be met by supply growth from OPEC and biofuels



Source: BP Energy Outlook 2030

There is sufficient suitable land available for biofuels if we use it wisely….

Globally there exists significant marginal, unproductive land to support material bioenergy (fuel & power) production.



a. Total global land mass (excluding Antarctica)
b. Excluded: protected land, barren land, urban areas, water bodies
c. Total land considered in the IIASA study
d. Excluded: current agricultural cropland
e. Excluded: unprotected forested land
f. Excluded: not suitable for rain-fed agriculture
g. Potential for rain-fed agriculture
h. Excluded: additional land for biodiversity protection, human development, food demand
i. Energy Scenario potential for energy crops
j. Energy Scenario: land use for energy crops
z. Current land used to support livestock (for reference only; overlaps with other categories)

Source: The Energy Report, 2011, WWF

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