Unlocking the Full Value of Solar and Storage in homes through MCS Standards

Prof Andrew Crossland, Durham University Energy Institute, Jason Howlett, CEO, Energy Storage Association

Summary

The Microgeneration Certification Scheme (MCS) performs a critical role in the UK's low-carbon transition by providing consumer protection, quality assurance, and trust in an industry comprising thousands of installers of small-scale renewable technologies. With the market for low-carbon technologies in homes projected to reach £2.5 billion annually within the next five years, and the crucial role of flexibility in the government's Clean Power 2030 mission, the importance of maintaining robust standards cannot be overstated.

However, as the sector evolves there is a growing need for MCS to adapt its standards to reflect the emerging role of domestic flexibility, particularly the integration of battery and thermal storage. This is especially relevant in the context of Clean Power 2030 and the UK's broader net zero commitments. The newly established Energy Storage Association (ESA) is therefore calling for updates to specific areas of MCS guidance, including the solar PV generation standard, particularly the location-specific performance tables within MIS-3002 and the self-consumption guidance set out in MGD-003.

These updates are essential to ensure that the value of integrated solar and storage systems can be accurately and transparently communicated to consumers, supporting better investments, increased public trust, and accelerated deployment of smart, flexible technology.

The ESA has consulted with contributors to these standards and industry colleagues and believes updates can be implemented swiftly, drawing on existing expertise.

Government support for this process, whether through policy alignment, regulatory signalling, or engagement with MCS, could help ensure that the benefits of domestic storage are realised more fairly, more rapidly, and at greater scale across the UK.

Introduction

MCS has many detractors - any organisation that requires busy and competent installers to fill in extra paperwork will always face criticism to some degree due to the additional administrative burden that it places on the industry. However, the MCS is also one of the great unsung successes of the UK's clean energy landscape. MCS standards create clarity in a complex marketplace, support good installers, reduce the risk posed by poor installers, provide homogeneous grid compliance, and give households more confidence that their investment is protected. Without MCS, we would have to fill the void left by no installer certification, product certification, consumer protection, installation databases and importantly, assurance for the Government on incentives such as the Smart Export Guarantee. Other countries are genuinely envious of the standards that MCS brings—and the credibility it appears to give to the industry. MCS is respected, and in some cases, admired around the world. But to remain that way, MCS must evolve, and one quick win is improving its standards for communicating the benefits of battery storage.

Customers and installers need effective standards

Installers want to get solar panels on roofs and storage solutions such as batteries in our homes. Every time they quote for this work, and speak to customers, they need to explain the benefits, which can require a complex, specialist and difficult estimation. For example, working out how much solar self-consumption a home battery can bring requires 5-minute or better resolution data on home energy use over a year and the associated detailed battery and solar generation models. To do this would be near impossible for an installer due to a lack of credible data and would be a significant drag on time. More importantly, if all installers were allowed to build their own models for determining self-consumption benefits, there is a significant risk of conscious or unconscious mis-selling. It would be very easy for installer A to squeeze 2% or 3% extra out of a model to gain a competitive advantage over installer B.

MCS provide guidance and standards to protect consumers

The MCS self-consumption guidance and PV generation standards are in place to ensure that all installers have to use the same calculation to communicate benefits - this protects consumers, ensures a level playing field and reduces the administrative

burden. This sounds great, but the current MCS approach has three major issues which are easy to address:

1. The standards have not been updated fast enough and do not represent the most recent innovations. The solar generation data was last updated in 2013, and the self-consumption guidance in 2019 (minor errors were corrected in 2022).
2. The standards are operating in “open loop” because they are not getting feedback and improving from measured data from actual smart meters, battery and solar installations.
3. The standards do not provide clarity to installers in communicating (and modelling the self-consumption tradeoffs of) some of the latest innovations, which is especially important for energy storage that has multiple benefits, e.g. the Demand Flexibility Service developed by NESO after 2019.

None of these issues need to be there. They are byproducts of the way the MCS approaches standards. The ESA has consulted with authors of these standards and other industry colleagues to highlight the issue.

Co-Author of this report, Andrew Crossland, was contracted by the MCS Charitable Foundation to write the solar self-consumption guidance (MGD-003) through his company Advance Further Energy Limited. He wrote the guidance with colleagues including Dr Philip Leicester, Loughborough University, and Chris Coonick of BRE. The MCS Guidance written was designed to be updated over time and that the team drafted some of the preparatory work to enable:

- A mechanism to show how batteries perform under time-of-use tariffs and the trade-offs between self-consumption, time of use tariffs and grid flexibility. Indeed, the first MCS standard to grapple with time-of-use tariffs in any meaningful way is the (at the time of writing) under-development Thermal Energy Storage System (TESS) design and installation standard.

- Provision for homes with more than 6,000 kWh of annual solar generation or electrical demand. Installers will frequently find homes with one or more technologies of EVs, thermal storage or a heat pump, yet cannot officially communicate the additional value that solar means to these technologies. This creates a void, and leaves the sector open to under-selling or, worse, mis-selling the technology.

The team ultimately also wanted to develop a closed loop data feed for the standard, pulling in measured data from sites, updating the guidance and moving it onto an online platform. The self-consumption guidance was built with the future in mind and the team had the frameworks and modelling tools ready to expand the guidance in all the ways people have said.

Storage in homes has national value

Energy storage provides tangible benefits - the 2021 Smart Systems and Flexibility Plan found that enhanced flexibility could save the UK electricity system between £6–10 billion per year by 2050[1]. Batteries work with time of use tariffs to reduce bills and provide ancillary revenue such as the Demand Flexibility Service. Thermal storage can also provide flexibility and works with heat pumps and solar to provide hot water and even space heating. However, MCS only provides guidance on how to recognise one role - self-consumption. It does so without proper guidance for how to adapt the calculations for homes with EVs, heat pumps, PV diverters or more than 6,000kWh a year of demand.

This is going to be an issue as the Government moves ahead with Clean Power 2030, where flexibility from storage across the grid is projected to increase 7-fold in just 5 years (with 12GW of additional consumer-led flexibility by 2030). To put this into context, if the UK's 2 million solar homes add a 3kW battery, there could be enough flexibility in the batteries alone to manage over 13% of national peak electricity demand in the winter by charging the batteries up overnight from the grid. The Government is trying to ensure that voters feel the benefit of low carbon technology in their home, but the now outdated MCS guidance is becoming a barrier to that innovation being properly communicated to consumers. There is a risk that the industry begins to look elsewhere for tools, models, or frameworks. MCS has core guidance, which is now out of date.

Conclusions

The ESA calls for MCS to convene the relevant Working Groups to engage with the original authors of MGD 003 and MIS3002 to identify the updates that can be made to these documents. The simple updates we are calling for are:

- Expansion of the self-consumption guidance to work with homes with hydronic heat pumps, air-to-air heat pumps, storage, EVs and other Energy Smart Appliances such as hot water diversion. It should allow for clear ways to communicate the impact of time of use and flexibility on self-consumption and support innovative calculators.
- To refresh the solar PV standard to ensure generation estimates align with modern technology, and critically, to years of solar PV deployment statistics from GB.
- For MCS to be clear on how other calculators can be used alongside MCS to communicate benefits, such as those operated by EasyPV and Open Solar.

These are just some of the ways that MCS can work to improve our industry. We call on MCS to consult with ESA members on other updates to MCS standards as needed to ensure consumer protection, carbon saving and full value to be realisable for consumers.

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[1] https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021

If enforcement wanes or participation shrinks, more people could try to walk away from the very system that has helped make UK clean energy deployment (more) fair for consumers. The ESA is calling us to take the opportunity to refresh the standards to keep MCS relevant, rigorous, and ready for the future.