HyLAW London Workshop

Application Area 4: Stationary Power

Grant Agreement No 737977

Stationary power

Introduction – what's covered:

This application area deals with provisions and procedures for installation and connection of residential stationery fuel cells to the electricity and natural gas grids and to the electrical systems of the buildings -as well as the special requirements for additional equipment and professional qualification of installers

It does not review the legal framework and status for large scale stationary power plant, which was outside of the HyLaw data and application review – however this is still an issue for the UK and will be included in additional dialogue around this topic

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Legal framework –

- EU: The Energy Efficiency Directive 2012/27121 establishes binding measures for promotion of energy efficiency within EU and requires Member States to adopt simplified grid connection 'install and inform' procedures for micro-cogeneration units. In addition, there are provisions to ensure that the electricity grid operators in charge of dispatching the generating installations in their territory
    - provide priority or guaranteed access to the grid,
    - guarantee the transmission and distribution, and
    - provide priority dispatch of electricity from high-efficiency cogenerations
- UK: for the UK the domestic FC CHP system should have a CE marking ("the manufacturer of a fuel cell and its components, or their authorised representative, must ensure that the relevant EC directives are complied with; compliance with these directives is mandatory in the UK") which requires conformity with health and safety requirements set out in a number of EU directives (Pressure Equipment Directive; Low Voltage Directive; Electromagnetic Compatibility Directive; Gas Appliances Directive) and which requuires 'self certification' or via a notified body.
- There is also a British Standards: Fuel Cell Technologies. Stationary Fuel Cell Power Systems: Installation BS EN 62282-3-300:2012
- Otherwise there are no EU specific Directives or Regulations for the actual connection / installation applicable in the UK

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Assessment – for gas grid connected FC micro-CHP

- The number of installed FC micro-CHP units across Europe is still very limited.
- There is no common EU framework for installation of FC micro-CHP units in the buildings or for their connection to the gas grids.
- The qualification requirements for installers entitled to connect stationary fuel cells to the electrical systems of the buildings are similar. In general, the installations can be performed by professionals with an appropriate qualification for work with electric devices.
- The connections to the gas grids must also be done by trained and qualified installers. In some countries, the works can be provided only by the distribution network operator, in others the gas professionals must be approved by the gas network operator.
- Typically, the requirements for connection of the FC micro-CHP units to the gas grids are stipulated by the distribution grid operators. There are various regulations and standards at national level related to the gas grid connection. No harmonised EU framework in regards to applicable standards and codes is in place.
- However, it is not considered that there are substantive structural barriers or regulatory gaps associated with the gas grid connection requirements and procedures, as well as with qualification requirements for professionals, performing the connections of stationary fuel cells to the electrical systems of the buildings or to gas networks. In all countries, there is a broad expertise with heating appliances working on gas and therefore no significant operational barriers are identified

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Assessment – for electricity grid connected FC micro-CHP

- There is no common EU framework for connection of stationary fuel cells to the electricity grids.
- In general, the connection procedures among partner countries require the conclusion of a connection (injection) agreements with the local/ regional electricity network operator. Each network operator has a model text for connection contract and number of templates to be filled in.
- Typically connection requirements are generalised across all types of power generating units and are not specified for FC micro-CHP systems. In some areas the connection agreement requires extensive technical documentation and even a feasibility study, which may cause additional costs and delays. The time needed for signing of a grid connection agreement vary widely among the partner countries and may take up to six months
- The qualification requirements for installers entitled to connect stationary fuel cells to the electricity grid are similar across the countries. They have to be trained and certified for work with electric devices and for live work at low voltage level. In some countries, they must be additionally approved by the local network operator

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Recommendations

- Develop and adapt coherent and long-term policy and legal framework for the widespread deployment of FC micro-CHP systems. Only a supportive policy and legal framework can accelerate the transition of the micro-CHP sector from emerging technology to full-scale commercialisation.
- Fuel cell micro-CHP systems should be recognised as one of the key technologies able to deliver greenhouse gas emission reductions, energy savings, integration of renewable energy sources and smart grid solutions.
- Simplified grid connection procedures and guaranteed access to the grid for electricity produced from high-efficiency micro-CHP systems, as well as supportive measures for the produced electricity can further contribute to overcome the roll-out phase.
- In addition, the FC micro CHP systems have to be accepted as an eligible technology in the national public procurement rules for purchase of products with high-efficiency performance in the government buildings. The public sector constitutes an important driver to stimulate market transformation towards high-efficiency technologies. Buildings owned by public bodies account for a considerable share of the building stock and have high visibility in public life
- Acknowledge residential stationary fuel cells as an eligible technology under the Energy Savings obligations according to Energy Efficiency Directive
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