



# Creation of an Improved Residential Space Heating Model for the Irish Energy Performance Assessment Tool

Geoff Hunter

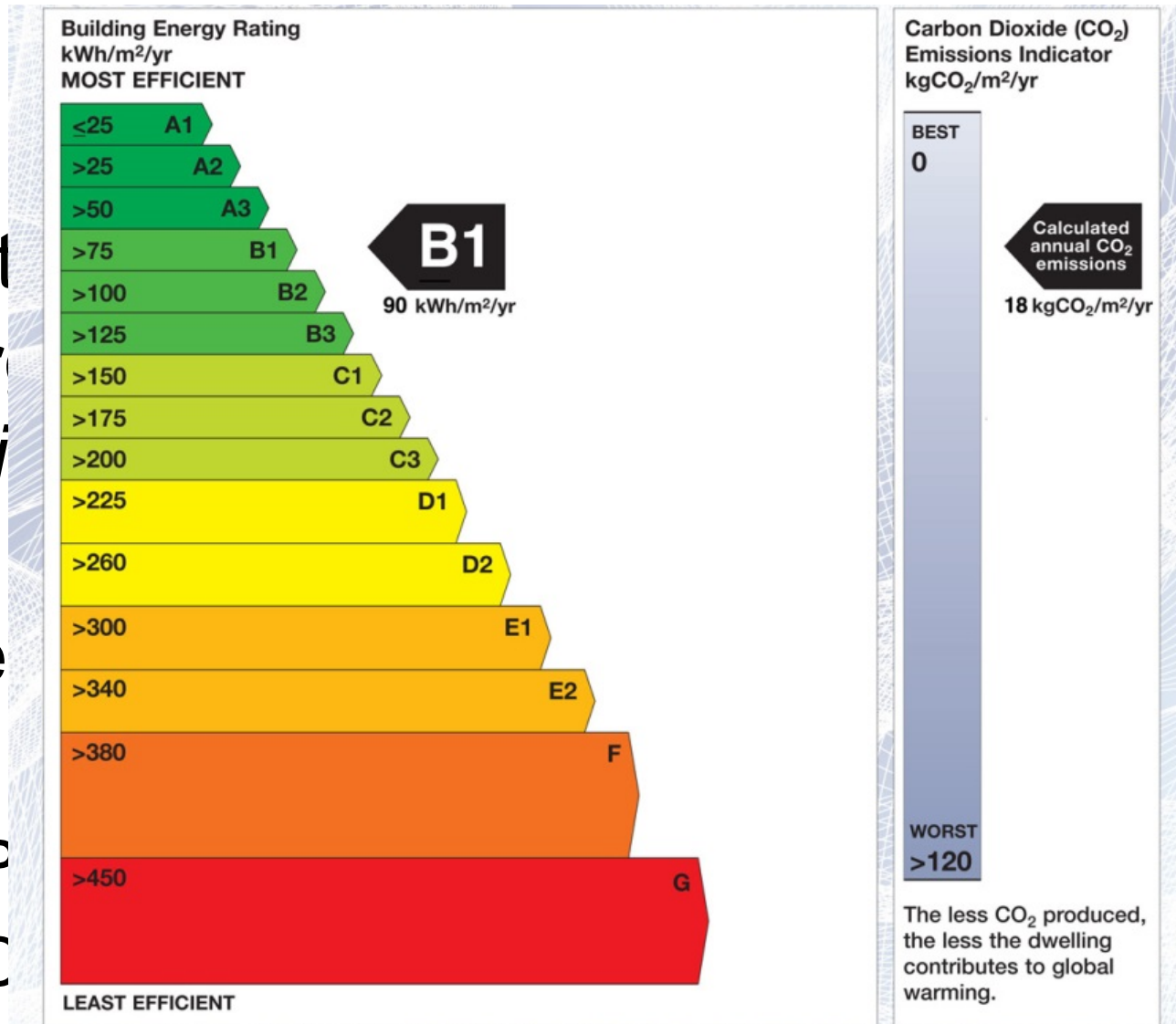
**Centre for Rural and Sustainable Development**

Mr Seamus Hoyne Dr Liam Noonan

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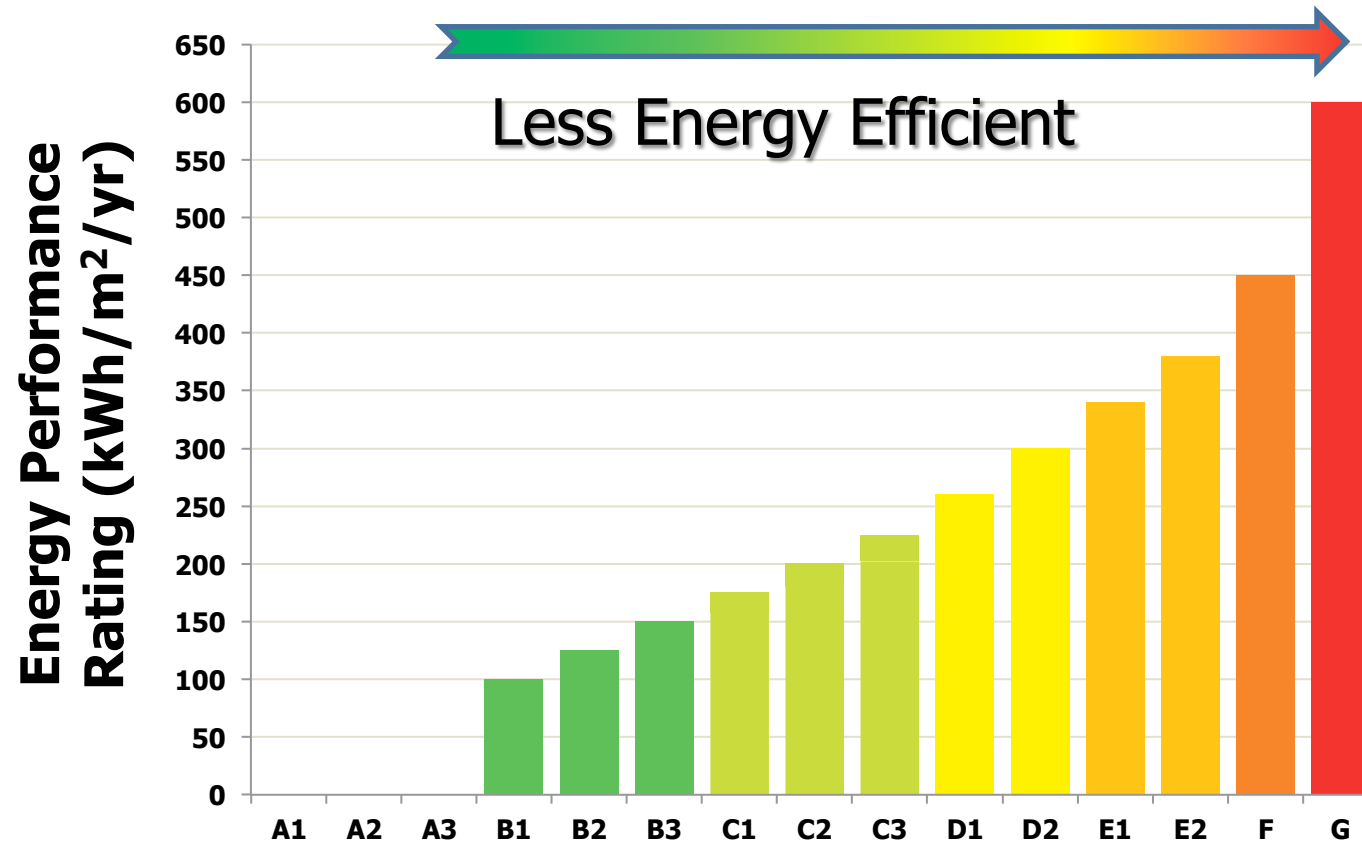
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# DEAP vs Actual Space Heat



Mean EPG = 25% below model across 12 studies in EU

# SERVE Project\*

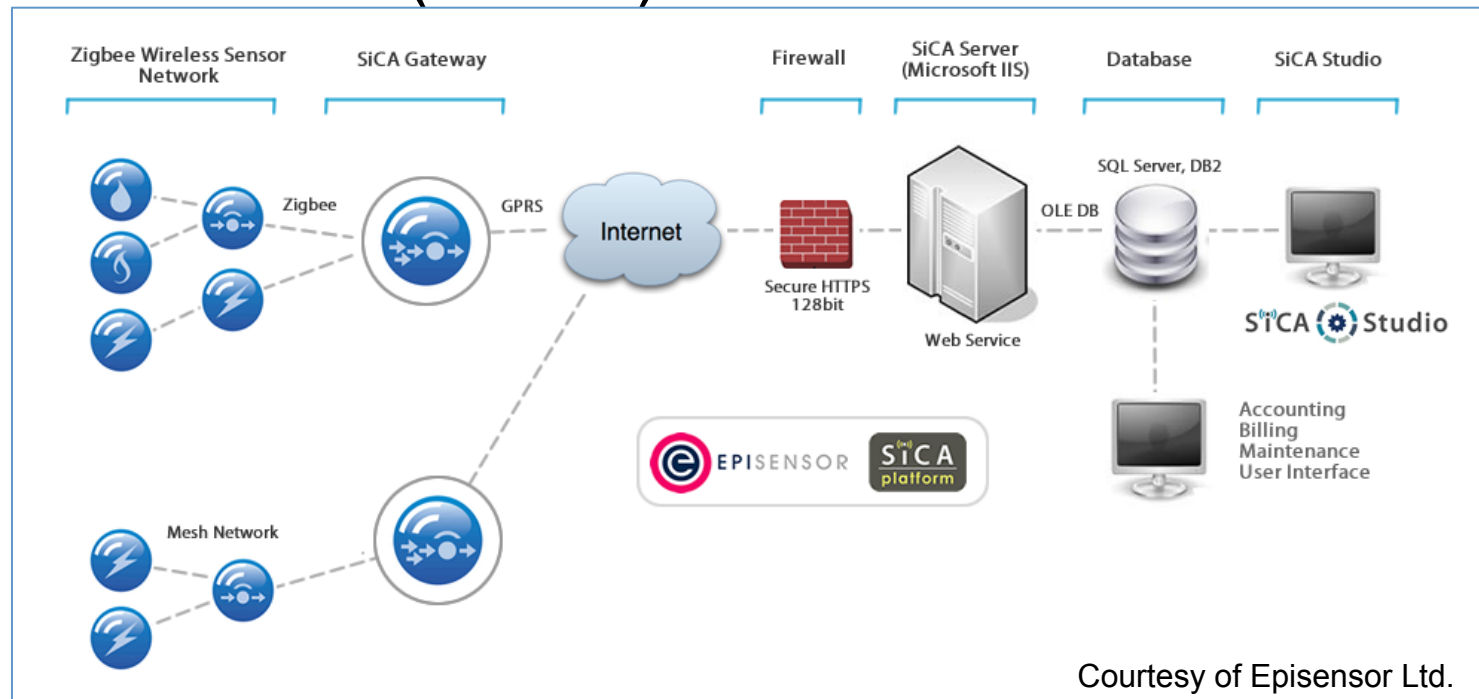
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\* EU Concerto, SEAI, LIT, TEA, Tipperary CoCo

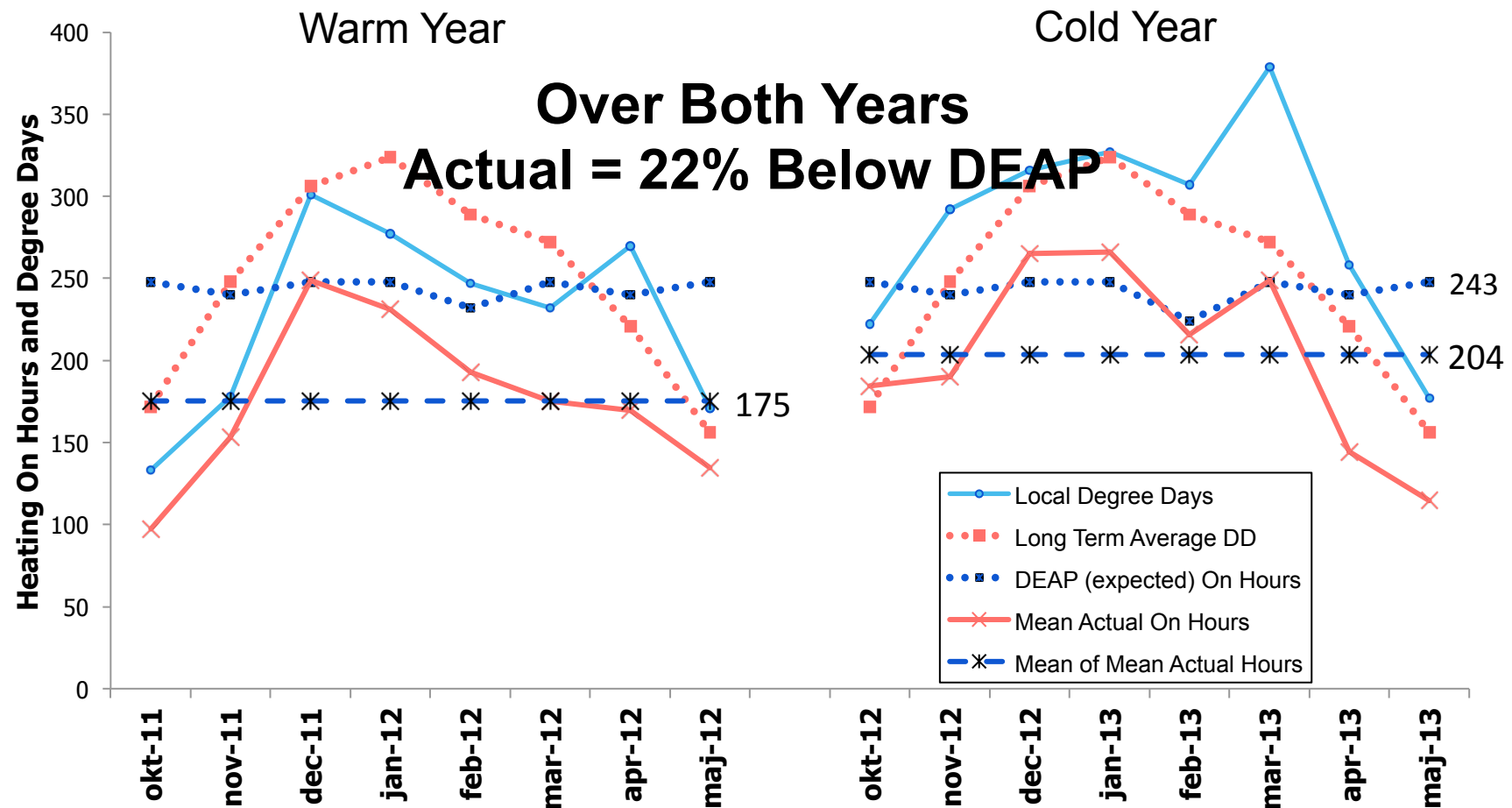
# Monitoring System

- Wireless Sensor Network
  - Temperature ( $\pm 0.2^{\circ}\text{C}$ ) 5-min to 1 hour interval
  - Watt-hour ( $\pm 1\%$ ) 15-min to 1 hour interval

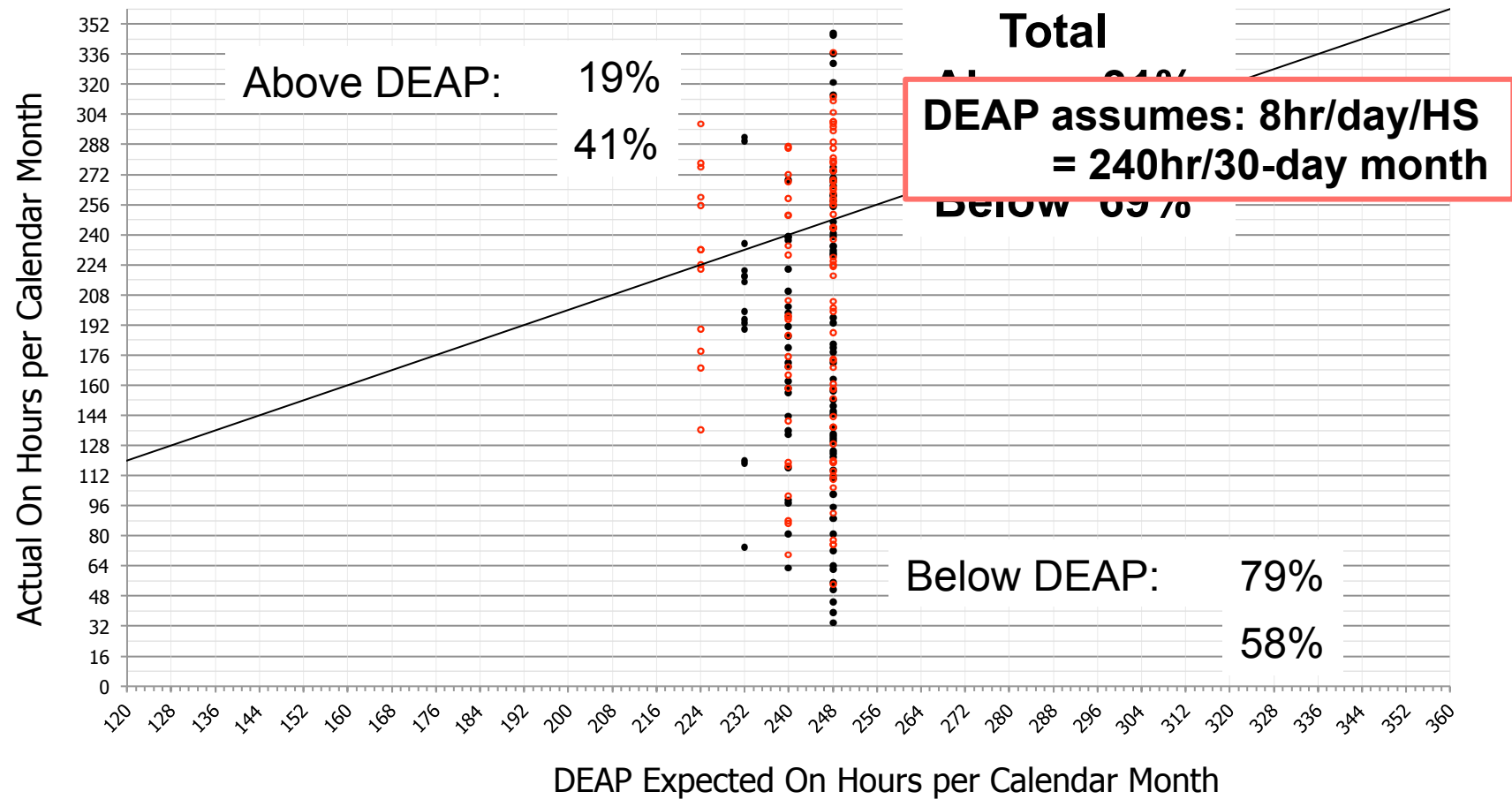


# RESULTS

## Boiler On Hours per Month

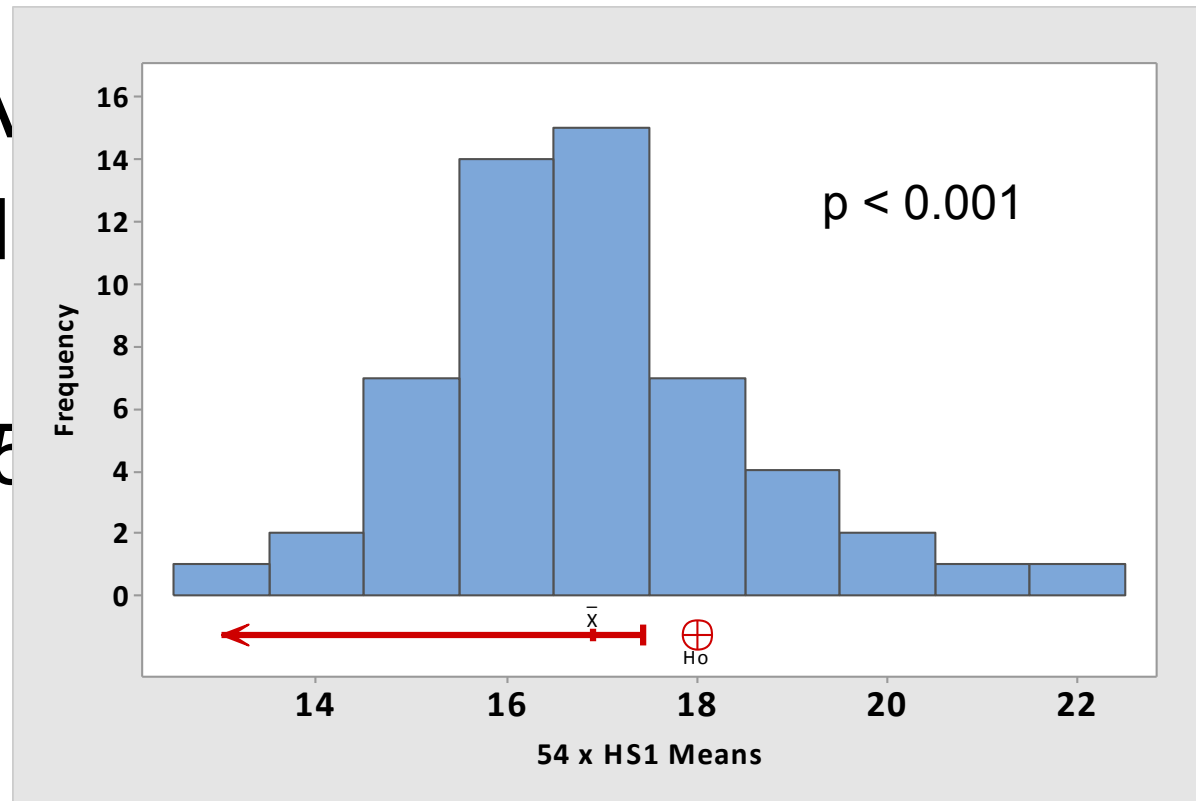


# Boiler On Hours vs DEAP (n=14)



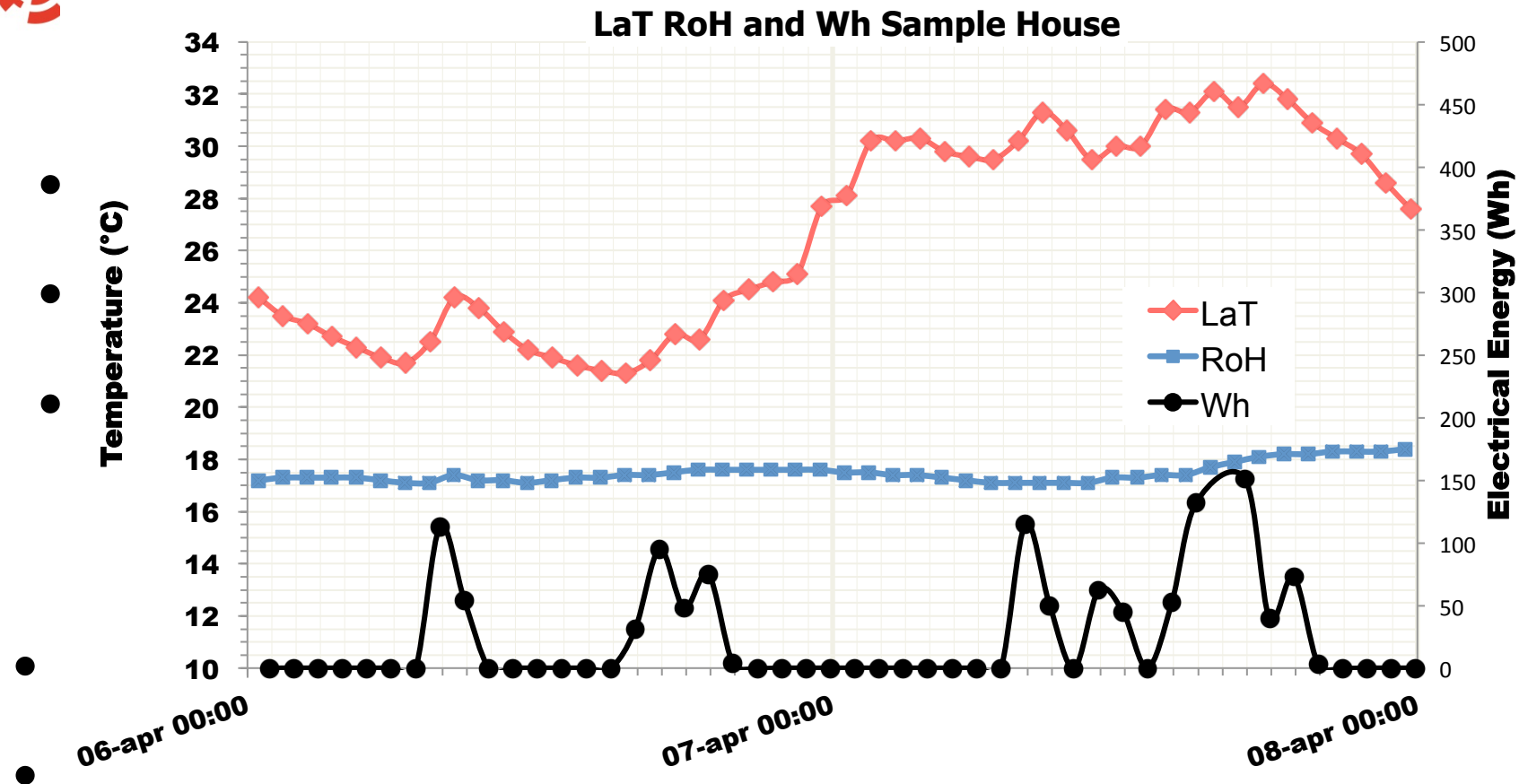
# Rest of Home Temperature

- DEAR
- RoH
- HS1  
(14.5



season  
r temp  
cool  
LTA)

Mean: 16.9°C Upper bound: 17.4°C  
99% Confidence Interval



- Present to Irish energy agency (SEAI)
- Add-on model to compliment DEAP

# Acknowledgements



# Contact Details

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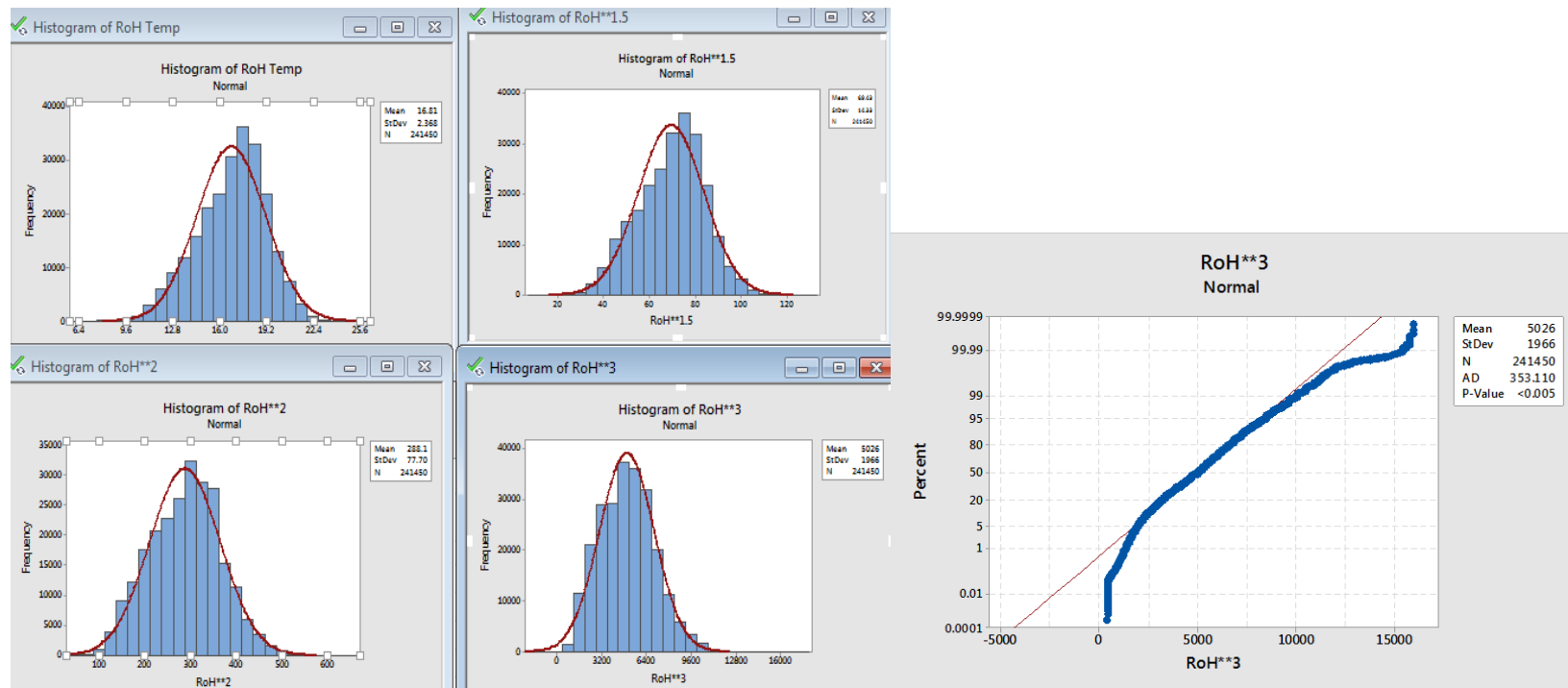
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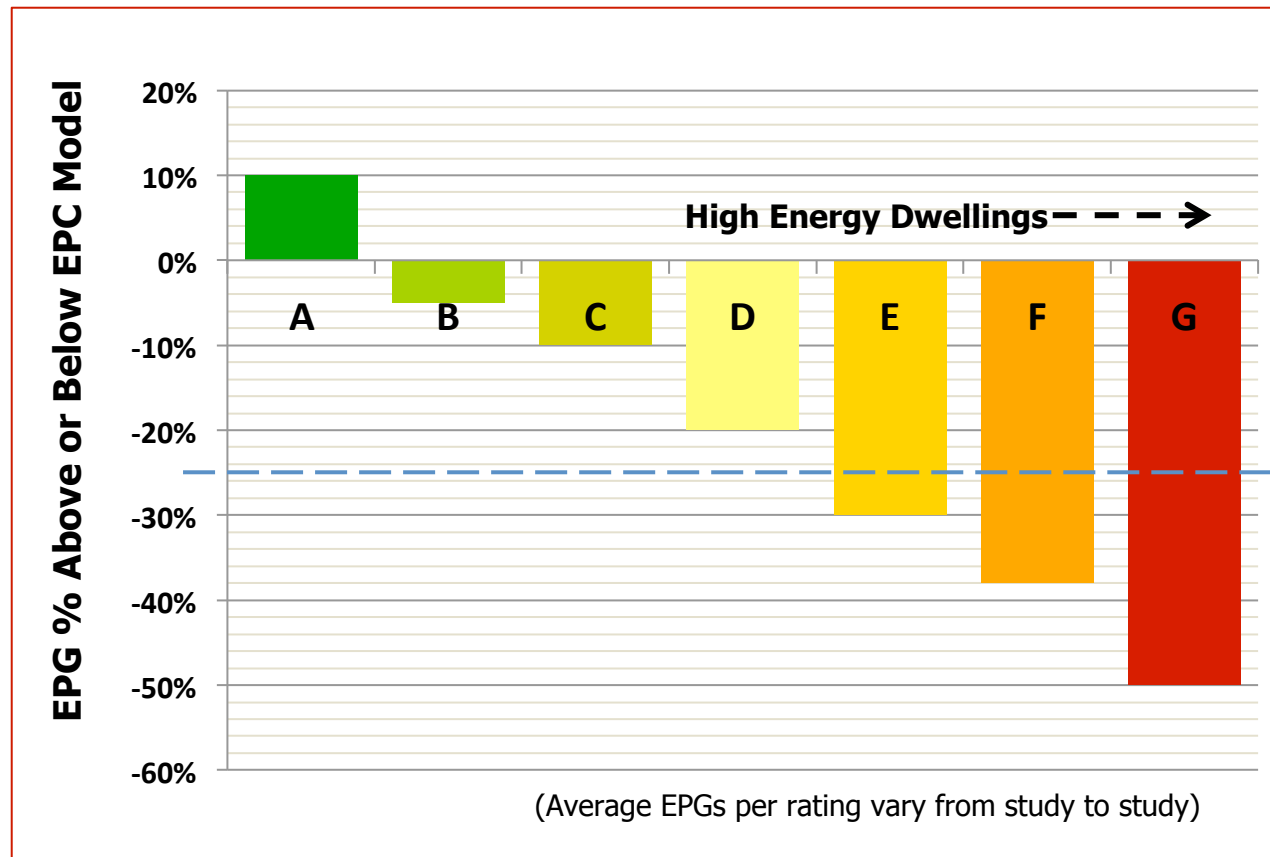
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# Transformed Data HS2



# Energy Performance Gap



Mean EPG = 25% below model across 12 studies in EU