Climate Change in Reading
31 January 2019
Chris Beales - RCCP Chair
Media:
@ClimateRDG
E-mail list
Our Strategy
The eight themes – all on the ReadingCAN.org.uk website:

- Energy Supply
- Low Carbon Development
- Natural Environment
- Water Supply and Flooding
- Transport
- Purchasing, Supply and Consumption
- Education, Communication and Influencing Behaviour
- Community
Reading & Caversham Flood Scheme Drop in event on 6th December

The Environment Agency is investigating options to reduce flood risk in north Reading and Lower Caversham.

Flooding in this area affects homes, businesses, utilities and a number of busy roads for long periods of time. We have been investigating a number of options, most of which include building flood walls and embankments.

The Environment Agency are inviting the residents to come to a drop-in on Thursday 6 December from 2.30pm to 7.30pm.

Caversham Baptist Church, South Street, Caversham, Reading, RG4 8HY

View Fullscreen

How can we reduce flooding in north Reading and Lower Caversham?

Newsletter November 2018

The Environment Agency is investigating options to reduce flood risk in north Reading and Lower Caversham.

Flooding in this area affects homes, businesses, utilities and a number of busy roads for long periods of time.
Lets talk about climate change...
Climate change news

Military buildup in Arctic as melting ice reopens northern borders.
As ice melts and shipping lanes open up, geopolitical tensions are growing and old cold war bases are being reopened.

'It's like hell here': Australia bakes as record temperatures nudge 50C.
Fears rise for homeless and vulnerable people as communities brace for another week of relentless hot weather.

Weatherwatch: heat waves are getting larger as well as hotter.
We are becoming used to more frequent and more intense heat waves but recent research shows that they are also covering greater areas.

David Attenborough: collapse of civilisation is on the horizon
Naturalist tells leaders at UN climate summit that fate of world is in their hands.
Figure "Cumulative emissions of CO2 and future non-CO2 radiative forcing determine the probability of limiting warming to 1.5°C", page 6 (part), Summary for Policy Makers [https://report.ipcc.ch/sr15]
Catastrophes make 2017 costliest for UK speciality insurers: study

LONDON (Reuters) - Hurricanes, wildfires and other natural and man-made catastrophes combined to make 2017 the costliest year on record for Britain’s

Chris Beales
@StaticRainChris
Crazy hot for Spring. #climate #extremeevents . Pakistani city breaks April record with day of 50C heat theguardian.com/world/2018/may...

biggest coldest driest events
exceptional extreme flow hottest
hour notable period-of-record rainfall record return-period
wettest

http://chrisbeales.net/environment/extreme%20events.html
Central England Temperature record 1659-2015


With UKCP09 [http://ukclimateprojections.metoffice.gov.uk/] projections for Low & High emissions scenarios for the 2041-70 period (for Reading)
Central England Temperature record 1659-2015


With UKCP09 [http://ukclimateprojections.metoffice.gov.uk/] projections for Low & High emissions scenarios for the 2041-70 period (for Reading).
Summer mean maximum temperature anomaly for 2080-2099 minus 1981-2000

UK Climate Projections 2018 (UKCP18) These are held on the Met Office website https://www.metoffice.gov.uk/research/collaboration/ukcp.
Global emissions challenge

Figure "Cumulative emissions of CO2 and future non-CO2 radiative forcing determine the probability of limiting warming to 1.5°C", page 6 (part), Summary for Policy Makers [https://report.ipcc.ch/sr15]
We need an Adaptation plan for Reading
Thames Barrier – protecting London from 1982 to the 2070s…?
Note:
Each box represents one or more portfolios of responses

Hard line

The riverside in Lewes, with higher flood walls and a new raised bridge for the high street.

Higher ground

The view across a flooded Newhaven harbour to new buildings on the hillside near Denton.

Rise up

Near buildings on stilts or raised platforms set above the water in Newhaven harbour.

COASTAL COMMUNITIES 2150

"Investing in your future" Cross-border cooperation programme 2007-2013 Part-funded by the European Union (European Regional Development Fund)
It’s bad for polar bears… but what about for Reading?

Male Polar bear (*Ursus maritimus*) chasing a bearded seal. Attribution: Andreas Weith (CC BY-SA 4.0) (Creative Commons Image)
Central England Temperature record 1659-2015


With UKCP09 [http://ukclimate.projections.metoffice.gov.uk/] projections for Low & High emissions scenarios for the 2041-70 period (for Reading)

https://en.wikipedia.org/wiki/Reading,_Berkshire
An Adaptation Plan for Reading

Risks:
• Heat waves 40°C+?
• Extreme rainfall events
• River flooding
• Very dry soils
• Photochemical smog
• New disease vectors
• Food

Plans:
• Houses
• Streets
• Transport
• Green spaces
• Businesses
• The Oracle
Achieving a Zero Carbon Reading
"I would say we are at the limits of suicide."

"Any harm we inflict on nature will eventually return to haunt us."

"The concept of global warming was created by and for the Chinese in order to make US manufacturing non-competitive."

Climate change has become one of the gravest challenges humanity is facing

"I would say we are at the limits of suicide."
The CCC’s recommended UK carbon budgets and the UK’s 2050 target

Projected emissions (red lines) were added to the CCC’s figure by Carbon Brief.


Notes: Data labels show reductions in annual emissions relative to 1990. Historical emissions are on a 'gross' basis (i.e. actual emissions). Projections and carbon budgets are on the current budget accounting basis: net carbon account excluding international aviation and shipping (IAS), but allowing for IAS to be included in the 2050 target.
Emissions of CO₂ Reading
000’s tonnes
Reading Borough Council
1.5°C – A Game Changer

IPCC SR15 Report

Impacts and risks for selected natural, managed and human systems

20% by 2030 = 57% UK
45% by 2030 = ?
Bristol's 2030 carbon-neutral plan 'ambitious'

Bristol has put forward carbon-neutral plans by 12 years
Reading best in Berkshire for reducing carbon emissions

Reading Borough Council has hit a government target for carbon reduction five years ahead of the deadline.

© 23 March 2018
### Reading Climate Change Strategy 2013-2020, Action Plan 2018

<table>
<thead>
<tr>
<th>Ref</th>
<th>Action</th>
<th>Timescale</th>
<th>Target &amp; measure/milestone</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1SP2.4</td>
<td>Disseminate information about complete district energy schemes</td>
<td>March 2016</td>
<td>Networks in Reading through planning</td>
<td>Univ</td>
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<tr>
<td>T1SP2.5</td>
<td>- Produce a renewable energy investment strategy to provide 8% of local power.</td>
<td>- 2020</td>
<td>- Evidence base complete&lt;br&gt;- Workshops with partners&lt;br&gt;- Report to Reading Climate Change Partnership (RCCP)&lt;br&gt;- Consider use of solar photovoltaics, solar thermal, ground source heat pumps, wind, anaerobic digestion, biomass and gasification processes, and hydropower</td>
<td>Tham</td>
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<td></td>
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<td>- 1st Biomass project March 2014&lt;br&gt;- Solar photovoltaic on housing Aug 2014&lt;br&gt;- Targets for photovoltaic and biomass TRC</td>
<td>RBC</td>
</tr>
</tbody>
</table>
1795 GWh

Reduce Demand

GAP

Renewable Generation
Reducing Gas Demand

• Pre 1919 Housing  63% reduction
• Other housing    50% reduction
• Social Housing  40% reduction
• New housing     Zero carbon - 0*
• Commercial gas  50%

* actually not quite!
Reducing Electricity Demand

Housing -59% (LEDs, AAA+ appliances)

Commercial and Industrial -50%

Water/Ground Source heat pumps +14%

Electric Vehicles +12%
Allowable Solutions

35% on site

65% off site*

*Actually not quite!
Allowable Solutions

~£4% on site
~£4800 on site

~£2% off site
~£2400 off site
Greening of Grid (Heat)

Previously: 489g/kWh
Today: 230g/kWh
Heat pump: 57-92g/kWh
Gas before: 184g/kWh
Gas today: 184g/kWh
CHP: 135g/kWh
Renewable Technologies

Solar panels
93GWh$^e$
35GWh$^th$

Wind – 32GWh
(10 turbines)

Water Source heat pumps and heat network
151GWh

Ground Source Heat pumps
131GWh

Digest food and sewage waste
24GWh$^e$
96GWh$^th$
Storage

Local renewable generation

Grid electricity

Local supply

https://www.carbonintensity.org.uk/
Local Economy

£135m p.a.
Roadmap for Clean Energy Future

Recent history
2005 to 2018
RBC - 50% CO₂

Trials
2018-21
RBC 15% renewables

Commercialisation
2021-2027
Borough -50% CO₂

Clean Energy City
2027-2050
100% clean
Chris Beales – Chair
Ben Burfoot – Reading Borough Council – Board member

climate.change@reading.gov.uk