

Briefing Note: Solar PV on Social Housing

Is the Smart Export Guarantee (SEG) fit for purpose?

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Introduction

The South West Energy Hub (SWEH) is one of five Energy Hubs in England which is fully funded by BEIS to help support and increase the number, scale and quality of local energy projects.

The SWEH is currently assisting several Registered Social Landlords (RSL) in the South West to install solar PV on their housing stock as part of various UK Government funded initiatives (e.g. Green Homes Grant). These initiatives typically mandate some level of match funding; in some cases, this match has been approved by Landlords on the basis that it could be recovered in future via the Smart Export Guarantee (SEG) or similar.

For example, Cornwall Housing Ltd (CHL) is currently installing solar PV on 60 homes via Green Homes Grant and 600 homes via Getting Building Fund to supply free renewable energy to tenants. They are keen to use these programmes to help mobilise a long-term strategy to install solar PV on their entire housing stock (c. 10,000) by 2030, where they can invest and recover costs in the long term without the need for grant funding. For the avoidance of doubt, this is about recovering costs and not generating surplus revenue.

There are more than 350,000¹ social housing properties in the South West of England. As such there is considerable opportunity to unlock deployment of solar PV across many tens of thousands of homes, providing economic and social benefits as well as contributing to the UK's Net Zero target.

On the face of it, the SEG would go some way to repaying solar PV systems over a 25/30-year lifetime and help to drive deployment. However, initial soft market testing with several energy suppliers suggested that it is not straightforward, practical, viable, or even possible to benefit from SEG in this scenario. Added to this, it is not practical for a social housing provider to establish a Power Purchase Agreement (PPA) with individual tenants due to the administrative burden this would entail.

This briefing note sets out the work SWEH has conducted to determine whether SEG is fit for purpose when developing solar PV on social housing.

Contact with SEG licensees

At time of writing (October 2021) there are 16 mandatory SEG licensees. The SWEH reached out to all 16 SEG licensees, setting out a request to claim SEG for >600 homes currently being developed, with a view of developing a further 750-1000 homes per annum. Note that this a very real opportunity rather than speculative. We asked licensees to confirm the following:

- Process, costs and timescales for installation of export meter;
- Costs for reading of export meter;
- Current SEG rate and contract term (if supplying both import/ export, and export only);
- Any other considerations.

¹ Statistical Data Return, DLUHC, 2020.

The responses were generally slow, lacklustre, and lacking in detail; many were automated. A few licensees did not respond at all. The SEG rates provided for export-only varied from ~£0.00/kWh to ~£0.05/kWh. Several suppliers offered improved SEG rates (e.g. £0.03/kWh vs £0.05/kWh) if they supplied both import and export supplies. For social housing this is not a solution that can be easily realised because tenants choose their own import supplier.

The consensus was that every home would require its own smart meter with export MPAN, and that, despite smart meters, manual export meter readings would need to be submitted periodically by the tenant or housing association, in part to protect against errors in automated readings. Assisting tenants to install smart meters and arranging manual readings is burdensome (bearing in mind that income via SEG for a typical home would be <£100 p.a.). SEG contracts also typically last 12 months and provide little in the way of long-term certainty.

Discussions with SEG licensees

To gain further insights as to the practicalities of SEG for social housing, SWEH arranged calls with two of the licensees who showed most interest in the proposed scheme (Pure Planet and EON). Ofgem were represented on both calls to provide any regulatory clarifications needed.

Pure Planet

Pure Planet explained that the current complexities, costs and churn of metering arrangements is burdensome to deploying SEG at scale. They experience smart metering communication issues (particularly in rural areas) and therefore request manual meter readings to cover all bases. The meter rental charge has increased significantly since the introduction of smart meters (and is now typically £50-£150 p.a.). SEG is a net cost to Pure Planet (and other licensees) and there is no centralised administration payment (unlike the feed-in tariff scheme). They suggested that all this combined could explain why licensee responses were lacklustre, i.e. it is resource-heavy and financially unviable.

Pure Planet offer an improved SEG rate (i.e. £0.03/kWh vs £0.05/kWh) if they supply both import and export supplies. The rationale for this is to use the import contract to help offset losses that providing SEG bring about.

EON

EON has developed solar PV on social housing via various funded schemes. We understand that for sites where EON install solar PV, they offer a solution whereby the landlord can access SEG at £0.055/kWh, so long as the landlord agrees to remain with EON for export for 2 years from commissioning. The tenant can choose any import supplier they choose. In this case EON arrange export metering and remote readings.

EON's framework pricing starts at is £5,000 for a 6-module PV system. An equivalent PV installer framework using local contractors in the South West is currently delivering an 8-module system for £3,500 (i.e. £1,500 less for 2-modules more). Therefore, whilst there appears to be a solution to access SEG, it could be the case that a social housing provider would (in financial terms) be better to procure elsewhere at a lower cost and forego SEG. At current SEG rates, £1,500 would take 15-20 years to recoup.

Where EON don't develop solar PV, like Pure Planet they offer an improved SEG rate (i.e. £0.03/kWh vs £0.055/kWh) if they supply both import and export supplies.

Conclusions

Despite being presented with a very real opportunity to provide SEG for many hundreds (if not thousands) of social housing properties in the SW, SEG licensees were generally not forthcoming with a solution to the issues around accessing SEG at scale. From further discussions it is understood that this is predominantly due to current complexities, costs and churn of metering arrangements, but also the lack of any financial support for administration. Despite requiring an export MPAN and smart meter, manual export meter readings are typically still required. In general, SEG at scale is resource-heavy and financially unviable for both the social landlord and SEG licensee. One SEG licensee did offer a solution to navigate the barriers to accessing SEG however this was based on them developing solar PV themselves, at a capital cost which appears higher than what local supply chains can deliver.

SEG is a suitable solution for low-volume single homeowners however based on this research it does not appear to be a suitable mechanism to facilitate the development of solar PV at scale on social housing.

Potential solutions

Social Housing Generation Guarantee (SHGG)

A potential mechanism for social housing providers to recoup their investment from solar PV systems on their housing stock could be the introduction of a social housing generation guarantee (SHGG), akin to the UK FIT scheme which closed in 2019, whereby generators would be paid for every kWh generated. Whilst the reintroduction of a universal incentive for all tenures is unlikely to be palatable, restricting this to social housing has a clear rationale as a sector that has not been able to benefit from the SEG in the way that private housing has.

A total generation meter with remote reading capability would be installed at each site and SHGG payments would be made on total generation only. SHGG payments would end when the solar PV system was repaid. There would be no export payment (deemed or metered). No smart meter or export MPANs would be required, in order to avoid the complexities noted previously. Processing SHGG payments for housing associations with large numbers of homes (rather than individual householders) should minimise administrative burden.

Although SHGG could be funded by Central Government, funding via energy suppliers could provide a 'no/ low-cost cost' solution, given that these organisations would be free to sell any exported power on the wholesale market (and to end customers).

Figure 1 illustrates the SHGG rate required (based on total generation) to achieve payback at different breakeven years for a typical domestic PV system installed in Cornwall. For example, to achieve payback at 20-years would require a SHGG rate of £0.066/kWh (6.6p/kWh). A SHGG rate to allow 25-year payback may still be viable for social housing business cases, and at the same time fall below the BEIS long term electricity wholesale price.

In this scenario SHGG payments would be paid based on total generation however and it is likely that not all total generation would be exported. Therefore, there is likely to be a shortfall between the energy being paid for via SHGG and energy available for export.

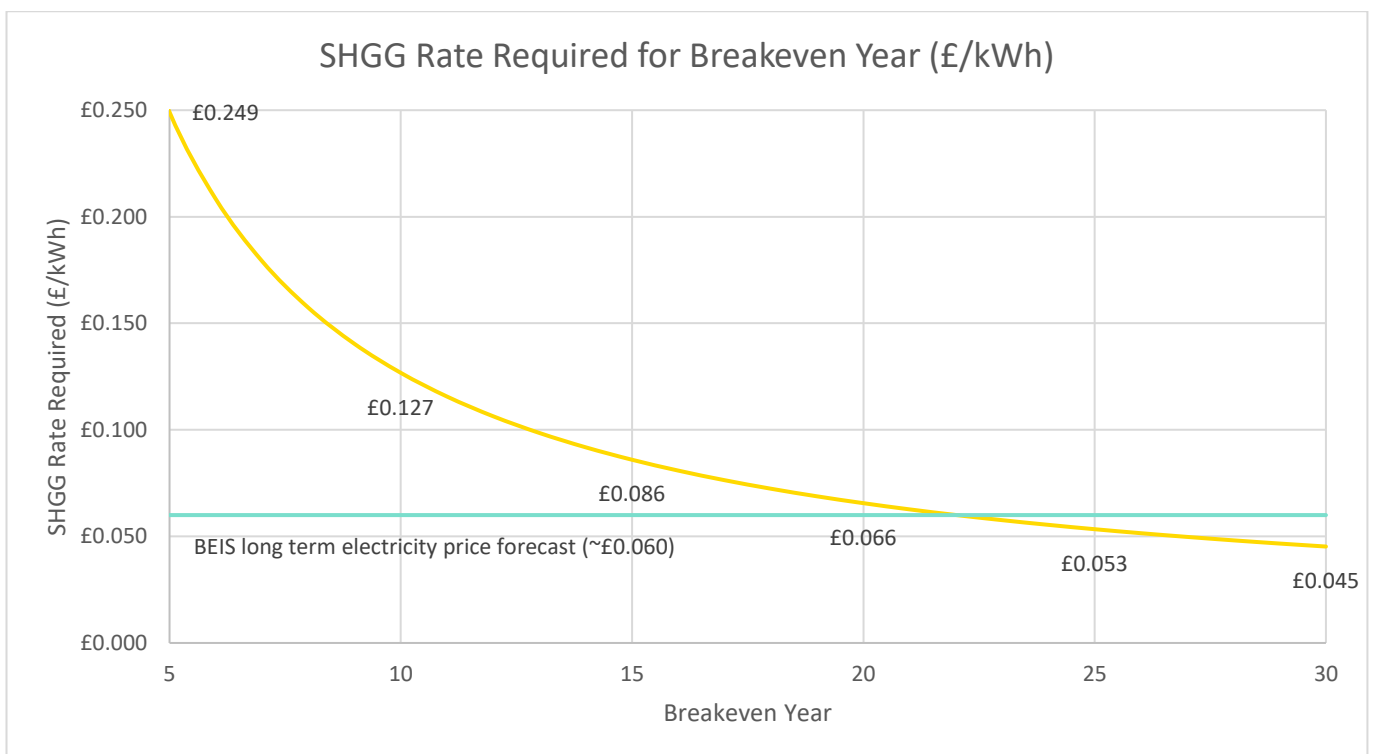


Figure 1 SHGG rate required by breakeven year (example for south-facing 2.5kW PV system in Cornwall)

Pros:

- Low rates can incentivise the market (social housing providers will take on long payback projects);
- Avoids metering, billing, tenant interaction issues that restrict SEG being used for social housing;
- Proven concept and structure (e.g. UK FIT scheme).

Cons:

- Requires long term commitment from funder;
- Goes against current political direction (i.e. smart meters);
- More complex stimulus than grant funding schemes;
- Revenue is not directly recouped from exported power.

To provide suppliers with some assurance as to the long-term exposure of providing a SHGG, a floor price could be backed by UK Government such that the energy suppliers would never pay a SHGG rate higher than the wholesale price of electricity.

RSL ESCo (Energy Service Company)

An ESCo option avoids issues of SEG metering and billing for individual tenants by only exporting power from a single meter at a centralised energy centre. RSL would need to set up an Energy Service Company (ESCo) and take charge of billing and metering of tenant electricity, also running a microgrid between the houses and a central export meter. In doing so they would benefit from all electricity sales from PV generation (to households, meeting any landlord demands and exported directly to the grid). A battery can be included in the energy centre to increase the on-development use of PV generated electricity.

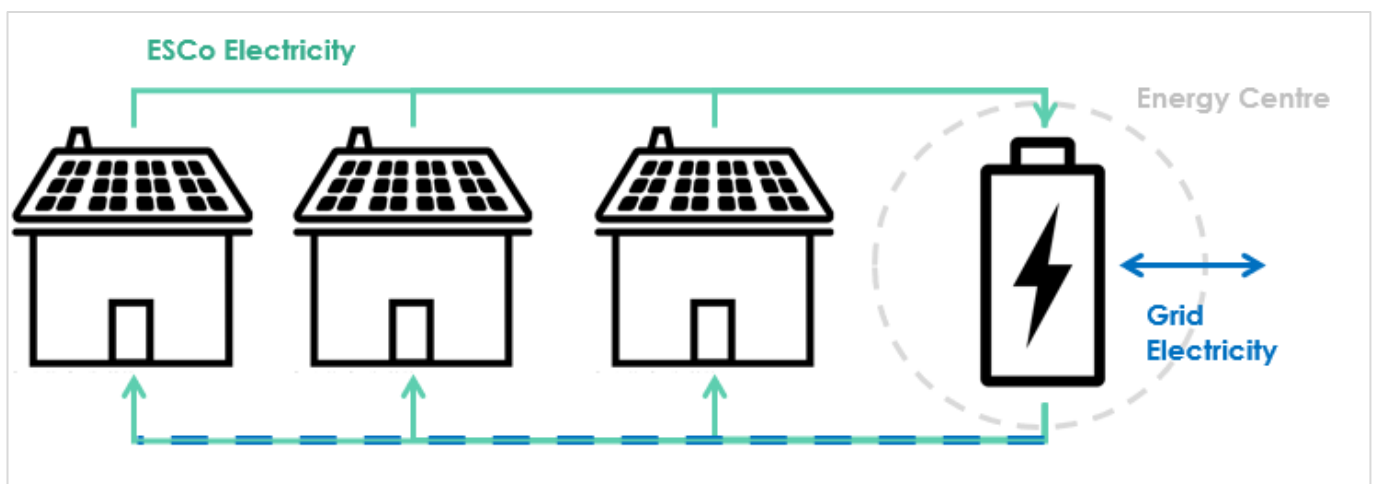


Figure 2 ESCO: example energy flow

Pros:

- Highest revenue to RSL as greatest control over power purchase and sale;
- An export MPAN is only required at the energy centre, metering in homes can be through an AMR export meter or similar;
- Addresses electricity grid spill directly.

Cons:

- Highest capital investment by RSL;
- Technically challenging to install infrastructure on existing homes, and at scale;
- Considerable internal resource to establish and manage ESCo;
- Limited in scale by electricity licence regulations;
- Tenants have right to switch supplier; reliance on below market rates to retain customers.

Tenant Service Charge

A service charge model is a simple way of recouping some investment for RSL. *If regulations allow*, a modest charge (£10-15 pcm) could be added to tenant rental bills so that the tenant typically receives an annual net saving when balanced against savings from generated electricity utilised on site. The service charge would typically be a fixed amount to avoid the need for meters and minimise administration.

Pros:

- Avoids the need for export metering and billing;
- Simple to administer with no additional costs.

Cons:

- Tenant education required to avoid backlash at new service charge;
- Does not address export fraction of electricity generation;
- Minimal cost savings to tenants.

A Power Purchase Agreement (PPA) with individual tenants is a variation of this model but has not been considered further due to the administrative burden noted previously.

3rd Party Virtual Power Plant (e.g. SMS Solopower)

An end-to-end solar & storage solution for social housing, where a 3rd party will Design, Finance, Supply, Install and Manage the entire solution. A battery is used to maximise solar self-consumption, optimise grid import and export to maximise cost savings and carbon reduction. The investor bills the social housing provider (via a PPA), who in turn sends an energy bill to their tenant.

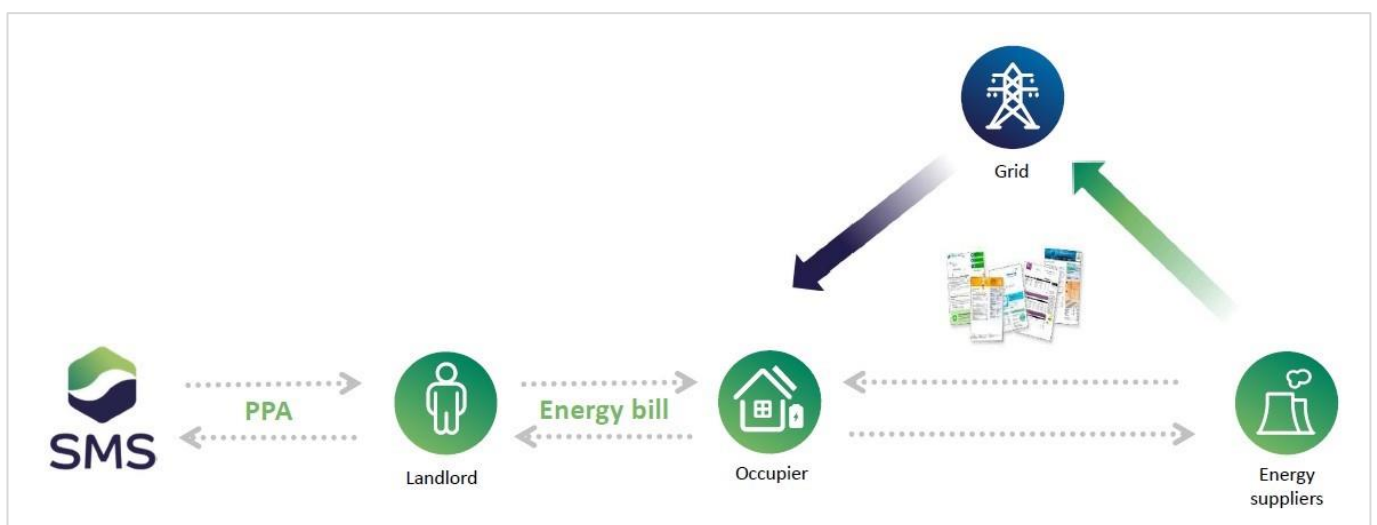


Figure 3 SMS Solopower: example energy & billing structure

Pros:

- Cost neutral to social housing provider;
- Tangible savings to tenants (c. £200 per annum);
- No RSL technical experience required;
- Maximises benefits via fully managed VPP.

Cons:

- 25-year agreement with 3rd party (e.g. 16p/kWh PPA);
- Any revenues made leave local area;
- RSL admin required to bill tenants;
- Very few/ no case studies of operational sites;
- Less revenue than RSL ESCo.