

Energy Technology Perspectives 2014

IEA Global Industry Dialogue and Expert Review Workshop

Paris, October 7

- ETP 2014 preliminary results feedback
 - Production, energy use, fuel mix shifts
- Energy market changes and impact in
 - Fuel mix
 - Regional production shifts
 - Regional industrial competitiveness
- Views on BATs values
- Emerging technologies status, expected progress
 - Sector specific emerging technologies
 - CCS demonstration and deployment needs and prospects
- ETP Industry model improvement → data availability
- ETP 2015 potential topic discussion → The role of industry in the climate negotiations

Source	Year	Alumina making [GJ/t Al ₂ O ₃]	Anode production [GJ/t Al]	Ingot casting [GJ/t Al]	Smelting [GJ/t Al]	Secondary Aluminium [GJ/t Al]
Current BAT <i>Tracking Clean Energy Progress/</i> Worrell, et al. <i>Berkeley National Laboratory</i> ¹	2013	10.4	1.21	0.35	49	2.5
World Aluminium Statistics *2012 world averages	2013	13.5	-	-	52.7	-

1 “World Best Practice Energy Intensity Values for Selected Industrial Sectors”

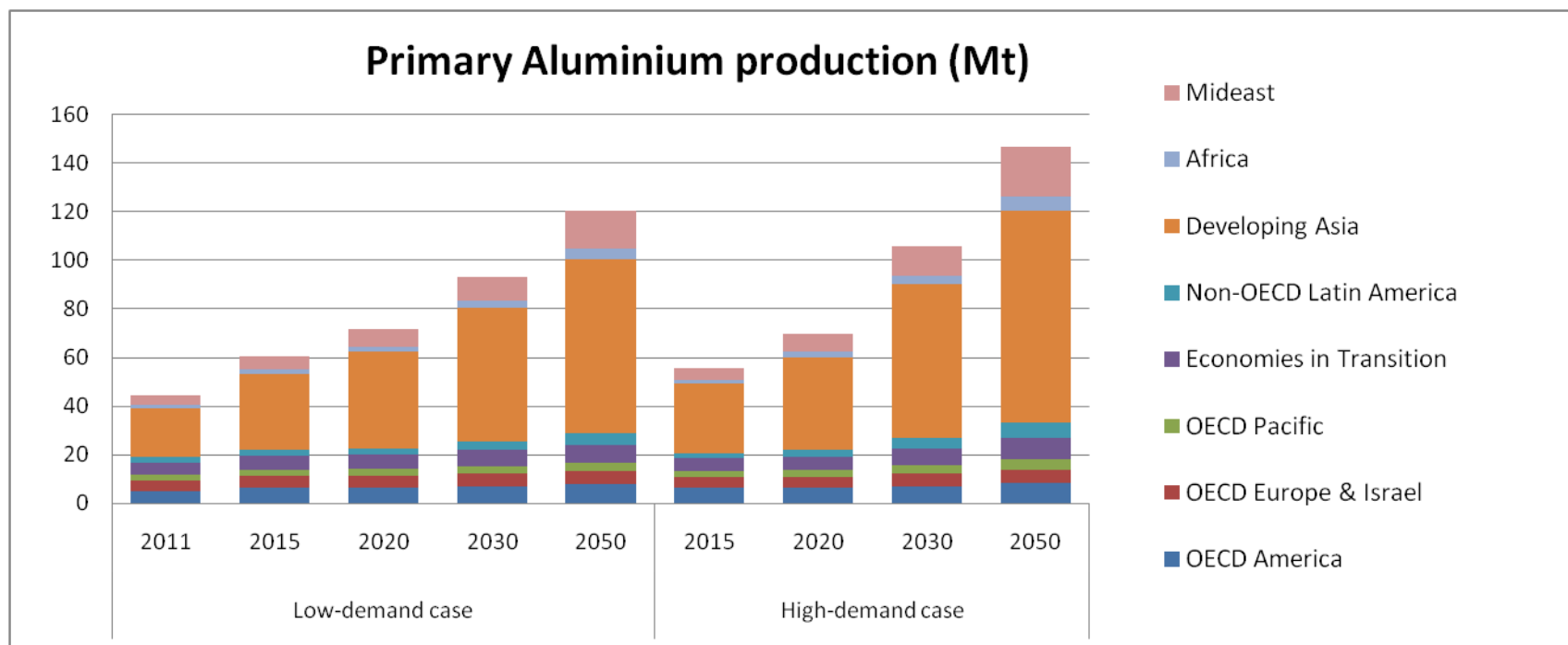
Model improvement: data requirements

- Start conversion to a different platform, future structural changes:
 - Capacity vs production → level of capacity utilisation
 - Capacity characterization by plant size categories
 - Separate modeling of waste heat recovery potentials
 - Improve technologies capital and operational costs assessment

- Waste heat recovery potential by sector
 - Cement industry analysis through IEA India Cement Roadmap → 550 MW existing potential

Aluminium - Production

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Major Primary Aluminium production growth

Developing Asia
Middle East
EITs

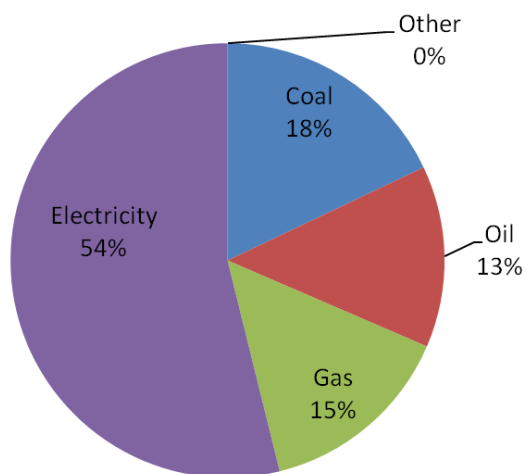
2050 vs 2011 low demand

60%
13%
6%

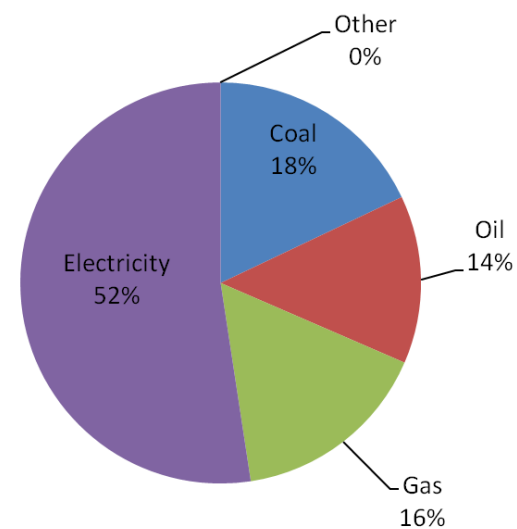
Aluminium - Energy use

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Aluminium energy use 6DS 2050 (Total 253 Mtoe)



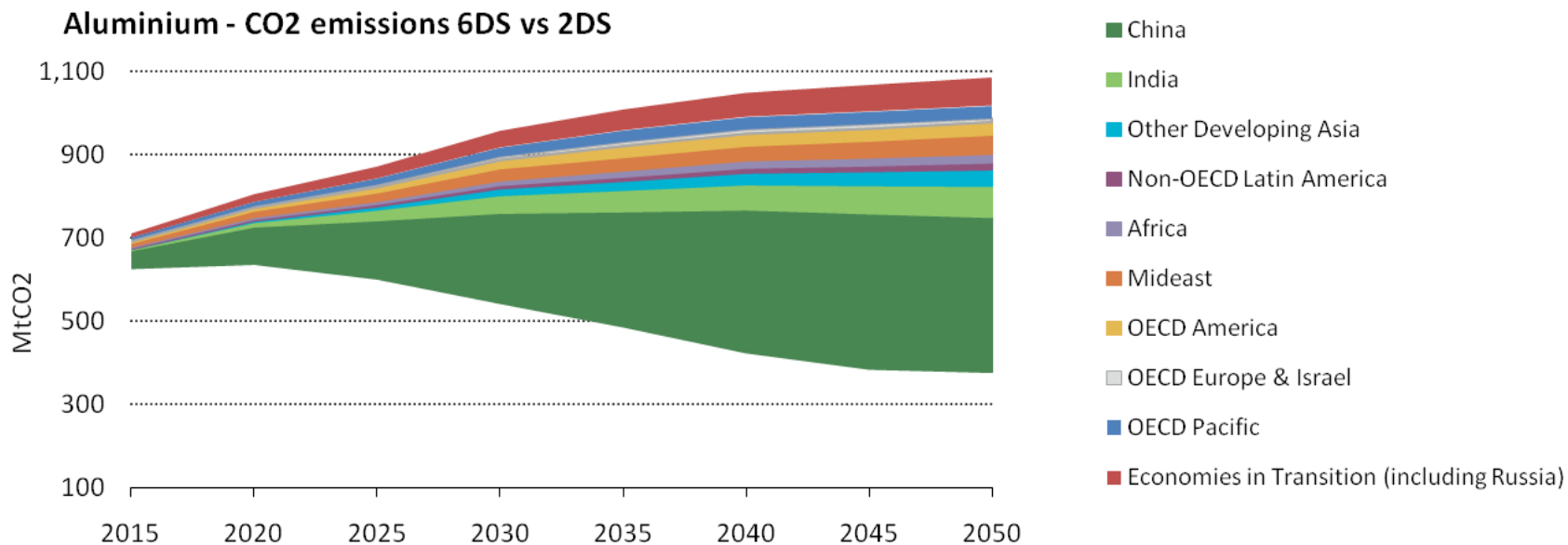
Aluminium energy use 2DS 2050 (2DS) (Total 204 Mtoe)



Note: Other includes: heat, combustible biomass, waste and other renewables.

Aluminium - CO₂ emission reductions

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Major CO ₂ emission reduction contributions	6DS vs 2DS (2050) low demand
China	53%
India	11%
EITs	9%

Note: Direct and indirect CO₂ emissions are included.