

Peak water more likely threat than peak oil

Water usage will influence the business of future energy production as much as carbon output, according to Lux Research

The immediate need to reduce carbon emissions has dominated public debate around clean energy production. But the singular focus on carbon has distracted from energy's growing impact on the planet's dwindling water sources, according to the latest report from Lux Research.

The report, titled "Global Energy: Unshackling Carbon from Water," observes that while new energy sources and extraction methods may reduce carbon intensity – kilograms of CO₂ emitted per kilowatt-hour (kWh) of useful energy – they often impose increased water usage.

- Coal and natural gas electricity sources will continue to dominate in the near term. But expect to see more retrofits and upgrades of existing facilities to make them more water and/or energy efficient. Representative solutions include boiler water treatments, like electrocoagulation, advanced ion exchange and membrane electrolysis, as well as dry condensers and cooling tower water recapture.
- Conventional fossil fuels remain leaders for the next few decades, but expect new extraction technologies. Exploitation of oil sands and improved deep sea extraction will continue to make oil the cheapest, if dirtiest, source of energy for automotive drivetrains. But water recycling technologies like desalination and hydrocarbon recovery could reduce the water- and carbon-intensity of oil extraction from new sources like the tar sands.
- Alternative energy sources will grow rapidly, but remain limited overall. The slow roll-out of transcontinental high-voltage DC transmission lines will hinder low-carbon, low-water energy sources like solar and wind. Biofuels use far too much water and are capable of providing too little energy to make up more than a few percent of global needs.
- The future may belong to advanced nuclear electricity. Nuclear is the only low-carbon, low-cost energy source that can reliably meet future electricity needs – but water is its Achilles' heel. However, advanced designs promise to increase efficiency and reduce water intensity, while placing plants on the coasts decouples them from increasingly scarce fresh water sources.

Without a clear perspective on the trade-offs between carbon, water and other factors that this report covers, executives risk making short-sighted business decisions, particularly if they are expanding into global economies like India or China where water is a comparatively rare resource.

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