

Climate change, and the road not yet taken

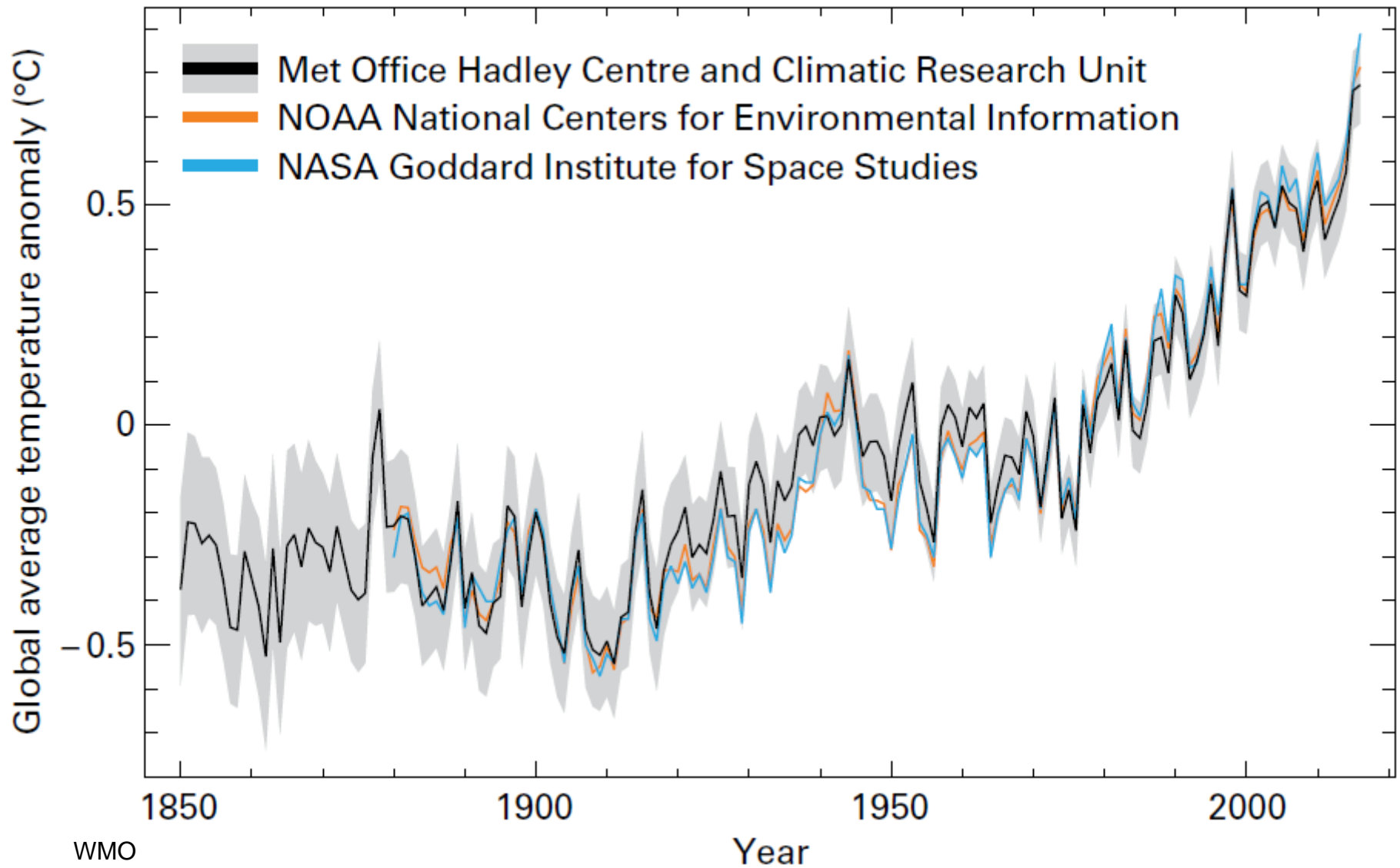
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Foto: Markku Rummukainen



Not an academic exercise



2°C

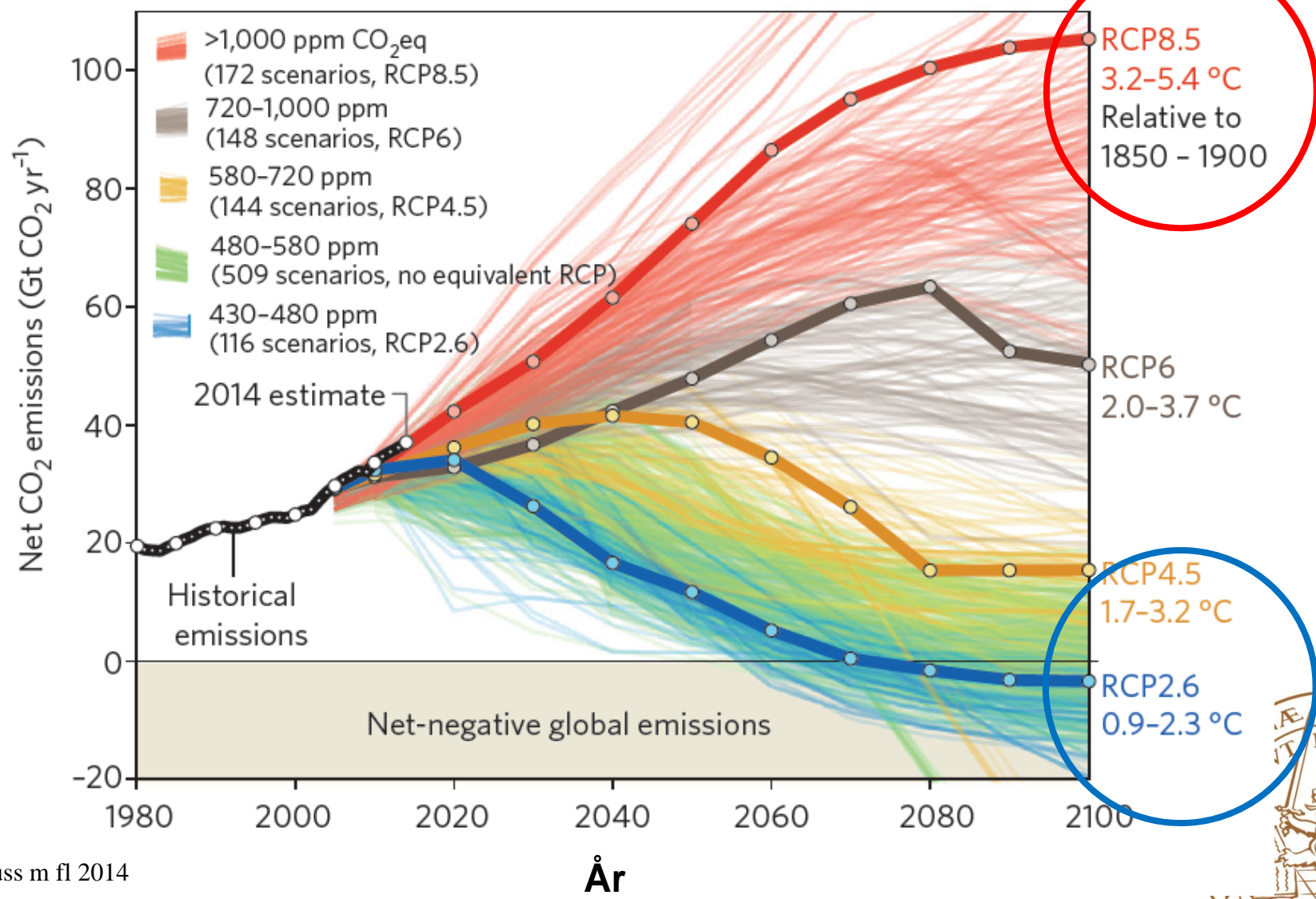
4°C

6°C

3°C



Thousand(s of) possible roads to take



Not all roads are equally likely



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

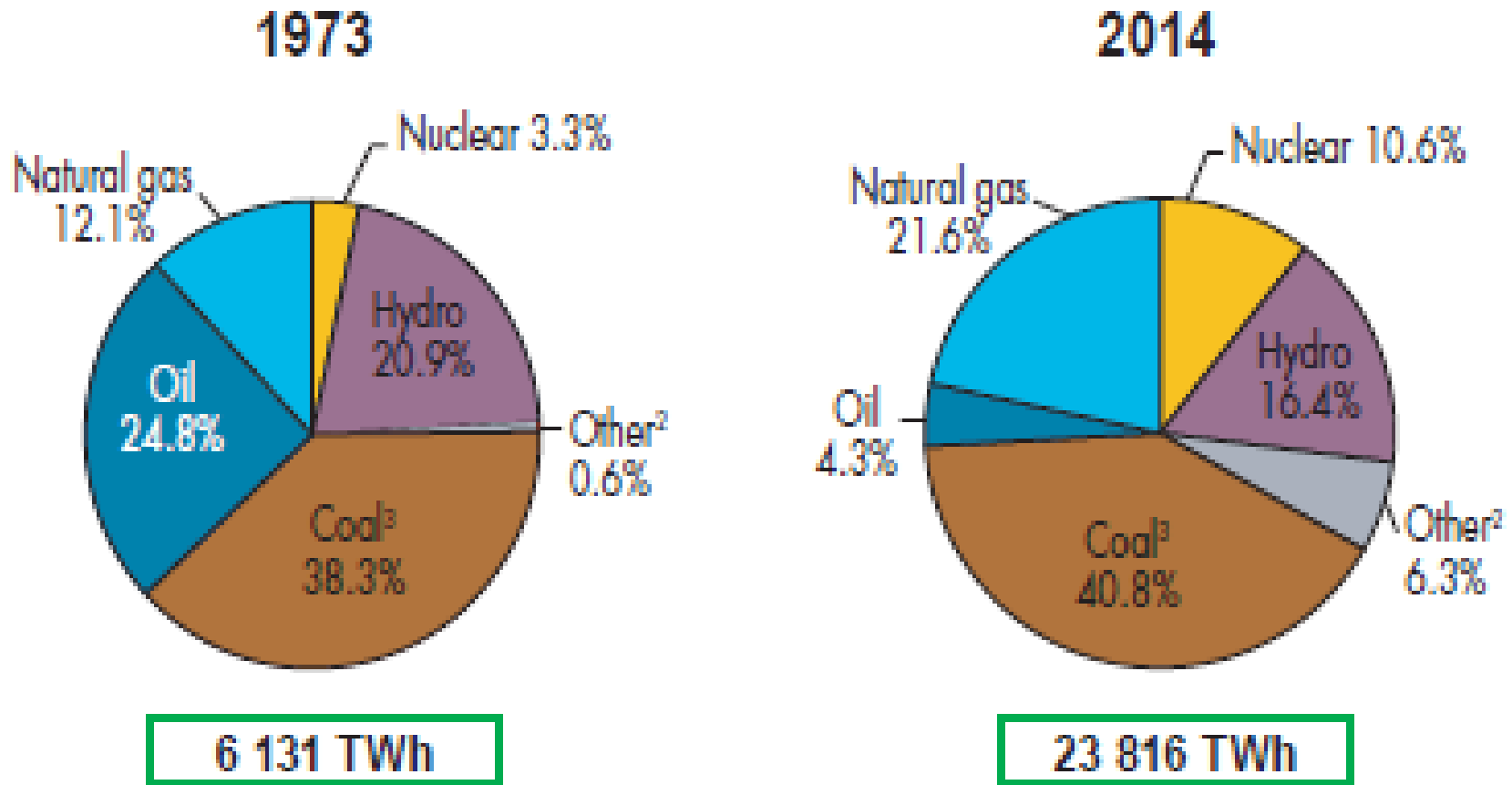
“...well below 2 deg C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 deg C...”

– *Paris Agreement*



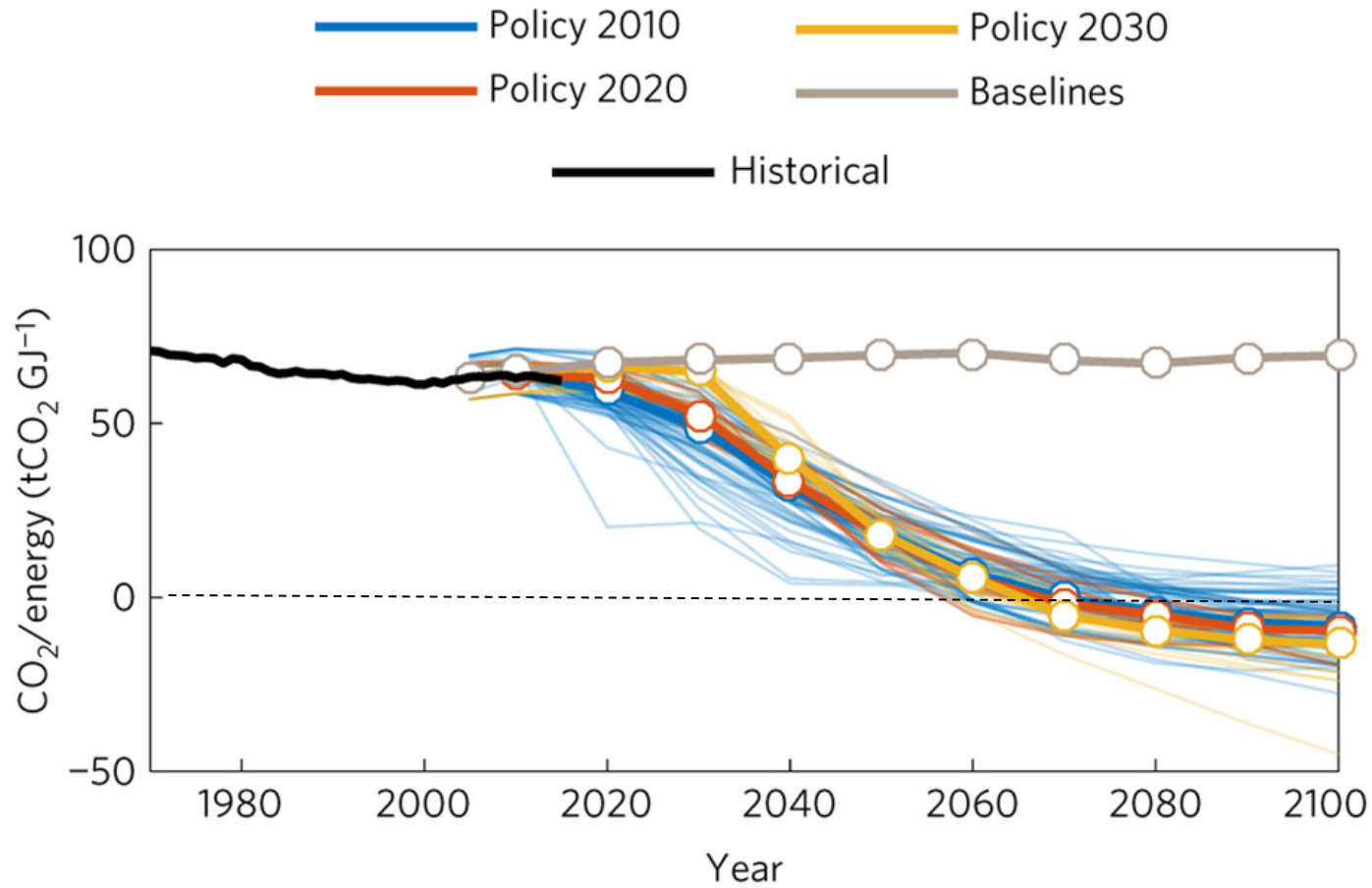
Going somewhere?

Electricity generation by fuel



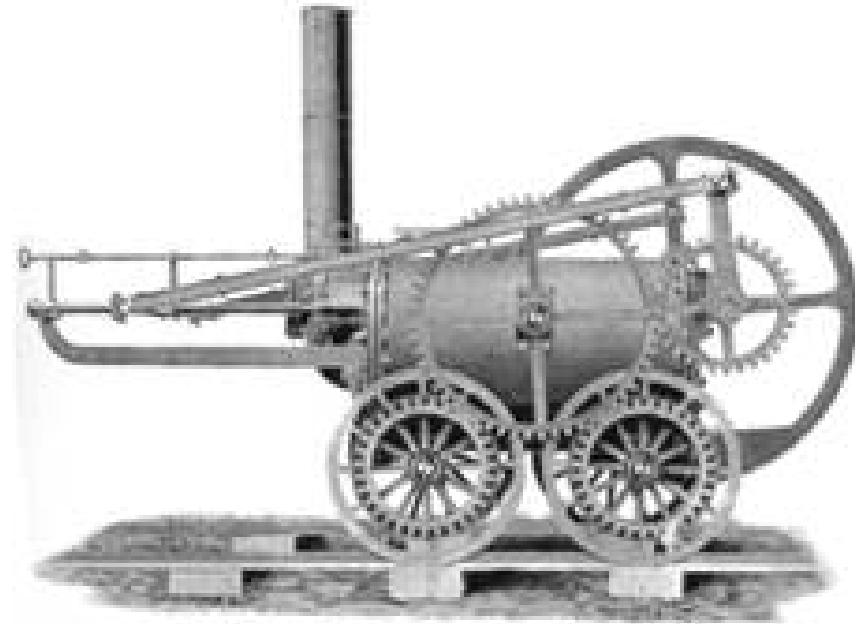
Need to look for an exit

Carbon intensity of energy and 2 deg C...

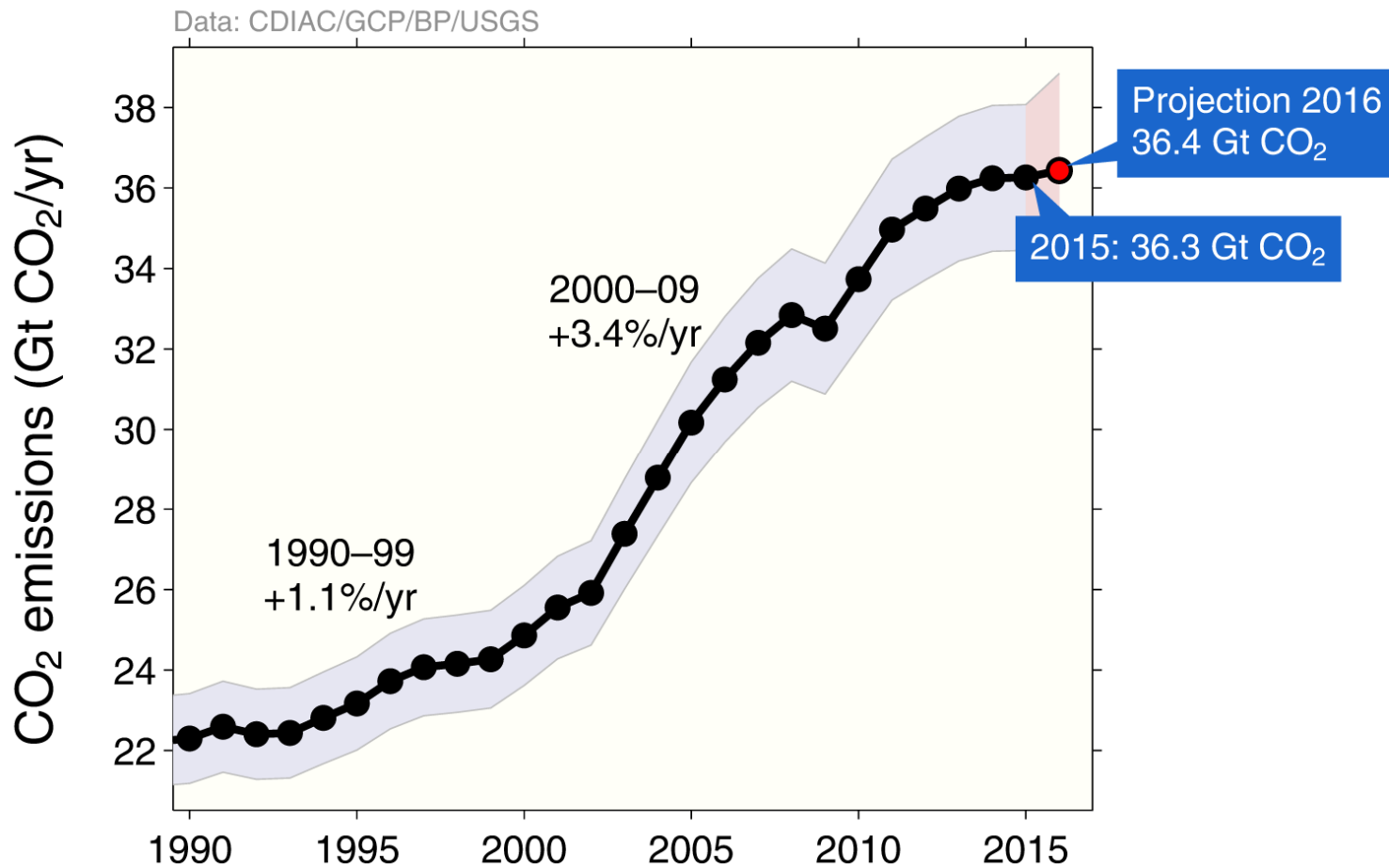


Yesterday's solutions are today's problems

- Old
- Not particularly efficient
- Not particularly sustainable
- Improvements incremental



Point of return? Global CO₂ emissions



Never know what is around the next bend

Largest-ever solar farm, in India. With robot cleaners



Never know what is around the next bend

"The oil industry is the next major market for the solar industry"




Innovation (engine). Enabling policy (road)

- "Well below 2 deg C"
 - the destination
- Policy
 - the road
- Investments, innovation, norms, cooperation
 - the speed



cartoonsmix



A large array of solar panels is shown in a field, with the sun setting in the background, creating a bright glow on the water and the sky. The panels are arranged in a grid pattern, and the sun is low on the horizon, casting a long, bright reflection on the water. In the distance, a city skyline is visible under a hazy sky. The overall scene is a mix of natural and man-made elements, symbolizing the transition to renewable energy.

Climate change, and the road not yet taken

- Too late to turn back
- Alternative destinations
- Less options over time
- Innovation a wild card

