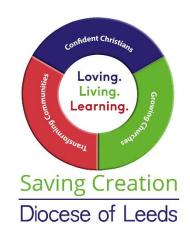
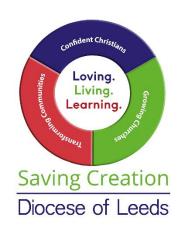
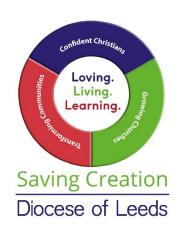
Jemima Parker
Environment Officer for the Diocese of Leeds



- Where are we now?
- Why should Christians Respond?
- Personal Carbon Footprints
- Q&A
- Refreshment Break -
 - Church Toolkit: Six Steps to Carbon Net Zero
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Where are we now?













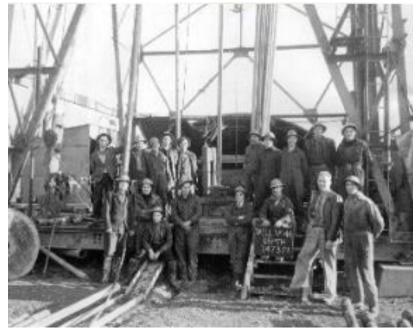
The Industrial Revolution



























April historical levels -averages

1958 - 317.45	1978 - 337.69	1998 - 368.66
1959 - 317.72	1979 - 338.96	1999 - 370.99
1960 - 319.02	1980 - 340.93	2000 - 371.81
1961 - 319.48	1981 - 342.54	2001 - 373.37
1962 - 320.63	1982 - 343.97	2002 - 375.02
1963 - 321.39	1983 - 345.25	2003 - 377.73
196499.99	198499.99	2004 - 380.35
1965 - 322.13	1985 - 348.33	2005 - 382.29
1966 - 323.87	1986 - 349.77	2006 - 384.61
1967 - 324.42	1987 - 351.31	2007 - 386.5
1968 - 325.02	1988 - 353.69	2008 - 387.21
1969 - 326.66	1989 - 355.64	2009 - 389.55
1970 - 328.13	1990 - 356.32	2010 - 392.46
1971 - 327.78	1991 - 358.66	2011 - 393.25
1972 - 329.72	1992 - 359.09	2012 - 396.18
1973 - 331.5	1993 - 359.27	2013 - 398.41
1974 - 332.65	1994 - 361.23	2014 - 401.38
1975 - 333.17	1995 - 363.3	2015 - 403.28
1976 - 334.64	1996 - 364.57	2016 - 407.42
1977 - 336.13	1997 - 366.35	2017 - 409.01

Table data source - Dr. Pieter Tans, NOAA/ESRL and Dr. Ralph Keeling, Scripps Institution of Oceanography.

Global Mean CO2 Mixing Ratios (ppm): Observations

Global Mean CO2 Mixing Ratios (ppm): Observations											
D=+=											
Data	Vear	MixR	Van	MivD	Data	Vear	MivD		Vear	MivD	
		285.2	1900	295.7 296.2 296.6 297.0 297.5		1950	311.3		2000	369.64 371.15 373.15 375.64 377.44 379.46 381.59 383.37 385.46 386.95 389.21 391.15	
Core	1851	285.1	1901	296.2		1951	311.8		2001	371.15	
		285.0	1902	296.6		1952	312.2		2002	373.15	
Adjus-	1853	285.0	1903	297.0		1953	312.6		2003	375.64	
ted	1854	284.9	1904	297.5		1954	313.2	NOAA/	2004	377.44	
for	1855	285.1	1905	298.0		1955	313.7	ESRL/	2005	379.46	
		285.4	1906	298.4		1956	314.3	trends	2006	381.59	
Mean	1857	285.6	1907	298.8		1957	314.8	change	2007	383.37	
	1858	285.9	1908	299.3	SIO	1958	315.34	added	2008	385.46	
	1859	286.1	1909	299.7	Mauna	1959	316.18	to	2009	386.95	
	1860	286.4	1910	300.1	Loa	1960	317.07	2003	2010	389.21	
		286.6	1911	300.6	&	1961	317.73	data	2011	391.15	
		286.7	1912	301.0	South	1962	318.43				
		286.8	1913	301.3	Pole Adjus-	1963	319.08				
		286.9	1914	301.4	Adjus-	1964	319.65				
		287.1	1915	301.6	ted	1965	320.23				
		287.2	1916	302.0	ted for Global	1966	321.59				
		287.3	1917	302.4	Global	1967	322.31				
		287.4	1918	302.8	Mean	1968	323.04				
		287.5	1919	303.0		1969	324.23				
		287.7	1920	303.4		1970	325.54				
		287.9	1921	303.7	Mean	19/1	326.42				
		288.0	1922	304.1		19/2	327.45	1431	HERE S		
		288.2	1923	304.5		1973	329.43	16	a de	N. S. C.	
		288.4	1924	304.9	CMDL	1974	330.21	333		No. of Street	
		200.0	1925	303.3	InSitu	19/5	221.20	10000	35	and \	
		288.9	1027	205.0	Mauna	1077	222.92			ALL STREET	
		289.5	1029	206.2	Los	1079	225 /2	38		Carlot and	
		290.1	1020	307.2	Loa &	1070	337 10				
		290.8	1030	307.2	South	1080	337.10				
		291.4	1931	308.0	Pole	1981	340.36	1	100		
		292.0	1932	308.3	Pole	1982	341.57		1		
					CMDL						
		292.9	1934	309.3	Flask	1984	344.24				
		293.3	1935	309.7	Flask Mean	1985	345.72				
		293.8	1936	310.1	of	1986	347.15				
		294.0	1937	310.6	of Many	1987	348.93				
		294.1	1938	311.0	Sites	1022	251 /17				
	1889	294.2	1939	311.2		1989	353.15 354.29				
	1890	294.4	1940	311.3		1990	354.29				
	1891	294.6	1941	311.0		1991	355.68				
	1892	294.8	1942	311.0 310.7 310.5		1992	356.42				
	1893	294.7	1943	310.5			357.13				
	1894	294.8	1944	310.2		1994	358.61				
	1895	294.8	1945	310.2 310.3		1995	360.67				
	1896	294.9	1946	310.3 310.4 310.5		1996	362.58 363.48 366.27				
	1897	294.9	1947	310.4		1997	363.48				
	1898	294.9	1948	310.5		1998	366.27				

1949 310.9

1999 368.38

1899 295.3

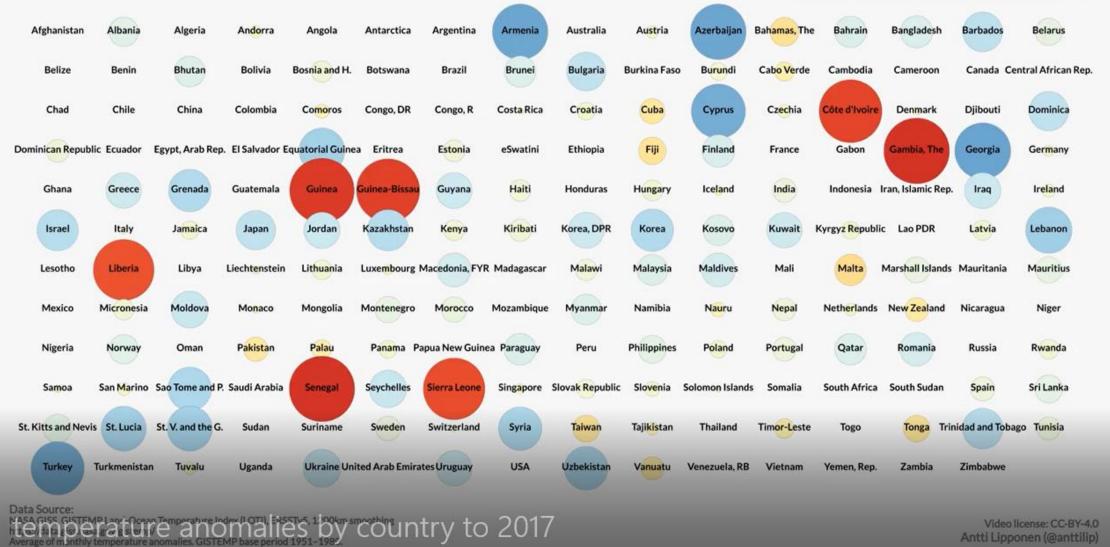




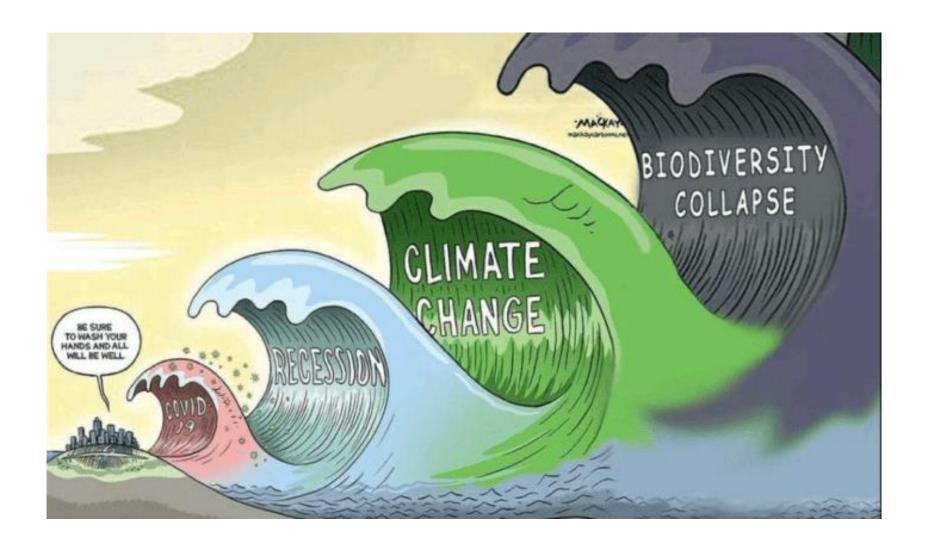
Temperature Anomalies by Country Years 1880 - 2017



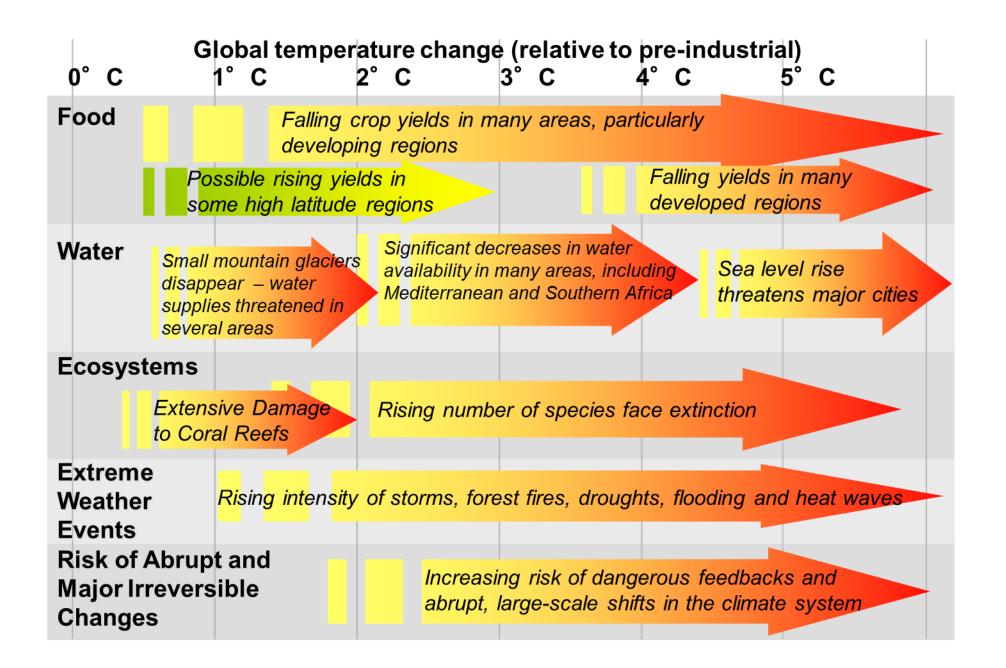




Preaching the gospel in our current context

















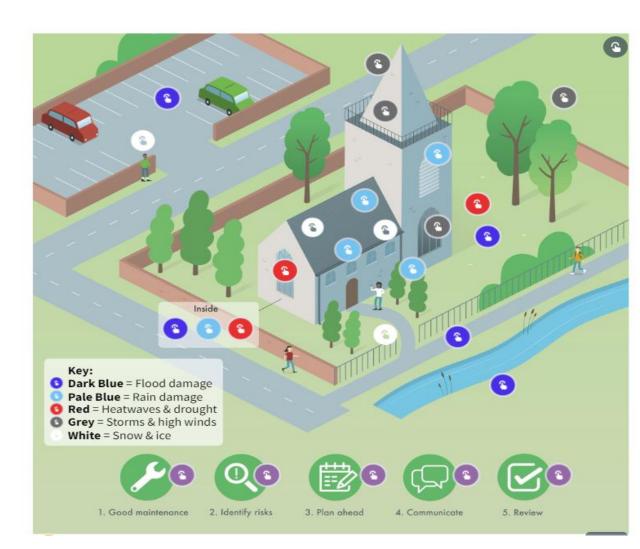


Becoming Climate Resilient

Church of England Guidance

https://www.churchofengland.org/resources/churchcare/climate-resilient-church

The climate resilient church



Climate Justice

Our Link Dioceses

Sri Lanka

- Experienced extreme weather causing floods and land slides in May/June 2017
- Homes were washed away, with people's possessions and livelihoods
- Disaster Relief team in the Diocese of Colombo has been heavily involved in relief efforts

Tanzania

- Drought in 2017 in Mara Diocese caused starvation
- Bishop George wrote "In fact, 95 percent of our congregations rely on subsistence farming. It is a farming which depends on rainfall. And due to the Global warming, you can guess what is happening on the ground. All the crops have withered due to the scorching Sun."

BISHOP RENEWS APPEAL FOR SRI LANKA FLOOD VICTIMS

11111

Submitted by john-carter on Mon, 04/12/2017 - 07:48



Bishop Paul Slater, the Bishop of Richmond and responsible for the Leeds Episcopal Area, has made a renewed appeal for support after meeting families who have lost their homes and livelihoods in the devastating floods which hit the link Diocese of Colombo, Sri Lanka earlier in the year.

Bishop Paul, with his wife Beverley, is making his first trip to Sri Lanka and has met with families who are still homeless following the June floods in the south-west of the country.

Pictured, Bishop Paul meets with members of a Tamil Christian family who are in Baddegama and are waiting to be rehoused after the floods in the summer.

"In Baddegama the floods caused land slips and homes were washed away," says Bishop Paul.

"Families are being temporarily housed in buildings provided by different aid organisations. I was able to visit a number of Tamil families who were members of the church in Baddegama."

www.leeds.anglican.org/news/bishop-renews-appeal-sri-lanka-flood-victims

DAY OF PRAYER THIS SATURDAY FOR STARVING MARA

/////

Submitted by john-carter on Thu, 05/01/2017 - 16:27

Churches across our diocese, particularly those with links to Tanzania, are being urged to support clergy and parishes in the Diocese of Mara, many parts of which are suffering from drought and starvation because of crop failures.

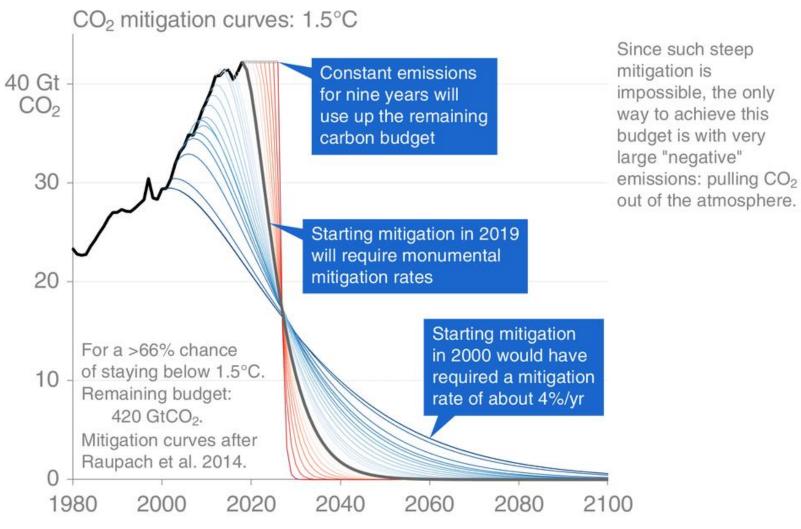
The appeal has come from the Bishop of Mara, the Rt Revd George Okoth, following a series of pastoral visits he has recently made to many of the dioceses' 75 parishes which includes regions like the Serengeti which have suffered severely from drought. Many congregations have not been able to grow and sell crops and support their clergy. Many of the clergy and their families are going hungry.

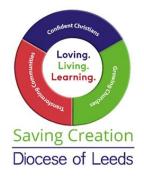


www.leeds.anglican.org/news/day-prayer-saturday-starving-mara



Climate change mitigation rates





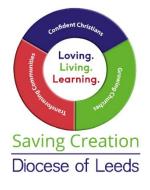
How does this make you feel?



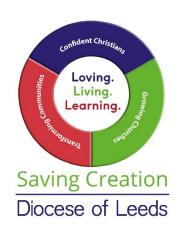
Climate Grief and Pastoral Care



Webinar - Navigating Climate Grief: What Does it Mean for Christians? <u>www.youtube.com/watch?v=Ryyat4WHQyQ</u>



- Where are we now?
- Why should Christians Respond?
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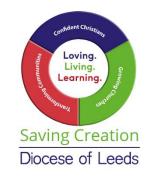


We aim to support, encourage, and enable the whole Church to pray, speak and act prophetically on environmental issues, which threaten the flourishing of the whole of creation



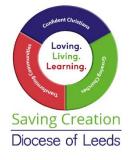


www. church of england. or g/environment



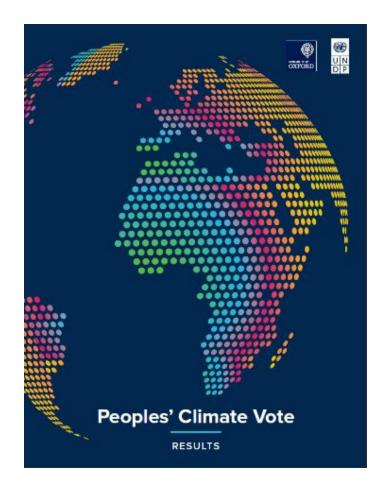
The Five Marks of Mission

- To proclaim the Good News of the Kingdom
- To teach, baptise and nurture new believers
- To respond to human need by loving service
- To seek to transform unjust structures of society, to challenge violence of every kind and to pursue peace and reconciliation
- To strive to safeguard the integrity of creation and sustain and renew the life of the earth



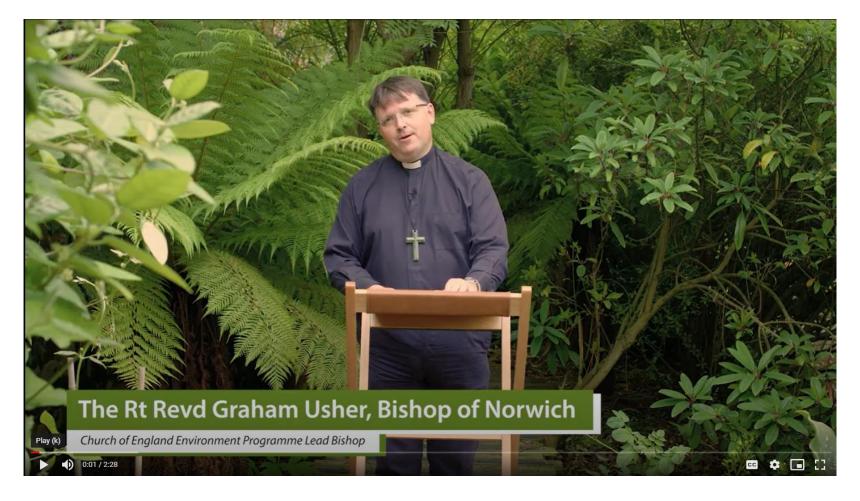
The People's Climate Vote

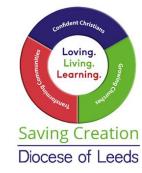
- Carried out in 2020
- Organised by UNDP and Oxford University
- Poll questions distributed via gaming apps
- 1.2 million respondents
- Half of them were aged 14-18
- 50 countries
- Two thirds of people view climate change as a global emergency
- 81% in the UK





A Theology of Creation Care





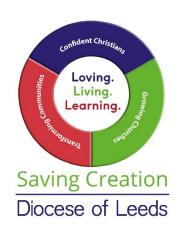
Net Zero Carbon Church by 2030







- Where are we now?
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What is a carbon footprint?



Carbon Footrpint:

the amount of carbon dioxide

released into the atmosphere as a

result of the activities of a

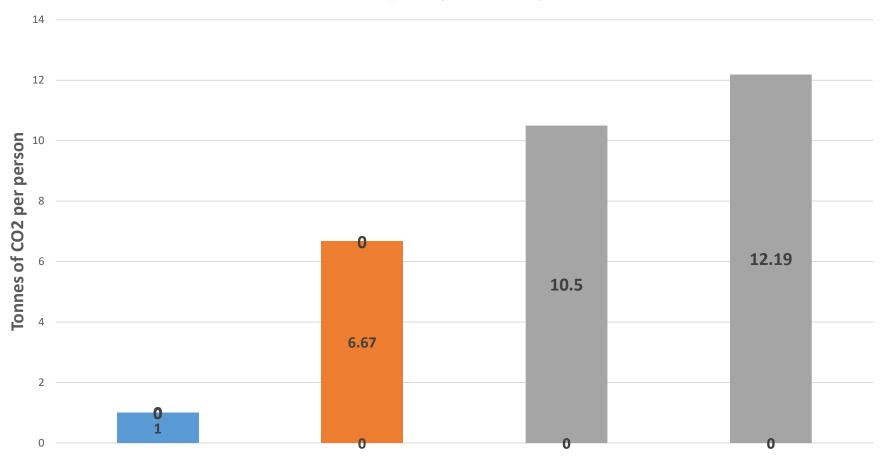
particular individual,

organization, or community.



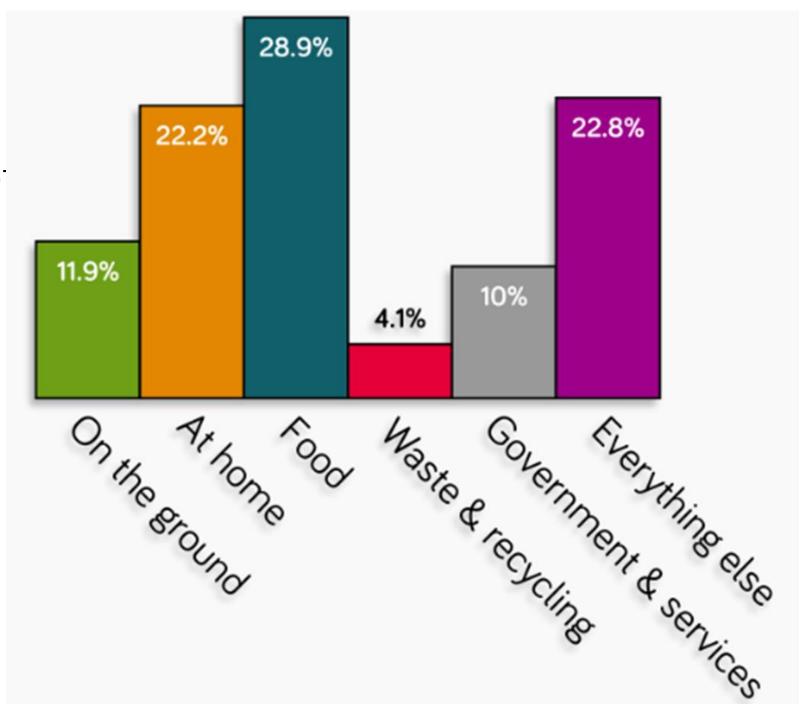
Tonnes of CO2 per person per annum

Tonnes of Co2 per person per annum



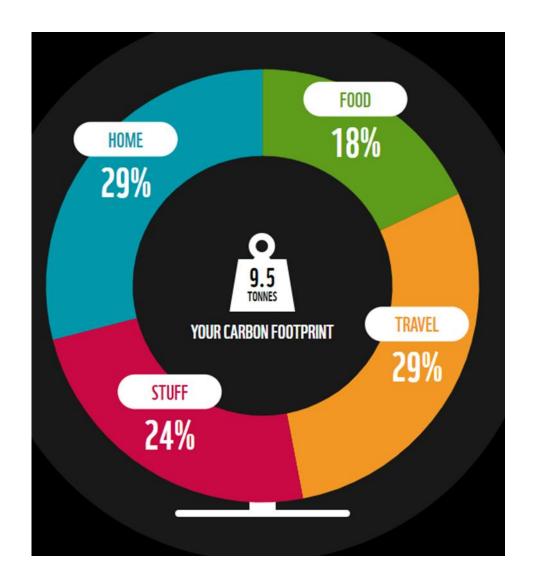


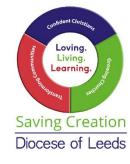
Average UK person's source of carbon emissions





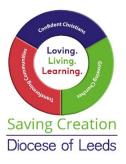
How to measure my carbon footprint?





FOOD 18% HOME 29% 9.5 TONNES TRAVEL YOUR CARBON FOOTPRINT 29% STUFF 24%

Travel

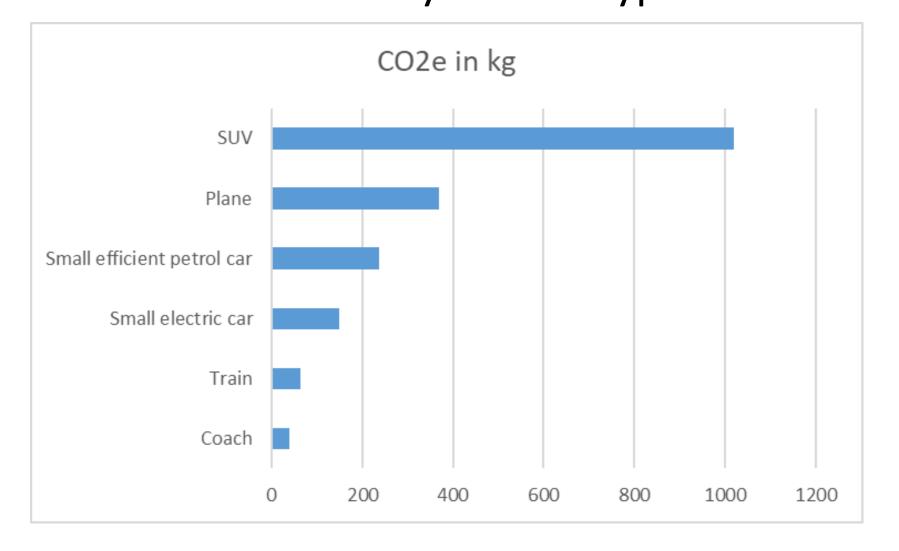


London to Glasgow return (822 miles)

- >Train
- Plane (economy)
- **≻**Coach
- >SUV
- ➤ Small electric car
- ➤ Small efficient petrol car

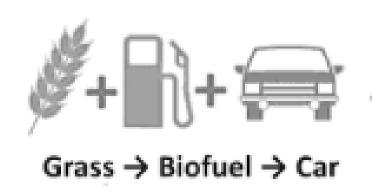


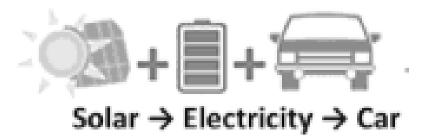
London to Glasgow return (822 miles) Carbon emissions by vehicle type

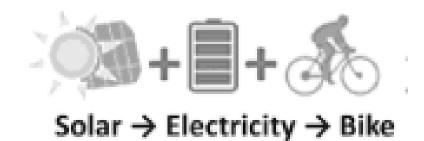


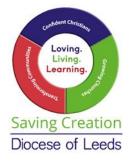


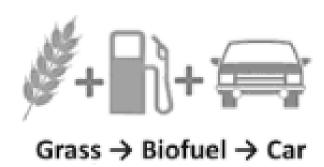
How many travel miles can we get from a square meter of land?



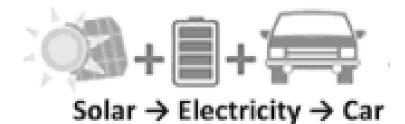




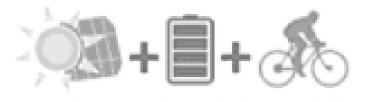




5 miles



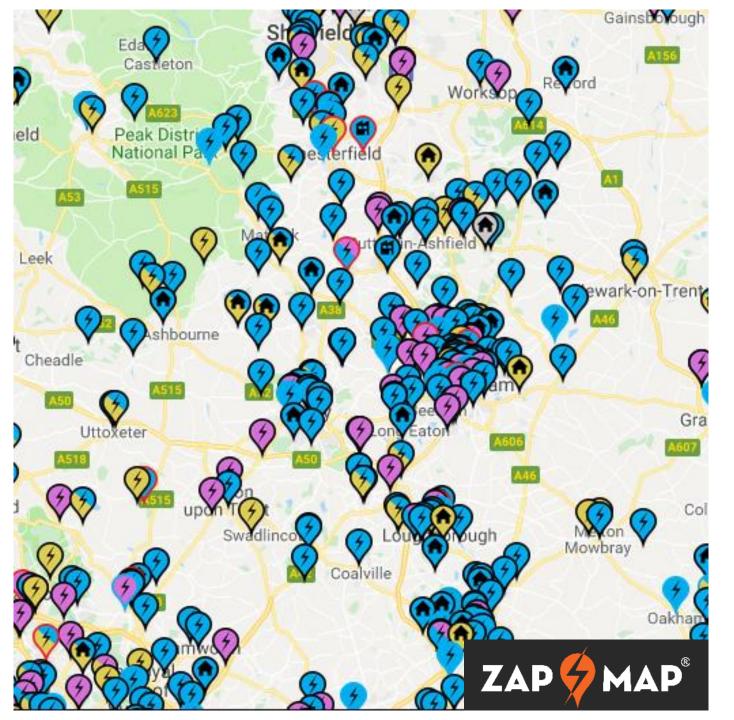
1,081 miles

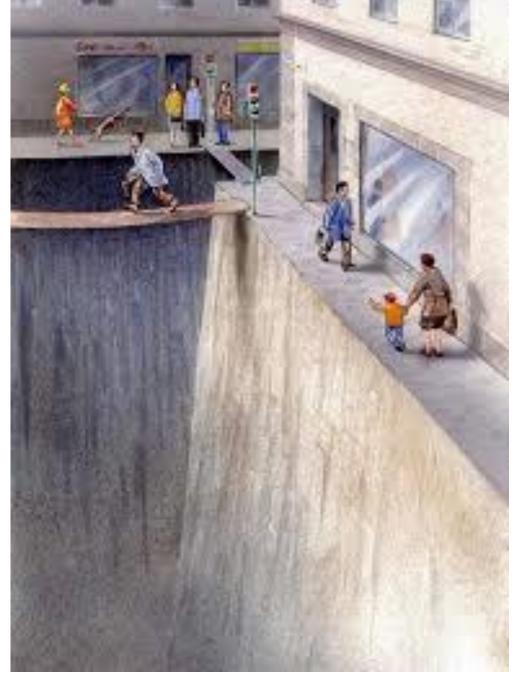


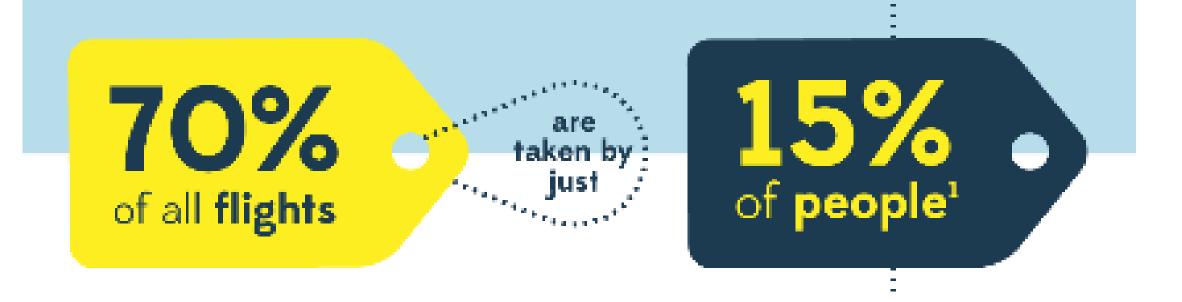
21,243 miles

Solar → Electricity → Bike



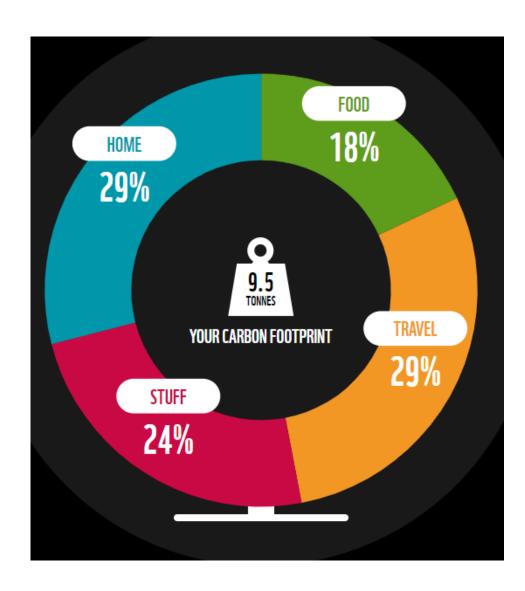








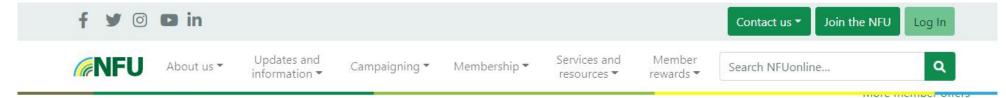




Food and agriculture



Food and Agriculture



Net zero – manageable ways to make a difference



Net zero: NFU Farm Status Indicator



Your route to net zero: solar photovoltaic electricity



Make your pledge for net zero for your chance to win a solar light

More net zero help



Changing food habits in the UK

- Consumption of fresh meat fell by 23% between 2000 and 2018
- Consumption of dairy was down 18% in the same period
- Committee on Climate Change is now encouraging the government to make policies which will encourage a further shift away from meat and dairy.







The Carbon Diet























A Day's Protein

Imagine you have enough of each of these foods to provide you with a day's worth of protein (approx. 50g)

(beef, chicken, lentils, mixed nuts, milk)

Which do you think has the biggest carbon footprint?

Which has the smallest?

Rank them from smallest to biggest footprint.

What elements make up their carbon footprint?



Protein: answers

• Beef: 25.0kg CO₂e

• Chicken: 2.8kg CO₂e

• Milk: 1.6kg CO₂e

• Lentils: 420g CO₂e

• Mixed nuts: 130g CO₂e







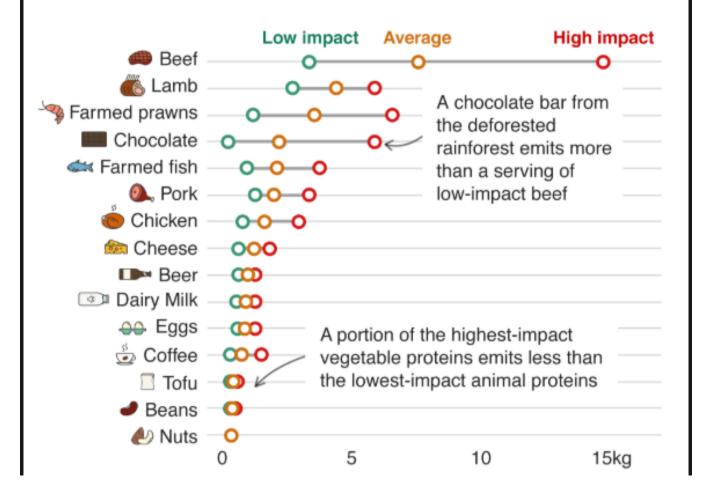


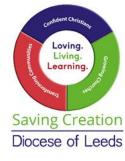




Beef has the biggest carbon footprint - but the same food can have a range of impacts

Kilograms of greenhouse gas emissions per serving





Carbohydrates

Imagine you have 1Kg of each of these foods?

Potatoes (locally grown) Bread Rice

Which do you think has the biggest carbon footprint?

Which has the smallest?

Rank them from smallest to biggest footprint.

What makes up their carbon footprint?







Carbohydrates: answers

• Rice: 4.0kg of CO₂e

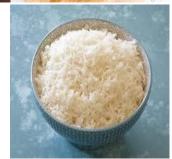
• Bread: 1.25kg of CO₂e

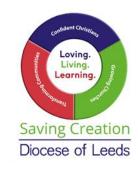
Potatoes:

• 0.53g of CO₂e - locally grown, boiled gently with the lid on

• 1.2kg of CO₂e - shipped from Cyprus, boiled furiously with the lid off









Large salad variety, grown locally, in season

1.3kg CO₂e

Baby plum – UK summer or Spanish winter
4.9kg CO₂e

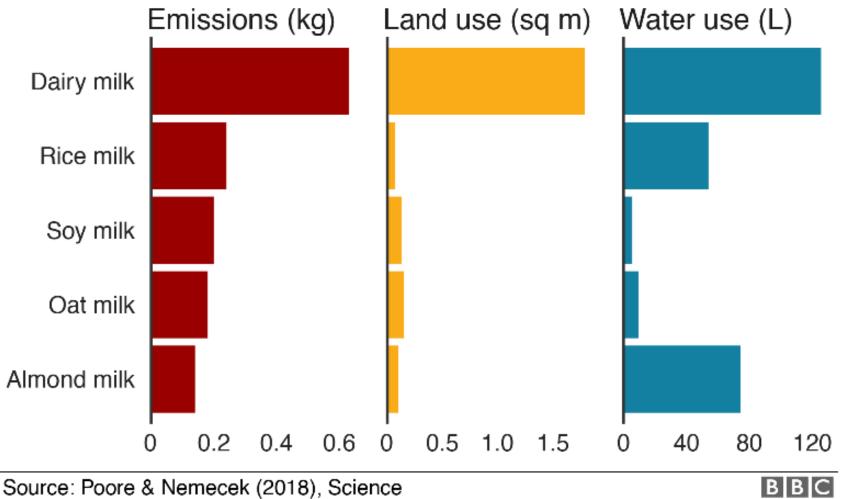
Organic vine cherry tomatoes, grown in a heated hothouse in the UK in March 28.2kg CO₂e

1kg Tomatoes

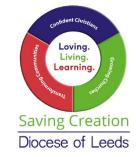


Which milk should I choose?

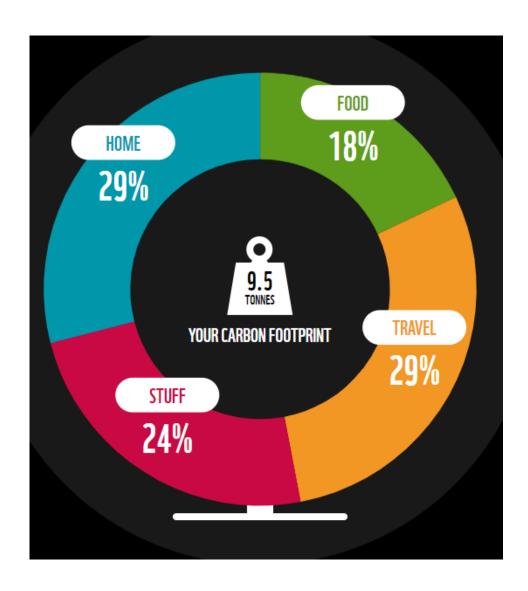
Environmental impact of one glass (200ml) of different milks



Source: Poore & Nemecek (2018), Science



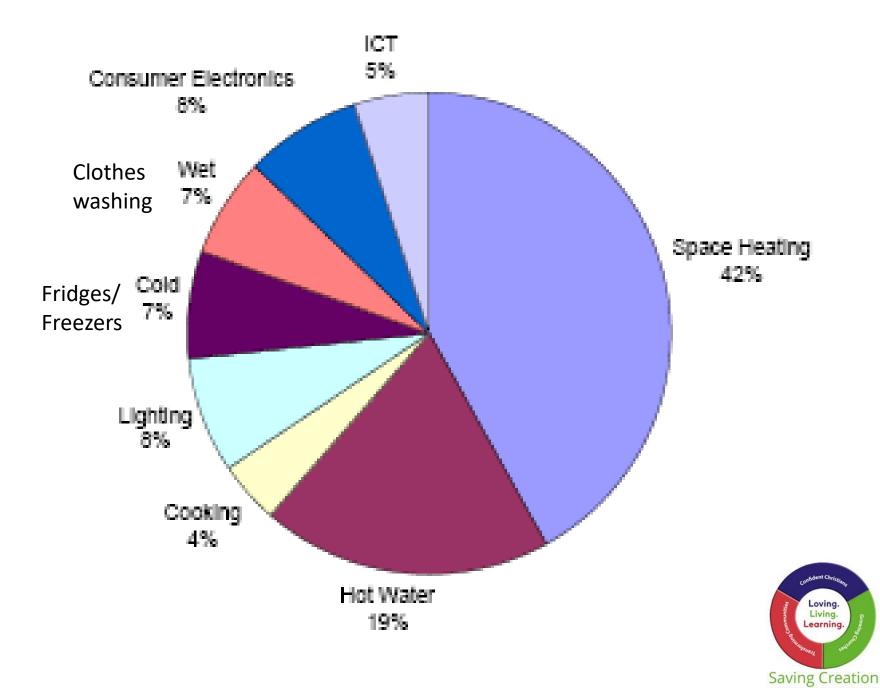




Buildings



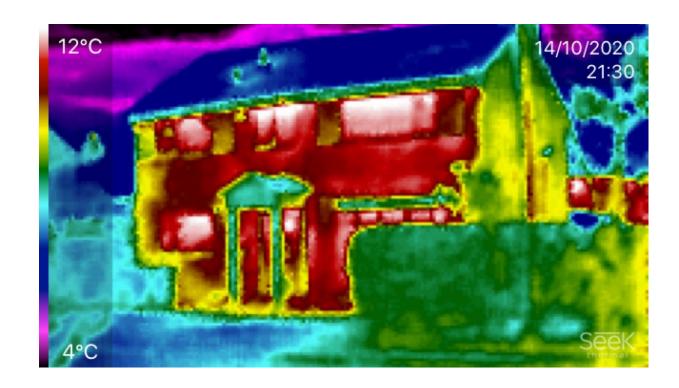
Heat and Energy Efficiency



Diocese of Leeds

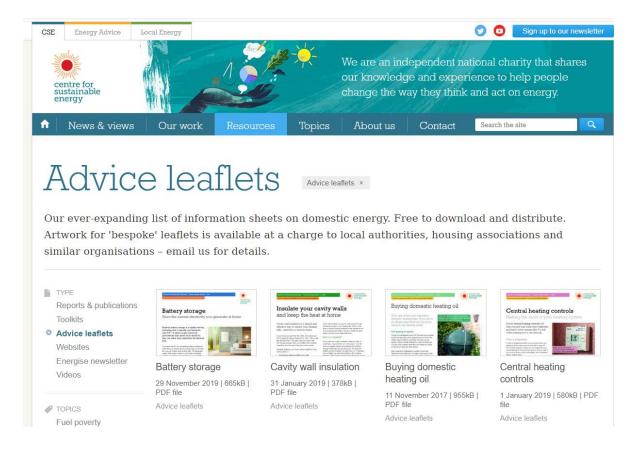
Home Energy Emissions

- Reduce energy demand
- Fabric first
- Switch to electric
- Home energy generation





Home Energy Advice



https://www.cse.org.uk/resouafletsrces/index/page:1/category:advice-le



Climate Justice at the Local Level

13.4% of households in the UK were experiencing fuel poverty in 2019. They can't afford to heat their homes adequately. This has health impacts.

When considering solutions to climate change we need to consider the most vulnerable sections of our population and their need to live well and be healthy.



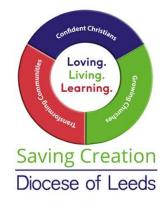






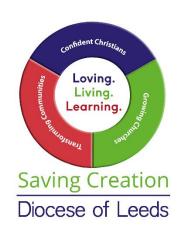


Questions



Living out our faith: A practical response to climate change

- Where are we now?
- Why should Christians Respond?
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What are we measuring for the 2030 target?



www.churchofengland.org/sites/default/files/202 0-11/GS%20Misc%201262%20EWG%20update.pdf

Included:

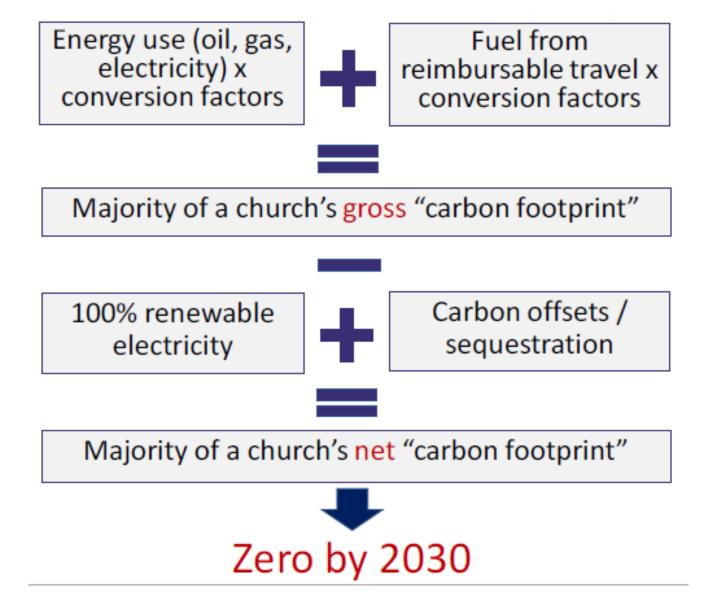
- Energy use in all buildings (electricity, gas, oil, other fuels) churches, VA schools, clergy housing and diocesan offices
- Travel fuel (car and aviation miles) clergy, diocesan staff and diocesan volunteers

Not included yet - carbon emissions from:

- Building projects
- Church procurement
- Services, such as an electrician
- Water and drainage
- Waste
- Financial investments
- Emails and internet use
- Air conditioning gases

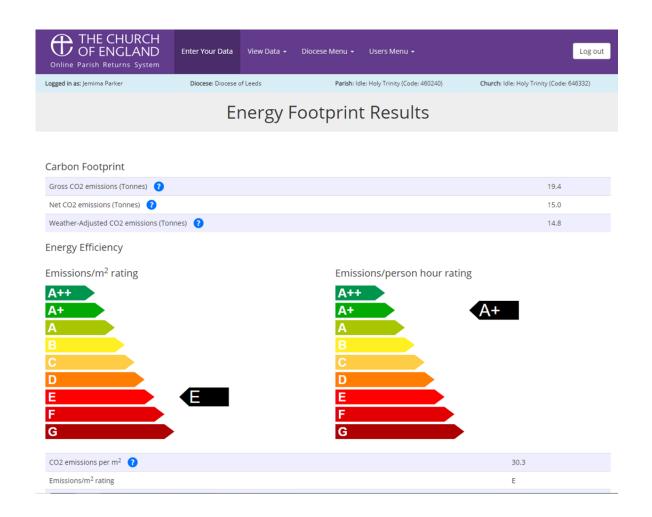


What do we mean by Net Carbon Emissions?



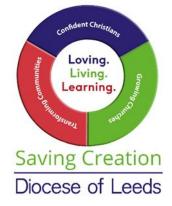


How can we measure church carbon emissions?





www.climatestewards.org/resources/360carbon/



The Energy Footprinting Tool - Online Parish Returns

Six Steps to Carbon Net Zero All Hallows Bardsey





Six Steps to Carbon Net Zero All Hallows Bardsey

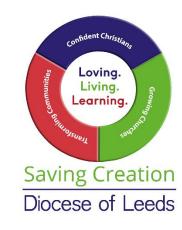
Carbon emissions using the Church of England Energy Foot printing Tool:

Gross CO2 emissions (Tonnes): 15.5

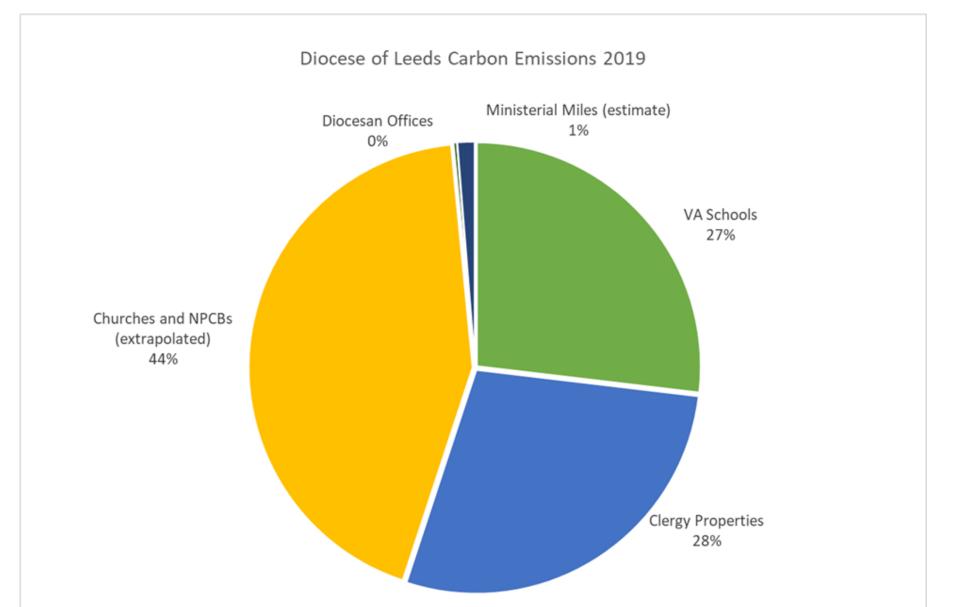
Net CO2 emissions (Tonnes): 15.0

Carbon emissions using 360 Carbon Stewards:

Total Annual Emissions: 21.82 tCO2



Where are most of our carbon emission?





Where are most of our carbon emission?

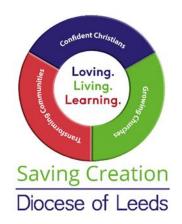
Average Carbon Emissions (tCO2e) by Size of Church (Diocese of Leeds 2019)



Mediun Churhces 12.8

Large Churches 32.9

Small Churhes 3.0



Saving Creation: Six Steps to Carbon Net Zero

- Where are we now?
- What is a carbon footprint? What does carbon net zero mean?
- Q&A
- Practical solutions and strategies: Six Steps to Carbon Net Zero

Saving Creation

Diocese of Leeds

Discussion and Q&A

Six Steps to Carbon Net Zero — Church Toolkit





Saving Creation: Strategic action to combat climate

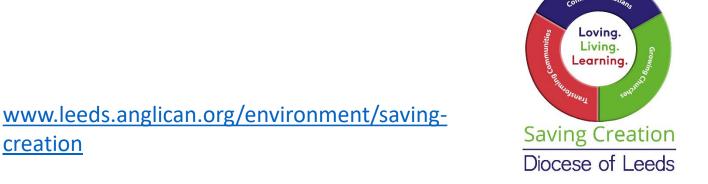
A **toolkit** to help churches achieve carbon net zero by 2030







Six Steps to Carbon Net Zero – Church Toolkit



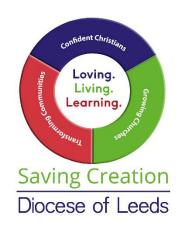
Step 1: Measure and Monitor

Step 2: Plan and Prepare

Step 3: Essential Energy Actions

Step 4: Essential Travel Actions

Step 5: Carbon Offsetting



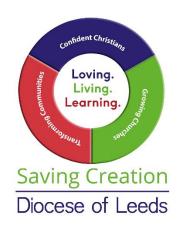
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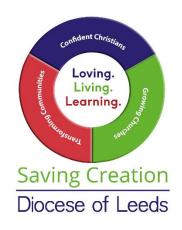
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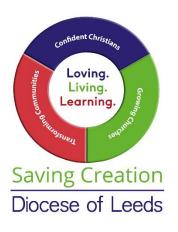
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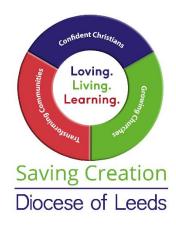








Appoint a Parish Environment Officer or a team to work on your plan. Find out more www.leeds.anglican.org/environment/getting-started

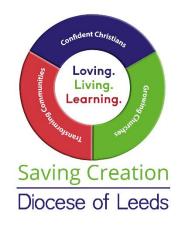


A practical path to net zero carbon A checklist for your church

Welcome to the Net Zero Checklist.

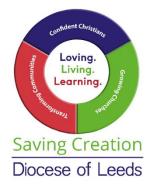
The Church of England's General Synod has recognised the climate emergency and called on all parts of the Church to become net zero carbon by 2030.

This commitment requires us all to take action to reduce our carbon footprint. This will involve making material changes to our buildings and adopting new behaviours that both reduce our



Action	Objective	Likely CO2 reduction	Cost	Responsible	Date	Comments
Measure and Monitor						
Enter energy	Calculate	Informs	Volunteer	Church	Annual	EFT = Energy Footprinting Tool on Online Parish Returns
data to EFT	carbon	Action	Time	Treasurer	(March -	
	emissions				July)	
Add EFT	Accountability	Influences	Volunteer	PCC	Annually	
carbon	on carbon	Change	Time	Secretary	April	
emissions	emissions					
report to						
annual						
reports						
Plan and Prepare						
Use the	Assess what	Informs	Volunteer	Church	Autumn	Practical Path to Net Zero: A checklist for your church
Practical Path	actions to take	Action	Time	Warden	2021	

Template Carbon Net Zero Parish Plan www.leeds.anglican.org/environment/saving-creation



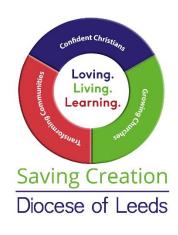
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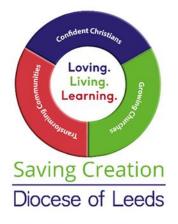
Essential Energy Actions: Reduce Energy Waste



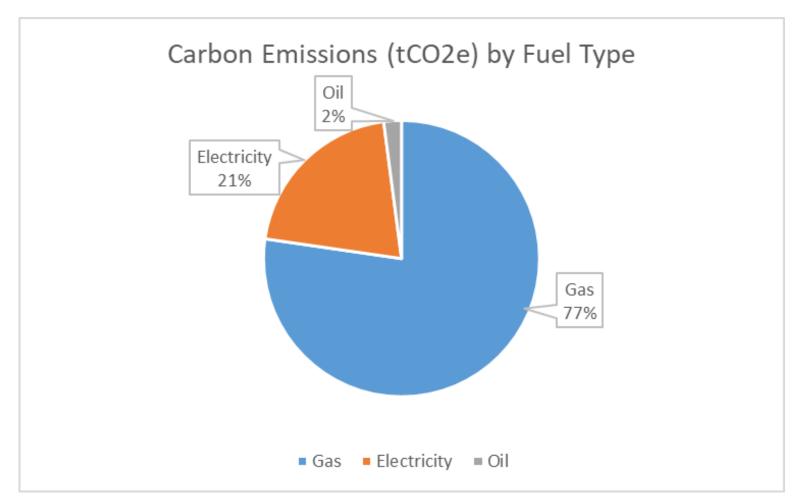


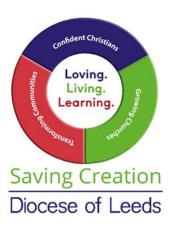






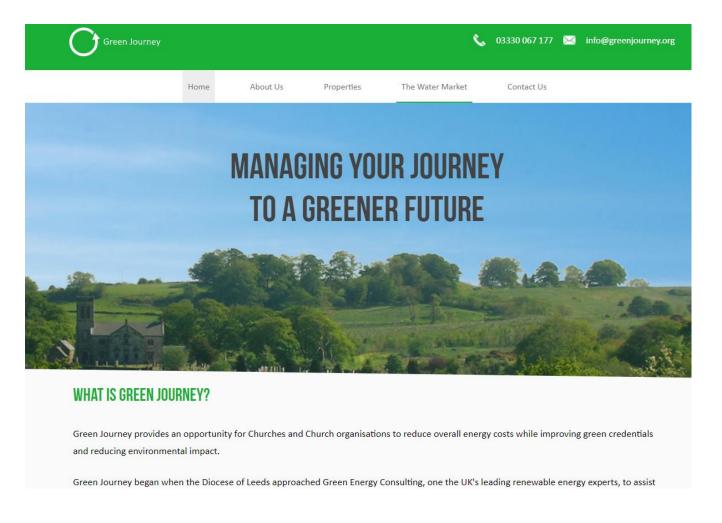
Essential Energy Action: Switch to Renewable Electric



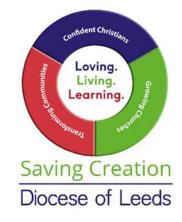


Diocese of Leeds 2019

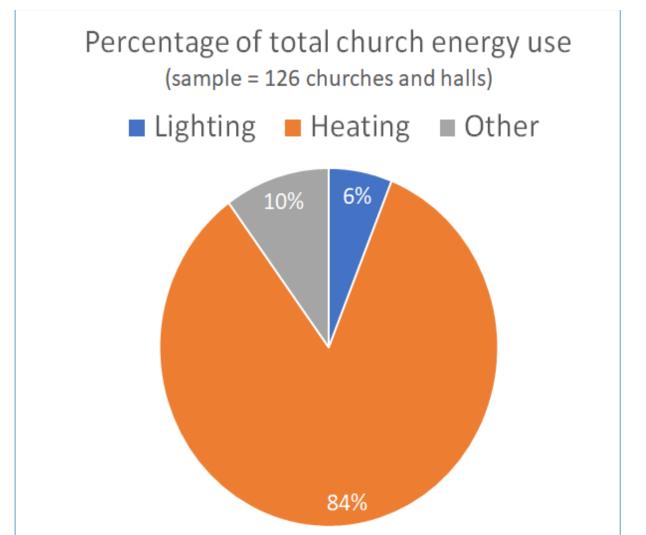
The Green Journey



www.leeds.anglican.org/environment/green-journey
https://greenjourney.org/



Essential Energy Actions: Plan to decarbonise your heating



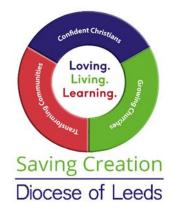


What is the most common heating fuel?

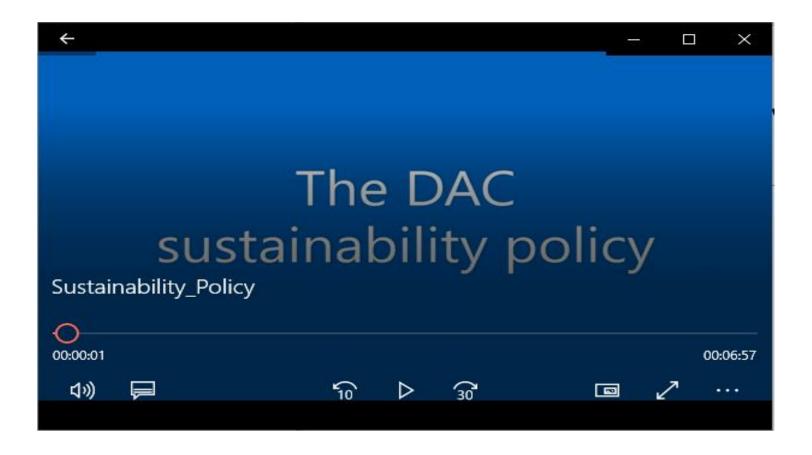
Churches Primary Heating Fuel (Sample size 419)







What does the DAC say?



Read the Sustainability Policy and Guidance www.leeds.anglican.org/dac/sustainability
Watch the video https://youtu.be/iVkICdDPp-4



Six Steps to Carbon Net Zero

Step 1: Measure and Monitor

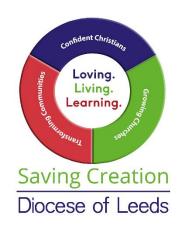
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Step 6: Stepping Out and Up



Six Steps to Carbon Net Zero: Essential Travel Actions





Six Steps to Carbon Net Zero

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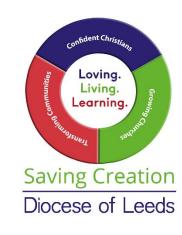
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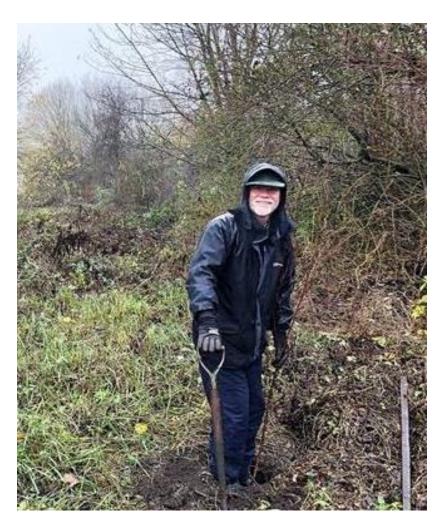
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Step 6: Stepping Out and Up

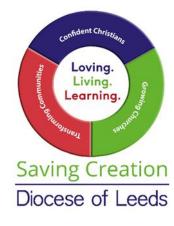


Six Steps to Carbon Net Zero: Carbon offsetting





www.climatestewards.org/



Six Steps to Carbon Net Zero

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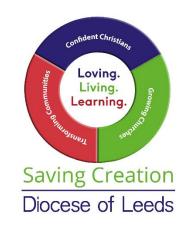
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Six Steps to Carbon Net Zero: Stepping Up and Out











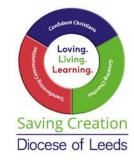


Stepping Up and Out: Eco Church









Training and Support is Available

- Eco Mission Lay Training Pathway
- Various topic webinars
- Eco book club
- C of E Net Zero Webinars

https://www.leeds.anglican.org/environment/trainingopportunities

- Area Environment Champions
- Diocesan Environment Group
- DAC Sustainability Advisors
- Stewardship Funding Advisors

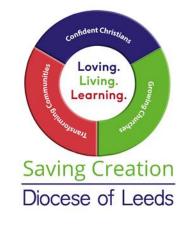
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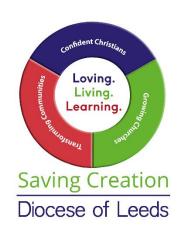


Questions



Living out our faith: A practical response to climate change

- Where are we now?
- Why should Christians Respond?
- Personal Carbon Footprints
- Q&A
- Refreshment Break -
 - Church Toolkit: Six Steps to Carbon Net Zero
 - Q&A
 - Your Church's Carbon Footprint



Your Church's Carbon Footprint

Church Name	Results Net Co2 tonnes	Primary Heating Fuel	Renewable Tariff	Energy Audit	PEO	Eco Church
Austwick Church of the Epiphany				2016	Yes	
Bentham St John the Baptist	6	Mains gas	Yes	2016	Yes	Silver
Burton-in-Lonsdale All Saints	13.7	Oil	No		Yes	Silver
Chapel-le-Dale St Leonard	0.6	Electricity	No	2016		
Clapham St James				2016	Yes	
Coniston Cold St Peter						
Dalehead St James	0.1	LPG				
Dunsop Bridge St George			Yes			
Eldroth Chapel			Yes	2016		
Gargrave St Andrew	29.1	Mains gas		2016		
Giggleswick St Alkelda	14.5	Mains gas	Partial	2016		
Halton West		Electricity	No			
Hellifield St Aidan	6	Oil		2016	Yes	
Horton-in-Ribblesdale St Oswald					Yes	
Ingleton St Mary	2.9	Electricity	Don't know	2016		Silver
Keasden St Matthew				2016	Yes	
Kirkby in Malhamdale St Michael the Archangel			Yes			
Langcliffe St John the Evangelist	4.1	Mains gas	Yes	2016		
Long Preston St Mary the Virgin	10.4	Mains gas	No	2016	Yes	
Rathmell Holy Trinity	0	Electricity	Yes	2020	Yes	
Settle Holy Ascension		Licotroity	103		100	
Slaidburn St Andrew	24.8	Oil	Don't know	2016		
Stainforth St Peter				2016	Yes	
Thornton-in-Lonsdale St Oswald	11.6	Electricity	Partial	2016		
Tosside St Bartholomew			Yes	2016		



How to you apply this advice locally, in your church and community?

What one thing will you do next?

