

Micro Hydro Association members who have commented on the draft standard:

name	resource	organisation	MCS status
Rupert Armstrong Evans#	supplier/installer	Evans Engineering	
Ian Benson*	self-employed designer/installer		
Gordon Black*	supplier/installer - director	babyHydro Ltd	
Richard Drover*	supplier of turbines, advisory services and installation services	Hydrover	Transition list
Euan McConnell*	Director, design engineer, dogsbody and tea maker	EMC Ltd	
David Roberts*	self-employed consultant, designer, commissioning / test engineer		Transition list
Nigel Smith#	Manufacturer of control systems for micro hydro and supplier of generators and Pelton turbines	Sustainable Control Systems Ltd	
Craig Taylor#	supplier of crossflow turbines	Ecowave Systems Ltd	Transition list

sent under separate cover by Rupert Armstrong Evans and Craig Taylor/Nigel Smith

* reproduced below together with a summary of key points by Gavin King-Smith

Summary

Commentaries have been received from members of the Micro Hydro Association - six turbine suppliers (some also installers), and two installers. One supplier who refurbishes turbines commented only on the “as new” hydro standard MCS018. The suppliers are among the principal suppliers of micro hydro turbines to date in the UK having supplied or installed between them around 150¹ turbines with many more planned.

This summary also covers other submissions copied to the Micro Hydro Association which are being sent separately.

(Confusion appears to have arisen for respondents who in some cases appear to have interpreted the standard as implying that the proposed on-site turbine testing processes were to be applied to all sites.)

The key points which I consider emerge from these submissions are:

- BS EN 61116 is not an appropriate standard with which to certify micro-hydro turbines
- costs are likely to be excessive for the proposed testing regime and will deter entrepreneurs and experimentation with design improvements
- the proposed flow and output measurement processes will not produce a performance assessment with relevance for assessing Feed-in Tariff eligibility
- the proposed processes are paperwork-heavy
- “as new” manufacture will not follow mass factory style production – the standard will prevent access to the FiT for viable refurbished schemes
- the hydro (turbine) product standard as a whole is unworkable and will bring absolutely no benefits to the consumer but at substantial costs
- there is a risk that manufacturers will not to seek or continue to pursue certification for hydro products if these standards are adopted.

Gavin King-Smith

¹ <http://microhydroassociation.co.uk/Documents/mha%20resources%20new%2007122010.pdf>

Ian Benson

I'll restrict my comments to the 'as new remanufacturing', MCS 018.

Page 5:

'...non operational since 1990'.

This seems arbitrary. Why even restrict applicability to out of service systems? some clients have non-mcs compliant schemes, intelligible for ROC or FIT. I don't see why these systems cannot be examined, documented and remanufactured and tested as necessary by the engineer and then warranted 'as-new'. This would offer a route for those clients who can't get FIT or ROCs but have put cash up front to build or rebuild hydropower schemes. The engineer still takes the risk of the warranty and the loss of his/her MCS accreditation in all cases, and that ought to be enough.

Page 8. Certification and Approval

I suggest that the MCS puts more weight upon the ongoing reliability and performance of those systems on which the engineer has been responsible for remanufacturing work, and less emphasis on his/her paper trail. Talk to the clients. This will soon take chancers who are merely effective bureaucrats out of the system.

Page 15. Product, Factory Audits.

9.2.3 Is essential, for reasons outlined above. I still think on-site in-service tests are best of all.

'Factory' audits must go beyond papertrail and how flashy the machines and metrology are: reverse engineering and remanufacture is science followed by craft, and involves very little 'factory' style production.

Gordon Black

Gavin,

Thank you for giving me sight of the Product Standard documentation.

I have read through your comments² on the document and agree completely with the detail and the principle. This process has lost sight of the intent – to ensure good quality products are delivered to end users.

I appreciated the introduction of the question on the approved entity being a ‘Supplier’ rather than a ‘Manufacturer’. This recognises the commercial realities of their being a supply chain and overseas manufacturers.

The only contribution I can add is another negative. Why is onsite testing required at all?

Performance Testing should be carried out in a controlled and standardised environment, that is, a test lab. Onsite testing will incur travel costs, standing around time while tests are ‘run’, difficulties in accuracy of measurement, and critically, the potential for dispute between the Installer and the Product Supplier as and when a ‘failed’ situation is identified (as will ultimately happen). The Installer will blame the product, and the Product Manufacturer will blame the design/implementation. This will then be resolved by an expert witness and significant cost (to whom?) and very likely the use of a test lab to create evidence.

² Commentary on MCS draft product hydro standard 10 December 2010 Gavin King-Smith plus covering email.pdf

Richard Drover (to follow under separate cover)

To whoever it may concern,

My name is Richard Drover, I am an independant hydro consult and installer working in the UK for 6 years. I have completed 43 projects totalling slightly over 250kW.

In trying to develop low cost schemes, I have been required to build turbines myself because there were no med/high head micro hydro turbines available.

In the UK there is only Ecowave, Gilkes and myself building turbines (and possibly NHT). Gilkes are not really micro hydro and their products are far too expensive for sub 50kW schemes. Ecowave build crossflow turbines for schemes generally below 20 metres head. If you look on the MCS website you will see that all but one of the transitional products are low head. The only high head turbine is hydrover, which is me. It is certainly the case that the most commercially viable micro hydro in the uk is med-high head.

I am building turbines as a service, not as a business. I build turbines because they aren't otherwise available. In the last 2 years I have built 22 turbines and I make approximately £1,000 on a turbine. The average cost of a complete turbine to date is around £3,000. I build turbines as and when required in the upstairs of my partners workshop. I don't employ anyone, I do all the welding, testing etc.

It does seem that the MCS standards are assuming that there is a manufacturing industry in the UK. Of the products on the transitional list, all are foreign made except Ecowave and myself, and possibly Spaansbabcock. When I read the product standard and I consider what I will be required to do and spend to comply, it is apparent that I cannot continue building good quality reliable turbines in the manner that I have. If I am to continue, the cost will have to increase by a large percentage and many of the very low cost schemes that I am involved in would not happen.

If there was a hydro turbine manufacturing industry in the UK employing even 100 people then this standard might be reasonable. There isn't though, and implementing this standard as it stands will severely handicap the small manufacturers. For an individual wishing to enter the 'market' and develop a new product, complying with the standard before a turbine can be sold will be extremely onerous.

The MCS standards seem to have adopted EN 61116, which is the standard for SMALL hydropower. Small hydropower is generally considered to be 1MW up to 10MW. The standard refers to projects up to 5MW. The standard is completely inappropriate for many micro-hydro schemes. Some schemes are less than 1kW and use 'stream engine' turbines from the US and grid link inverters. This is a different world of hydro.

I welcome a standard for micro-hydro, but given the lack of an existing industry, the proposed standard is disproportionately burdensome.

yours

Richard Drover

Euan McConnell

Gavin,

Thanks for sending through this latest draft. Do you have any word on when it is likely to be released? I am in the process of borrowing money from the bank to fund my business start up and the associated costs for adhering to this standard and getting my product to comply are by far the biggest risk to my business. Cashflow is going to be tight at least until I can recoup the initial investments through some sales but at the moment I can't get a date for the standard or a commitment from the certifying bodies for the associated timeframe or cost. My first customer has now told me that he is abandoning his hydro plans in favour of solar PV - how frustrating!

I had some comments on reading the first pdf but you seem to have captured them with your comments.... In particular I was concerned about the testing requirements as I couldn't afford to fund a separate machine and expensive testing at a test centre. Also It is frustrating that a standard such as this which is specifically written for micro hydro has to make reference to other standards. This would not be a problem but for the expense of each of these standards. I like your point that the product standard should be a standalone document. It seems ridiculous that a start up business like my own has to put in the region of £500 aside just to read the standards that I need to comply to. G83, G59-1, G59-2, BS EN6116.....

David Roberts

Laura

below a few comments on what I see as the most significant problems with the hydro product standard as proposed (Draft 1.7).

These issues need to be addressed by the Management Panel before the proposal is finalised.

1. Hydro Working Group

The standard was not approved of by many in the working group, and in particular almost all the people who actually design, specify and build hydro turbines and systems objected to the proposals.

The original specification for MCS was that it is "industry led"

The proposed standard is clearly not industry led.

2. BS EN 61116

The use of BS EN 61116 is just not appropriate for micro hydro turbines

It is designed and written for larger systems and if implemented for micro turbines will cause an unnecessary restriction on any possible manufacturers. It will limit choice for the consumer and inhibit the UK micro hydro industry.

3. Installation test

The proposed installation test is onerous and unnecessary.

The approved turbine will have been designed and manufactured in an MCS accredited facility - and hence product standards and quality will be assured.

To enforce an on-site power test is not useful to ensure FIT registration.

Costs of accurate on-site tests are significant - I have personal experience of performance testing of several hydro turbines for acceptance using the relevant standards, and understand the detail of the requirements implied by the proposal.

The costs incurred to undertake the testing as proposed could well run to several thousand pounds.

4. Requirement for MCS and EU trade legislation

The requirement for MCS accreditation, on top of the existing EU requirements for CE marking, solely for the UK market could be seen as anti-competitive and a restriction on free trade in the EU.

Imagine the situation where all EU countries put in place systems similar to MCS at their national level. The resulting regulatory burden would be excessively onerous, and be a serious impediment to the development of renewable energy.