R&D Enabling Decarbonisation of Heat

SEAI National Energy Research and Policy Webinar Series

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LIT Development Unit

Sustainability Focus

- Energy
- Climate Action
- Social Enterprise
- Rural Development
- Technology for Change

- 28 Projects with value of €33m

Expertise & Networks

- 20 FTE Staff, (28 Head Count)
- Engineering, Architecture, Social Science, Science, Administration, Finance
- >150 EU Partners

Key Challenges

Field	Residential	Non-Residential
Technology	x	xx
Performance	xxx	x
Integration	xxx	xxx
Customer Journey	xxx	xx

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Technology	x	xx
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Customer Journey	xxx	xx

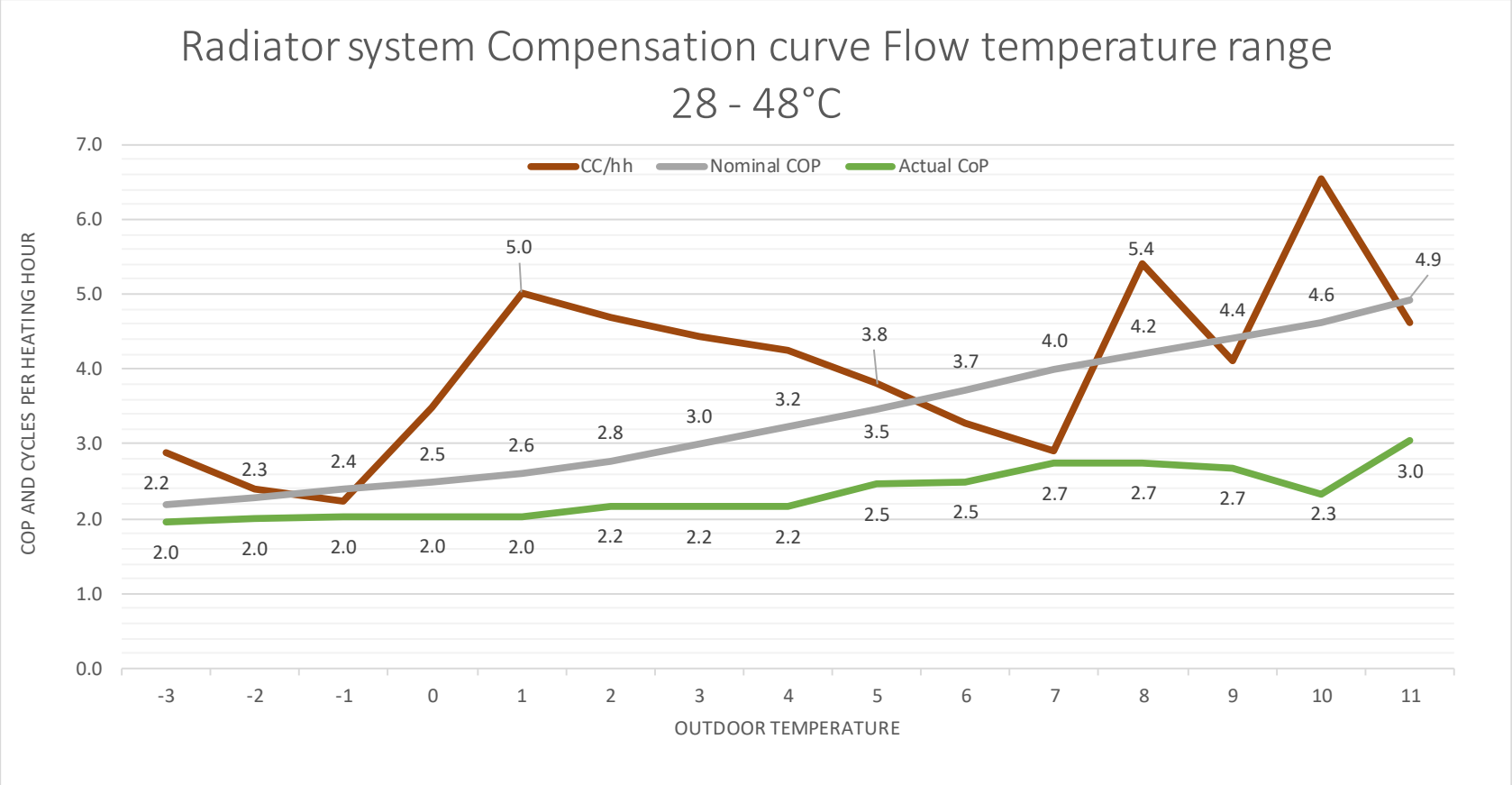
Superhomes 2.0

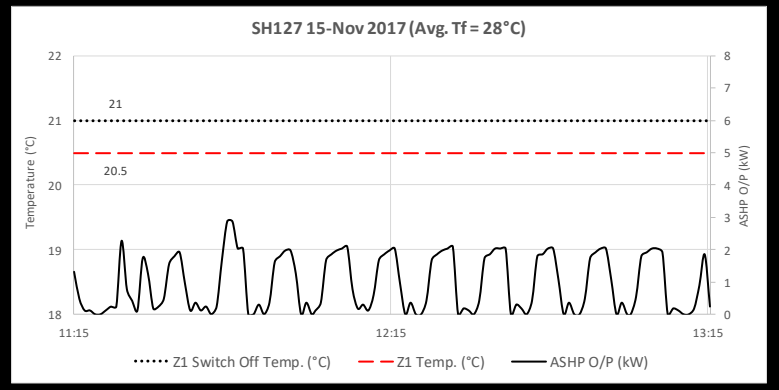
- Optimisation solutions for Air Source Heat Pumps
- 2 year data analysis and optimisation programme
- 10% improvement in performance

FactHP

- COP assessment on 40 HPs
- Air and Ground Source, new build & retrofit
- Monitoring challenges!
- Comparing Monitored SPF vs DEAP Heat Pump Tool
- SEAI funded project ref 18/RDD/216

Predicted vs Actual – Pre Optimisastion





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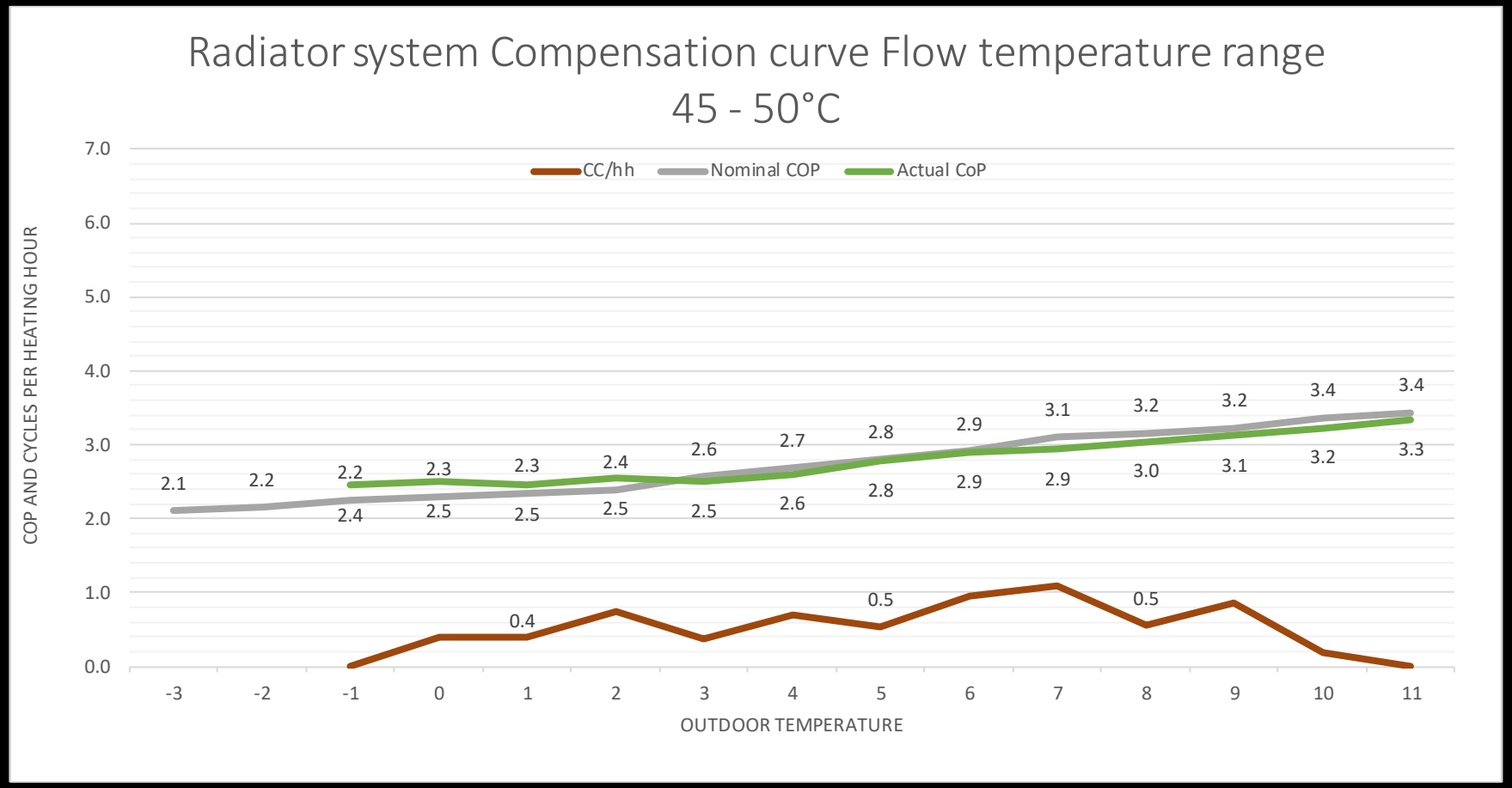
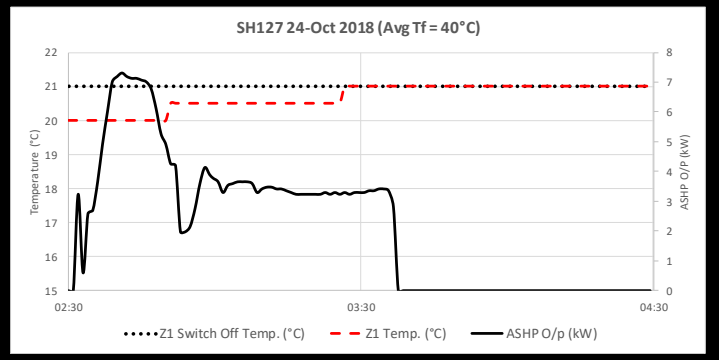


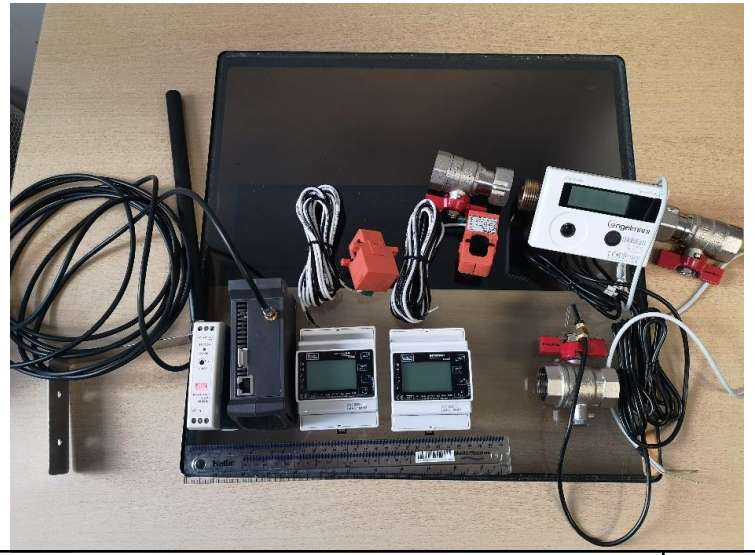


8.5kW ASHP + Radiators	Period 1	Period 2
Flow Temp	25-45	40-50
Zone Satisfaction	416	822
Compressor Cycles	9087	200
COP (Space Heating)	2.7	3.1

LIT

FactHP

- 36 ASHP
- 2 horizontal ground source
- 4 closed loop boreholes
- Tipperary, Dublin, Waterford, Kilkenny, Cork, Kerry
- 6 different monitoring systems
  - Manufacturers
  - Purchased/Be Spoke
- DEAP Data Files; HP Tool



New build	6
Deep retrofit	31
Shallow retrofit	1
HP Grant	2

Challenges

- Reliant on engagement of homeowners and installers
- Proper monitoring equipment is expensive
- Reliable remote monitoring is a challenge

Highlevel Outcomes

- 12 month’s data to hand for most sites
- Analysis being finalised
- There is a performance gap (+/- 6-10%)
- Heat Loss Indicator (HLI)

ABOUT THE PROJECT

HP4ALL will enhance, develop and promote the skills required for high quality, optimised Heat Pump installations within residential/non-residential buildings bringing Europe to the forefront of the climatization sector.

Horizon 2020
European Union Funding
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 891775

OBJECTIVES

Design Heat Pumps competency & excellence skills framework

Increase the number of skilled workers

Enable end users/clients to demand high quality solutions

Replicate the project at national and EU-level

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State of the Art (WP2)

- 12 Countries Reviewed
- 20 HP Experts
- 3 Focus Groups
- 5 Interviews with Policy Makers

Competency Frameworks (WP3)

- 20 Skills Experts Consulted
- Competency Frameworks for Designers/Installers/O&M
- Reviewed by 20 EHPA Members
- 3 Mutual Recognition Agreements

End Users Needs (WP4)

- 45-90 End User Inputs
- 1 Knowledge Hub in 3 Languages
- 1 Benchmarking Tool in 3 Languages
- Comprehensive Awareness Campaign – 3 Regions

Regional Implementation Plans (WP5)

- ~20 Case Studies
- ~10 Workshops for policy makers/manufacturers/Supply chain
- >400 individuals receive Capacity Building
- 3 Awareness Campaigns
- 1 detailed HP Planning Guide

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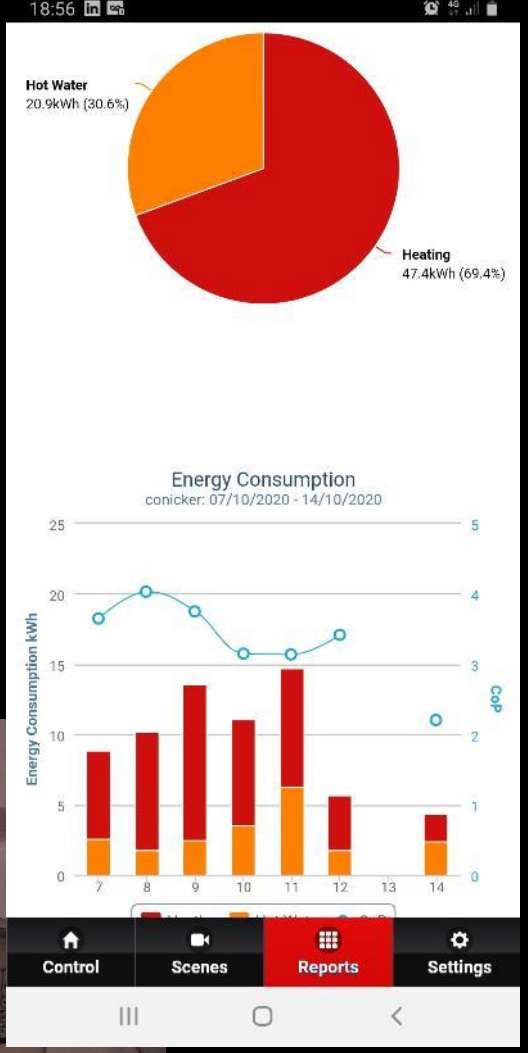
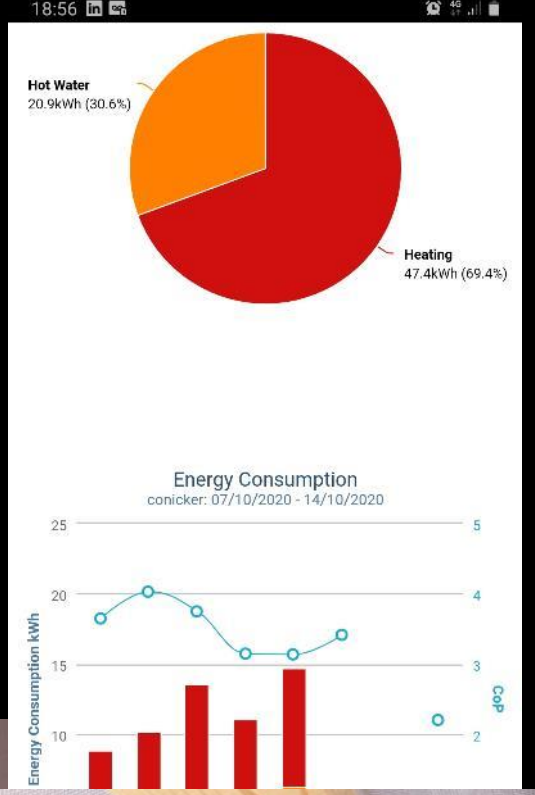


Integration!!



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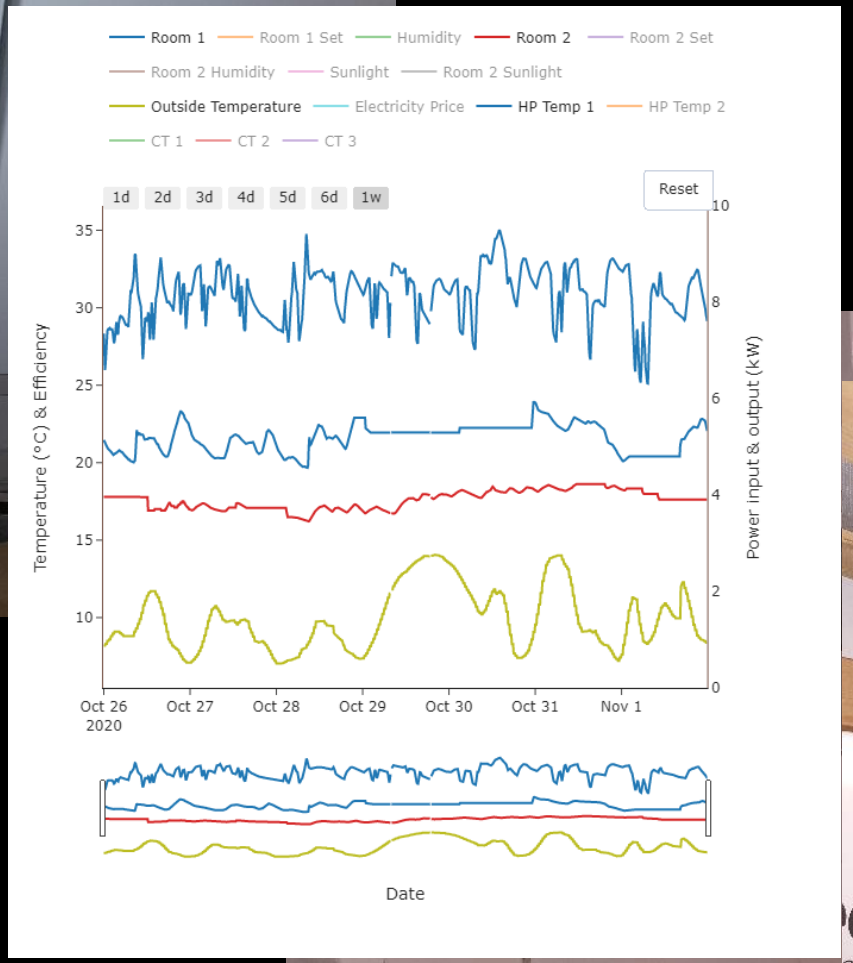

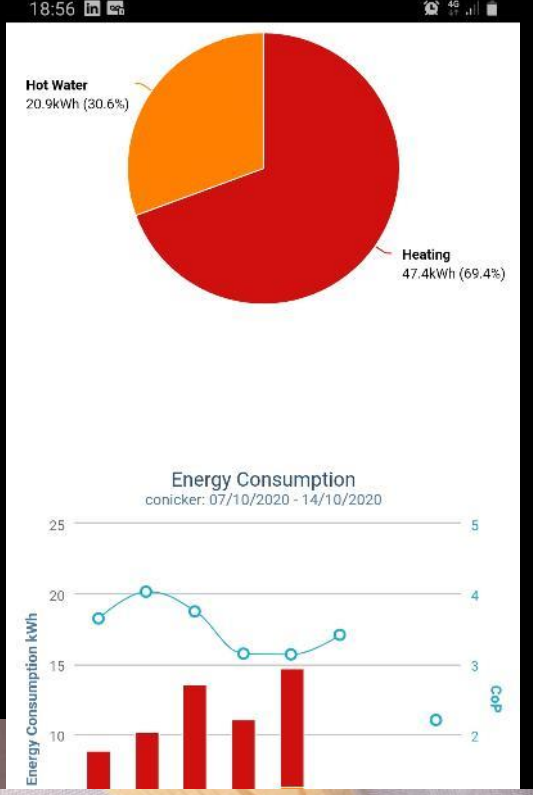

Conclusion

Field
Technology
Performance
Integration
Customer Journey

- Technology R&D
  - Developing solutions for specific needs
  - Non Electrification solutions
- Performance
  - Need more data
  - Date driven responses; inform standards, drive innovation
- Integration
  - Communication and Connectivity: between systems and for home owner
- Customer Journey
  - Their Knowledge/Their Needs/Their Attitudes

LIT Development Unit

Thanks for your attention

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