



Commission for Energy Regulation - Arrangements for Micro Generation

CER/06/190 of 10th Oct 2006

Consultation Response

FINAL

10th November 2006
(for publication)

The Irish Wind Energy Association gratefully acknowledges the opportunity afforded by the Commission for Energy Regulation (CER) to respond to the Consultation Paper: "Arrangements for Micro Generation", and for the extended time to do so. We have considered the paper in some detail, with the kind assistance of many experts on micro generation, from within and without the Association, and respectfully tender the following observations of the Association for CER's consideration.

We have summarized the main points made in CER's consultation paper, section by section, and set out our responses accordingly, as requested by the Commission. This is primarily to assist our own members and the wider public in appreciating more clearly the issues at stake and the position of the wind industry.

We realize that the Commission has not sought views on the underlying draft CENELEC technical standard 50438, which is after all part of a separate process, though one to which we appear to have no direct access, despite its impact on our industry. However, we do find technical standard issues arising, and so will nevertheless discuss them as appropriate.

Section 2 - Installation Process for Micro Generation

2.1 Technical Considerations:

CER suggests that large numbers of domestic and small business micro-generation units exporting onto the network could give rise to voltage rise problems, particularly at times of low demand. Therefore CER proposes to accept ESB Network's (ESBN, or the DSO) suggestion of 40% of the local substation capacity as a limit, something that ESBN will continue to

examine and CER will review. Although not specifically defined, this section implies that micro-generation refers to units up to around 11kW (which coincides with the draft CENELEC standard 50438¹).

IWEA response:

A. As a preliminary remark, IWEA notes that CER is referring to ESB Networks extensively throughout the consultation, having stated in footnote 5, 'for the avoidance of doubt', that it is both the Distribution System Operator and the Distribution Asset Owner and as such can be referred to as the DSO (even though CER then decides not to use the term DSO in this respect, but generically). However, that statement is not actually correct, as the ESB Networks function of DSO is ring-fenced from all other units of ESB, including and especially DAO (which is not licensed by CER or separated from ESB itself), and the DSO must soon be completely separated out under the 2nd Electricity Directive². Indeed, ESB Networks also has at least two other ring fenced functions, namely Transmission Asset Owner (TAO) and Meter Registration System Operator (MRSO), the latter quite naturally having a considerable interest in the current topic. This question of the role or roles of ESB Networks as regards micro generation is not insignificant, and we would prefer some greater precision than demonstrated by CER in the use of such terms as DSO. We prefer therefore to refer to 'the DSO' for precision (and if necessary to 'a DSO' when speaking generically). Where the argument appears to stray out of the DSO remit, we propose to highlight this in our response.

B. As regards the concerns expressed by CER and ESB Networks (as DSO) about volumes of distribution connected embedded generators, it is clear that, as CER has also stated, that it will be quite some time, possibly many years, before the 40% levels they refer to are reached at any substation.

C. CER's point that there may be voltage rise problems seems to contradict its own statement (2.3.6) that "In most cases little or no export may take place". Since the exports are likely to simply cause an overall reduction in demand, this point is very hard to understand. The DSO and CER seem to be anticipating a situation where there is considerably more export overall than demand, a highly unlikely scenario.

D. In any case, the DSO is obliged under law to take account of such generation when planning the Distribution system (Section 10(d), Part 4 of SI 60/2005, based on the EU Electricity Directive).

E. In considering such a proposed limit, the DSO and CER need to recall the right to connect and the necessity under Section 34(4) of the Electricity Act to justify a refusal to connect:

¹ the CENELEC draft 50438 standard refers to micro generation (including micro cogeneration) in terms of the type of minimum current limits one would expect at low voltage, single- or three-phase (between 6 and 11kW). However, the Cogeneration Directive 2004/8/EC defines a 'micro-cogeneration unit' as having a maximum capacity below 50kWe.

² see for example the Deloitte report 'Review of the Electricity Sector', Dec '05, at www.dcmnr.gov.ie

"The Board shall not be required under subsection (1) to enter into an agreement where—

(a) it has demonstrated to the satisfaction of the Commission that it is not in the public interest to provide additional capacity to meet the requirements to be imposed by that agreement,

(b) to enter into an agreement under this section would be likely to involve the Board:

(i) in a breach of this Act;

(ii) in a breach of regulations made under this Act;

(iii) in a breach of the grid code or distribution code; or

(iv) in a breach of the conditions of any licence or authorisation granted to the Board under this Act,

or

(c) the person making the application does not undertake to be bound by the terms of the grid code or distribution code in so far as those terms are applicable to that person."

The onus will be on the DSO and CER to provide such justification on an individual basis, even where a set limit leads to a refusal. A blanket arbitrary limit set now will not suffice for this purpose.

Also, depending on how they are handled, such refusals could constitute discrimination under the Act, and even if not, they could well be contrary to the Electricity & RES-E Directives, which prohibit any discrimination against renewables (not just 'unfair' discrimination, as per Irish law). While Article 20 of the Electricity Directive anticipates refusal on capacity grounds, it sets a very onerous test for justifying such refusals.

F. Furthermore, an arbitrary limit of 40% of substation import capability is not acceptable without technical documentation showing how this figure has been arrived at. What has this figure been based on - is it 40% of the rated power of the grid connected turbines?

What about the situation where a commercial sized wind farm is connected to, or intends to connect to the same substation, will this be included? How can this figure apply when for example, if you had a commercial wind farm connecting through a substation, the connection capability at that substation would be the sum of the local minimum demand, and the pass through MVA capability of the transformers, (with one taken out of service where more than one transformer exists). This is clearly more than 40%.

G. IWEA would therefore regard it as essential that any threshold (40%, 50% or whatever other level might be technically justified) should only act as a trigger for a definitive review in the case of each substation by the DSO, as the situation arises. Indeed, the reviews should be ongoing prior to that point and aimed at considering how and when the capacity of the relevant sub-stations are to be increased to meet the rights of RES-E (and Cogeneration) under the law.

H. As regards the scale of micro generation, it would appear necessary to carefully consider this when defining the rules and arrangements that should apply. What is relevant at around 10kW may simply be inappropriate at around 1kW, and that may also depend on whether the

generator is wind, combined heat and power (CHP) or photo-voltaic (PV). And what is ok for three-phase may be quite onerous or impossible for single-phase, points we shall return to.

1. While CER has summarized the content of the latest draft of the CENELEC standard 50438, and doesn't seek comment on it, it would only seem reasonable that the industry affected would be provided with the latest draft as part of the current consultation, and any other drafts or regulations affecting the full micro generation sector.

2.2 - Notifying the Network Operator

CER points out that there is no formal process at present, and would like to correct that with a simple process in line with the final CENELEC standard. CER agrees with the DSO that the process should involve 'consent', to enable it to manage the system properly, ie: 'Inform, consent and fit'.

IWEA Response: IWEA can agree on the principle of 'Inform, consent and fit', but would have some comment on the detail.

2.3 - Inform, Consent & Fit

CER notes that the DSO requires proper operation of interface protection and tests for same. The DSO therefore wishes to review every individual proposed installation for its compliance with the final standard. However, to simplify the process for both the DSO and customers, CER would rather that pre-certified units would automatically be allowed to connect once the DSO is informed with the appropriate notification form (single or multiple), and that the DSO should maintain the list of certified units. Non-certified units would require an accompanying test result (TCTRS), and if the DSO considers that the results show compliance with the standard, the unit would be placed on the list and would be allowed to connect once the customer is notified accordingly by the DSO.

Where the proposed additional capacity exceeds 50kVA, the DSO argues that the local network would have to be analysed, and positive consent from it would be required. Where the DSO has a problem with a proposed installation, it would notify the customer within 20 working days of receipt of a complete notification. Installation of multiple units would be able to proceed in the absence of a letter within 20 business days of notification.

CER argues that there is a need to make all parties in the process, including suppliers, installers and manufacturers, aware of their responsibility to inform customers of their obligations as regards connection. This will be aided by registration of installers, as well as amendment of ETCI regulations, and will be facilitated by type approval.

The DSO is currently entitled to de-energize connections with unauthorized installations, and would now also be allowed to do so for un-notified units.

CER proposes that there would be an application fee of €20 for single units and a scale of fees up to €500 for multiple units. As per CER's draft revised Licensing rules, there would be no CER Licensing requirement, as the units would 'stand Licensed' under the Act. Customers would not be subject to the CER's Levy Order.

IWEA response:

A. It will be essential to take a practical view of interface protection (and technical standards in general), so as not to overburden micro generation with undue and costly technical requirements, some of which may present more problems for units below 10kW than for those above, and many of which would eliminate micro generators around the 1kW size. There may need to be a further distinction between single- and three-phase.

B. Indeed, the DSO is seeking to apply the Distribution Code, intended for larger generators, to micro generation, where it is completely inappropriate as it stands. DCC9 defines a wind farm power station as any wind generator irrespective of size. Without revision, the DSO would be obliged to apply it fully to micro generators, placing serious barriers in their way, so that an appropriate modification of the Code would seem to be essential as part of the current process. For example, the Code requires that they comply with planning code (DCC9.1.2), dynamic modelling (or equivalent data - DCC10.2), responsible operator (DCC10.5.2.4.2), etc. Consequently, the Distribution Code requires major changes, and micro generators should have their own applicability matrix, so that customers and their advisers can see what criteria apply to them.

C. The DSO is insisting on maintaining a Loss of Mains protection and they have agreed this requirement as an Irish deviation to the draft CENELEC standard. The options presented for this are Rate of change of frequency (ROCOF), Vector Shift or passive Source Impedance measurement. A ROCOF relay is normally used on a three-phase appliance and it requires calibration testing and witnessing on an individual basis. When considering its cost as a separate unit (around €700), it is a totally inappropriate requirement for small single-phase generators, costing some €2000. Consequently, manufacturers will have to incorporate this facility into their units, both single- and three-phase, especially for Ireland and one or two other jurisdictions, raising the cost, reducing the choice, and creating barriers to micro generation in Ireland. The greater the extent that CER can accept the standard conditions agreed in CENELEC, without deviation, the better for the consumer CER is required to protect.

D. At ESB's insistence (we presume it is a requirement of the DSO and/or DAO), all generators must take out and maintain special Third Party Liability (TPL) insurance in favour of 'ESB' (presumably all divisions) to a value of millions of Euro. This is a major potential barrier for micro generation, and we would seek clarification that it not be required for such small generators.

E. Recent experience is that ESB (unclear whether DSO or ESB Customer Supply) have insisted that if a generator is present then commercial

contract conditions apply. This is a further barrier to micro-turbines at domestic level or on farms.

F. CER's more reasonable approach to the actual notification process is welcome, though it should be more specific on timing issues and automaticity. Customers should not be subject to repeated 20 day delays by virtue of requests for additional information (one such request is adequate), all projects should be effectively approved within 20 working/business days unless they are otherwise notified, and any refusal must be fully explained and justified by the DSO in writing.

G. However, IWEA is aware that there are problems with rogue installations here, and especially in the UK. We take the view that this is not acceptable, and the arrangements need to be devised to minimise the risk of inappropriate installations causing risks to people and the network, which would damage the wider industry. A proper rating plate installed alongside the meter seems to provide some possibility for the DSO to enforce the standards and procedures, once they are finally agreed. An alternative to CER's proposal of a certified list, which is being abused in the UK, is to ensure that every notification to the DSO is accompanied by a legally enforceable Declaration of Conformity to G10 (based on the UK G83 certification).

H. If the certified list approach is nevertheless adopted, Sustainable Energy Ireland (SEI) should maintain the list of certified units.

I. An application for a connection exceeding 50kVA cannot come under the definition of micro generation. However, it may be made up of multiple micro-generation units, so presumably the limit on any one application should be 50kWe. This would avoid single plant above that rating seeking to come under micro-generation rules, using multiple applications larger than 50kVA as a precedent.

J. IWEA will do what it can to make customers aware of their obligations, though it can only directly notify its members.

Section 3 - Metering & Commercial Arrangements

CER examines several options for both metering and payment (for exports of power), and emphasizes that whatever arrangement is decided must comply with the Single Electricity Market (SEM) which begins in 2007. CER also believes those arrangements should be simple, not administratively burdensome on either customers or the DSO, cost effective, consistent with CER's statutory duties and that there should be fair reward to customers.

Payment source options considered by CER are the wholesale market, the supplier or the DSO; or there is the option of non-payment. SEM participation for such small generators is highly unlikely. The customer's supplier is a possible payment source, while another supplier seems an unlikely option. CER argues that the DSO would face a lot of complex administrative and technical issues to pay for exports, even though they

may assist the network. CER also argues that reduced DuOS charges (that are built into the electricity unit cost) to such customers may be unfair. Such alleged unfairness and also the administrative cost would suggest to CER that non-payment be considered.

CER considers 5 metering options: standard, net metering, non-interval import/export metering with profiles, interval meter with import/export channel and so-called 'smart' meters. With standard 'back-stop' meters, exports are not recorded, so the customer would not be paid for exports.

Net metering provides a meter reading that is the net of imports and exports. CER suggests that this requires either meter replacement, or an additional export meter (with reconciliation in the billing). No third party would be required to pay for the units, and the benefit of those units would be had by the DSO. Net metering does not allow for the timing of imports and exports, which CER considers may be significant in the forthcoming market, and it may lead to negative readings, as well as making power theft undetectable, so CER is against it.

CER considers that meters that read exports and imports separately but do not allow for the timing would need to be supplemented by customer 'profiles', making the process difficult administratively. Similarly, timed meter readings (with interval meters) would prove complex and require expensive equipment. New high-tech 'smart' meters may provide a solution, but are not available yet for use in Ireland, and are being reviewed separately by CER. CER concludes by proposing non-payment for now.

IWEA Response:

A. IWEA notes that CER treats the question of payment first and then proceeds to examine the related metering and billing issues. However, IWEA considers that it would be useful in the first instance to deal with the technical metering issues, so as to establish the facts as to what is and what is not technically feasible as regards metering in Ireland. Indeed, we note that 'ESB' has been quietly creating the impression of technical difficulties with various metering options, most especially net metering, as reflected in CER's paper. In all other cases, the actual arguments presented against the various metering options in CER's consultation paper are exclusively administrative, cost and billing related. IWEA therefore proposes to consider the technical metering questions first, and then to address of the other issues presented by CER.

B. The only metering option that is not currently technically feasible in Ireland is smart metering linked to the wholesale pool. If we take the metering options considered by CER in turn:

- Standard domestic metering is in use today;
- Net metering is widely used in the USA, and is simply a standard meter without a back-stop (see Fig. 4 in the SEI Study). Indeed, many of the domestic meters in Northern Ireland have no backstop, and it is highly likely that many, if not all of the approximately 160,000 meters in the Republic older than 30 years also have no backstop. Such a meter can be put in place either by replacement of the clock section of the meter with

one that runs either way, or removal of the back stop (which is apparently a relatively simple technical operation); ESB could have these in place in a very short time if it and CER so wished, and so we disagree with CER on the facts on this point;

- Non Interval Import/Export Meters are perfectly technically feasible, and can be put in place immediately using two standard meters working in opposite directions, and would be pretty standard in situations of auto production today; profiling is an administrative aspect not relevant to the technical capability of the meter(s) as such;

- Interval Meters with import/export channel are available and in use today;

- A simple version of the 'smart meter' (as it is usually described) is available today to measure many factors (current, voltage, power factor etc) and to transmit the data, live, to the MRSO; they are a 'live' electronic form of a 'quarter hourly' (QH) meter, and are in use on many larger cogeneration installations today in Ireland; we will instead refer to these as 'live QH meters'; they do not really provide proper demand side management facilities, and as such are not very 'smart'; linking these to a wholesale pool to make them really 'smart' is not available in Ireland today, as they are not approved for that function, and the current market system hasn't the facilities to provide the necessary data to such meters; in this sense, real 'smart meters' are not actually available here today.

C. There is absolutely no technical reason whatsoever why any of the existing metering options available in Ireland, or net metering, cannot be used as desired for micro generation installations. It is essential that CER become fully aware of these technical arguments, and that it disregard all arguments from any part of ESB that suggest that the various metering options (bar the real 'Smart' option) are not technically feasible in Ireland. The SEI Study on metering options³ is helpful in this regard, and it is notable by its absence from the CER paper. Therefore, the real issues in play are billing and administrative.

D. To return to an earlier theme, ESB has historically functioned as an effective unit. In particular on this issue, CER must be careful in treating the arguments presented by the DSO, so that they are not confused with the interests of MRSO, DAO, ESB Power Generation, ESB Customer Supply or any other ring-fenced branch of the wider ESB. These branches are perfectly entitled to offer their views, but they must do so in their own right, preferably publicly, and for reasons connected with their own interests.

E. IWEA finds CER's argument for non-payment insubstantial. The crucial section, 3.3.3, is full of 'may', and 'if' and refers to possibilities and is not at all convincing. It is agreed by CER that in each case, there would be a benefit to the DSO in terms of units of electricity and network support. Clearly, these would suggest, for example, some Distribution use of System charges (DuOS) relief for micro-generation customers. But CER sees the effective DuOS relief gained through reduced consumption as

³ "Metering Options for Small-Scale Renewable and CHP Electricity Generation in Ireland", ILEX Consulting for SEI, May 2005

unfair. This seems contradictory. In any case, 'non-payment' completely fails to meet CER's own criterion of "fair reward to customers."

F. Indeed, we might reasonably ask why any customer would export power for no payment, when they could use a reverse power control switch to dump it into a heat sink, for example? So under a non-payment scenario, it is really hard to see the point of CER's endorsement of the DSO's proposal for a 40% limit, or even the DSO's insistence on technical standards - these would in all probability be effectively irrelevant. The proposed arrangements would almost entirely restrict development to off-grid, or behind the meter non-export installations. Off-grid installations are not subject to grid rules, and would need separate monitoring for compliance with safety regulations. Behind the meter non-export installations would naturally tend to be rogue installations, since customers would not see why they should be subject to grid rules when they are effectively prevented from using it (even though in fact the Distribution Code does apply to any system linked to the Network). The DSO is likely to be quite unaware of these installations, which could then pose safety issues, and cause a whole new administration and enforcement arrangement, which is surely not what is intended. IWEA believes that the non-payment approach is likely to be totally self-defeating in the longer run.

G. IWEA can agree with CER that timed or profiled import/export metering options are not preferable for the type of micro-generation under consideration, due to the technical requirements, costs and administrative burden, especially for units below 2/3kW. The SEI study already referred to is helpful in identifying approximate thresholds for the viability of such metering technologies. It shows for example that the cost of using profiles renders PV non-viable below approx 14kW. So the only viable dual metering options for the smallest units (especially PV) are simple import/export meters without the use of profiles. True 'smart meters' that take account of wholesale market conditions are not yet available or approved, and 'live QH meters' are not viable for PV below approx 20kW. As stated, the existing standard 'backstop' meters currently result in non-payment.

H. IWEA does not agree with CER that an additional export meter (where the two readings are reconciled at billing time) constitutes net metering - that is a version of 'net billing'. As its name implies, net metering provides a single net meter reading (refer for example: American Wind Energy Association - www.awea.org). It is very regrettable that the SEI Study failed to examine the economics of net metering.

I. IWEA wishes to know if the cost of implementing net metering or smart metering has been looked at by the DSO, or has net metering simply been ruled out of hand. We might quote the example of dual-tariff metering, (day-night) as an example. When the then ESB wished to encourage people to consume electricity at night as a means of smoothing the overall daily load curve they were able to introduce a dual tariff meter. The cost associated with this meter was a higher ground rent and a fee to change the meter and install an ESB sealed timeclock. The customer could make a decision regarding the financial viability of this by

calculating the minimum amount of reduced rate night rate units that they need to use each billing period to make the conversion worthwhile, and seeing if the usage profile (or changes to it) would justify dual-tariff. IWEA believes that a similar arrangement could be introduced for customers desiring net metering. Night rate metering was made available for domestic customers because it suited ESB's operating requirements at the time. Micro generation may simply not suit various divisions of ESB (eg: ESB Customer Supply, ESB Power Generation), which may be amongst the reasons why net metering is being rejected by the DSO?

J. Much of the rest of the world (in particular the USA) has figured out that net metering is a workable and fair solution for such small generators, and CER's arguments against it are again, insubstantial.

K. Net metering constitutes a deal in which the network receives electricity units and network support while the customer gets paid for the exported units at the retail rate. In a more liberalised market where the network operator and the supplier are not the same party, this may appear to give rise to a problem, where the supplier has customers with reduced demand, while the network has the benefit of electricity units it has not paid for. However, suppliers are subject to network charges, which are in turn based on the network costs. Where the network operator has reduced costs, due to reduced power purchases and postponed or avoided network reinforcements, these can be reflected in network charges to suppliers. It is up to the Regulator to ensure that this linkage is transparent to suppliers.

L. The timing issue has limited relevance for several reasons. At this scale, customers are not in the pool and their supply contracts have minimal if any time-based charges. The loss of revenue to the supplier therefore has minimal time elements, while there is nevertheless a benefit to the network operator. Timing is only relevant where customers have to be profiled, and as shown by SEI, that is not viable for the smaller micro generators. Given the minor potential impact of these smaller self-supply non-profiled micro generators, the effect on the settlement system is likely to be negligible.

M. The fact that the generation portfolio must cope with exports of power from micro generation whenever it generates is not an issue for the DSO, since ESB Power Generation and all other independent generators are separate from the DSO under law in a liberalised market. Furthermore, renewable micro generators are also entitled to priority dispatch under Irish and EU law, and the fact that the other generators must cope by modifying their output merely gives effect to this right. Any loss arising does so as a legal duty, and cannot be attributed to renewables.

N. And we might add that in most cases, the exported energy will be from renewable energy, and thus CO2 free, providing the DSO with an additional benefit.

O. In other words, there is really no excuse for not adopting net metering at some appropriate level, and that is why so many jurisdictions have done so. IWEA can agree with CER that the concept of really 'smart

meters' provides exciting possibilities for the future of trading, even at the small scale level, and for real demand side management, peak load minimisation and so on. Indeed, we might concede that net metering will ultimately be an inferior option, since customers with smart meters could, in the future, elect to manage their demand at peak times, export their power instead (thus supporting the system), and optimize their revenue, once the meter made the market transparent to them. The difference is that net metering is available, whereas sophisticated smart metering is not, yet.

P. A simple means of implementing net metering is to remove the backstop from the standard meter, and this is apparently a relatively straightforward operation. A simple replacement of the clock section of the meter, without any electrical work at all (in what is a limited space within the metering cabinets anyway) has to be the simplest and cheapest solution for the smallest generators. A further refinement that might be considered is to zero the meter at the same time (and prevent minus readings), so as limit total metered exports to the level of customer demand over time. Any readings showing a reduction in one billing period would merely give rise to a credit to be offset in later bills showing net demand (and the credit system is already present in billing systems). This deals with the 'negative readings' excuse for rejecting net metering. And we might surmise that excuses on this subject may arise more from the interests of the MRSO and ESB Customer Supply, while it is hard to see this as a problem for the DSO. In the end, net metering is by far the simplest metering method technically and administratively, it is the best compromise amongst the options discussed by CER, and even meets all of CER's own assessment criteria.

Q. On the question of electricity theft as an excuse for not introducing net metering, this is a red herring. The presence of an export meter can be attractive to those who wish to steal power, who can do so by winding that meter forward. The situation is no worse with a net meter. Power theft would tend to show up as 'losses' in the distribution system and complicate the overall analysis of system losses by the DSO and Eirgrid - as both TSO and Settlement System Administrator (SSA). They would then tend to find their way into network charges and be billed primarily to suppliers, including ESB Customer Supply, but if properly regulated, DSO is unlikely to incur a cost for these stolen units.

R. IWEA nevertheless recognises that the applicability of net metering has limits, even within micro generation. In the first instance, it should be restricted to those who wish to meet their own demand, and are therefore willing to forego payment for net exports. That has the advantage of encouraging such customers to choose the size of unit correctly, and not to attempt excessive exports. Other metering options are viable for the larger micro generators, so a ceiling needs to be set for net metering, which nevertheless is large enough for a domestic customer to meet their demand from wind or PV via this method. That implies a threshold of at least 2-3kW and more like 5kW, but establishing this level requires a combination of common sense and some analysis of the type used in the SEI Study. Such customers would also have to voluntarily forego their rights to support from a Government support scheme, and accept some

restriction on their rights as regards Renewable Energy Guarantees Origin (REGOs). As a result of all of these constraints, it would have quite a restricted application.

S. On the other hand, where customers would wish to install plant that is larger than necessary to meet their own requirements, with a view to becoming net exporters and getting paid for those exports, then it has to be accepted that they are indeed engaged in a commercial activity. Net metering would no longer seem appropriate, and such customers would have to arrange two meters, showing at least imports and exports (presumably net of their own demand, as in Fig 6 of the SEI Study) - a version of a 'net billing' system. Another approach is a separate connection for the generator (Fig. 6, SEI Study), although this has the disadvantage for the customer of not netting generation against demand. For the reasons already outlined, we do not see the timing being all that crucial for the smaller ones, and in any case, as the SEI Study shows, profiling below approx 14kW makes PV non-viable. So as far as projects coming within the scope of the CENELEC standard are concerned, neither profiling nor timing are relevant. Nevertheless, customers would have to take the installation and administration cost of such a dual-meter installation into account when planning their system. Therefore, CER might consider including these arrangements in the current proposal.

T. Some form of payment will be required to make this option work at all, as already outlined. Customers could negotiate with their existing supplier, or other suppliers to take their power if the quantity is worth it. Or they might elect to seek the pool price when the SEM is in place. Where the source is renewable, it may be able to benefit from a Government scheme, and should also be able to benefit (in the price) from the value of CO2 emissions saved.

U. For CER to propose non payment, and thereby to reject net metering or simple non-profiled two way metering ('net billing') now, and thus prevent any payment at all (even offset payment) to customers merely trying to meet their own demand, based on the uncertain prospect of sophisticated smart meters, is simply not acceptable. Indeed, it is blatantly discriminatory to prevent any sale of power by these renewable and distributed generators. It flies in the face of national law (eg: section 3(iii) (c) of part 2 of SI 60/2005), and especially EU law in this area. For example, it prevents them from receiving their rights under Article 5 of the RES-E and CoGen Directives as regards REGOs for the power they produce. And it could also prevent small commercial micro generators from benefiting from any Government initiative as regards market based support mechanisms (which surely contradicts the country's obligations under the RES-E Directive).

V. Such a rejection would also postpone a means of addressing the ever-mounting climate problem (as evidenced by the recent Stern report in the UK), and Ireland's associated legal obligations. It would run counter to Ireland's obligation to meet targets for RES-E and Cogen, and also the legal obligation on CER to promote RES. Furthermore, it would run counter to our obligations and self-interest as regards security of supply,

which is becoming a major political concern and one that is starting to trouble many individuals, who now wish to take some action.

W. CER's proposal to adopt a 'non payment' approach and its rejection of net metering or simple net billing is likely to come under fire in the public domain, and so we would advise a re-think.

IWEA conclusions:

The main conclusion to be drawn is that CER should re-consider its position on non-payment, which is an unworkable approach destined to drive micro generation in the direction of rogue installations. CER should instead allow net metering in certain circumstances. It provides an available solution for the many individual customers currently wishing to install micro-generators to meet their own demand. It would provide a simple workable solution while we await the start of the SEM, as well as the promise and availability of really smart meters that can link to that market. At that point, the matter could be reviewed.

Because larger projects and multiple installations could afford more complex technology, and would wish to sell exports commercially, we would suggest that net metering only be considered for single units below the 11kW level, and possibly a lower level like 5kW, depending on what the analysis shows about the viability and practicality of the alternatives. As a compromise, net-metered customers could be issued with REGOs where their bills show net exports, as it would be impossible to establish the total level of RES-E generation without the installation and administration of an additional generation meter. They would also forego access to Government supports. Given that the aim is to meet their own demand, payment from the supplier for net exports on an annual basis might be zeroed (possibly by virtue of meter zeroing, as discussed). It is evident that the standard meter would require either modification to remove the backstop or clock replacement, and so any such proposal would have to take this into account.

Where customers plan to generate more than would cover their own demand, and wish to engage in commercial exports, then we can envisage a dual-meter 'net billing' arrangement as being more appropriate. The cost of profiling below approx 14kW (especially for PV) suggests that these projects not be profiled. Depending on the metering arrangement chosen, they could obtain REGOs and have access to Government price supports on either their full or their net exports.

Crucially, the technical requirements being imposed on micro generators, and most especially the Distribution Code, need a complete review, as they are effectively stopping these projects in their tracks.

On a more general level, IWEA would remind CER that our future energy supplies are going to come more and more from renewable energy, as evidenced by the work of the AIP. It is therefore appropriate, if not essential, to design the market mechanisms and the cross-border systems to reflect this fact. They should be taking full account of emerging

technologies, and the resulting trend to distributed generation, as evidenced by the considerable work on this latter subject in the UK. So, it is not so much that participation of renewable generation should conform to the SEM design, rather it is the other way around.

As regards finalizing arrangements for micro generators, there are many very complex legal, technical and administrative issues in play, and so IWEA would urge CER to hold a Forum on the matter before drawing its own conclusions.

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