



Fuel Cell Europe (FCEu) welcomes the proposed Cogeneration Directive as an essential first step to encourage the take-up of this superior generation technology and welcomes the fact that emerging technologies like fuel cells have been added to Annex I of the proposal. We also appreciate the provision for installations below 1MW(e) in Annex III; however, we recommend simplification of the "high-efficiency" definition to a plain stipulation of a target of 80%<sup>1</sup> total efficiency for all sub 1MW(e) systems. In this context, we welcome the recognition of the special nature of small scale CHP in the draft, but recommend that provision be made for "micro CHP"<sup>2</sup> for household customers and small enterprises to allow for "plug-and-play" regulations.

Regrettably, the proposal does not sufficiently lighten the administrative burden on small scale systems, where bureaucracy can be a significant disincentive to potential users. Furthermore, the draft fails to take account of new micro CHP technologies that will be installed inside the homes of the general public in the same way as conventional boiler systems. We believe that micro CHP products should require only type certification, mirroring the current situation for boiler installations. We also recommend changing the text to refer to units, rather than installations, as this would afford greater flexibility for potential users to install single or multiple small scale cogeneration units.

We very much regret that the Directive does not propose either quantitative targets, or an ambitious timetable for members states to implement these measures. Targets have proved their worth in focusing efforts to encourage renewable energy in the EU.

Though referred to in the text, the draft Directive makes no legislative provision for the sale of excess/surplus power from small scale CHP. This area has hitherto proven a barrier to small scale, distributed power installations and we feel it must be addressed specifically in the Directive.

### FCEu suggested amendments to Proposed Directive on Cogeneration

#### Recital 18

Grid connection costs and tariffs related to the transmission and distribution of electricity from cogeneration and tariffs related to the purchase of additional electricity sometimes needed by cogeneration producers as well as the sale of excess electricity should be set according to objective, transparent and non-discriminatory criteria taking into account the costs and benefits of cogeneration. Especially for cogeneration installations using renewables and small units below 1MW(e), costs and administrative burdens...constitute considerable barriers...

#### Article 7 - Support Schemes

**New point 4:** Member States shall consider the establishment of support arrangements to actively promote the take-up of small scale cogeneration units of 1MW(e) or less.

#### Article 8 - Electricity grid system issues

**Point 3:** Member States may require transmission system operators and distribution system operators to bear, in full or in part, the costs referred to in paragraph 2, in particular for micro cogeneration units.<sup>2</sup>

**Point 8:** Member States shall particularly facilitate access to the grid system of electricity produced from cogeneration units using renewables energy sources and units with a capacity less than 1MWe as set out in Annex III, a). Costs and administrative burdens should be reduced to an absolute minimum, in particular, for standardised, serially produced micro cogeneration units<sup>2</sup> to facilitate their use by householders and small enterprises.

**New Point 9:** Transmission and distribution system operators shall be required to purchase excess electricity produced by micro cogeneration<sup>2</sup> units at a fair price.<sup>3</sup>

#### Annex III - Methodology for determining efficiency of cogeneration production

**Point a), third indent:** production from cogeneration units using renewable energy sources and from cogeneration units below 1MW(e) with overall efficiency of 80%<sup>1</sup> may qualify as high-efficiency cogeneration;

**New point d):** For small scale cogeneration units of 1MW(e) or less, Member States and users will not be required to complete installation specific analyses. Furthermore, "micro CHP"<sup>2</sup> units shall only require the manufacturer to obtain "type certification" from a recognised certification body.



### Organisation Background

FCEu is an initiative of a number of leading fuel cell companies in Europe concerned that Europe is falling behind North America and Japan in readiness for the commercial introduction of fuel cells. FCEu organised a high-level industry-led "Fuel Cell Teach-In" for Commission officials in Brussels on 11-12 July to demonstrate the state-of-the-art and commercial readiness of the major industrial players in the sector.

### Technology Background

Fuel cells are being developed for transport, stationary and portable power. In addition to their high efficiency operating on conventional, hydrocarbon fuels, a key aspect of this technology is its unique ability to form a bridging solution to a future, sustainable energy in which intermittent renewables and other environmentally benign technologies play an important key role.

Fuel cells are regarded as superior to other technologies for small scale cogeneration for the following reasons: most efficient technology in this application; efficient at part load; reduced CO<sub>2</sub> and pollutant emissions; good load following capability; small, clean and quiet; fuel flexible (H<sub>2</sub> from renewables increasing utilisation of intermittent sources; biogas from crops and waste; ethanol and methanol from renewable sources; natural gas and other hydrocarbon fuels.)

### Cogeneration: energy savings, reduced emissions and economic growth opportunity

Utilities and Local Authorities who presented papers at the "Fuel Cell Teach-In" for Commission officials in Brussels on 11-12 July believe that there is a significant opportunity to provide a complete energy service, including combined heat and power supply, to residential and commercial customers. This would provide the following benefits:

- Increased overall energy efficiency / fuel savings / CO<sub>2</sub> reduction. Especially important given the need to replace the ~1 million obsolete heating boilers currently in operation in Europe
- Integration of multiple sources including fuel cells and renewables into a virtual power plant.
- Job creation and development of SMEs: **"energy services is a job machine"** and encompasses supply, installation, financing, operation and maintenance.

**In Japan, the Government has set a target of installing 1.2 million residential CHP units of ~1kWe and 230,000 small commercial units of ~4kWe by 2010.**

### Notes:

1. We believe that overall efficiency targets should be set at 80% or above for small systems, however, provision should be made to allow for lower targets for innovative technologies (such as fuel cells) in the early years of market introduction. Especially if these units provide relatively high electrical efficiency.  
[ Where: TOTAL EFFICIENCY = ( E<sub>CHP</sub> + Q<sub>net</sub> ) ÷ ( FUEL ENERGY<sub>LHV</sub> ) ]
2. Most of these micro CHP systems currently in development range in size from 1-30kW(e), however, it is possible that larger systems based on the same principle (ie, boiler-replacement applications) will be needed and will provide a valuable contribution to the requirement to reduce energy and emissions.
3. Where "excess electricity" means the additional amount of electricity produced by the unit (but not actually consumed in the building) when it is being operated in an energy efficient cogeneration mode (e.g. heat following).