	Nature of Business				Views on registration approach		Installed schemes since 2006						Future expectations steady(S), increase(I) decrease(D), none(N)						Criteria for "very small-scale and low impact"								
QUESTIONS	2. Do you: Install schemes? (Yes/No) Manufacturer equipment? (Yes/No) Supply others' equipment? (Yes/No) Supply other services? (Yes/No) Please state what services:				1. Would you in principle endorse the introduction of a simple registration regime for very small-scale and low impact hydro schemes? (this would still involve recording suitable details of scheme design and risk mitigation measures and undertaking to conform to construction guidelines, electrical regulations, and riparian rights) – for suggested criteria see Q5 below		3. Since 2006, how many schemes of the following sizes, which are now operational or under active development, have you supplied or been directly involved in?						4. From now forward, given the present regulatory regime, how do you expect your involvement in schemes of the following sizes to develop? Please use codes - steady(S)/increase(I)/decrease(D)/none(N) or give numbers if you are able to do so:						1. head: should distinction be made between high, low, medium head and what should break points be?	2. capacity: should capacity be used as a criterion – perhaps in combination with head?	3. "load factor" (average energy per annum/max energy at full capacity): should this be a criterion, perhaps in combination with another factor?	4. catchment area (< 10km2 at abstraction point is a criterion used in the Water Framework Directive to identify the smallest size of Water Body for monitoring quality)	5. length (or surface area?) of depleted reach : perhaps some criterion is needed particularly for low head schemes which can affect a significant proportion of a Water Body? e.g. < 1% length (or surface area?) of whole Water Body (from 1st 10km2 catchment point to mouth - as defined by Water Framework Directive)	6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point hands-off flow: e.g.Q95 just downstream of abstraction point. should these be varied depending on other criteria?	7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime no significant potential impact on protected flora/fauna upstream of outfall as judged by qualified walkover survey.	Comments on suggested registration criteria:	Other comments on proposed registration approach:
id	Installer	Manufacturer	OEM	Other	Agree with Registration approach? (Y/N)	Comment	0-5kW	6-15kW	16-30kW	31-50kW	51-100kW	>100kW	0-5kW	6-15kW	16-30kW	31-50kW	51-100kW	>100kW	Head	Capacity	Load Factor	Catchment area	Length (or surface area?) of depleted reach	Water availability	Protected flora and fauna	Comments	General Comments
11	Y	N	Y	Carry out full feasibility studies (free of charge) Do all licensing and planning. Order equipment and have it installed under my supervision. Commission and arrange for FITS and or sale to grid. Maintain and run in perpetuity, being responsible for insurance and rates and repairs. All the above with a binding agreement and lease with the landowner. Share resulting income on an agreed percentage.	Y	Regulation of both Environment Agency and planning are becoming increasingly onerous with enormous duplication of facts.		3	4	1		1	N	I	I	N	N	N									
12	Y	N	Y	Design and project management consultants	Y	Perhaps it could work along the lines of the General Binding Rules or Registration system used by SEPA (and the EA?) use for some engineering activities under CAR	0	0	0	0	0	4	N	N	I	I	I	S	I think the general watercourse gradient is perhaps more important than scheme head (although both are obviously related).	Capacity, annual production and loadfactor are obviously interrelated. Limits would certainly have to be set – but carefully considered. For example, abstracting a small amount of water from a large burn could produce a 15kW scheme operating at a very high load factor, or, abstracting a large amount of water (Q30 x 1.5) from a small burn could produce the same size scheme but at a much lower load factor – is this ok? Both I believe are acceptable and 'low impact' in the right conditions – therefore any limits would have to take this into account.	See capacity	Not sure how relevant this is.	I think length of depleted reach must be factored in – although this perhaps needs to be put into context with overall length, catchment (at abstraction and return point), and gradient.	max abstraction: e.g. <=1.5 X Qmean at abstraction point. Yes – however in my experience good hydrology data is required to allow 1.5 x Q30 to reassure the regulator. Perhaps there could be bandings depending on the quality of hydrology data available. hands-off flow: e.g.Q95 just downstream of abstraction point. Same as above. should these be varied depending on other criteria? Water course gradient – ecology on a steeper gradient watercourse will generally be less affected by water abstraction than a shallow gradient? Difference in catchment between abstraction point and return point (see Q5)			
14	N	Y	Y	other	Y	but like <installer> I suspect it would be difficult to specify "small scale". A better route may be to try and define "low impact" sites, which could be defined in terms of %take, fish populations (thinking high head spring sources) etc. We have a site in Wales which has had a flow splitting clause pushed on the licence. I don't think the owner realised what this was or the implication............no annual capture was calculated !!! All he looked at was the maximum take...which he will only get literally once in a flood. Must make people aware of this.	9	9	8				S	S	I	I	I									I find it impossible to give a one fix fits all solution be it based on head , capacity, depleted reach etc etc etc. The EA have tried this and got into all sorts of problems with their hight prescriptive GPG2. In a way their flow splitting idea was along the right track...........just that what they were proposing was far too punitative. However it was based on a sensitivity versus level of abstraction basis which is probably the way to go BUT someone still has to make an assesment of how " sensitive " a water course is and therfore set the abstraction levels....and this was the sticking point. I think on most water courses it would be possible to say you can take say 50% of Q95..without too many problems.(and I know of several sites where this has been licensed). That would then define your "low impact" . It also, to some extent, avoids the "flat-lining" issue recently voiced. If you want more water, then evidence will be needed that no damage is occurring. Clearly the closer you get to Q95 the more evidence will be needed so developers can make a choice either to take the easy and assured route with a guaranteed 50% or invest time and money to get more. The other way would be to say you can always take 50% (non consumptive) but anything above this is only on a temporary basis until the ecological impact has been seen......or proven. Not sure if the EA would go for this.!	
17	Y	Y	Y	Design, spec, feasibility, opeation and maintenance I make control systems sometimes	Y	my experience of registering 5 micro schemes through ROO-FIT is it takes minimum of 3 months and on one site we are up to 7 months - just came through now. Complete nightmare sometimes and lack of understanding at Ofgem - e.g. one 6 kW scheme has same postcode as a 10 MW scheme nearby - then takes 6 weeks to demonstrate to Ofegem they are not conencted and get them to move on to the next question.	2	6	1	0	2	4	I	I	I	I	I	I	only relevant for abstraction I think	should be kWh really but in reality kW is best	no	no	no			Best thing I think is stick with Ofgem ROO-FIT system - but give them some resources so things can speed up. A the moment it takes minimum 2-3 weeks from Ofgem asking a question and getting an answer to them looking at the answer - and then tgey have forgoten all about the scheme.	All are increasing - I am full up so mostly say no.
20	Y	Y	Y	Design of schemes, All consent and electrical connection applications and consultations, Procurement of all items and materials, Ofgem applications, Maintenance, Servicing etc.	Y	but not sure how to define very small scale. 4kW could be created by a low head turbine consuming 2 times average flow and completely destroying Ecology and fish migration or a high head Pelton at a 10th of the flow with no noticeable impact. Where do you draw the line as Joe Bloggs would think that 4kW hydro is harmless. Perhaps use capacity or load factor. Any scheme with a high load factor is surely going to have less impact than a low load factor in operation. However maybe the yield is not worth the construction impacts? Very difficult to draw the line.		7		2			N	D	S	S	I	I	No, for me head only scales the power or energy produced. Low head and high head can be equally damaging. For me proportion of water abstracted and HOF is the key to impact	Same as load factor. Some merit should be given to higher capacity schemes (>50%) as a reduced abstraction rate has got to be of less impact to environment.	I used to think that catchments below 1 km2 should be classed as minor or negligable but even at this size there can be healthy populations of fish.	I used to think that catchments below 1 km2 should be classed as minor or negligable but even at this size there can be healthy populations of fish.	Affected reach should be limited according to abstraction rate or capacity. You should allowed to affect more length of burn if the effect you have is reduced by lower abstraction rate. Head is available 100% of the time. Average flow is available only 30% of the time.	6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point hands-off flow: e.g.Q95 just downstream of abstraction point. should these be varied depending on other criteria? Yes, if migratory fish are present, the HOF should be increased.		Screening is very important. Intakes and tailraces should be screened to a small size and arranged to prevent both disorientation of fish and also to ensure passability of any structure.	I can only make a prediction of the following year to 18 months as that is how far we are planning at present. We could install lots more, maybe 15 in a year but for our bottle neck of gaining consents and grid connections. We can only install through the day and unfortunately that is the only time that we can speak with Planning, SEPA, Fisheries, Scottish Power etc. I am staying generally staying clear of sub 15kW stuff unless it is a particularly simple scheme to consent and install. We are now 14 months on a planning application of a scheme that will take just 5 weeks to install. I have spent longer with SNH officers than I will spend welding the pipe! The scheme takes only 0.75 of average flow but is partly in an SSSI. It has taught us that unless a scheme is really simple and gets consent within 2 months it can literally take an indeterminate amount of time to consent - and there is no penalty for those who dither and cause the delays. Our biggest scheme so far <xx> has taken the least time to consent, hence I will be moving to bigger schemes and away from the smaller stuff.
21	Y	N	N		Y		1	3	1	1			S	I	I	I			1 High head should be encouraged and low head distinction around 15m	2 Capacity in generation Kw should not be an issue	3 ?	4 Catchment area should and is linked to capacity and abstraction totals	5 Depleted reach is an issue and should be judged in each case	6 hands off flow should vary depending on site	Impact on ecology should be kept to minimum		
22	N	N	N	advisor/mha administrator	Y	It emerges from my discussions with a number of people at the small-scale end of the industry that future opportunity for developing micro hydro schemes is greatly threatened. The principal causes are the work involved and constraints imposed through planning consenting, environmental licensing, and grid connection. This is already resulting in some practitioners intending mainly to develop larger scale schemes, leaving a wealth of viable water energy resource unexploited. I suggest that any scheme under 100kW capacity should be presumed registerable providing other criteria are satisfied or mitigated in a design statement. This is the power of a reasonably high performance saloon car engine. Other schemes range from the size of an electric lawnmower motor upwards.	1						S	I	I	I	I	I				Catchment < 10km2 at abstraction point is a criterion used in the Water Framework Directive to identify the smallest size of Water Body for monitoring quality: This would be a suitable criterion to consider where capacity, head, or flow criteria exclude registration.	No	1.3 X Qmean to comply with current guidance Q95 as standard, and Q90 for salmonid rivers should these be varied depending on other criteria ? Yes, where significant impact has a significant probablility of occurring to flora or fauna	no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime no significant potential impact on protected flora/fauna upstream of outfall	High head and low flow schemes should in general be subject to simple registration; the higher the head, the higher the capacity that should be acceptable for a given design flow, subject to other criteria as indicated in previous questions.	
23	Y	N	Y	1. Assessment of hydropower potential on estates and regions through the use of Hydrobot 2. Desktop modelling and evaluation of hydropower potential 3. Pre-feasibility studies 4. Feasibility Studies 5. Gaining of consents	Y	We wholeheartedly endorse the creation of a process whereby small hydro schemes of between 1kW and 50kW might be developed at reduced cost but to a high quality standard (and thus meet SEPA and Planning requirements). We recently published a white paper in which we forecast the number of commercially viable schemes in Scotland in the size band up to 15kW to be 1,442 with the potential to generate 15MW of power. The practical potential is much higher – it is restricted to this number by us using commercial developer criteria for evaluation. If consenting was simplified (and reduced in effort/cost) and elements of the development were carried out by the landowner then the number of schemes could rise considerably. One of the barriers to the growth of the larger schemes is the availability of grid capacity – which does not usually apply to these smaller schemes. The key is to maintain the quality of the installation which will minimise the environmental impact and at the same time maximise the energy production and life of the scheme (without the need for remedial works). These facts are in everyone's interest.						1	S	I	I	I	I	I	no distinction – all acceptable	15kW - keep it simple and very clear (and match FITS banding) – otherwise 10kW?	40% - impacts on income so a natural minimum to offer that SEPA are likely to mandate anyway	< 10km2 at tailrace	500m and meet SEPA guidance on gradient (they are unlikely to relax that!)	[6. water availability in depleted reach: max abstraction:] 1.3 X Qmean to comply with current guidance. Potential conflict with achieving Load Factor target. It may be acceptable to sacrifice the abstraction volume to achieve a higher Load Factor – could be of interest to SEPA through reduced impact on watercourse [hands-off flow: Q95 as standard, and Q90 for salmonid rivers should these be varied depending on other criteria?] No	7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime Agreed. We would suggest this is covered by a written confirmation from the local Fisheries Trust in the form of an e-mail. no significant potential impact on protected flora/fauna upstream of outfall. We would suggest that for micro schemes the landowner is required to provide a written statement covering the description of investigation undertaken. Landowners with intimate knowledge of their reach will know if otters and bats etc have been observed. If there is a risk of EPS being present then, and only then, should an ecologist be engaged.	1. Accepting that SEPA have to demonstrate they are protecting the watercourses, and their preferred approach being 'guidance', then a 'registration design guidance' document should be created. This would be a template that all schemes within the permitted criteria (eg sub 15kW) have to meet. The process of 'registration' of the scheme would include this document prior to construction showing how the design will comply. 2. SEPA are looking for ways to cut costs. One way to do this for these smaller schemes would be for SEPA to delegate authorisation to the MHA or the BHA. Either body would then 'police' the registration process and perhaps even carry out a pre and post inspection – for a fee. This is the model employed by the Civil Aviation Authority for the policing of Microlight flying in the UK. 3. The downside to a registration approach is that SEPA and Planning will want to minimise the number of schemes being approved so as to minimise the risk of environmentally poor schemes 'slipping through the net'. Their other approach would be to make the criteria severe. Where any of their current decisions are flexible to take into account the varying risk to the environment, they will no longer be able to weigh up the risk. Therefore any conditions they give for registration will necessarily be harsher than the most harsh conditions we have seen for conventionally permitted schemes.	
24	Y	N	N	Install schemes? (No) – Not yet but we are keen to install schemes and have experience from similar projects including large scale wind farms. We are exploring several schemes and have funding in place for these schemes. We provide development, preconstruction and construction services. We also fund projects and arrange insurance cover for all renewable energy services via a sister company	Y			1	1			1	S	S	S	S	S	N	NO. The volume of water varies considerably meaning the scale of a scheme is not directly dependant on its head	Yes. On its own, capacity is the easiest factor to judge scale. However, it is not perfect.	Yes – in combination with capacity this gives an accurate figure for overall generating capacity.	No. Drawing a small flow from a VERY large system where only limited grid capacity is available would be disadvantaged by this. We are already constrained by grid availability!	No. I don't agree with this. It could be overly restrictive in minor course which have no	[6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point] Yes [hands-off flow: e.g.Q95 just downstream of abstraction point] Yes [should these be varied depending on other criteria?] No. These are good simple limits.	Agreed		We are keen to embark on a number of small scale hydro systems in Scotland (and Bangladesh!) and have a number of sites under review. I really hope a simplified registration scheme will be established as there are far too many good small sites being passed over due to the existing administrative burden and uncertainties that exist. As noted in my response, we are always keen to invest in schemes and support viable projects.
25	Y	Y	Y	Complete service except for electrical installation/connection	Y	Sadly the EA will block you all the way. There is a struggle between planners, EA and Natural England. For example: each interpret the WFD very differently. I could go on and on		1	1		1		S	I	I	S	S	N	No distinction necessary	Yes	No. I would keep it simple so the general public understand. I come from the wind industry, where the only real point of interest is how much power the system will generate per year. Load factor is used by some in the hydro industry to make false claims as to the efficiency of their systems	The EA & Natural England will still have their say during the planning process. They can still kill a a scheme over flood prevention or protection measures over Crayfish etc	Adding another layer of complexity, therefore another layer of interpretation. Probably a bad idea?				I applaud your efforts and would very much like to visit you for a long chat. If I had the time, I could write a book on my experiences working in Hydro in my first year. One key subject that would be of enormous benefit to all, is the standardization of denil, chevron etc fish passes, so their costs do not kill a potential micro hydro project.
27	Y	Y	Y	Design, licensing and installation of small hydropower and flood alleviation schemes	Y		2	1					D	D	N	N	I	N	Any distinction (on head) should only be made if it correlates well to the potential for a small scheme to harm a habitat. On this basis I think there is good reason for a 'high' head definition to (reliably) identify sites where migratory fish won't be affected. It needs 2 criteria, though, neither of which is much to do with gross head or turbine type: A) Steep depleted reach, say 1:20 gradient, measured along the stream (which is actually pretty steep in watercourse terms) B) Proposed intake structure is lower than highest natural obstacles (to fish) in the depleted reach. I think this would work well for a risk based approach, but only in conjunction with capacity or catchment area criteria.	Capacity isn't a great criterion, as lower head schemes (generally) will have more impact on fish than high head of the same capacity. But, as it is so simple, and DECC uses it for FiT price breaks, it could be a useful one to include.	I think that there are good reasons for high and low load factor schemes: a springfed scheme and a flashy upland catchment scheme might happen to have the same head/design flow, but would have very different load factors. I seriously doubt there would be any useful correlation between the ecological harm/benefit of run of river hydro and scheme load-factor.	Yes - I like this one. It is easy and unequivocal, like capacity. I'd choose something about 10km2, to give small schemes of moderate head (say, 20m) a chance, though they'd need to demonstrate protection of the flow regime for fish, and fish passage. Small high head (by my definition) would generally be smaller catchments than this anyway.	Low head schemes are generally going to have a harder time, as regards licensing, perhaps with good reason. In my opinion, 1km depleted reaches in spawning grounds and hydrodynamic screws using a cumec are exactly what a risk-based approach should be flagging up for full EA consenting, not sneaking in because they only have a 10kW capacity.	Sounds OK - nice and simple. *most sub-10kW high-head will have rapidly increasing catchment area along the depleted reach, and a significant start-up flow allowance above the HOF. *Even telling the difference between Q95 and Q85 in a small catchment might take 3 years of data and a BS 3680 gauging structure!	[7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime] *I like the second. I think the lower part of a depleted reach being in spawning areas might be often OK, but as you say flow regime must be protected. This protection of flow regime could be demonstrated quickly to Agency hydrology/fisheries officers in the cases where there is a large runoff contribution to the depleted reach from below the proposed intake. * outfall screening might be a condition (cheaper than a survey for fish) [no significant potential impact on protected flora/fauna upstream of outfall as judged by qualified walkover survey] OK, this sounds like an 'extended' phase 1 survey in field ecology terms, and I think it would be good to include pipeline route as well as depleted reach.		
30	Y	Y	Y	Permissions assistance OFGEM assistance	Y	In Scotland this could simply be SEPA allowing schemes that unquestionably pass their guidance (generally >10% gradient or taking less than 25% of the flow) to be processed as registrations rather than full licenses.	3	12	6	5	11	1	N	D	I	I	I	N								I think it would be a hard sell to get the authorities to steer away from the work done to date. Your criteria are roughly similar to the work that SEPA has already done. Significant work has been done by SEPA on classifying "high risk" schemes. Although I do not agree with their approach to implementing their guidance as rock-hard regulation I do see it as a good model for a safe registration regime with scheme meeting the guidance able to be simply registered and those not meeting it requiring a more involved process (license) and more evidence regarding potential impacts. SEPA's guidance characterises schemes on catchment area, average gradient, ecological status and more.	
39	Y	N	Y	Site assessments	Y								N	N	D	S	I	I	NO	Yes, certainly below 15kW and possibly up to 30kW	No	Agree fair criterion	Any scheme < 1000m affected reach	[6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point] Yes [hands-off flow: e.g.Q95 just downstream of abstraction point] Yes	Agree		
41	Y	N	N	develops, owns and operates microhydro schemes.	Y	I assume you are talking about with the Environment Agency. I think that the matters that they are concerned with are correct, but we could streamline the process.				3			N	N	N	I	I	N	No	Yes – that is where the financial impact lies.		No	To prescriptive	Keep it simple – that Q95 link would be a good one.	[7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime] I think all new or refurb hydro should be required to introduce or improve fish passage [no significant potential impact on protected flora/fauna upstream of outfall as judged by qualified walkover survey] Must improve or mitigate.		
42	Y	N	N	Feasibility study for one other 10 kW scheme	Y	FiT accreditation still an open question for the 15 kW <xxx> scheme.		2								I										1. Head is useful, as broadly, higher head schemes have less impact. Turbines heads are roughly: 1 – 15 m for Kaplan, 5 – 50 m for Crossflow, 20 m upwards for Pelton and Turgo. So following these ranges, breakpoints could be 10 m low to medium, 35 m medium to high. 2. Capacity is easy to use as an indicator, because the turbine and generator are that size, which is fixed. 3. The most accurate indicator of the size of a scheme is its annual energy yield, so capacity and load factor are a good combination to identify the scheme size. However, it's probably better to keep it simple and us capacity only. 4. Catchment area not a particularly relevant indicator. Depleted stretch relevant for 'low impact' and capacity (or more accurately, energy production) relevant for demonstrating the benefit of the scheme. 5. See comment on point 4. 6. Both flow figures OK 7. Both criteria OK	'Supplier' and 'Installer' model in MCS does not apply well to hydro, due to the many different parts of a scheme, which require different suppliers and different skills to install. So, I think it's a good idea to simplify the registration process.
44	Y	N	N	As an architectural Technologist I am interested in designing and contract administering the supply and installation of hydro.This would include the certifercation of scheems and form filling in for goverment bodies....also the leiasing with financiers	{Y}	None [no schemes implemented and no development expected] due to beurocracy													No	Yes head is some what irelavant from a FIT's side of the equation but highly relavent from EA side and cost implications	If the FIT's are really to encourage uptake then out put x input ballanced against contract sum to achieve cost benefit yes, the problem is that of the lump sum investment and then ongoing running costs	getting flow rates for pico hydro schemes is none existant unless we go out there and measure the EA should have all this for the flood risk assessment responsibilities they hold but don't have the funding, there should therefore be a reasonable cost associated with pico hydro say £100.00	The duration for which the water is to be abstracted is relavent as it has n impact on biodiversity, sustainability to say that a base load needs to be maintained in the river at all times is reasonable that level needs to be looked at in light of the potential of the river. Water availbuility for live stock should also be considered.	max flow is irrelevant mack hay whilst the sun shines or rains... hands-off flow: e.g.Q95 just downstream of abstraction point: there has to be hands of point as mentioned above...		All developments should be managed by one agency and there must be an ombudsman. The work must be signed of by an apropriatly qualified person wheather in house (supplyer) or external auditor.	
45	Y	N	Y	N	Y	I'm trying to do the applications for our own 6kw scheme and found the hurdles ridiculous.		2				5	N	I	I	I	I	I									

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QUESTIONS	2. Do you: Install schemes? (Yes/No) Manufacturer equipment? (Yes/No) Supply others' equipment? (Yes/No) Supply other services? (Yes/No) Please state what services:				1. Would you in principle endorse the introduction of a simple registration regime for very small-scale and low impact hydro schemes? (this would still involve recording suitable details of scheme design and risk mitigation measures and undertaking to conform to construction guidelines, electrical regulations, and riparian rights) – for suggested criteria see Q5 below		3. Since 2006, how many schemes of the following sizes, which are now operational or under active development, have you supplied or been directly involved in?						4. From now forward, given the present regulatory regime, how do you expect your involvement in schemes of the following sizes to develop? Please use codes - steady(S)/increase(I)/decrease(D)/none(N) or give numbers if you are able to do so:						1. head: should distinction be made between high, low, medium head and what should break points be?	2. capacity: should capacity be used as a criterion – perhaps in combination with head?	3. "load factor" (average energy per annum/max energy at full capacity): should this be a criterion, perhaps in combination with another factor?	4. catchment area (< 10km2 at abstraction point is a criterion used in the Water Framework Directive to identify the smallest size of Water Body for monitoring quality)	5. length (or surface area?) of depleted reach : perhaps some criterion is needed particularly for low head schemes which can affect a significant proportion of a Water Body? e.g. < 1% length (or surface area?) of whole Water Body (from 1st 10km2 catchment point to mouth - as defined by Water Framework Directive)	6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point hands-off flow: e.g.Q95 just downstream of abstraction point. should these be varied depending on other criteria?	7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime no significant potential impact on protected flora/fauna upstream of outfall as judged by qualified walkover survey.	Comments on suggested registration criteria:	Other comments on proposed registration approach:
id	Installer	Manufacturer	OEM	Other	Agree with Registration approach? (Y/N)	Comment	0-5kW	6-15kW	16-30kW	31-50kW	51-100kW	>100kW	0-5kW	6-15kW	16-30kW	31-50kW	51-100kW	>100kW	Head	Capacity	Load Factor	Catchment area	Length (or surface area?) of depleted reach	Water availability	Protected flora and fauna	Comments	General Comments
50	Y	N	N		Y	A level of simplicity to encourage the development of very small schemes, rather than a complex one size fits all route that adds extra administration burden to projects that are usually marginally profitable already	2												include	?	Useful for determining further data, eg area energy useage.	small schemes are often by their nature small waterbody capture, mapping only adds to cost, so i would not be pushing for this criteria.	agree, with low head schemes, making biggest impact in this area	Q95 feels like a little high for small schemes, if we are to promote the very small projects, although care in balance to make sure that flows do not create dry riverbeds when they would normally be wet.	agree		good luck pushing for a simple clear and usable system.
55	Y	Y	Y	Electronic control	Y	These are the sort of schemes I am being asked to advise upon.	2						S	D													I find it difficult to make meaningful further comment at this time. I am just implementing my first hydro (~1 kW 9m head 20 l/s) using an old surface water run-off leat.
56	Y	N	Y		Y	definitely	7	2			2		D	S			D		Yes – turbine type? E.g. low head = waterwheel, Archimedes screw, medium = francis/Kaplan/propellor, crossflow, high = pelton, turgo	Not sure	No – although inseparable from flow	Perhaps? Flow is the main criterion		[6. water availability in depleted reach: e.g. max abstraction: e.g. <=1.5 X Qmean at abstraction point] {yes} [hands-off flow: e.g.Q95 just downstream of abstraction point] {yes} should these be varied depending on other criteria? If fish migration or pretected species are present and the depleted stretch is 200m of longer then Q90 . . . . . I want to roll out the installation of very small (1kW or less) high-head grid connected schemes. As the <turbine type> (and I'm using this as an example - potentially we would develop our own system with automated flow control) uses a max flow of 8 l/s the debate the debate about Q95 to Qmean (or 1.3 or 1.5Qmean) isn't really relevant - I'm looking for something more like Q95 to Q40 (or less). It would be great if systems like this can be fast tracked through permitting (and planning ideally)			As you can tell - my apologies for this - I am rather frustrated at the licensing requirements. All proposals are in line with the current GPG - although the new consultation on the most recent consultation could well scupper some/all of these - though hopefully they'll be in before the new consultation can affect them (unless the regulations are applied retrospectively). - see long email 17/10/2012
58	Y	Y	Y	design and advice	Y	can't imagine that they would go for it though. If possible, would be best based on abstraction rate (similar to current threshold of 20 cumecs a day).	15	20	7	5	2		N	D	I	I	I	N								I would suggest a combination of 4 (sort of), 5 and 7. Regarding 4, rather than catchment area, I would suggest design flow. Schemes of less than 40l/sec and leaving Q90 HOF get automatic approval. Regarding 5, I would suggest that schemes with minimal depleted reaches.. water wheels etc, get automatic approval with provision of fish passage (if it naturally existed) Regarding 7, agree with your suggestion.	Now just supplying turbines. . . . .[expect] modest increase from current demand.
59	Y	N	Y		Y						2					I	I	I	No reason to							Very difficult to stipulate criteria. Depend more on where the scheme is – visual impacts etc, I would say, combined with Protected flora and fauna	Rarely supply others equipment, usually install schemes.
64	Y	Y	Y	Development from Flow Analysis to EIA.	Y	I think it is good to maintain a public database of schemes installed in order to track the industry and to demonstrate self regulation	3		1	1	2		I	I	I	I	I	S	No – too detailed.	Yes (<5kW)	This has no relevance to "very small-scale and low impact"		See 6	The scheme's actual values in combination with length of depleted reach should define low impact		Q95 just downstream of abstraction point is quite a high impact.	
66	Y	N	Y	Hydrology & Ecology Services, Surveyors, Engineers, Electricians, Mechanics.	Y		6	12	4	2	1	2	D	D	S	I	I	I	We work in Low head which we like to define by the height limit of the technology we use efficiently of 1m up to 12m. Head is an important criterion as it often paints the picture of whether the scheme will be run of the river and therefore potentially lower impact.	Capacity of the turbine in relation to Qmean or percentage of Qmean might be a helpful quick indicator of the level of impact.	This is a tricky one because if the scheme is sized for large capacity to work only during high flow periods and is then switched off during low flow periods to protect the ecology, then it would appear to have a low load factor though can ultimately be a lower impact scheme with higher annual output than a smaller longer running scheme.			[max abstraction: e.g. <=1.5 X Qmean at abstraction point] Yes [hands-off flow: e.g.Q95 just downstream of abstraction point] Yes	7. protected flora/fauna: e.g. no significant population of salmonids supported by habitat upstream of outfall OR fish passage and flows for migration protected by flow regime I don't think this would get past the fisheries. It would need to be very definitive and I feel there is too much to come back on here in yellow. It would be better if the Q95 was accepted as a final. The first option in green is better, it is quite easy to assess and has a definite answer if the term 'significant' is defined. A view could be taken on the sensitivity of the river perhaps which was undertaken in the EA site mapping process, then depending on the sensitivity, different concerns could apply that need to be checked off. no significant potential impact on protected flora/fauna upstream of outfall as judged by qualified walkover survey. YES Many of our schemes are more concerned in downstream of the outfall. On an 8kW scheme on the river Lea we were asked to do substrate sampling and biotrope analysis in the weir pool pre and post install for 5 years or so!		
TOTALS	22	9	17	20	24	18	53	81	34	20	23	19	20	20	18	20	19	17	16	15	14	14	14	14	9	10	11
	92%	38%	71%	Agree with Registration?	24	100%					Total	230					Total	114									
of responses:	24	24	24	Disagree with Registration?	0	0%																					
Independent member			65																								
Returns			24	37%																							

SCROLL UP FOR INDIVIDUAL RESPONSES

		0-5 kW	6-15kW	16-30kW	31-50kW	51-100kW	>100kW	Totals
Installed schemes since 2006		51	71	30	20	23	19	214
		24%	33%	14%	9%	11%	9%	
Future expectations	steady(S)	7	3	3	4	2	2	21
		35%	15%	17%	20%	11%	12%	18%
	increase(I)	2	8	12	14	15	8	59
		10%	40%	67%	70%	79%	47%	52%
	decrease(D)	3	6	1	0	1	0	11
		15%	30%	6%	0%	5%	0%	10%
	none(N)	8	3	2	2	1	7	23
		40%	15%	11%	10%	5%	41%	20%
	Total responses	20	20	18	20	19	17	114