There are a range of energy technology mixes and pathways to meet climate targets.

WHAT WILL ENERGY LOOK LIKE IN 2100?
These models illustrate 3 possible options for meeting the global need for energy whilst limiting warming to 2°C.
Solar PV accounted for 20% of new power generation capacity in 2015 and its uptake is accelerating.

Solar PV: global installed capacity, 2006 – 2015, and possible investments to 2030 (IRENA)

Actions to increase deployment:
- Technology improvements
- Cost reductions
- Streamlined grid integration
- Affordable storage
- Access to capital
- Deployment policies
- A well-trained workforce
- Robust domestic manufacturing

Projections for 2030 are in accordance with IRENA’s REmap analysis.
Energy Storage is expected to play a crucial role in moving towards a low carbon energy system.
Onshore wind power is one of the most competitive options for new generation capacity

- Global wind power capacity: 433 GW²
- Onshore wind costs have fallen 50% since 2009, with a learning rate of 19%³ – now highly cost competitive against new-built conventional power plants
- Onshore wind accounts for over 1/3 of the renewable capacity and generation increase in 2015

¹Map produced from Renewables.Ninja
²Global Wind Energy Council
³Source: Bloomberg New Energy Finance
Carbon Capture and Storage is seen as essential in achieving emissions reduction targets at the lowest cost.

When applied to power stations, CCS can provide flexible, mid-merit, low-carbon electricity generation.

Is currently the only technology that can help reduce industrial CO2 emissions at scale.

If successfully combined with bio-energy (BECCS), it has the potential to generate negative emissions – pivotal in ~90% of the 2°C scenarios published by the IPCC⁴.

Without CCS it may be much more expensive and potentially unfeasible, to limit temperature rise to 2°C.

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⁴ AVOID 2 research
Bioenergy is expected to play a critical role in mitigation efforts but sustainability concerns are unresolved.

- Bioenergy is the largest global renewable energy contributor
- IPCC sees a significant role for bioenergy, and nearly all 2°C scenarios require bioenergy with CCS
- Policy is driving increased bioenergy production and trade
- As deployment has increased – so has controversy around impacts and unintended consequences.

1IEA Bioenergy Conference 2015