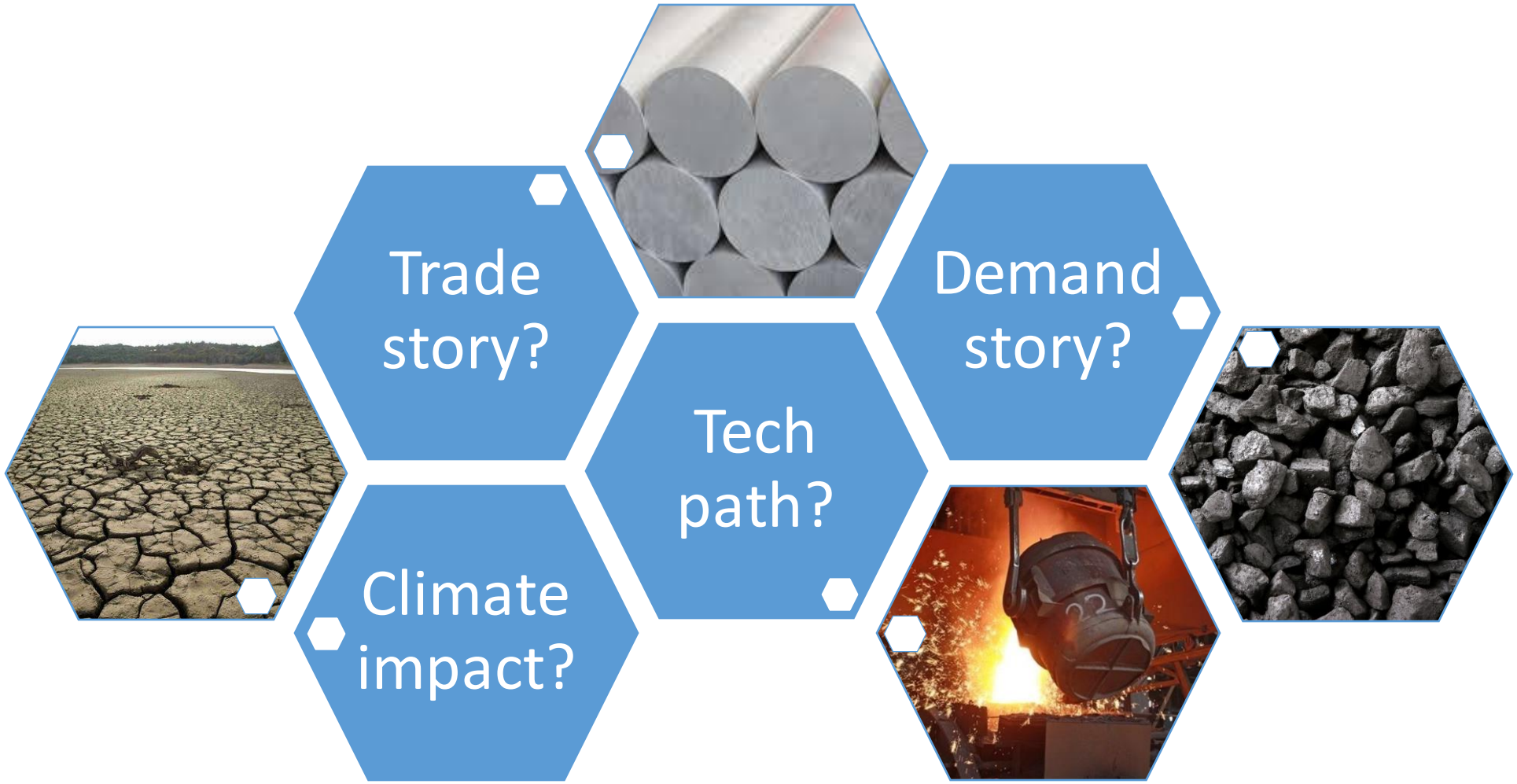
Climate change impacts on business

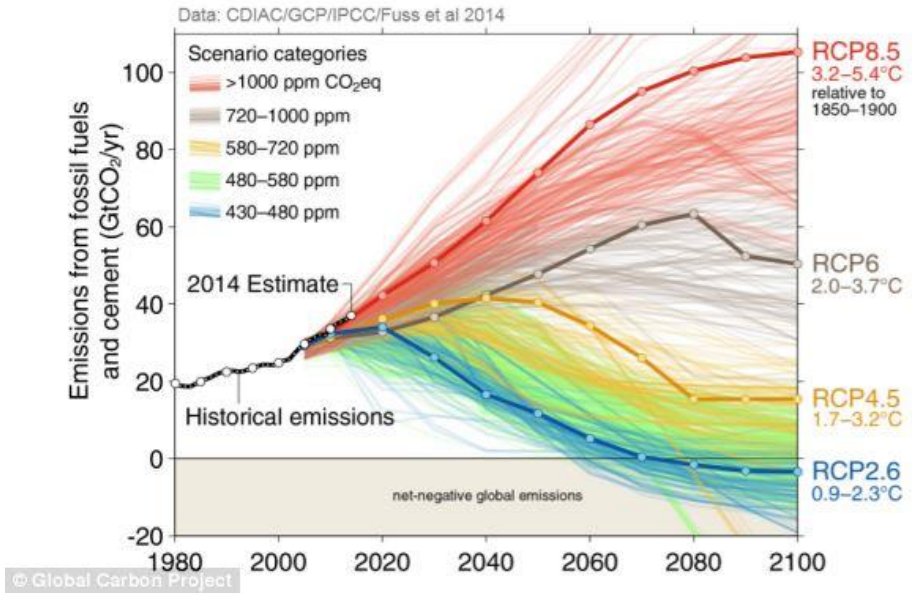
EPA SA Summit

21 April 2021

Think about the questions investors ask businesses on climate

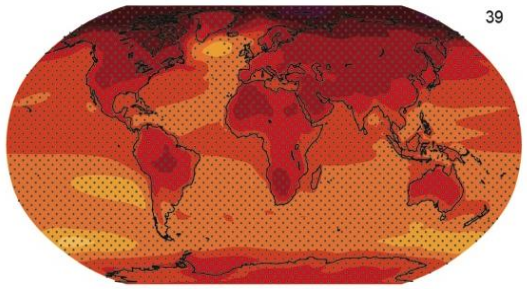


What do I plan for? Scenarios, Regional Variations & Uncertainty



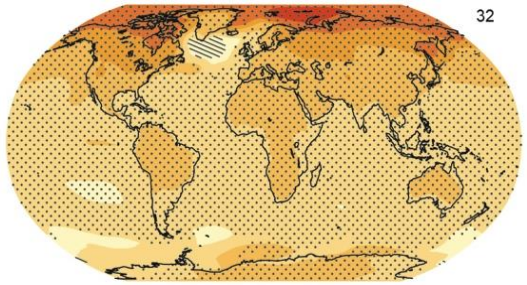
Future averaged warming

RCP8.5 at 2100

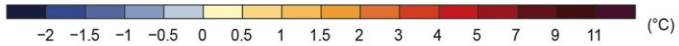


+4ºC over 2000

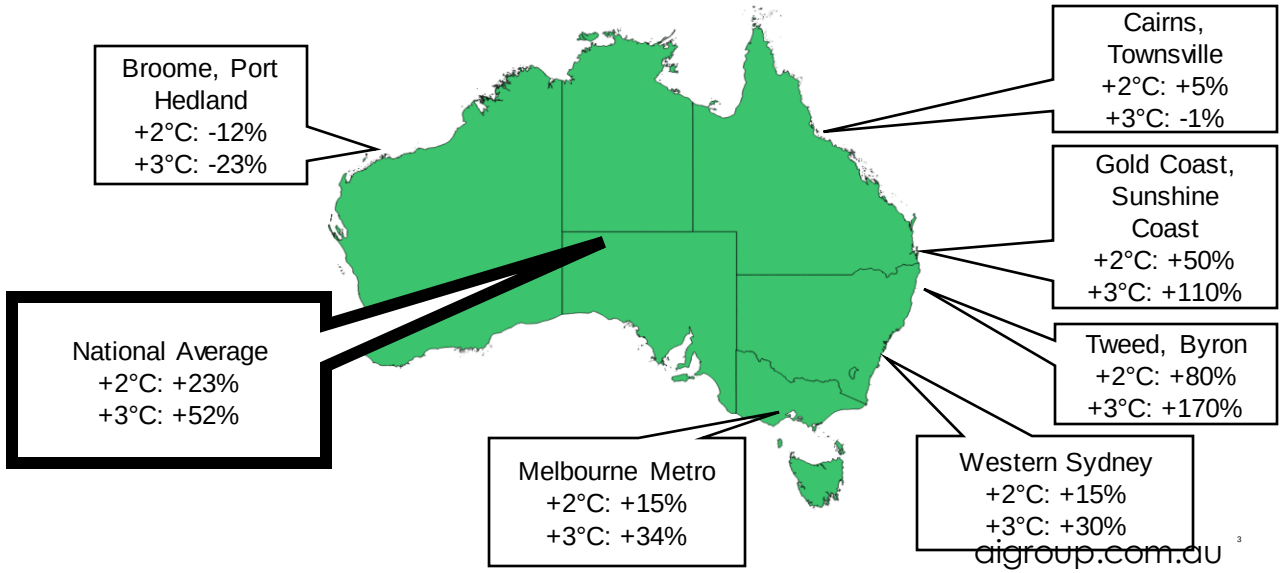
RCP2.6 at 2100



+1ºC over 2000



- Many global climate scenarios are still possible
- For any scenario:
  - Impacts vary worldwide
  - Impacts vary within Australia
- Impact estimates often assume smooth adjustment when disruption, irrational responses are plausible
- Be prepared for ranges, not 'central scenarios'



AiGROUP

aigroup.com.au

Sources: Global Carbon Project; Karl Braganza; IAG Insurance

Physical impacts: infrastructure implications

Issue	Potential impact
Damage to physical assets	• Increased capital costs to rectify damage • Potential loss of revenue if services disrupted
Increased adaptation costs	• Increased capital costs to implement adaption strategies • Increased operational and maintenance cost • Incorporate assessment of climate risks into maintenance cycles • New facilities incorporate climate resilience in design
Operational disruption	• Adverse revenue impacts from weather disruption • Additional operations and maintenance costs • Higher insurance costs • Infrastructure interdependencies
Employee safety	• Extreme weather can increase risk to works e.g. extreme heat days can result in risk of heat stress for workers which could increase the risk of injuries on site and in turn lower productivity.
Increased weather volatility	• For example, changes in temperatures may reduce agricultural production in any given area, and consequently reduce demands on related infrastructure such as ports and rail. `
Reputational risk	• Failure to provide services or restore services in a timely manner can materially impact the businesses reputation and social license to operate. In addition, there is a risk of fines being levied, operating licenses lost or increased regulatory oversight
Regulatory change / Policy uncertainty	• Increased regulatory focus on resilience in infrastructure could cause exposure to increased capital expenditure to implement adaptation strategies.
Macroeconomic risks	• Disruptions in global supply chains • International conflict from resource scarcity

Adapted from QIC presentation to ACR

Spotlight on insurance

Insurance is already a challenge for many businesses

- Ai Group research (Oct 2020) found:
  - Unusual difficulties obtaining insurance for half (53%) of biz polled
  - Of those, half (56%) cited unusually high premium growth
  - Global climate disasters raised reinsurance costs, impacting locally

For future, keep in mind:

- Compound / repeated impacts
- Will some areas/activities become uninsurable? Should they?

Spotlight on water

Impacts:

- Current declines in soil moisture, rainfall, runoff; but large annual variability, maybe increasing, in SE Australia
- Winter runoff and streamflow likely decrease; flash flood increase
- MDB groundwater decrease expected to continue

Implications:

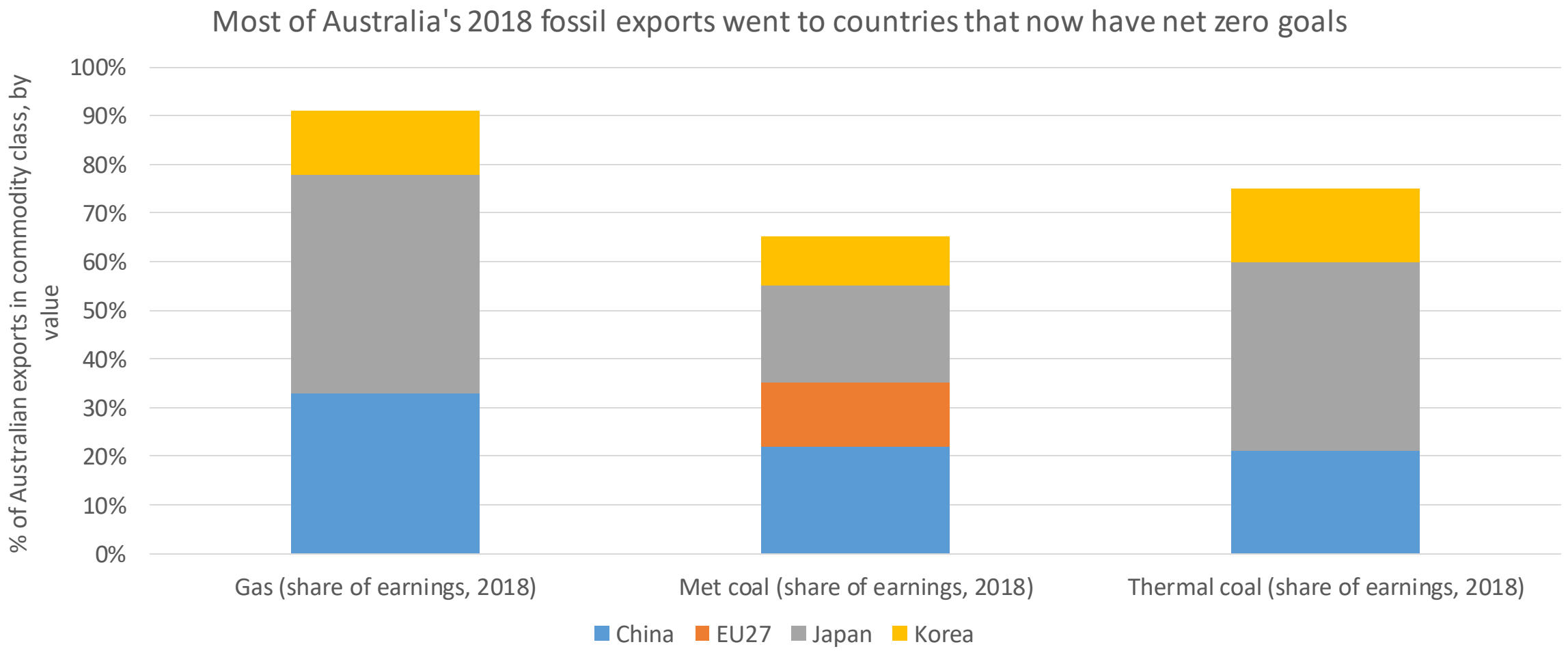
- Commodity value of water increasing, entitlements shifting to higher value crops
- Dryland agriculture in some regions will need to adapt to changing rainfall and soil moisture timing and amount.
- Increased investments into resilient drinking water sources will be needed.
- Possibly investments into resilient water production in other sectors.
- Cost of adaptation could be relatively high – conflicting needs of drought and flood adaptation.
- Some environmental assets may not survive.

Adapted from BoM presentation to ACR

Mitigation: what can we do?

Activity	Current solutions	Future solutions
Power	Attractive: PV, onshore wind, hydro & battery storage, smart demand Problematic: CCS, Gen III nuclear, geothermal, solar thermal	Ever-cheaper PV/wind, offshore wind, novel storage chemistries, SMR nuclear, Allam Cycle + CCUS
Heating	Efficiency, electrification (low-temp), geothermal	High-temp electrification, hydrogen, biogas, solar thermal, nuclear heat
Transport	Zoom, modal shift, BEVs (light), HEVs (heavy duty) Problematic: biofuels	Heavy duty EVs, short-haul electric planes and ships, hydrogen ships, synthetic fuels, advanced biofuels
Industry	Al: inert anodes; cement: input substitution; steel: biochar; all: recycling and recovery	Al: flex production; cement: CCUS; chemicals: H2, bio; steel: H2, CCUS;all: material substitution
Agriculture and land	Livestock/soil management, reforestation, plant-based meats	Feed supplements / methane treatments, BECCS, cultured meat

Mitigation – how will other countries' actions impact us?



Source: Resources and Energy Quarterly, March 2019 https://publications.industry.gov.au/publications/resourcesandenergyquarterlymarch2019/

Back to those questions

Climate impacts:

- Look beyond central scenarios and national picture
- Ask your supply chain what their exposure & expectations are

Transition: doable overall, lightly touches many, tough for some

Trade: costs of action need to be managed, but action supports competitiveness

Demand: big risks to some sectors, Australia needs hedges

Investors, regulators, customers and staff are increasingly keen for good answers from biz on climate exposure, strategy and policy

Thank you

For more information visit:

www.aigroup.com.au

australianclimaterundtable.org.au

www.csiro.au/en/about/challenges-missions/Climate-mission

Twitter: @TennantReed