



# **The Future Homes Standard assessment: a wrapper for the Home Energy Model**

## **Online questionnaire**

**April 2024**

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## About us

Solar Energy Scotland is the trusted industry trade body for solar energy in Scotland. Alongside Solar Energy UK, we represent a thriving member-led community of businesses and associates, ranging from ambitious and innovative SMEs to global brands.

Together with our members, Solar Energy Scotland works to shape policy to realise the potential of solar and energy storage in Scotland, and to work with Government and all stakeholders to deliver on climate change obligations and net zero greenhouse gas emissions by 2045.

## Chapter 2: The Future Homes Standard assessment: a wrapper for the Home Energy Model

**1.1. What are your views on the choice of inputs that have been standardised vs left open as user inputs (as in the consultation tool)? Please explain your reasoning and provide any supporting evidence.**

No comment

**2. What are your views on the ease of populating or sourcing data for those user inputs? Please explain your reasoning and provide any supporting evidence.**

No comment

## Chapter 3: Occupancy and energy demand

### Occupancy assumptions

**3. What are your views on the proposed standard occupancy assumption? Please explain your reasoning and provide any supporting evidence.**

No comment

**4. What are your views on the assumptions for metabolic gains? Please explain your reasoning and provide any supporting evidence.**

No comment

### Space heating and cooling assumptions

**5. Do you think the FHS assessment wrapper should keep two thermal zones for all dwellings? Y/N. Please provide your reasoning and any supporting evidence.**

No comment

**6. If the FHS assessment wrapper keeps two thermal zones, do you think we should introduce inter-zone heat transfer? Y/N. Please provide your reasoning and any supporting evidence.**

No comment

**7. What are your views on heating setpoints for (a) one zone; (b) two zones without interzone heat transfer (i.e. the current assumptions given above); and (c) two zones with inter-zone heat transfer? Please provide reasoning and supporting evidence.**

No comment

**8. What are your views on the assumptions for space heating hours? Please provide your reasoning and any supporting evidence.**

No comment

**9. What are your views on the ability to specify a control scheme (e.g. setback temperatures and “advanced start” periods) that works for the system being installed? Please provide your reasoning and any supporting evidence.**

No comment

**10. What are your views on the treatment of the heating season vs non-heating season (months where the heating is assumed to be off regardless of the temperature)? Please provide your reasoning and any supporting evidence.**

No comment

**11. What are your views on the proposed assumptions for the use of space cooling systems? Please provide your reasoning and any supporting evidence.**

No comment

#### Domestic hot water assumptions

**12. What are your views on the assumptions for the volume of hot water demand? Please provide your reasoning and any supporting evidence.**

No comment

**13. What are your views on the pseudo-randomly generated hot water use schedule, including the algorithm generating it? Please provide your reasoning and any supporting evidence.**

No comment

**14. What are your views on the proposed hot water / mixed water temperature assumptions? Please provide your reasoning and any supporting evidence.**

No comment

**15. What are your views on the assumptions for water heating hours? Please provide your reasoning and any supporting evidence.**

No comment

**16. What are your views on the cold-water feed temperature assumptions? Please provide your reasoning and any supporting evidence.**

No comment

### Lighting, cooking, and appliances assumptions

**117. What are your views on the proposed assumptions for lighting demand, time of use, and thermal gains availability? Please provide your reasoning and any supporting evidence.**

No comment

**18. What are your views on the proposed assumptions for cooking energy demand, time of use, and thermal gains availability? Please provide your reasoning and any supporting evidence.**

No comment

**19. What are your views on the assumptions for appliance energy demand, time of use, and thermal gains availability? Please provide your reasoning and any supporting evidence.**

No comment

**20. What are your views on the assumptions for cold water and evaporative losses? Please provide your reasoning and any supporting evidence.**

No comment

## Chapter 4: Weather assumptions

**21. What are your views on the use of climate projections rather than historical averages for the weather assumptions within the model? Please provide your reasoning and any supporting evidence.**

No comment

## Chapter 5: FHS compliance metrics

### Metrics

**22. What are your views on the additional metrics produced by the FHS assessment wrapper (i.e. metrics produced in addition to the FHS compliance metrics)? Please provide your reasoning and any supporting evidence.**

No comments

**23. What are your suggestions for additional metrics (i.e. metrics produced in addition to the FHS compliance metrics) not currently produced by the FHS assessment wrapper?**

No comment

No comment

*Home Energy Model: Future Homes Standard assessment  
Fuel assumptions (emissions and primary energy).*

**24. What are your views on the methodological approach to define the emission factors and primary energy factors used within the Home Energy Model: FHS assessment? Please provide your reasoning and any supporting evidence.**

**25. What are your views on the proposed emission and primary energy factors for electricity? Please explain your reasoning and provide any supporting evidence.**

The emissions factor deviates significantly from that used in SAP 10, whilst this supposedly reflects the decarbonisation of the grid, the accounting change misleadingly minimises the benefits to decarbonisation that solar provides. We suggest that the Department pivots away from using CO<sub>2</sub> as the metric, as taken at face value the benefits of solar diminish if the grid is entirely decarbonised. Solar continues to deliver the key policy outcomes that DLUHC is hoping to achieve, that is affordable energy to consumers and support to the grid. DLUHC's position on this directly opposes the Scottish Building Regulation 2023 revision which deliberately excluded the benefits of exported energy from contributing to the assessment of the dwelling performance. Furthermore, under this system energy storage has no material benefit to emissions or primary energy scores. Instead, the addition of a round-trip efficiency to energy stored in a battery for later use reduces the benefit of battery storage compared to export. This issue will continue to exist until an addition of a time-of-day value for grid emissions and primary energy is added to the model. The model should account for the variation of grid emissions and primary energy that occur throughout the day. It should also reflect benefits of storing excess solar generation for use in the evening, which will significantly reduce the cost of energy bills and deliver a net reduction in emissions and primary energy use.

**26. What are your views on the penalisation of energy shortfall and the energy shortfall factors? Please provide your reasoning and any supporting evidence.**

No comment

## Chapter 6: Validating the assumptions used in the FHS assessment wrapper

**27. What are your views on the inter-model validation work that has been carried out (i.e. against SAP 10.2, PHPP and ESP-r)? Please provide your reasoning and any supporting evidence.**

No comment

**28. What are your views on the monitoring data case study validation work that has been carried out? Please explain your reasoning and provide any supporting evidence.**

No comment

**29. What suggestions do you have for further validation exercises that could be undertaken to refine the Home Energy Model: FHS assessment? Please make suggestions, explaining your reasoning, and providing any supporting evidence.**

No comment

*Public Sector Equality Duty*

**30. What are your views on the equality considerations of these assumptions and their evidence base? Please provide your reasoning and any supporting evidence.**

No comment

*Environmental Principles Policy Statement*

**31. What are your views on the possible environmental impacts of the Home Energy Model: FHS assessment itself? Please provide your reasoning and any supporting evidence.**

No comment