

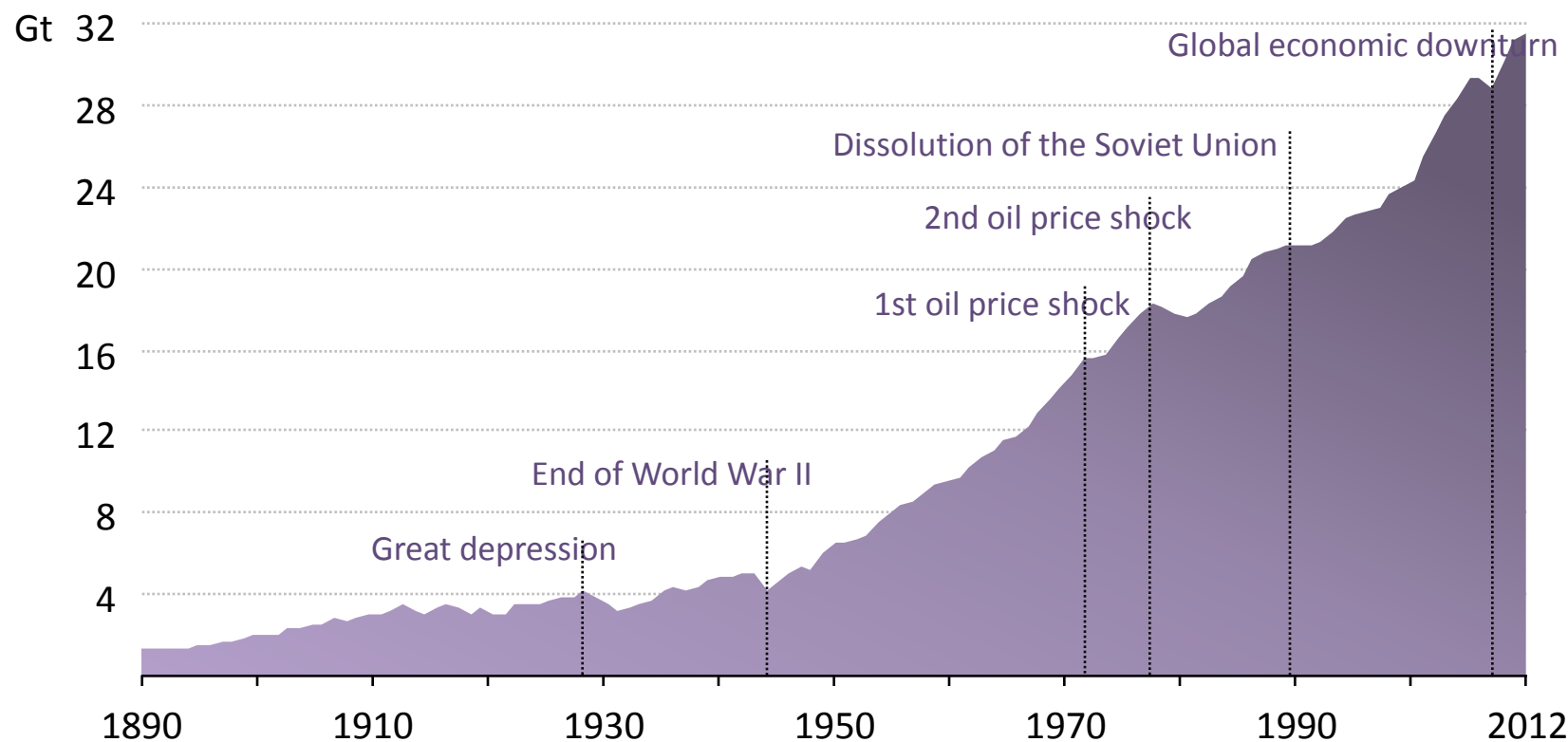
REDRAWING THE ENERGY-CLIMATE MAP

Laura Cozzi
International Energy Agency
Nexus Forum, 25 October 2013, Paris

World Energy Outlook Special Report

Climate change: the world is still moving in the wrong direction

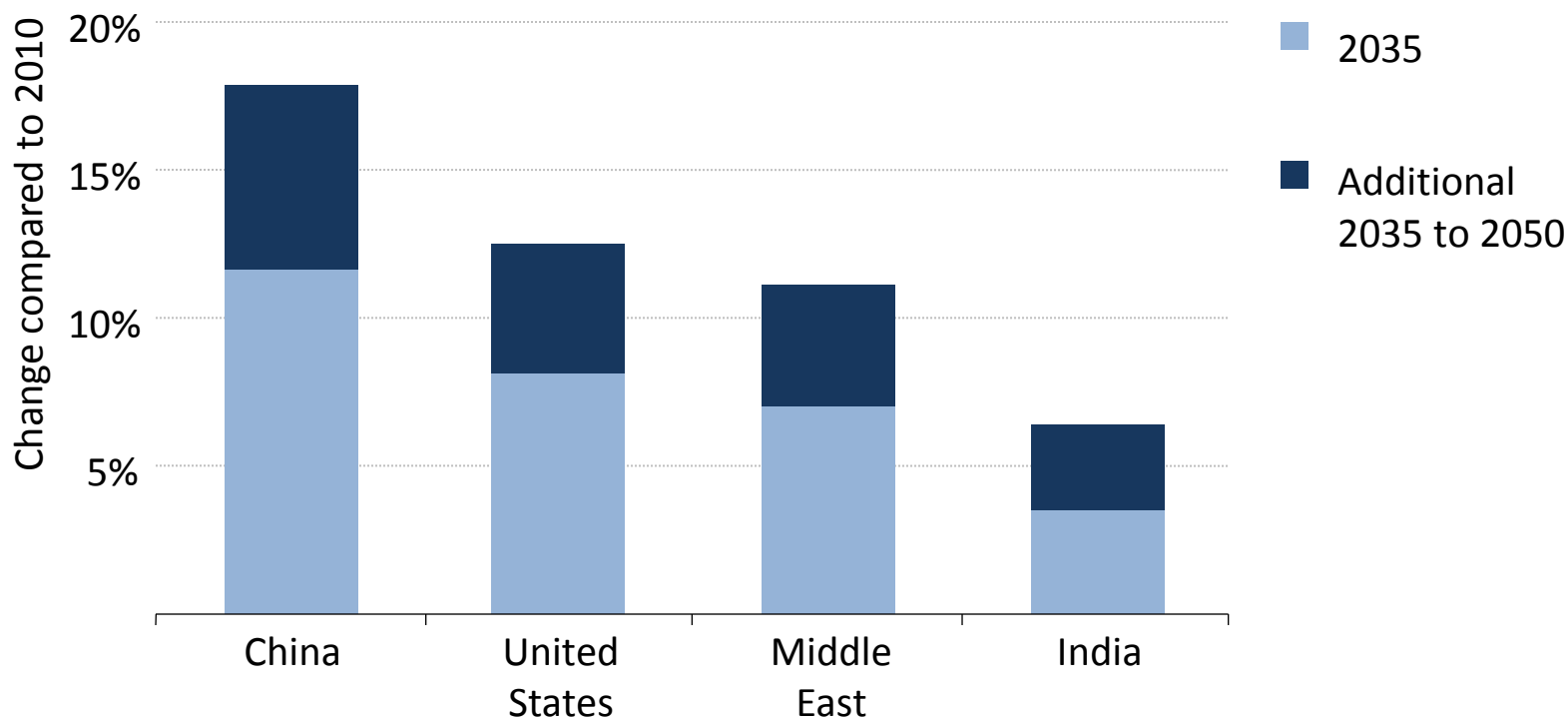
Global energy-related CO₂ emissions



Energy policies planned and under discussion imply CO₂ emissions consistent with long-term temperature increase of between 3.6 °C to 5.3 °C

Ever increasing cooling needs

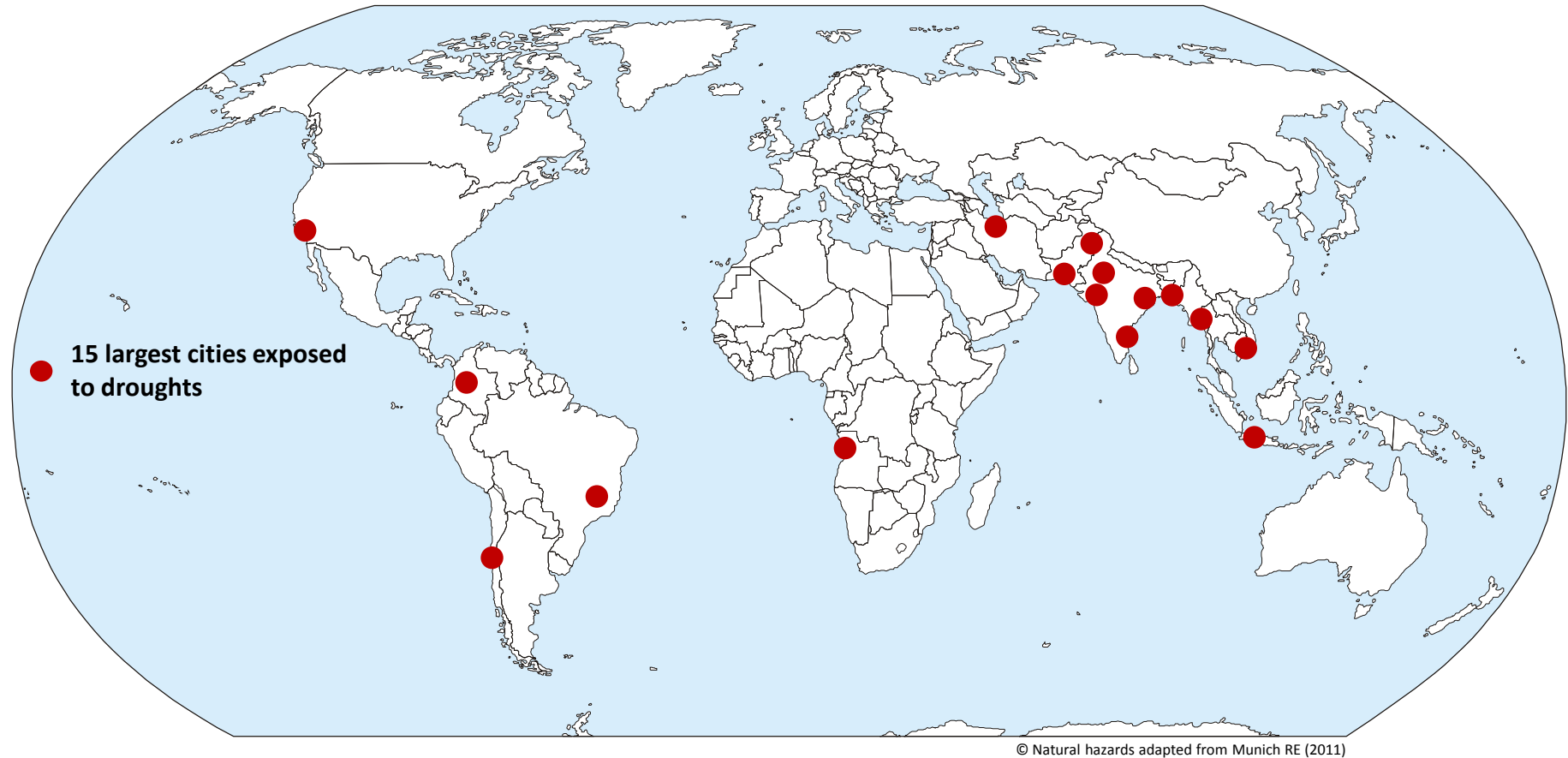
Increase in energy demand for space cooling



Global energy demand for space cooling increases more when taking into account climate change, putting pressure on peak-load demand in some countries

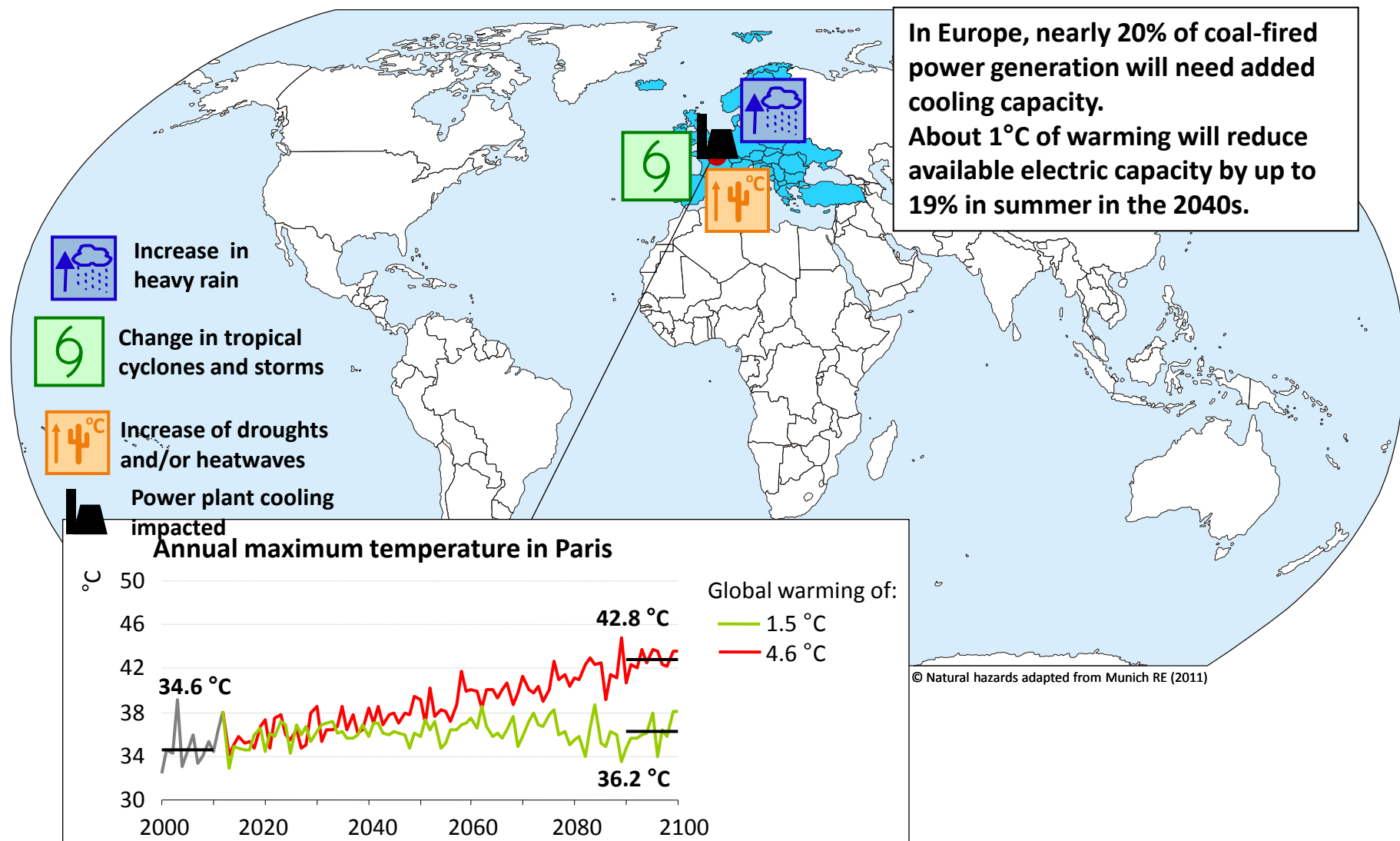
Climate change requires adaptation in the energy sector

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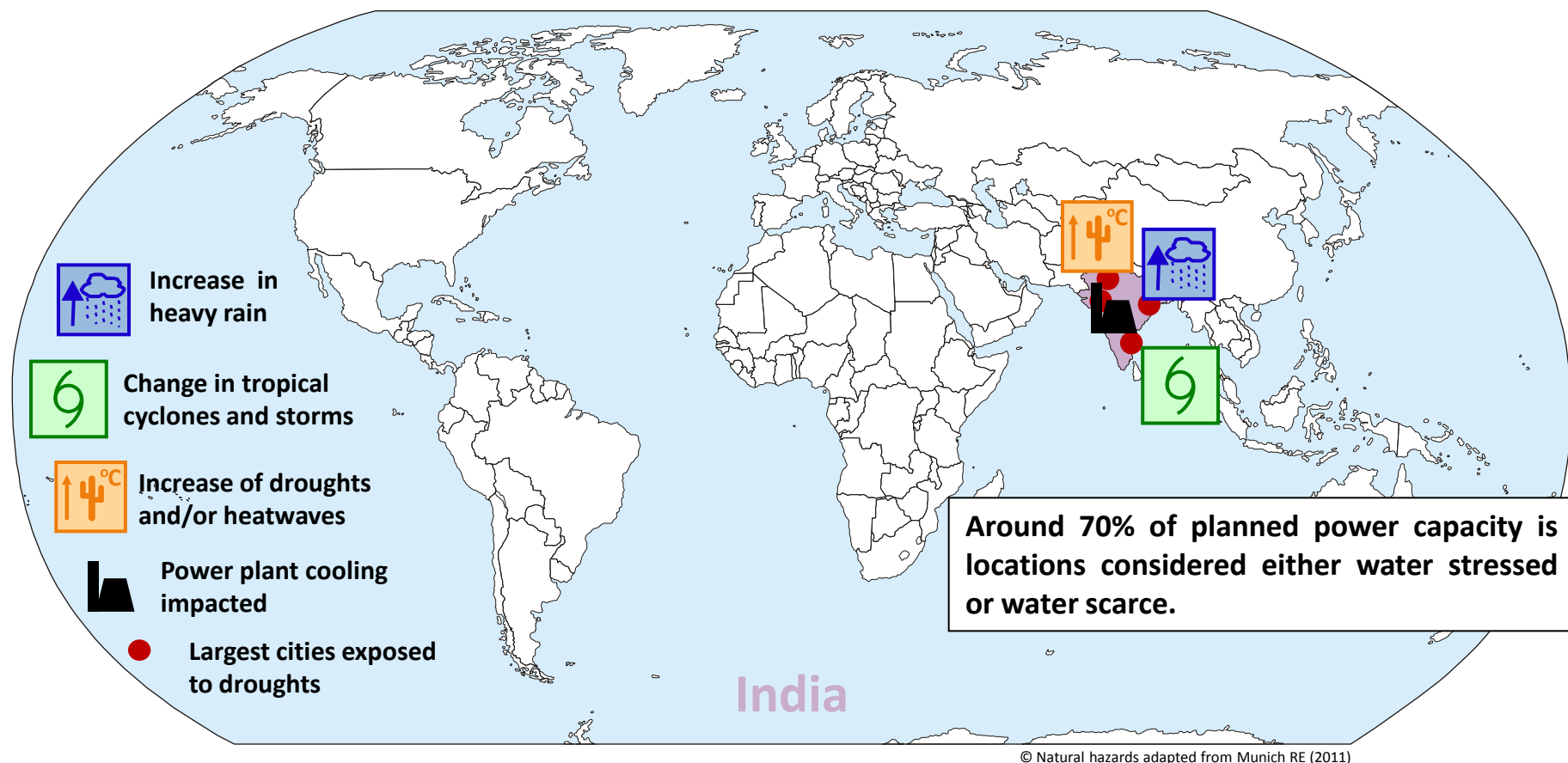
All but one of the 15 most exposed cities to droughts are in developing countries

Climate change requires adaptation in the energy sector



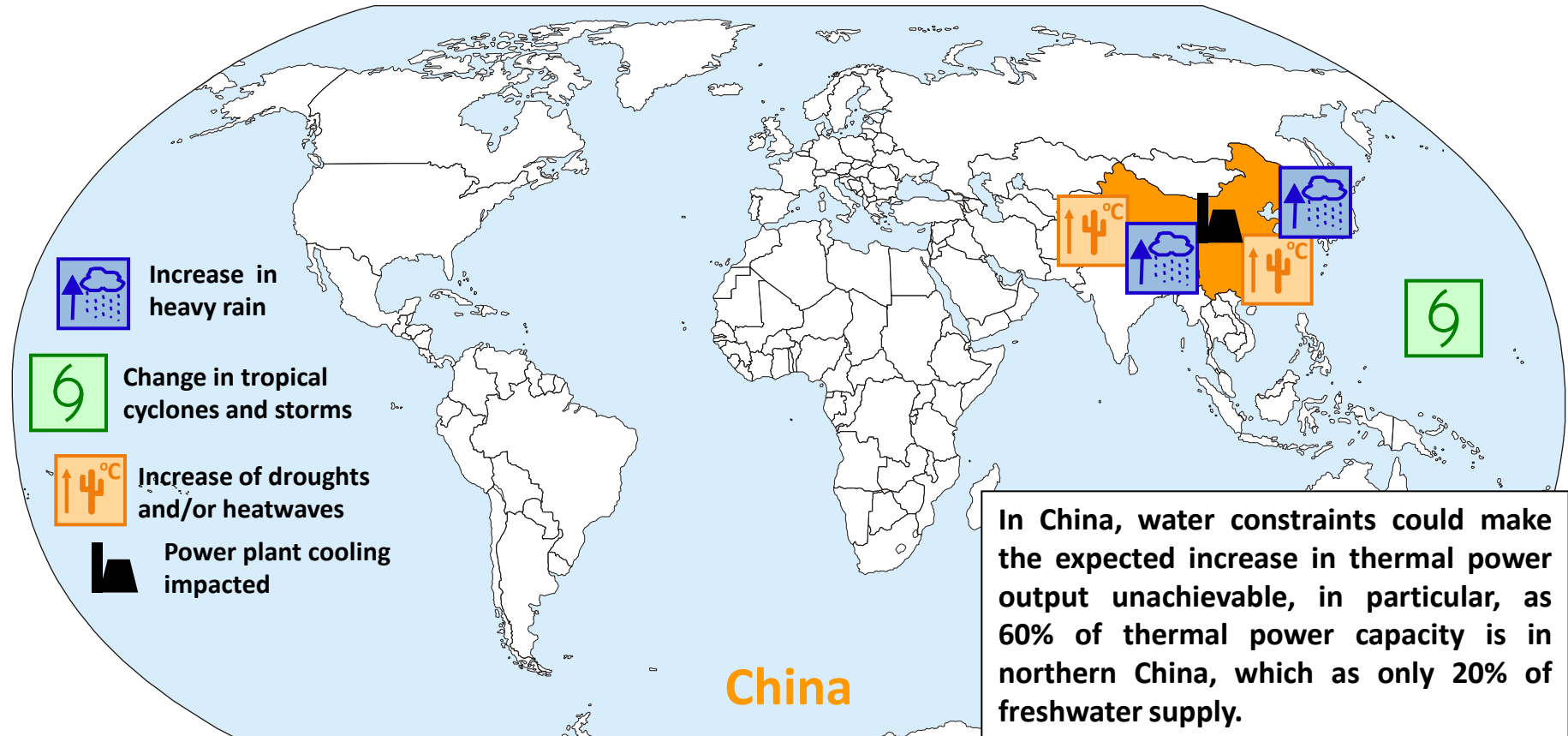
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In India, severe water scarcity will amplify competition for water and determine thermal plants competitiveness and location – while cooling demand grows

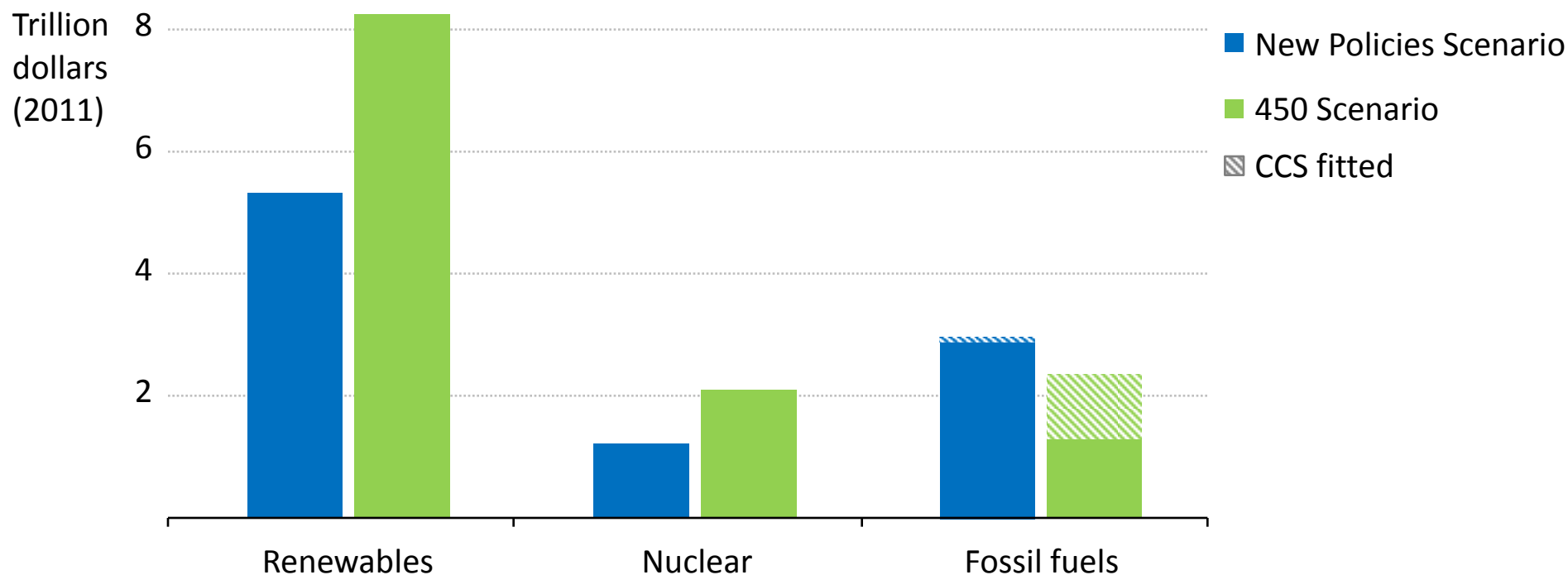
Climate change requires adaptation in the energy sector



Storms, heavy rainfall and increased temperature will impact the power system infrastructure and energy demand

A diverse portfolio matters in the power sector

Net revenues for new power plants by scenario, 2012-2035



Under a 2 °C path, total net revenues for new power plants are \$3 trillion higher – CCS is an effective protection strategy for fossil fuel assets

Conclusions

- Extreme weather and gradual climate change will both affect electricity systems going forward
- Climate change alters long-term energy/electricity demand trends – first quantification in WEO but more analysis needed to quantify each sectoral and regional impact
- Developing countries likely to face most of the adaptation and resilience needs in electricity
- Mitigation strategies will change the energy mix of utilities and determine their profitability and their ability to invest in resilience