

The road to resilience – managing the risks of the energy-water-food nexus

First International Forum
Rules of Water, Rules for Life
September, 27 2017 | Milan

About the World Energy Council

Principal impartial network of leaders and practitioners promoting an affordable, stable and environmentally sensitive energy system for the greatest benefit of all.

UN-accredited global energy body, representing the entire energy spectrum:

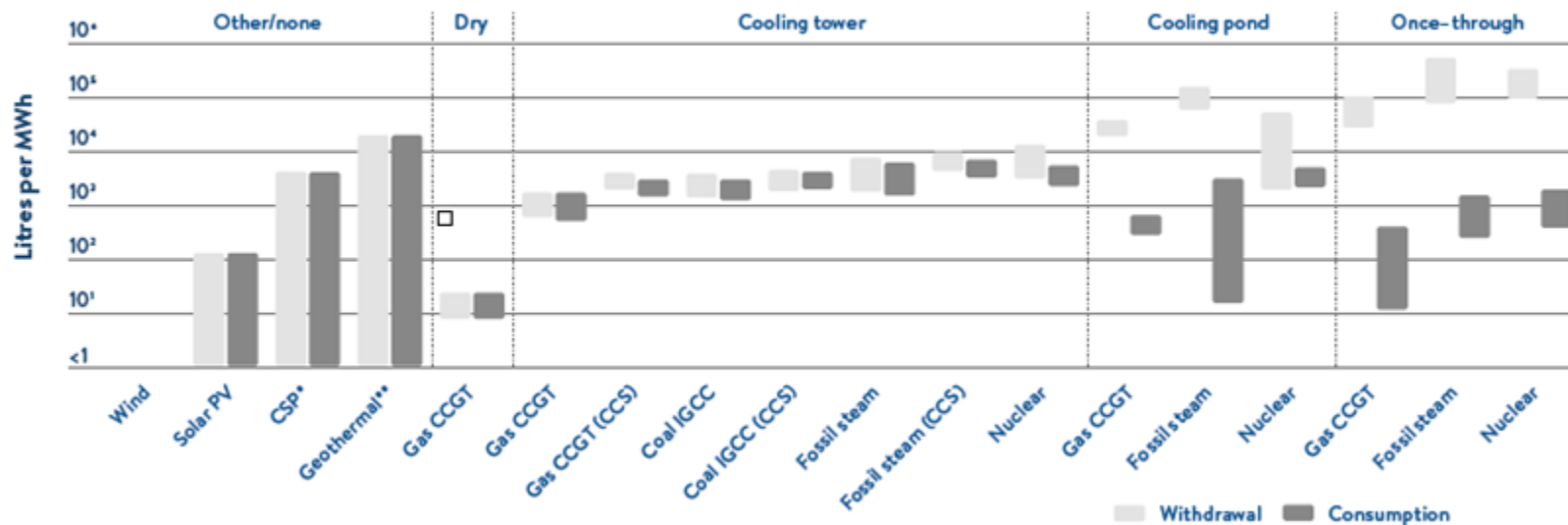
- Over 3000 member organisations in almost 100 countries
- Representing all energy technologies
- From governments, private and state corporations, academia, NGOs and energy-related stakeholders

‘The road to resilience – managing the risks of the energy-water-food nexus’

Is the second in a series of reports that addresses the need for more investment and system change to combat the new emerging risks, including extreme weather, the energy-water-food nexus and cyber risks.

Not all technologies are equivalent

WATER USE BY ELECTRICITY GENERATION TECHNOLOGY

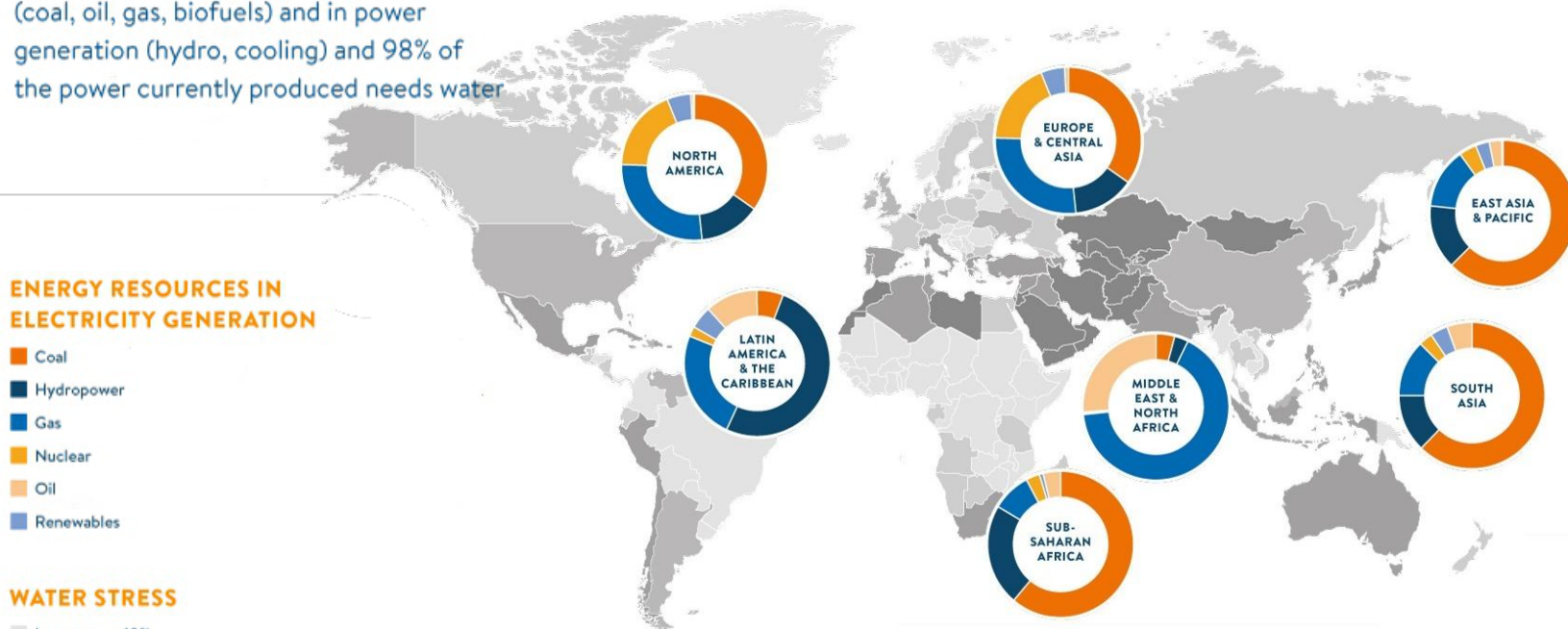


Early analysis indicates that the overall water footprint of the energy sector could be lowered if more power or heat were produced by renewables such as wind, photovoltaics, or natural gas, as they show comparatively low water usage.

Strong regional disparities

ENERGY TECHNOLOGIES AND WATER STRESS: A WORLD OF INCREASING RISKS

Water is used all along the energy value chain in primary energy production (coal, oil, gas, biofuels) and in power generation (hydro, cooling) and 98% of the power currently produced needs water



This map shows the average exposure of water users in each country to water stress and the ratio of total withdrawals to total renewable supply in a given area. A higher percentage means more water users are competing for limited supplies

Recommendations

Integrate nexus in energy infrastructure projects

1. Project developers need to be able to **better understand the water footprint of energy technology choices** being considered in order to mitigate the risks of potential stranded assets
2. Risk assessments should reflect a **comprehensive understanding of long-term risks** by incorporating different **climate and hydrological scenarios** in financial analyses.

This shows investors that environmental and social considerations have been accounted for in the design of energy infrastructure

Integrate nexus in energy infrastructure projects

3. Water scarcity **has to be taken into account** and, where possible, **priced appropriately** to establish an accurate risk profile that reflects the local context. If no market price can be used, companies can use a shadow water price.

Water management and pricing policies must be tailored to ensure that other policy objectives, such as equity considerations, are also met.

Have a reliable and enforceable regulatory and legal framework

4. **Transparent and predictable regulatory and legal frameworks are needed** to promote efficient solutions to balance the interests of competing users and provide certainty to investors.

Governments must **improve water resources monitoring** and implement **sound water governance** to facilitate planning of resilient energy infrastructure by **reducing the risk of unforeseen policy or regulatory changes**

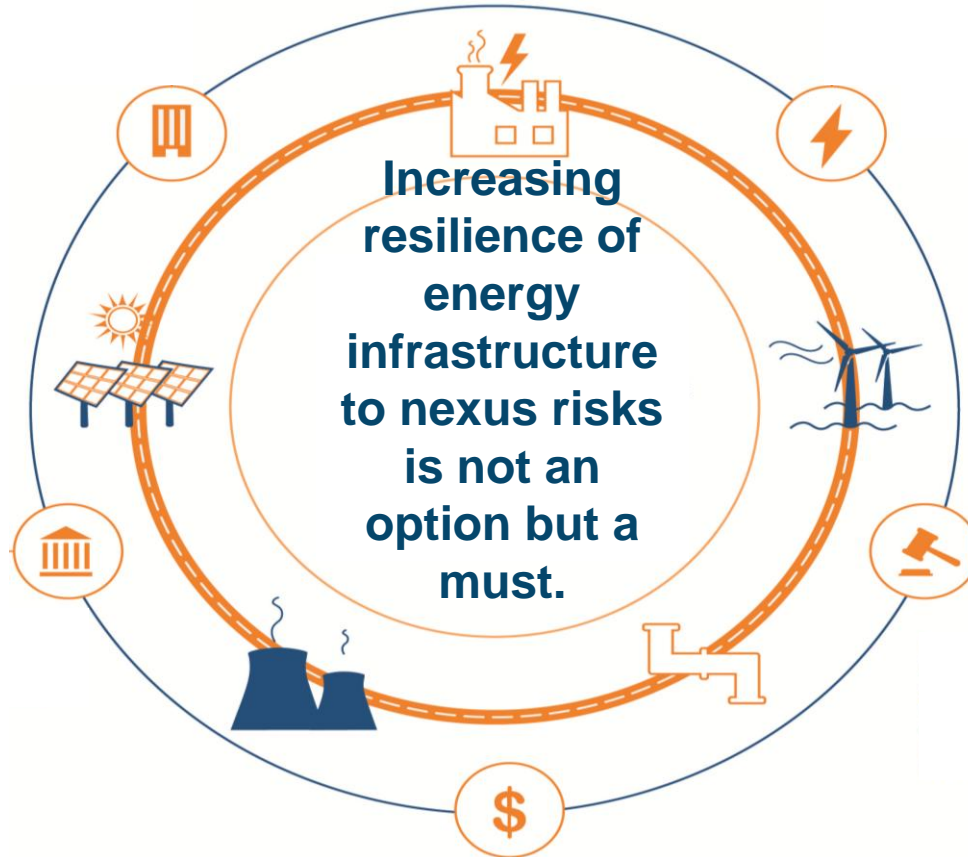
This requires **managing water resources over entire river basins and stakeholders** to address water rights across sectors and jurisdictions

Use appropriate instruments to minimise finance cost and stabilising returns

5. The financial services and insurance industries offer **financial instruments** to address adverse weather impacts, weather-related volume exposures and electricity price volatility combined with unplanned power outages.

These products **are still relatively limited**, but could be used to hedge such risks as water scarcity. They can help stabilize income volatility and reduce risks for investors.

Thank You



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