In partnership with OXFORDSHIRE COUNTY COUNCIL

Interpreting thermal images & taking action

A quick guide by Dale Hoyland, Oxfordshire Retrofit Team Leader, OCC

Interpreting your thermal image:

- Each image shows white/red as hot and where heat is being lost and black/blue as cold (note that other colour pallets may have been used, so double check the scale which should be displayed on your images). The scale reference on the picture shows the top and bottom temperatures – in the example here, it is -6.5^{0}C through to +6.6^{0}C.
- Look for areas (ideally within the same material so that you can be sure it is a true thermal difference, not simply how well the material shows heat-loss to the camera) which are appearing warmer than others, and consider the reason for this:- is there an insulation deficiency? Is there a structural element of the property (such as a lintel above a door/window) this is causing a thermal bridge? Is there a source of heat in that area that is causing the additional heat loss (such as a radiator or heater behind the wall, an open window or trickly-vent, an extraction vent outlet, floodlight or boiler flue)? Is there air coming from within the property – if so, is this necessary ventilation or an unwanted draught?
  Can you do something about the heat-loss from your property? The answer is very likely yes, and likely to range from easy DIY improvements through to a comprehensive whole-house retrofit approach:- take a look at the next section of this guide…
- A note on windows, glass and some roofs:- such materials can reflect (as opposed to emit) infrared radiation and so appear colder in the images than they actually are if presenting a reflection of the sky to the IR camera, or warmer if reflecting a recently-driven vehicle for example.

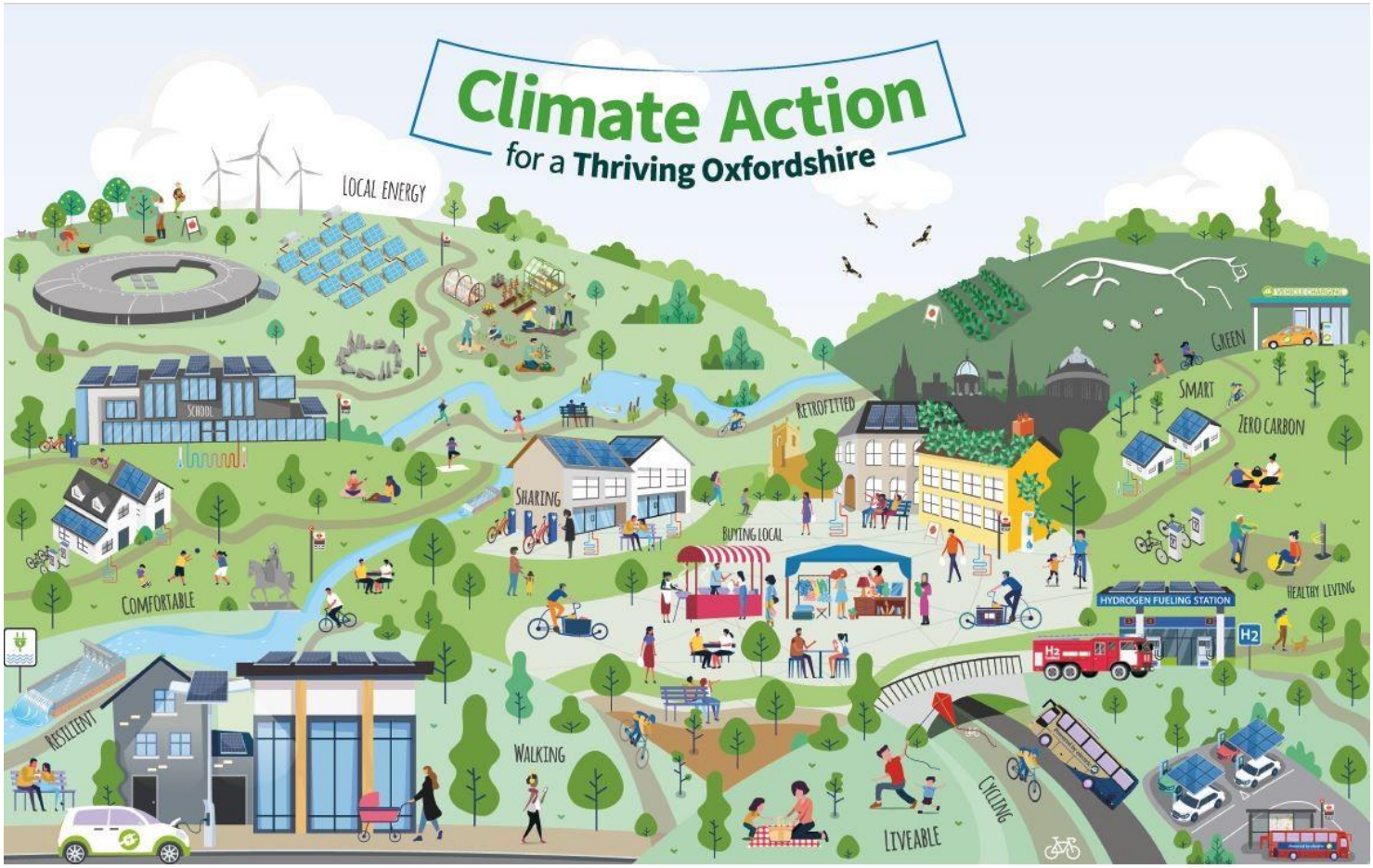
How to reduce heat loss, increase thermal comfort, cut your energy use and reduce your carbon emissions:

- **Turn down heating thermostat and hot water thermostats**:
  - turning your thermostat down by 1°C could save over £100 a year according to Uswitch
- **Radiators**:
  - Turn down radiators in rooms you are not using
  - Install thermostatic radiator valves and smart heating systems to give more temperature control
- **Stop draughts:**
  - For doors, windows and loft hatches etc install draught excluding tape, fabric draught excluders along bottom of doors and letterbox/door brushes
  - Cover doors and windows especially patio doors with thick curtains with thermal liners and close curtains at dusk (tucking behind radiators where possible)
- **Fit chimney balloons** - or an old pillow can fit inside unused chimneys to prevent draughts
- **Fit radiator foil behind radiators** that reflects the heat back into the room rather than allowing it all to escape through the walls. Installing radiator foil behind 8-10 radiators can save up to 35kg of carbon

- **Insulate:**
    - **Fit an insulating jacket on the hot water tank** can save you ~£30 a year in heating costs and 110kg of carbon emissions
    - **Hot water pipes** can be insulated with foam or reflective lagging
    - **Insulating a loft** with the recommended 300mm of insulation can save up to 20% of heat loss. It is important to put the insulation as close up to the eaves as possible whilst still ensuring correct ventilation to any soffit vents; the smallest of gaps can lose a significant amount of heat
- **Insulate walls:**
    - Cavity wall insulation can save up to 25% of heat loss from a house
    - External / internal insulation as appropriate for solid walled properties
    - Solid external walls such as under bay windows can be clad with insulating materials
- **Other measures:**
    - Install secondary glazing film on single glazed windows or upgrade to double or triple glazing
    - Switch to a renewable energy provider
    - Install air or ground source heat pump which are low carbon heating systems
    - Consider if other on-site renewables are appropriate, such as solar PV panels to generate your own green electricity
    - Install a smart meter to monitor energy usage and see where you can reduce it

For the latest information on countywide energy-efficiency schemes supported by OCC, please register your interest via the quick form at: www.oxfordshire.gov.uk/retrofit

< Finally, huge thanks for all the thousands of volunteered hours given to these projects by Community Action Groups and individuals across Oxfordshire >



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