

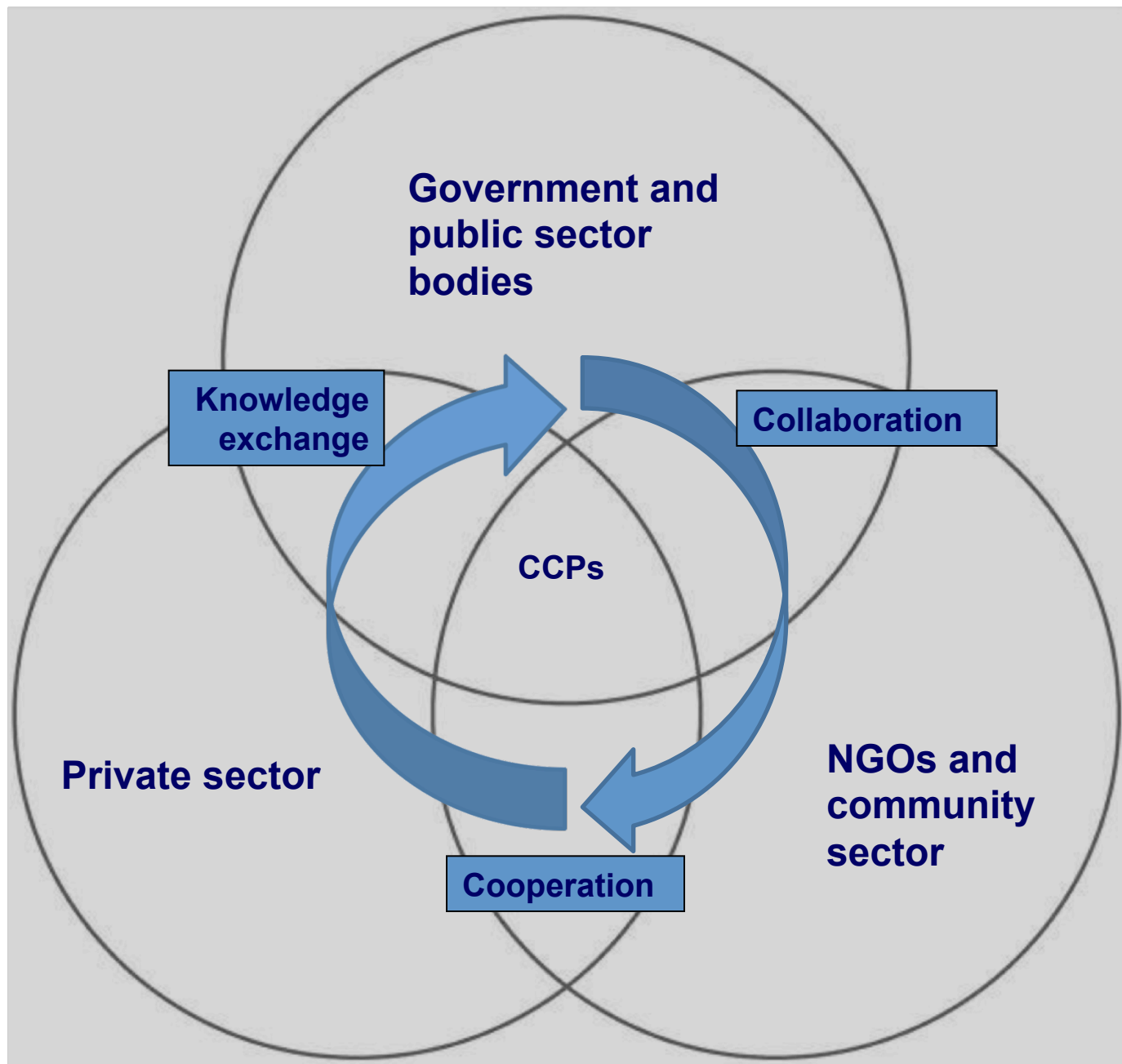


# Networked adaptation: Building national resilience through local action

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ARCC Assembly

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# The Climate UK network

- 1 Sustainability East
- 2 Climate East Midlands
- 3 London Climate Change Partnership
- 4 Climate NE
- 5 Climate Change Northwest
- 6 Climate South East
- 7 Climate SouthWest
- 8 Sustainability West Midlands
- 9 Your Climate – Climate Change Partnership for Yorkshire and Humber
- 10 Climate Northern Ireland
- 11 Adaptation Scotland
- 12 Welsh Government



[www.climateuk.net](http://www.climateuk.net)

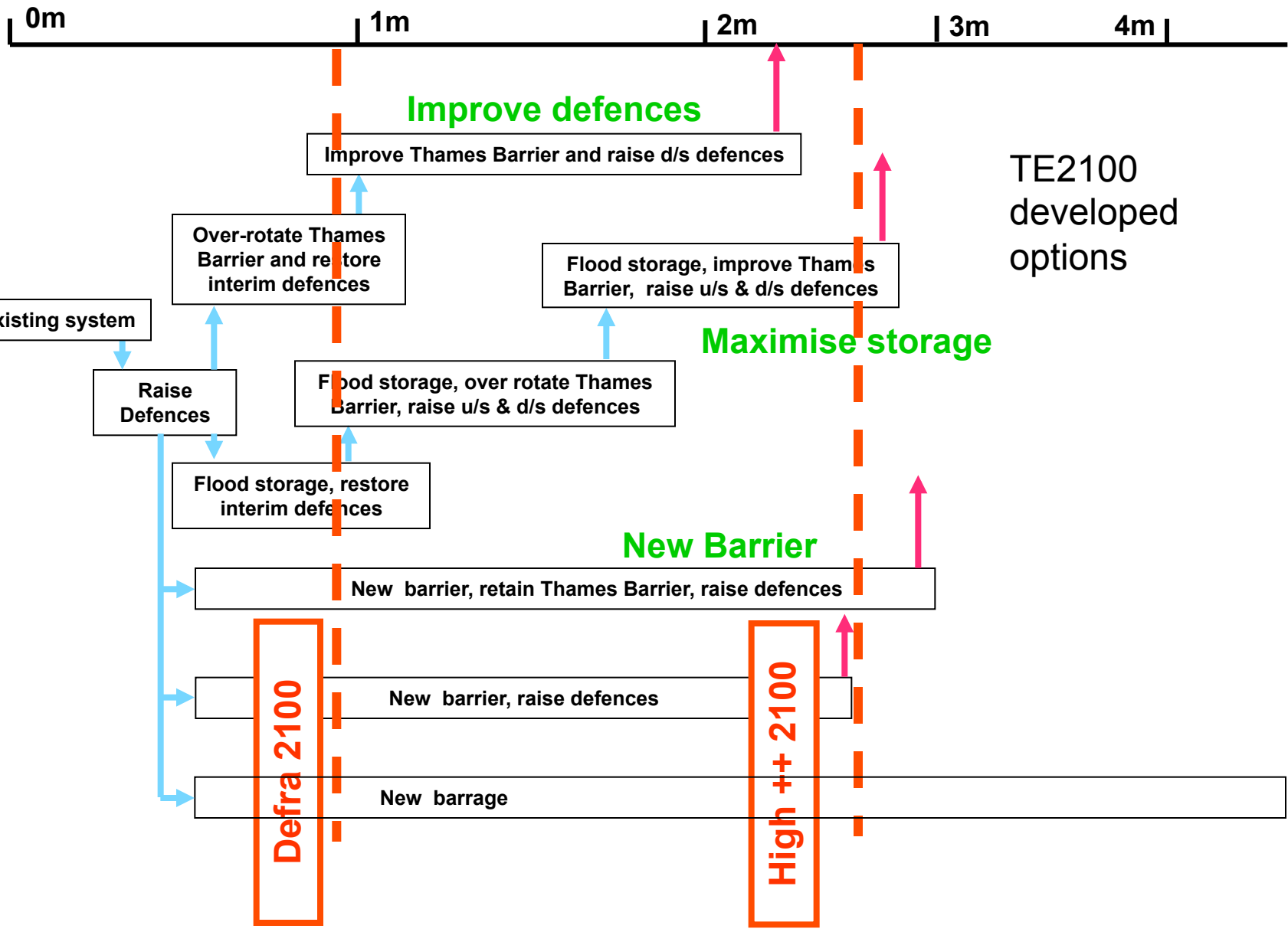
# London Heat Risk

- Heat Threshold study with Arup – 2011-12
- Social Housing and Health projects 2011-14
- Heat Risk group taking forward actions 2013
  - Heatwave comms
  - Mapping out activity on heat
- Commercial property forum convened 2013 – office cooling = a priority
- Office cooling study with BBP

# Heat Thresholds project

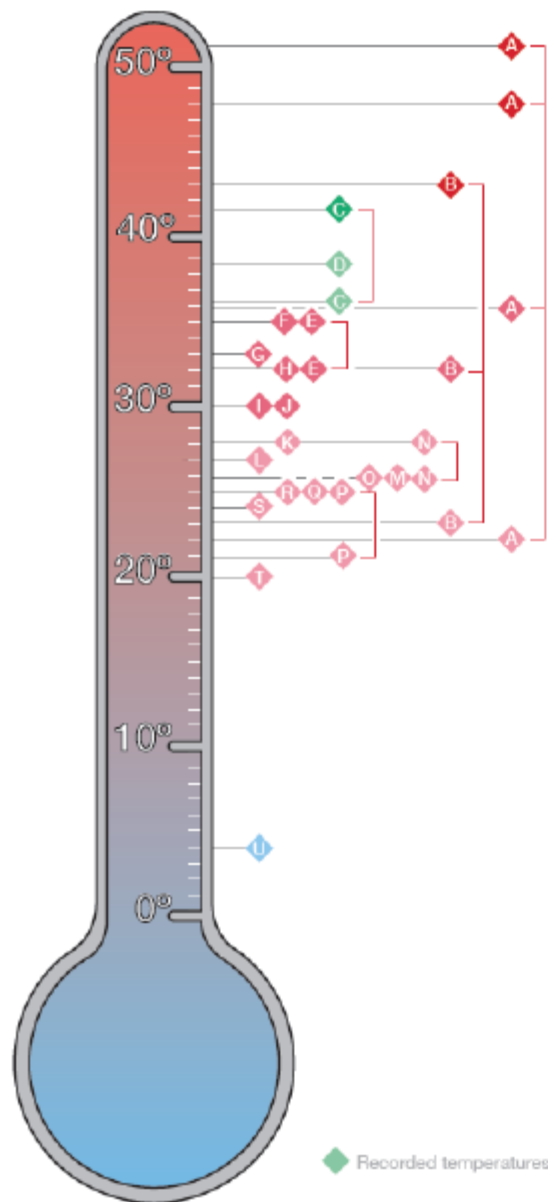
- What is already known about heat thresholds for London?
- High level case study (social housing and care sectors)
- Next steps for producing flexible pathways to adaptation for heat

Maximum water level rise:



Note:  
Each box represents one or more portfolios of responses





Temp.	
A	36°C External air temperature which results in rail track temperatures of 48°C-52°C. Extreme precautions, such as temporary speed restrictions, taken by Network Rail at this air temperature to avoid buckling of non-pre-stressed rails and overheating of power sources. 22°C Network Rail begin to implement staged preventative measures at this air temperature.
B	43°C Maximum internal air temperature advised for server rooms. 32°C Maximum internal air temperature advised for computer rooms. 23°C Maximum internal air temperature advised for IT equipment rooms.
C	41.5°C and 36.2°C Air temperatures recorded on the tube and on platforms respectively during the 2003 heatwave in London.
D	38.5°C Highest daytime temperature recorded in the UK (at Gravesend, Kent).
E	32°C and 35°C Internal air temperature thresholds to which Crossrail rolling stock and stations respectively are designed not to exceed.
F	35°C Heat stress risk for healthy adults begins at this internal air temperature combined with a relative humidity level of 50%.
G	33°C Softening of tarmac, asphalt and bitumen road surfaces generally begins to occur but is also dependant on direct solar exposure.
H	32°C The highest estimate for summer mean daily maximum temperatures by the 2080s.
I	30°C Vulnerability of commercial buildings to power outages increases when external air temperatures exceed this.
J	30°C Overhead power lines begin to experience a reduced rating factor above this air temperature.
K	28.1°C The highest estimate for summer mean daily maximum temperatures by the 2050s.
L	27°C Threshold temperature specified for overheating in well insulated housing.
M	26.2°C The central estimate for summer mean daily maximum temperatures by the 2080s.

Temp.	
N	28°C Current CIBSE temperature threshold for living areas. If 1% of annual occupied hours exceed this temperature, internal spaces in a building have technically overheated. 26°C Current CIBSE temperature threshold for bedrooms.
O	26°C Threshold for air temperatures of internal cool areas required to be provided by hospitals.
P	25°C Suggested 'hot' temperature threshold for bedrooms. 21°C Suggested 'warm' temperature threshold for bedrooms.
Q	24.8°C The central estimate for summer mean daily maximum temperatures by the 2050s.
R	24.7°C over 2 days leads to greater incidences of morbidity, mortality and hospital admissions in London.
S	24°C London Underground implement overheating plans including public health communications and measures to prevent non-pre-stressed railtracks from buckling.
T	20°C Legionella bacteria begin to develop in potable water supplies (both stored and piped) if water temperature exceeds this.
U	4°C to 60°C Bacterial growth on food encouraged between these temperature. Likelihood of food borne diseases increase by 4.5% for every 10C increase in air temperature.

**Figure 3.** Selected temperature thresholds relevant to London's urban systems.

# Heat Thresholds findings

- Body of evidence sizable and growing, but needs further communication
- Need for high level and strategic approach
- Opportunities for further engagement with social housing and care sectors
- Flexible pathways approach possible but needs further engagement with stakeholders

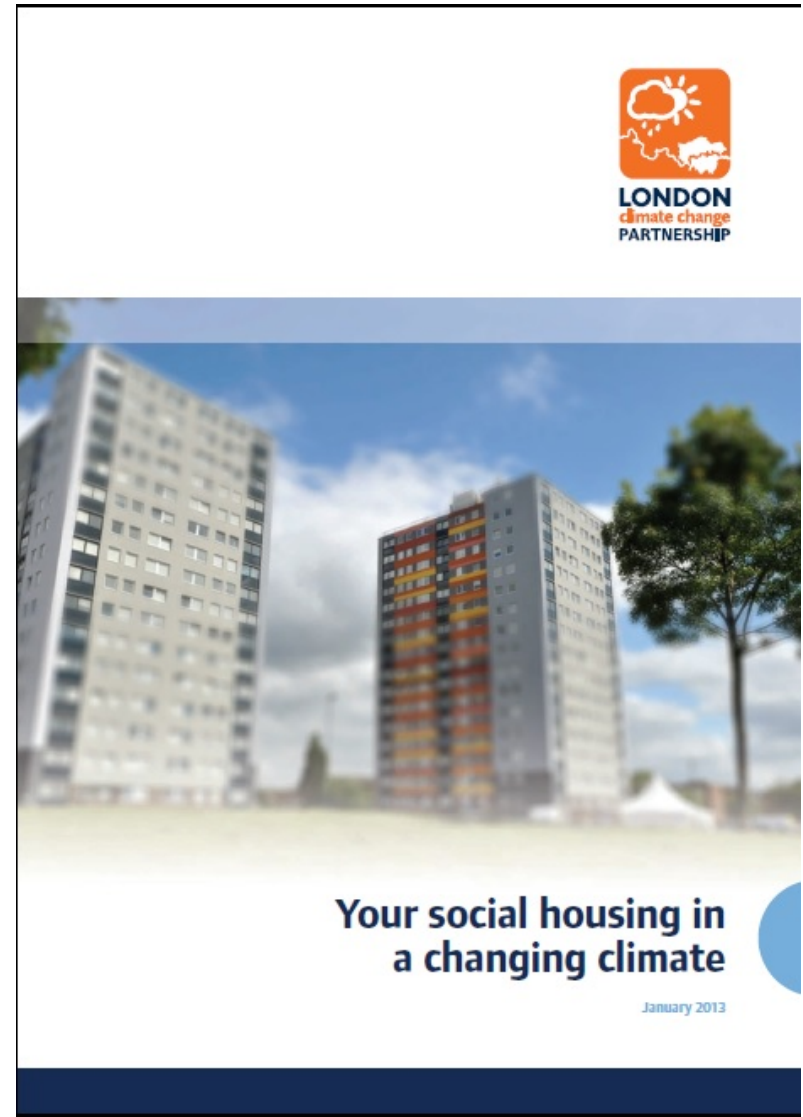


# Heat Thresholds recommendations

- Convene cross-sectoral discussion on heat
- Need to clarify terminology of heat risk
- Public awareness
- Update London Risk Register with cross-sectoral thresholds
- Low social housing awareness of heat as an issue

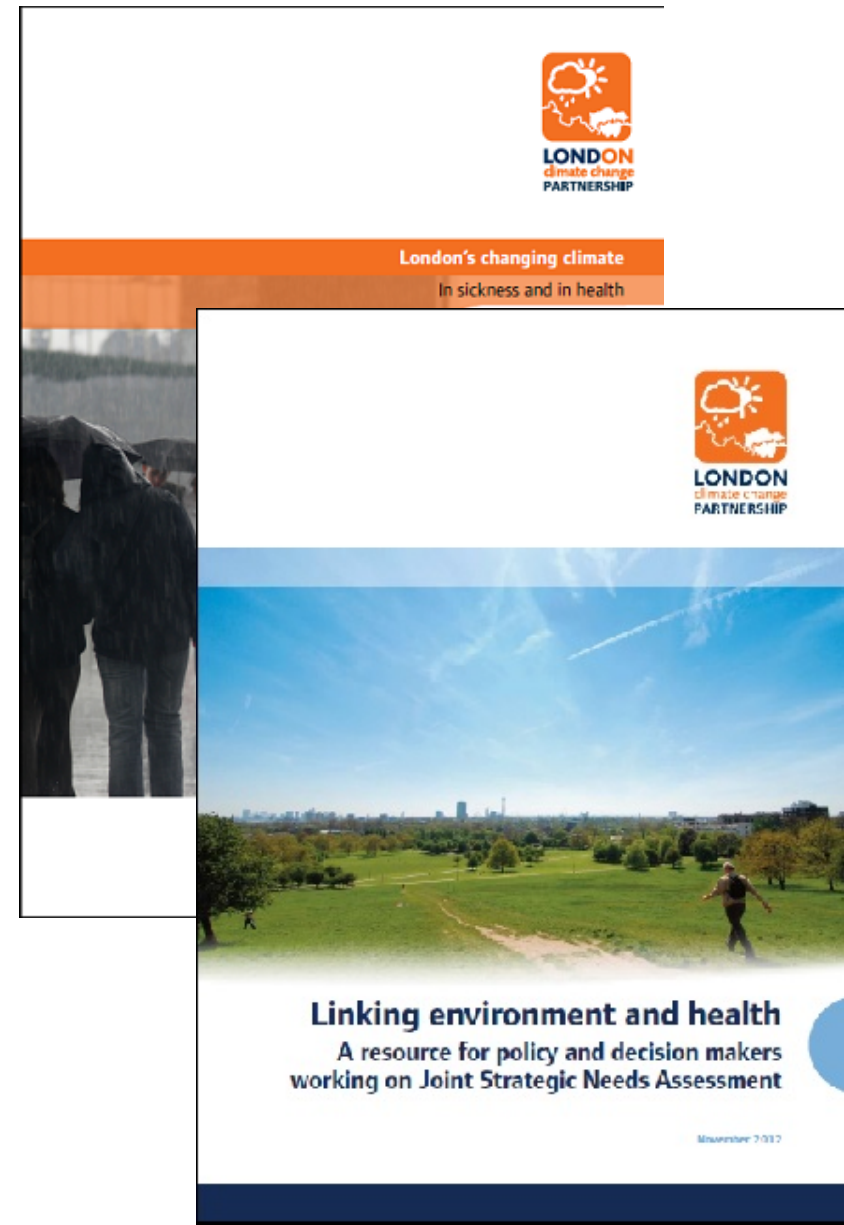
# Social housing project

- Made the case for integrating overheating measures into retrofitting of social housing
- Highlighted importance of resident engagement



# Health projects recommended:

- Collection of examples and learning
- Detailed scenario planning to illustrate issues
- Bring together sectors working on the issue of heat



# Heat Risk in London group

- Pulling together cross-sectoral responses on heat
- Sharing knowledge with other regions and cities
- Providing link with national policy and service planning



# Commercial property: limits to office cooling



# Considerations

- Limits to a range of existing typical cooling systems in London, given climate projections?
- How do energy price projections affect preferred options?
- What role will energy security play?
- ...would you like to get involved?





Thank you

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