WHAT WILL IT TAKE TO ACHIEVE 2°C?

Delaying action to 2030 will increase the costs of decarbonisation.
It will also mean we will need to introduce new technologies more quickly.

HOW MUCH WILL DECARBONISATION COST?

Mitigation costs as share of global GDP over the 21st century[1]

GLOBAL ACTION BY 2020	**1.7%** GLOBAL GDP
GLOBAL ACTION BY 2030	**2.2%** GLOBAL GDP

HOW FAST WILL WE NEED TO DECARBONISE?

Modelled rate of decarbonisation required (%/year)[2,3]

0% -5% -10% -15%

GLOBAL ACTION BY 2020	2–9% a year
GLOBAL ACTION BY 2030	7–14% a year

4% fastest known sustained annual rate of decarbonisation[5]

HOW FAST WILL WE NEED TO DEPLOY KEY TECHNOLOGIES?

Deployment rates (up to ... GW/year)[2,3,4]

	GAS + CCS	BECCS	NUCLEAR	WIND	SOLAR
GLOBAL ACTION BY 2020	80	52	83	48	23
GLOBAL ACTION BY 2030	160	100	64	75	130

WAITING UNTIL 2030...

...will cost 30% more[6]

...means decarbonising two to three times as fast as if we start in 2020

...means deploying key low-carbon technologies at rates far greater than 50 GW/year: as fast as coal use increased at the start of the 21st century

2000–2010 average annual deployment rates (GW/year)

COAL	GAS	NUCLEAR	WIND	SOLAR
50	20	20	15	4

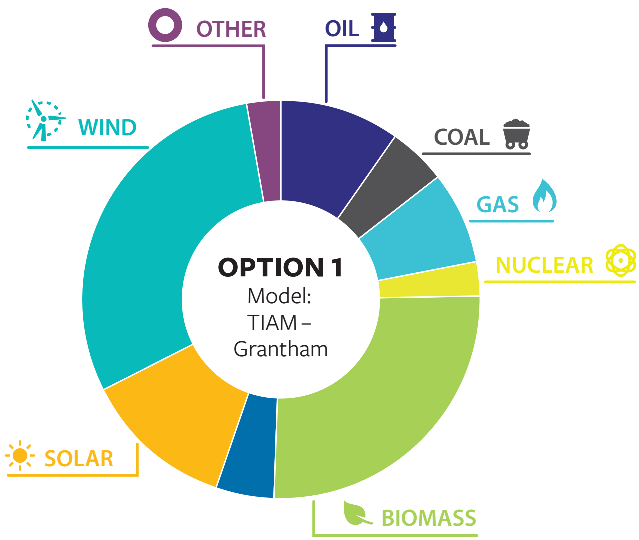
1. Using one illustrative model that fits IPCC range
2. Using a range across three models
3. Rate is for the decade following start of action
4. Deployment rates are average annual rates over the decade following the start of mitigation action
5. Maximum average annual decline over a decade, Sweden 1973–1983
6. Delaying the deployment of key technologies would further increase mitigation costs

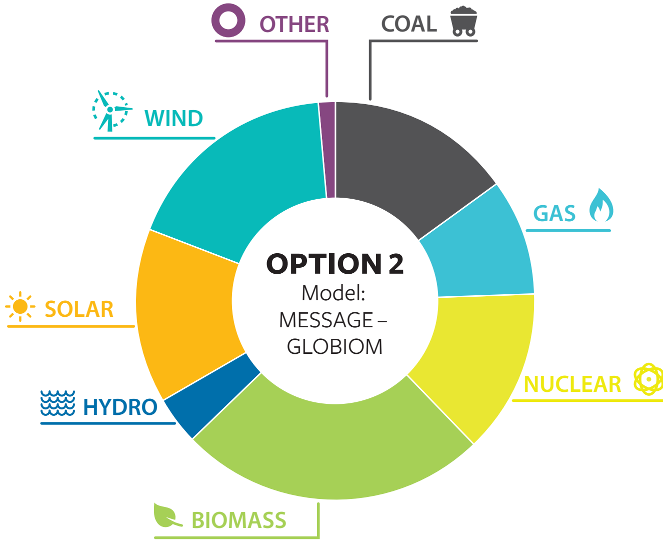
For further information, please visit www.avoid.uk.net/feasibility/moreinfo

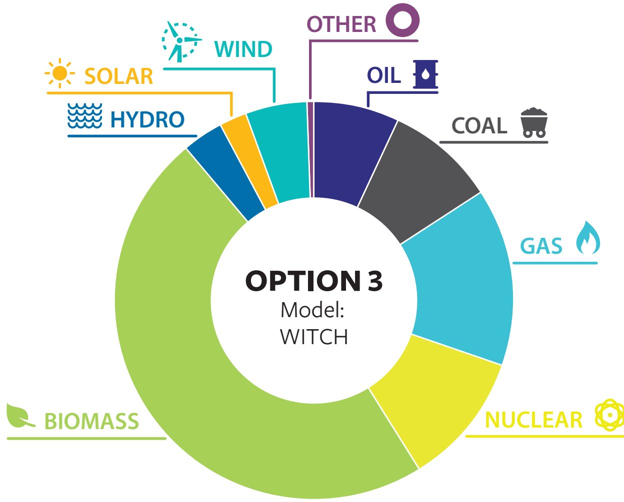
AVOID 2
Can we avoid dangerous climate change?

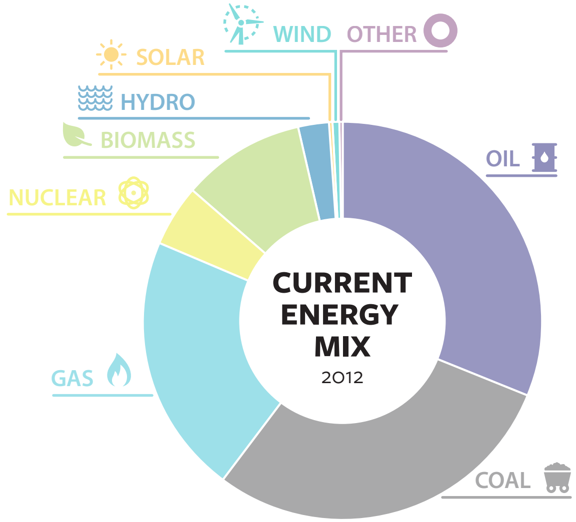
WHAT WILL ENERGY LOOK LIKE IN 2100?

These models illustrate 3 possible options[1] for meeting the global need for energy in 2100 whilst limiting warming to 2°C.









REDUCING ENERGY DEMAND IS KEY

By 2100, the world economy could be 3–8 times more energy efficient than today,[2] with global energy demand 13–54% less than if there were no mitigation. Even small changes in lifestyles could significantly reduce energy demand and save almost 25% of mitigation costs.

RENEWABLES TAKE THE LEAD

By 2100, fossil fuels make up 22–31% of primary energy; renewables 59–75% and nuclear 3–13%.[3]

1. AVOID 2 used three established modelling platforms, running a 2°C scenario with coordinated global mitigation action from 2020. Each model uses the same socio-economic growth projections but differences in projected costs and availability of key energy technologies to reflect a realistic range of future outcomes. Mitigation and no-mitigation scenarios use the same socio-economic growth assumptions. All models shown achieve mitigation in line with the 2°C goal at least cost.
2. In terms of primary energy per unit economic output
3. Across the three models shown here

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