

Strategic Materials for a Low-Carbon Future: From Scarcity to Availability
2-3 November 2017 – Session Summary

Breakout 2a: The paradox of extraction and energy consumption in a low-carbon transition

Some extracted materials are essential to low-carbon growth – yet their reserves may not be easily accessible, and the energy required to access them may make extraction economically unviable. This session considers whether increased demand for metals implies a need to access lower grade ores with accompanying consequences for energy use and carbon emissions. Is there an energy threshold where it becomes more cost efficient to recycle rather than to extract? Are there innovative policy or business solutions?

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- Technological improvements in mining have made the extraction process less and less energy intensive for most metals. Mining itself takes only 5 to 10% of energy used by the mining sector, and at most 25% in complicated areas.
- Productivity gains have made it possible to compensate for ore grades deteriorating, but productivity gains means bigger trucks and bigger plants. Can energy for transport and transformation come from renewable sources? At the same time, renewable energy itself requires more minerals.

The real issue will be the management of mining waste: solid waste, water use, and emissions. Lower ore grades mean more waste and higher water consumption.