



Local Authority Housing
Energy Upgrade Seminar
Tipperary Institute, Thurles
17th June 2010

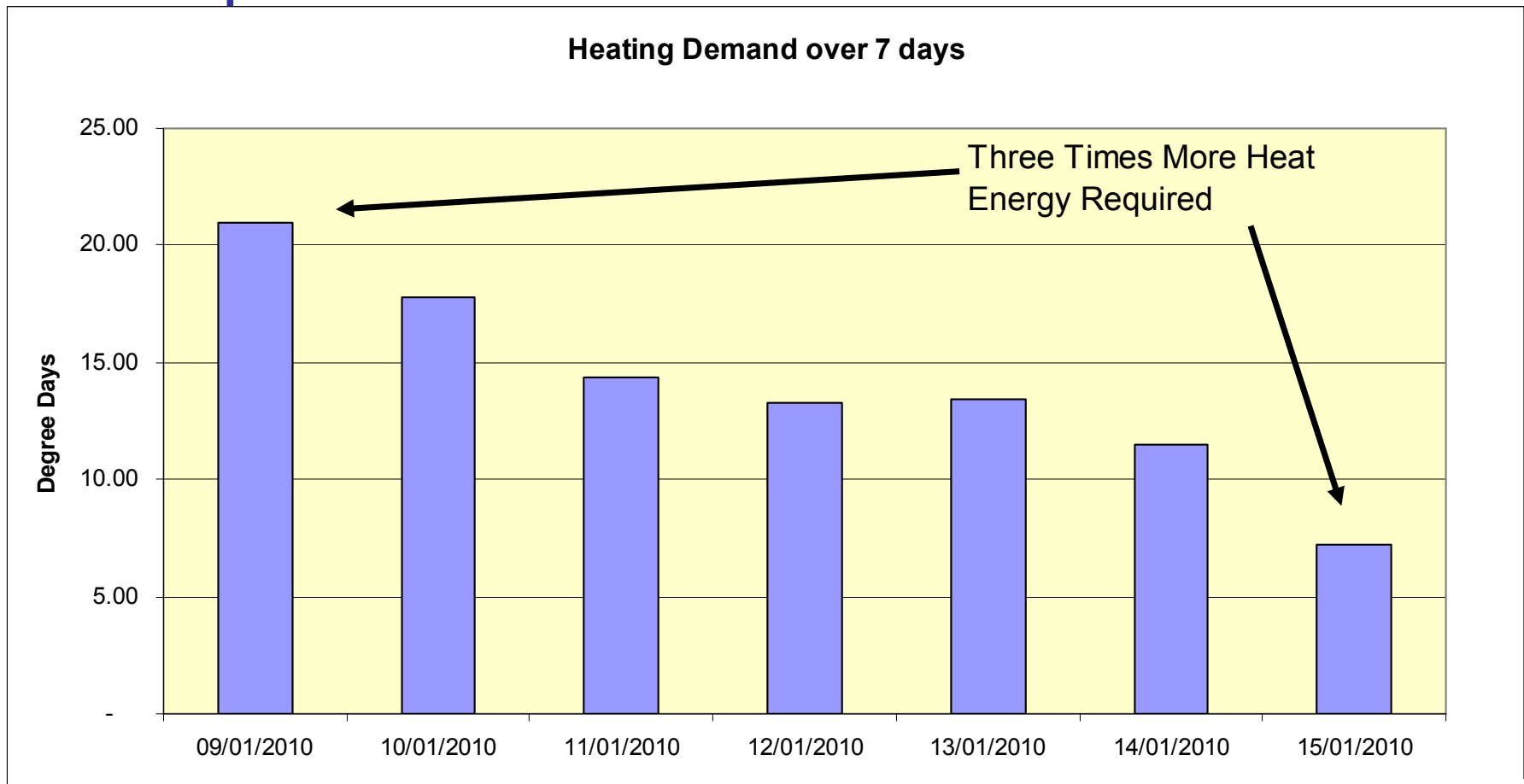


- Heating Controls
 - Two Zones + TRV
 - Three Zones
 - Integration with existing
- Cylinders
- Boilers
- Stoves
- Solar Water heating
- Windows

Why Heating Controls?



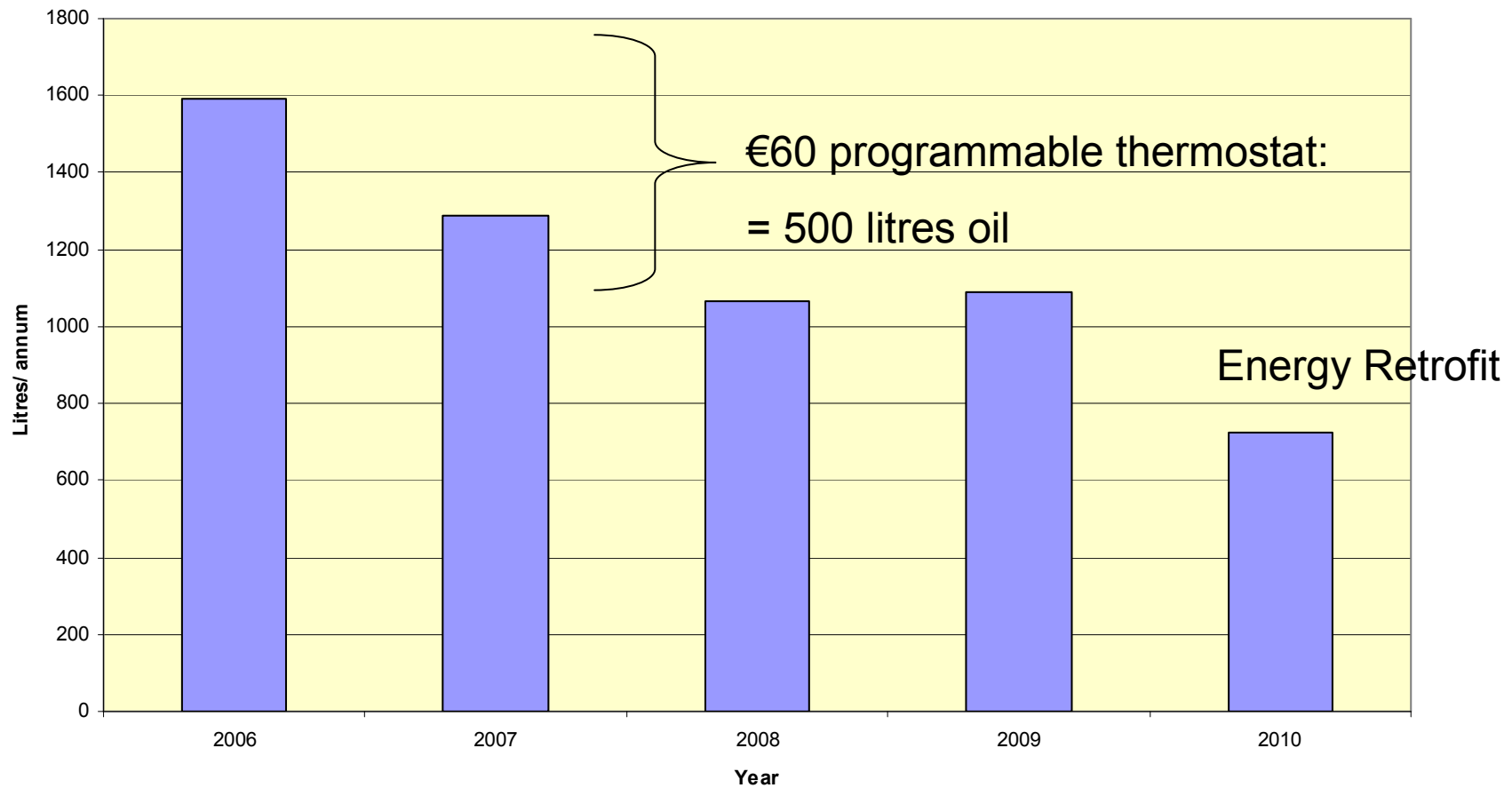
- Temperature Varies – heat demand varies



Cost Effectiveness



Oil Use (degree day normalised)



Heating Controls

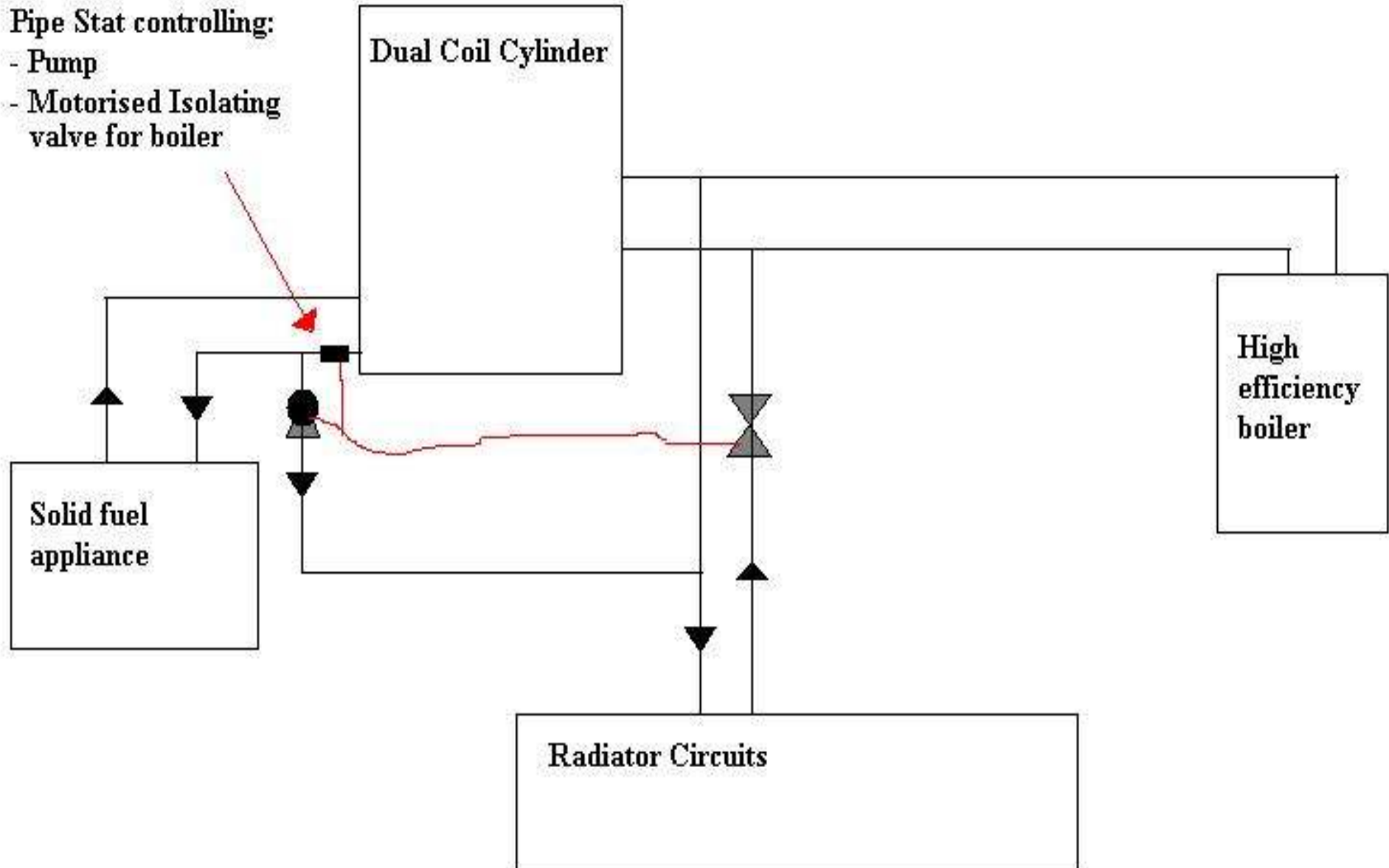


- Minimum standard of Heating controls:
 - Two zones – Space Heating and Domestic Hot Water.
 - Temperature control on both – cylinder stat and space heating thermostat.
 - Time control on both – in this case analogue time clocks.
 - Plus TRVs on radiators where there is no space heating thermostat.
 - This is defined in the BER as category 2 heating controls with boiler interlock.
 - Category 3 heating controls would have a third zone for upstairs etc.
- BER assessor will call for either:
 - Category 2: two zones & TRVs
 - Category 3: three zones



Pipe Stat controlling:

- Pump
- Motorised Isolating valve for boiler



Integration with solid fuel



- Some houses will have solid fuel ranges (boiler)
- Dual coil cylinder
- Return from cylinder with pipe stat operating pump
- Pump return around radiators and back to stove.
operates (on stat) on return Integration similar to existing installations
- Boiler must be controlled as per temp stats/ timers.
- Integration must be safe and efficient.
 - Pressure relief valves
 - Robust installation of pipestats, wiring etc.



- Insulated to building regulation standard
 - Thickness \geq diameter of pipe
 - Thermal conductivity ≤ 0.035
 - Elbows lose heat too – insulate them!
- All pipework required to be insulated to this standard (Attics, Hot press, Primary pipe work (DHW))
- External Primary Pipework $> 1\text{m}$ to be district heating pipework.
- No Surface mounted pipework/ wiring.

Pipework



Cylinder



- Insulated to building regulation standard
 - Thermal loss of 0.8 Watts per litre
 - Sized for house
 - Anode to be installed.
 - Immersion to be installed (& controlled)
(some cases may not be required)

Boiler



- Min efficiency to be met
 - 91% gas, 94% oil; 85% wood pellet
 - May be met using weather/ load/ modulation compensation.
- Must be appropriately sized
 - Small houses, well insulated.
 - Majority of houses need 12/15kW (35/50)Max.
- Installations must meet part J of building regs.
 - Oil installed outside only.
 - Oil pipework buried.
 - Tanks bunded/ double skinned.



- Min efficiency to be met
 - 75% Gross efficiency (see “Hetas” guide part 1)
 - Multifuel Stove
 - Appropriately sized (<5kW usually)
- Ventilation must meet Part J. (100mm diameter permanent vent for <5kW stove).
- Installations must meet part J of building regs for combustible materials
 - Hearths at 225mm.
 - Walls, wall insulation etc.

Stoves



Solar Water heating



- Will not be likely to be installed in many houses.
- Flat plate 4m²
- Must meet 75% optical efficiency
- Must meet $<4\text{W}/\text{m}^2\text{K}$
- Cylinder of 250L minimum

Windows



- Majority of houses have Double glazing
- Will unlikely be needed for cost effective upgrades
- If installed max U value of $1.6 \text{ W/m}^2 \text{ K}$ total window and frame & certified as such.
- Must meet all standards as referenced in specification document.

Lighting



- Be of an appropriate wattage bulb. i.e. not less than CFL equivalent of:
 - 18W in living rooms and kitchens.
 - 15W in bedrooms and bathrooms
 - 11W in corridors and low use spaces.
- All bulbs will be ROHS compliant, CE marked.
- A Rated.

Summary



- Works aim to be best practice
- Standards will rule out lower 50% - 70% of products/ materials
- Standard/ basic/ cheap materials / products will not be sufficient.
- Homework will need to be done in advance of tenders.



- Tipperary Energy Agency
- Craft Granary
- Church St, Cahir
- Co. Tipperary, Ireland
- Paul Kenny
- Senior Consultant
- T: 052 7443090
- F: 052 7443012
- E: pkenny@tea.ie
- W: www.tea.ie

Thanks for your time. Questions??