

Shieling Dryer – Case Studies to Demonstrate Potential

Financial & Carbon Case

Introduction

The Shieling Dryer is a tent-like enclosure for drying clothes. By protecting them from the rain while providing a passage way through which wind can pass, it is claimed that the dryer is able to facilitate the drying of clothes in many weather conditions where a conventional washing line could not, and thus reduce the need and associated expense of tumble dryer use.

The Shieling Dryer is available in two different sizes, with a 'Family Dryer' sold at £200 including VAT, and a "Professional Dryer" at £500 + VAT. More details on the dryer can be found here <http://www.shielingdryer.co.uk/index.htm>

Orion Innovations has been asked by Scottish Enterprise's Energy Technology Centre to work with the product developer and current users to develop an understanding of the product's potential to reduce energy consumption and carbon emissions. Given the current small and diverse customer base, analysis of usage patterns and potential reductions in energy consumption cannot accurately be used as the basis for extrapolated claims regarding product performance. Therefore the results are presented as illustrative case studies, indicating the type of performance that has been experienced to date and supported by the identification of the key factors that will influence performance.

This does not constitute an independent verification of the product's performance.

Methodology

There are currently approximately 12 individuals or organisations that operate and use a Shieling Dryer. They range from households of 2 to larger families of 4, and also include guest houses and a retreat. Half of these 12 are based in rural locations in Scotland with the remaining half based in more built environments in Scotland and England. All 12 have the outside space that the Dryer requires.

Feedback on customer experiences has been collected by means of a questionnaire prepared by the supplier. Three customers were then selected as the basis for case studies and their written feedback was followed up with a telephone interview.

Estimates of financial and carbon savings were calculated in a two step process:

- i. Evaluate the number of washing cycles a user would put on over the course of the year, and from this calculate the financial expense and carbon emissions associated with drying this amount of laundry in a tumble dryer. This provided the baseline case.
- ii. Evaluate the level of *reduction* in this baseline level of tumble dryer usage that the Shieling Dryer allows.

Respondents were invited to assess these figures independently, but their responses were tested to ensure they accurately reflected reality.

A key assumption in this methodology is that in the *baseline* case the user would use a tumble dryer for *all* their laundry drying. Because this is a generalisation that may hold true for some

users more than others, it will be important to reflect this assumption when presenting any future assessment of the potential carbon benefit of the Shieling Dryer.

Case Studies

The high level findings from the analysis and research are set out below. Detailed calculations are contained in the Appendix to this paper.

i. Family of Four

The first respondent was a family of four who live in an elevated rural location outside Dollar, Scotland.

Baseline use – They estimated that they put on 10 loads of washing each week. If each of these takes 1.5 hours to dry in a tumble dryer this would cost £262 over the course of a year, emitting 1,188kg of CO₂¹.

Shieling Dryer – Despite their elevation the location received comparatively little wind, and their Dryer was deemed ineffective during the coldest months of the year (December to February). Compared to the baseline case they estimated that the Shieling Dryer reduced their tumble dryer usage by 60%. This equates to a monetary saving of £157 and a carbon saving of 713kg per year.

ii. Buddhist Retreat

The second respondent was the Buddhist Retreat on Holy Isle off the West coast of Scotland. The Retreat is busy between April and October, and for 2 weeks over Christmas. At these times it runs courses where it can sleep up to 65 people.

Baseline use – although their usage is not consistent over the course of a year, it is estimated that they put on an average of 4 washing cycles every day across the year. Drying these in a tumble dryer would cost £1,363 and emit 6,178kg of CO₂.

Shieling Dryer – At peak season the Retreat's need for a quick turnaround of linen and towels means that they still need to use tumble dryers for some items at these times. Compared to the baseline case it is estimated that their Shieling Dryer reduces their tumble dryer use by 60%, giving savings of £818 and 3,707kg of carbon each year.

iii. Bed & Breakfast

The third case study is based on a 5 bedroom guest house, on the Isle of Arran.

Baseline use – before the Dryer they used two tumble dryers for six hours each every day. This cost £1,051 per year and emitted 4,765kg of CO₂.

Shieling Dryer – The owner reported that he was able to use the Shieling Dryer throughout the year, and only used the tumble dryer to 'fluff up' towels after they were dry. He estimated overall that the Shieling Dryer had reduced his use of a tumble dryer by 90%, saving £946 and 4,288kg of CO₂ each year.

¹ Based on Carbon Trust conversion factors <http://www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/carbon-footprinting/pages/conversion-factors.aspx>

Summary

The case studies demonstrate that the Shieling Dryer does have potential to reduce electricity consumption and carbon emissions. The extent to which this potential is realised will depend on a number of factors including:

- Wind – windy conditions dried clothes quicker (this was more important than temperature)
- Relative humidity – dryer weather is clearly preferable
- Determination of user *not* to use the tumble dryer if avoidable
- Availability of alternative drying methods such as pulleys, stoves and radiators.
- Availability of duplicate sets of linen and towels etc – the commercial establishments will need a quick turnaround of washing particularly in peak season. The Shieling Dryer may not dry sufficiently quickly, unless spare sets to be available.

Each of these factors, together with the assumption of 100% tumble dryer use in the baseline case, will vary across different users. With so many variables to consider and a focus group of only three users, care must be taken in interpreting the case study results too widely.