

OPC POSITION STATEMENT 1:

ONE PLANET DEVELOPMENT

AND GRID CONNECTION TO ELECTRICITY



VERSION 1.0, 10/10/2018

O3.59: Although sites should be broadly energy self-sufficient, if a grid connection is available this allows surplus energy to be exported to the grid, and conversely for backup energy to be drawn from the grid in an emergency, although energy should not routinely be drawn from the grid and will add to the Ecological Footprint of the development.¹

Following this guidance to the letter leads to sub-optimal energy systems. By their nature, the output of most renewable electricity systems is intermittent. There will be times of high generation when the energy is not needed and times of low generation when energy is needed. In an off-grid setup, this intermittency is partially mitigated with batteries.

However, as batteries are finite in capacity there will always be times when generation potential is lost when it isn't instantaneously needed and battery storage is full. With a grid connection, this energy can be exported to the grid, lowering the environmental impact of grid electricity.

With a grid connection, electricity can also be imported whenever there is a local shortfall in generation – forgoing the need for batteries to mitigate the intermittent nature. Reducing the use of batteries is positive because they represent a high embodied energy, typically incorporate hazardous materials, lose energy through inefficient charge/discharge cycles, and are relatively short-lived and expensive.

Utilising a grid connection instead of batteries allows more renewable energy to be produced on site (as local surplus can always be exported), reduces the environmental impact of the grid, reduces the embodied energy of the energy system and reduces costs.

Not all kilowatt hours are equal. The environmental impact of electricity from the grid varies with time of day and time of year as the share of gas, renewables, nuclear and coal varies. It is likely that a grid-connected One Planet Development will export energy at a time when the grid is relatively 'clean' and import when it is relatively 'dirty'. For this reason we propose that a grid-connected OPD should ensure that over a year it exports considerably more than it imports. This will ensure a net-positive environmental impact on the grid.

LINKS:

¹ <https://www.gov.wales/one-planet-development-practice-guidance>

 www.oneplanetcouncil.org.uk
 www.facebook.com/groups/oneplanetcouncil
 info@oneplanetcouncil.org.uk

The One Planet Council is an independent voluntary body which enables and promotes One Planet Development. This forward-thinking planning policy provides a genuinely affordable and sustainable way for people to live and work on their own land, bringing social, economic and environmental benefits. It was adopted by the Welsh Government in 2011 as part of its One Wales: One Planet scheme.

The One Planet Council provides a bridge between applicants and local planning authorities, with guidance and tools to support practitioners and professionals. The aim of the One Planet Council is to enable a broad range of exemplar One Planet Development projects throughout Wales, comprised of people from all walks of life. And to see these sites serve as an inspiration to the people of Wales and beyond.