

| | | |
|---|---------------------------|--|
| 4 | ENERGY USE | 4.2 ENERGY EFFICIENT SYSTEMS |
| | | EU 6 RENEWABLE ENERGY SYSTEMS |
| | EXCLUSIONS | None. |
| | OBJECTIVES | Encourage the wider application of renewable energy sources in buildings. |
| | CREDITS ATTAINABLE | 5 |
| | PREREQUISITES | None. |
| | CREDIT REQUIREMENT | <p>1 to 5 credits where 0.5% to 2.5% or more of building energy consumption is obtained from renewable energy sources respectively.</p> <p>Alternatively,</p> <p>1 to 5 credits where the minimum percentage of 20% to 100% of the building footprint is being covered/used by PV panels respectively and/or other renewable power facility generation with equivalent renewable power output.</p> |
| | ASSESSMENT | <p>The Client shall submit a report providing details of the installations, and calculations showing the estimated energy use provided from renewable energy sources.</p> <p>In the case of systems that generate electricity from renewable sources (e.g. photovoltaic panels), the estimated amount of electricity that will be generated by the system for use by equipment in the building, either instantaneously or from an associated storage system.</p> <p>In the case of using systems that produce services direct from renewable sources, which will otherwise require the use of fuel or electricity to produce those services (e.g. hot water supply from solar panels or chilled water supply from absorption chillers powered by solar heat), the equivalent amount of electricity use that will be avoided.</p> <p>The calculation shall take due account of the diurnal and seasonal variations in the external environmental conditions (e.g. solar intensity and wind speed and direction) and in the demand for the electricity and/or services generated by the systems. Any energy use and losses by the systems shall be discounted from their output. The total energy consumption shall be referenced to the design value calculated in the Credit EU 1 Reduction of CO₂ Emission or other building energy estimation certified by a qualified professional person when EU 1 – Option 2 Alternative Route: Passive Design is adopted. The tenant's electrical loads, which are not controlled or influenced by the applicant, shall be excluded from the calculation.</p> <p>Alternatively, the credits may be awarded where the Client demonstrates that percentage of the building footprint is being covered/used by PV panels and/or other renewable power facility generation equivalent renewable power output. The number of credits awarded will be determined with reference to the percentage achieved.</p> |
| | BACKGROUND | <p>If energy consumption continues to increase at existing levels, projected carbon dioxide emissions generated for the year 2010 are expected to grow by 39% from the 2000 level. The effective use of renewable energy resources will help to reduce Hong Kong's reliance on fossil fuels and also to reduce greenhouse gas emissions arising from the use of fossil fuels. EMSD's information pamphlet [1] explains the meaning of</p> |

1

2

3

4

5

6

1 Electrical and Mechanical Services Department. http://www.emsd.gov.hk/emsd/e_download/sgi/re_pamphlet.pdf

renewable energy, the benefits of using renewable energy, and the current status of application of renewable energy in Hong Kong.

Although large scale application of renewable energy in buildings does not yet exist in Hong Kong, its use should be promoted in the interest of sustainable development. To ensure credits will only be awarded to meaningful installations, the criteria of assessment have been set with reference to the percentage of the energy use in the assessed building that will be replaced by renewable sources. Furthermore, no distinction will be made of the means chosen for substituting electricity or fuel by renewable energy. Hence, different or a combination of systems and equipment may be incorporated into a building, such as solar hot water systems, building integrated photovoltaic panels or wind turbines, etc.

Recognizing the fact that the application of renewable energy in densely populated urban centres is more difficult than in less densely populated settings, the performance criteria are relaxed for building developments in urban centres.

EU 1 Reduction of CO2 Emissions

EU 1 - Option 2 Alternative Route: Passive Design

EU 2 Peak electricity demand reduction

EU 3 Embodied energy in building structural elements

EU 6 Renewable Energy System

#144. EU 6, For BEAM Plus New Buildings Version 1.1 and 1.2/ EU 5, For BEAM Plus New Buildings Version 2.0, what kinds of systems / areas shall be considered in the calculation of building energy consumption?

The energy consumptions of the building services systems controlled or influenced by the applicant (e.g. MVAC, lighting, lift & escalator, plumbing & drainage, service hot water system, etc.) shall be accounted. Areas to be considered shall include those under the landlord's control such as entrance lobby, lift lobbies, corridors, staircases, shopping arcade, clubhouse, car park, plant rooms, public toilets, etc.

(Released on 28 January 2022)

#145. EU 6, For BEAM Plus New Buildings Version 1.1 and 1.2, can the percentage of building energy consumption obtained from renewable energy sources be accounted by area category?

Yes. Besides calculating the percentage of renewable energy generated by considering the project development as a whole, the applicant can also opt to calculate the percentage for each individual area category by considering the energy generated from renewable energy provision against the building energy consumption of the associated area category according to the area weighting method.

In this case, the Applicant shall provide schematic and wiring diagram illustrating that the renewable energy generated will be fed directly to the assessed area category by direct and dedicated cabling, demonstrating that the energy use in the assessed area category will be replaced by renewable energy sources.

(Released on 28 January 2022)

EU 7 Air-conditioning units

EU 9 Energy efficient appliances

EU 10 Testing and Commissioning

EU 11 Operation and Maintenance

EU 12 Metering and monitoring

Water Use

WU P1 Water Quality Survey

WU P2 Minimum water saving performance

WU 1 Annual water use

WU 3 Water Efficient Irrigation

WU 5 Water efficient appliances

Indoor Environmental Quality

IEQ P1 Minimum ventilation performance

IEQ 1 Security

IEQ 2 Plumbing and Drainage

IEQ 4 Waste Disposal Facilities

IEQ 5 Construction IAQ Management

IEQ 6 Outdoor Sources of Air Pollution

IEQ 7 Indoor Sources of Air Pollution

IEQ 9 Increased ventilation

IEQ 10 Background Ventilation

IEQ 11 Localised Ventilation

7

8

9