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COMMENTS CONCERNING DISCUSSION DRAFT ECP-79 GUIDELINE ON RENEWABLE LOW-IMPACT ELECTRICITY

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The Helios Centre is pleased to submit the following comments on the Draft Guideline ECP-79 on Renewable Low-Impact Electricity, as published in the Canada Gazette of December 8, 2001.

For the sake of clarity, we have arranged our comments following the order of the Draft Guideline. However, we would like to draw particular attention to the following sections:

- ownership and transfer of environmental benefits (Notice of Intent, Paragraph 1),
- harmful alteration or destruction of fish habitat (section 9c), and
- verification (section 13).

Section 2. Category Definition

Original text

> This category comprises electricity from energy sources which are apt to produce near-zero or low net **greenhouse gas** emissions through the completion of a **renewable** full-fuel cycle, specifically including: …

Low Impact

It is surprising that the category definition for the "Guideline on Renewable Low-Impact Electricity" focuses exclusively on greenhouse gas emissions and makes no mention at all of the concept "low impact." While GHG emissions of course represent a very important environmental impact of many electricity generating technologies, they are by no means

the only one. Nuclear power is the most obvious example of a generating resource that is "high-impact" yet produces little or no GHGs; many large-scale hydropower installations with high storage capacity are also clearly high-impact, even if their GHG emissions are relatively low.

If the purpose of the draft guideline were to define those resources which "are apt to produce near-zero or low net greenhouse gas emissions," many of its provisions would be superfluous (e.g. paragraphs, 4a, 4b, 4e, 10a and 10b). On the contrary, the text leaves no doubt that its underlying purpose is to define "low impact" with respect to electricity generation.

It is indeed surprising that nowhere in the detailed criteria is it stipulated that, to qualify, the electricity must be generated in such a way a to produce near-zero or low net greenhouse gas emissions, and it was perhaps to remedy this fault that these words were added to the category definition. However, in our view, it would be far more appropriate to add this qualification to section 3, and to use the category definition to clearly state the nature of the product to be certified.

"Renewable Full-Fuel Cycle"

The expression "renewable full-fuel cycle" is a strange one. The intent is presumably to describe generating technologies that do not involve the depletion of non-renewable resources, taking into account the full life-cycle (including upstream and downstream effects). It would be better to say so.

Proposed modifications

> This category comprises electricity generated from energy sources which are apt to produce near-zero or low net **greenhouse gas** emissions through the completion of a **renewable** full-fuel cycle,in such a way as to produce a low level of environmental impacts, relative to other generating resources. It is limited to generating technologies that, taking into account their full life-cycle, do not involve the depletion of non-renewable resources. sSpecifically, it includesing: …
>
> (c) be generated in such a way as to produce near-zero or low net greenhouse gas emissions, taking into account their full life cycle.

Notice of Intent

Paragraph 1 (ownership and transfer of environmental benefits)

Original text

> It is the intention of the Environmental Choice Program to monitor the developments regarding the ownership and transfer of environmental benefits, including emission reductions arising from the generation of renewable low-

> impact electricity. Such developments could include a broad range of national and international activities; empirical and scientific research and data; agreements; direct experiences with emission trading systems; pilot programs; and policy directives.

In stating an intent to "monitor developments" regarding the ownership and transfer of environmental benefits, the Draft Guideline chooses not to require that these benefits be transferred to the marketer or end-use consumer as a condition of Ecologo certification, in accordance with the recommendations of the Guideline Review Committee. In our view, this is a mistake that ultimately may affect the credibility of Ecologo certification for electricity.

It is widely accepted in the industry that it is possible to "strip" the environmental benefits from low impact electricity and sell them as "tags," separate from the actual kilowatthours generated. There may be advantages to this approach, depending on the nature of the regional electricity market, though there is also concern that the abstract nature of these "tags" may undermine the credibility of a green power market based on them.

One can understand the temptation for some low-impact generators to want to sell their output as "green" electricity in the electricity market and *at the same time* sell the tags resulting from its generation in a separate market. In our view, this temptation must be resisted. If the environmental benefit from "green" electricity is sold to a third party, the electricity that remains, stripped of its environmental benefit, cannot be thought of as green. (It can of course still be sold in the power pool or any other electricity market.) Trying to profit from both markets will inevitably result in accusations of double-dipping, which will in the long run threaten the credibility of both the green power market and the "green tag" market.

In the United States, such double-dipping is forbidden by certifying organizations. The approach used by the most important such organization, the Center for Resource Solutions, which administers the Green-e logo, is described as follows by the Center's Assistant Director, Kirk Brown:

> The final Green-e standard for TRCs [tradeable renewable certificates] will be announced this Tuesday [March 5, 2002] …
>
> Green-e requires that each certified TRC deliver the entire bundle of environmental attributes to the end user. No single attribute (carbon, for instance) can be separated from the others and still be eligible for Green-e certification. Likewise, Green-e certified "green electricity" sales represent a delivered product that includes both electrons from an eligible renewable energy facility transported into the customer's control pool plus delivery of all associated environmental attributes.
>
> To make a long story short -- Green-e policy states that if you sell the environmental attributes from a renewable energy facility, the actual electricity output from that facility becomes a generic, commodity product. Under Green-e

> rules, it is not allowable to continue to market that facility's output as "green" electricity.[1]

Thomas H. Rawls, Chief Environmental Officer of the Green Mountain Energy Company, made the same point more succinctly:

> In the US, you can't peel off the environmental benefits and still sell the power as "green." Once those benefits are gone, there's not much that's green left to sell.[2]

We therefore recommend that the first paragraph of the Notice of Intent be deleted, and that the following section from the GRC draft guideline be restored:

> ~~It is the intention of the Environmental Choice Program to monitor the developments regarding the ownership and transfer of environmental benefits, including emission reductions arising from the generation of renewable low-impact electricity. Such developments could include a broad range of national and international activities; empirical and scientific research and data; agreements; direct experiences with emission trading systems; pilot programs; and policy directives.~~
>
> 12. Ownership of any and all environmental benefits (including emission reductions) *not retired from the market* will be assigned and transferred to marketers and/or users of electricity that receives ECP-certification. This certification will be retained in any sale and/or transfer of the electricity only if the ownership of any and all environmental benefits is assigned and transferred to the marketer and/or user, *or if they are retired.* ECP-certification will not be retained if this ownership is assigned and/or transferred to a party other than the marketer or user, or is retained by the generator.

Finally, it is possible that some generators and/or marketers may wish to offer to voluntarily retire any credits or other marketable environmental benefits. The italicized words in the above paragraph have been added to the GRC version in order to allow for such voluntary retirement.

Paragraph 3 (additional criteria to address a "wider range" of hydropower)

Original text

> It is the intention of the Environmental Choice Program to consider additional criteria which may be developed at some future date to address a wider range of water-powered electricity.

The purpose of this Notice of Intent is not entirely clear. It seems to advise the reader that the government considers its criteria to be too restrictive, but for some unexplained reason chooses nevertheless to promulgate them.

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[1] Personal (electronic) communication, March 1, 2002. Quoted with permission.
[2] Personal (electronic) communication, March 1, 2002. Quoted with permission.

This is both unnecessary and unjustified. In the event that Environment Canada chooses at a later date to revise its criteria, it is of course free to do so, with or without a "notice of intent." That said, it is also, in our view, unjustified to announce such a revision in advance.

While there are no doubt improvements to be made in the hydropower criteria — and some are suggested below — there is no reason to believe that they are excessively restrictive.

The "wider range" of hydropower referred to in the Draft Guideline almost certainly makes reference to the repeated requests in the guideline review process by the Canadian Electricity Association and the Canadian Hydropower Association, with the support of Natural Resources Canada, to allow hydropower facilities with substantial reservoir storage to qualify for Ecologo certification. In support of this position, it has been suggested that there is no scientific or factual basis to conclude that such projects have environmental impacts inconsistent with *Ecologo* certification. There is, of course, very considerable evidence that the environmental impacts of hydropower installations with substantial storage capability are, in general, considerably greater than those without such capability. It is therefore, in our view and in that of the Guideline Review Committee, entirely reasonable to use this as a basis to distinguish low-impact hydropower from its higher impact cousins, as has been done, indirectly in section 9(e) and elsewhere.

Not only do the Draft Guidelines announce an intention to weaken this criterion, they go so far as to suggest that the environmental impacts of storage hydro have not been addressed. Read literally, the sentence implies that the Environmental Choice Program is only providing criteria for the certification of run-of-the-river hydro, and that it simply has not gotten around to "addressing" the question of storage hydropower.

This is a serious mischaracterization both of the Draft Guidelines, as written, and of the guideline review process that produced them. The Guideline Review Committee devoted considerable energy to addressing the question of storage hydro, and in the end chose to define low-impact hydropower through the criteria set out in sections 9(a) to 9(k). While the Environmental Choice Program may choose, at some later date, to return to this issue, we see no reason to regard its criteria with respect to reservoir storage as more or less definitive than any of the other judgement calls that are embedded in this complex Guideline.

We therefore recommend that this paragraph be deleted.

Proposed modifications

> ~~It is the intention of the Environmental Choice Program to consider additional criteria which may be developed at some future date to address a wider range of~~ **~~water-powered electricity~~**~~.~~

Section 8: solar-powered electricity

Original text:

> To meet the requirements of this Guideline, **solar-powered electricity** must be generated in such a manner that all solid waste resulting from the generation of electricity, including the disposal of equipment or machinery used in the generation process itself, that contains measurable levels of cadmium is properly disposed of or recycled.

Comments

It is logically inconsistent to condition certification on a future event, such as the proper disposal of equipment used in producing solar-powered electricity.

Proposed modifications

> To meet the requirements of this Guideline, **solar-powered electricity** must be generated in such a manner that all solid waste resulting from the generation of electricity~~, including the disposal of equipment or machinery used in the generation process itself,~~ that contains measurable levels of cadmium is properly disposed of or recycled. It must further be demonstrated that adequate arrangements, including financial reserves, have been made for the proper disposal or recycling of equipment or machinery used in the generation process itself.

Section 9(b): compliance with regulatory licences regarding water levels and flows

Original text

> (b) operates in compliance with all regulatory licenses regarding water levels and flows;

Comments

It is not entirely clear whether, under this provision, a project could be certified which has failed to meet the water levels and flows prescribed in its regulatory licence, but which nevertheless has obtained a regulatory waiver or variance authorizing it to operate under less restrictive conditions.

We suggest that this ambiguity be resolved conservatively, i.e. by certifying only those facilities which meet the conditions of their formal licence.

Proposed modifications

> (b) operates in compliance with all regulatory licenses regarding water levels and flows, without regard to waivers or variances that may be granted or authorized;

Section 9(c): harmful alteration or destruction of fish habitat

Original text

> does not operate under any conditional authorization allowing the harmful alteration or destruction of fish habitat *if the major part of habitat compensation required as a condition of authorization lies outside the watershed in which the facility is located.* For facilities located in Canada, this includes conditions authorized, under per Section 35(2) of the *Fisheries Ac*t, by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council under the Fisheries Act; [italics added]

First, to conform to the language of the Fisheries Act, the text should be modified to read "harmful alteration, disruption or destruction" (HADD).

More important, it should be noted that this provision represents a very significant modification from the version proposed by the Guidelines Review Committee, which did not include the italicized words in the above text. According to the GRC version, a project which created HADD sufficient to require authorization under section 35(2) was simply not eligible for Ecologo certification. Indeed, it made no mention of "habitat compensation" at all.

While the GRC version may have been too restrictive, the current draft opens the door far too wide, allowing certification of projects which rely on habitat compensation of a type that DFO considers to be undesirable.

The relationship between habitat compensation and authorizations issued under section 35(2) is explained in a 1998 publication of the Department of Fisheries and Oceans.[3] No authorization under s. 35(2) is required if the HADD can be fully mitigated by modifying the siting, design or operations of the proposed project. If it cannot, habitat compensation is required in order to achieve the policy goal of No Net Loss of habitat. However, full mitigation is preferable to habitat compensation, from an ecological point of view, because it is often difficult to predict the success of compensation measures, as described in the following passage:

> Since the relationship between the quantity and quality of fish habitat and fish production is not well understood, project reviewers are often concerned that compensation measures may not completely offset a HADD of fish habitat resulting from a project development. …
>
> Even though a proponent may be willing to undertake compensation, issuance of a Subsection 35(2) authorization with compensation specified is viewed as the *least preferred approach*. Because the success of compensation in maintaining

[3] DFO, *Decision Framework for the determination and Authorization of Harmful Alteration, Disruption or Destruction of Fish Habitat,* 1998. http://www.dfo-mpo.gc.ca/habitat/HADD/english/index_e.htm.

> productive capacity is not always certain, the preferred approach (i.e., the hierarchy of preferences) is to fully mitigate impacts to such an extent that a HADD is not likely to result. The first step in applying the hierarchy is to try to avoid impacts through relocation or redesign of the project. If impacts remain, then the next step is to identify specific mitigation measures, such as timing windows. If a HADD is still expected to occur then the manager determines if appropriate compensation is possible.[4] [emphasis added]

If it is impossible to fully mitigate the HADD, DFO uses a hierarchy of compensatory measures, as described below:

> Habitat compensation options have to be selected on a case by case basis, in consideration of feasibility opportunities and constraints. Among the compensation options which may be most frequently contemplated for achieving NNL [No Net Loss of habitat], the following list of options, *presented in order of preference from an ecological perspective*, are the most commonly used:
>
> - create similar habitat at or near the development site within the same ecological unit;
> - create similar habitat in a different ecological unit that supports the same stock or species;
> - increase the productive capacity of existing habitat at or near the development site and within the same ecological unit;
> - increase the productive capacity of a different ecological unit that supports the same stock or species;
> - increase the productive capacity of existing habitat for a different stock or a different species of fish either on or off site.[5] [emphasis added]

Note that the distinction introduced in the current draft of the Guideline, "if the major part of habitat compensation required as a condition of authorization lies outside the watershed in which the facility is located" does not form part of this hierarchy. Thus, under the draft guideline, projects which are unable to mitigate all fisheries impacts and which obtain condition 35(2) authorization based on the *least desirable* type of habitat compensation, from an ecological perspective — namely compensation that improves habitat for a different stock or species, whether on-site or in the same watershed — would nevertheless be eligible for Ecologo certification, as long as that compensation was somewhere in the same watershed.

The intent of the Guidelines Review Committee was clearly to deny Ecologo certification to projects which cause significant harm to fish habitat. The current version extends certification to projects which cause substantial and unmitigable harm to fish habitat, as

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[4] Ibid., page 17.

[5] DFO, *Habitat Conservation and Protection Guidelines*, May 25, 1995, section 3.3.1, http://www.dfo-mpo.gc.ca/habitat/c&pguide/english/index_e.htm.

long as there is habitat compenation in the same watershed — even if that compensation is of a type at the bottom of DFO's hierarchy of preferred compensation options.

Recommendation

While it is probably unavoidable to make Ecologo certification available to projects in which some harmful alteration, disruption or destruction of fish habitat cannot be avoided or mitigated, such certification should at the very least be restricted to projects where the HADD is minor, the affected habitat is of little ecological importance and where it can be confident that the replacement habitat is of quality and productivity equivalent to that which was lost. While the Minister may refuse to authorize a project either because the HADD is unacceptable or because the affected habitat is too important, the bar must of necessity be higher for Ecologo certification than for simple authorization.

Furthermore, Environment Canada should require that the habitat compensation applied is among the most preferable options from an ecological point of view. We therefore propose modifying the criteria as follows:

> does not operate under any conditional authorization allowing the harmful alteration, disruption or destruction of fish habitat ~~if the major part of habitat compensation required as a condition of authorization lies outside the watershed in which the facility is located~~, unless
>
> a) such harmful alteration, disruption or destruction is of little importance,
>
> b) the affected habitat is of little ecological importance, and
>
> c) its loss is compensated by the creation of similar habitat, supporting the same stock, at or near the development site within the same ecological unit.
>
> For facilities located in Canada, ~~this~~ such conditional authorizations include~~s~~ those issued ~~conditions authorized,~~ under ~~per~~ Section 35(2) of the *Fisheries Act*~~,~~ by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council under the *Fisheries Act*;

Section 9(e): inflow and outflow from head pond

Original text

> as a maximum, causes as much water to flow out of the **head pond** as is received in any 48-hour period;

Comments

This is clearly one of the more controversial subsections of the Guideline. It constitutes, in effect, a certain way of defining the notion of a "run-of-the-river" hydropower facility.

While it does not exclude facilities with large reservoirs, such facilities would in fact forego the benefits of their storage capacity if they were to be operated in such a way as to meet this certification criterion.

As noted above, there is no doubt that, all else being equal, the environmental footprint of a hydropower facility increases with its use as a storage facility. This is due both to the upstream impacts caused by flooding terrestrial ecosystems to create a large reservoir and to the downstream impacts caused by modifying the natural flow regime.

That said, there is no simple and objective way to determine the maximal amount of storage or of flow modification consistent with low-impact certification. Section 9(e), as drafted, is thus a compromise. In the deliberations of the Guideline Review Committee, this provision was heavily criticized by the hydropower industry, which argued that it excludes storage hydro facilities that really are low-impact. At the same time, it was also criticized by environmentalists because it does not specify minimum flows or ramp rates. It therefore would allow flows to be cut off entirely, as long as inflows and outflows match over any 48-hour period.

The provision is of course imperfect. However, it was found by the Committee, after devoting very considerable time and effort to its review, to be the best compromise among the many alternatives it considered. It therefore seems inappropriate, at this stage of the Guidelines development process, to go back on this decision, as some commenters have suggested. We therefore recommend that this provision be retained unchanged.

Section 10: Wind power

In response to the interesting discussion regarding the wind power criteria on the Terrachoice website, we would like to express our support for the following additions to section 10:

> (c) construction activities or routine turbine operations do not cause excessive soil erosion such as silting of drainage, streams, ponds, or lakes that would be harmful to aquatic or other animal life, or increase erosion from steep slopes, plateau edges, or access roadways;
>
> (d) excavated soil is replaced, and uprooted vegetation is replanted, after construction or decommissioning.

Section 13: Verification

Original text

> To verify a claim that a product meets the criteria listed in the guideline, Environment Canada or its agents operating the Environmental Choice Program will require access, as is its normal practice, to relevant quality control and

> production records and the right of access to production facilities on an unannounced basis.

Access to documentation

The access to quality control and production records and to production facilities themselves specified in this provision is certainly necessary to allow the Environmental Choice Program to verify conformity with many of the criteria contained in the Draft Guidelines. For some provisions, however, it is far from sufficient.

These provisions include sections 4 a), b) and e), and most of the provisions concerning hydropower (section 9). Unlike many of the other criteria established in this Guideline, these provisions cannot be evaluated simply by examining production records or even through site visits and inspections. Even section 9(e), which is strictly quantitative, can only be addressed if the operator keeps precise daily records of hydraulic inflows into the headpond or of headpond elevation.

It is even more difficult to assess conformity with some of the other criteria set out in section 9. Take , for example, section 9(g):

> operates such that instream flows downstream of the tailrace are adequate to support downstream indigenous aquatic and riparian species at pre-project ranges;

How is the Environmental Choice Program to know what level of instream flows downstream of the tailrace are adequate to support downstream indigenous aquatic and riparian species at pre-project ranges? Sophisticated studies that would allow such a judgement may well have been provided to regulatory authorities as part of the licencing process, but nowhere is it stated that Environmental Choice Program must be given access to such studies.

Similarly, section 9(h) requires that the facility be operated

> … such that water quality in a head pond, a bypassed reach, reaches downstream of the tailrace and reaches downstream of any diversion dams and/or dykes is comparable to that in similar free-flowing or unaltered bodies of water or waterways in the area;

Again, how is the Environmental Choice Program supposed to identify the water quality in similar free-flowing or unaltered bodies of water or waterways in the project area? There is no obligation that the applicant provide information that would allow the Environmental Choice Program to evaluate the project's conformity with this criterion.

Indeed, the same is true of many of the product-specific requirements found in sections 4 through 10. For example, the information required to determine whether or not a wind-power facility is located in an area with a concentration of endangered bird species

(section 10b) would not necessarily be provided to Environmental Choice Program by virtue of section 13.

Determining the actual environmental impacts of a given hydropower facility is a daunting challenge, which is why extensive documentation is needed for the environmental assessment of such projects before their construction is authorized. The great strength of the proposed guidelines is precisely that they lay out what is and is not acceptable for the purposes of certification with respect to *actual impacts.* Their great weakness is that they remain silent as to how the ECP is to determine whether or not an applicant actually meets these criteria.

While procedures may vary from province to province, the authorization of new hydro developments inevitably involves detailed environmental studies, critical review of the quality and adequacy of these studies, and public debate about their implications. These same steps must somehow be reflected in the certification process. Without detailed environmental studies, it is simply impossible to make the judgements that must underly low-impact certification, and without some form of public involvement, it is impossible to ensure that these judgements are credible.

These same questions have been confronted in the United States by the Low Impact Hydropower Institute (LIHI), which was created in order to provide independent certification of hydropower facilities for the growing green power market. The architects of the LIHI process found that the record created by the regulatory process in the U.S. was sufficiently rigorous to allow certification decisions to be based primarily on that record, without directly examining the impacts themselves. However, it was the clear judgement of the the Guideline Review Committee that the analogous processes in Canada, to the extent that they exist, do not lend themselves to or justify a similar approach. Indeed, this judgement contributed in large part to the decision to base the criteria directly on impacts, rather than on the past regulatory record. However, the committee was not asked to provide recommendations as to how ECP would evaluate compliance with the Guidelines.

Ecologo's credibility depends not only on the guidelines it adopts, but on public confidence in its ability to fairly judge a project's compliance with those guidelines. While there is of course a limit to the expense that hydro operators will incur in order to obtain low-impact certification, at a minimum, operators should be required to make available the full record of the environmental assessment process by which the project was originally authorized.

In some cases, this record may be sufficient to allow the ECP to make an informed judgement as to the project's conformity with the Guidelines, but in other cases it may not. It is essential to the program's credibility that no applicant should be certified unless the ECP is fully satisfied that the Guidelines have been met — in other words, that the burden of proof rests on the applicant.

Recommendation

Paragraph 13, quoted above, is clearly inadequate to create this assurance. We recommend therefore that it be supplemented with the following statement:

> 13a. It is up to the applicant to provide sufficient information to allow verification of the claim that the facility is in conformity with the Guidelines. In particular, all documentation produced in the context of the environmental assessment of a facility for which certification is sought shall be made available to the ECP.

Transparency

As noted above, the other essential guarantor of program credibility is public oversight. If the entire application and adjudication process takes place behind closed doors, its credibility will eventually be called into question, especially given the subtle nature of the judgements the ECP will be called on to make.

In this regard, the LIHI process is an important point of reference. The LIHI website (www.lowimpacthydro.org) provides public access to the full file for each pending or approved application. This includes:

- the certification application
- all comments filed by the public, together with the applicant's replies
- the report on the application's compliance prepared by an independant application reviewer
- the recommendations of LIHI staff
- the formal decision on the application made by the LIHI Board of Governors.

Given its many structural differences with LIHI, it may not be possible for the ECP to adopt an equivalent degree of transparency. However, some real degree of public oversight and involvement in the decision-making process is essential for the program's continued credibility. Whatever mechanism is selected, public access to documentation is crucial.

It is of course understandable that, in the increasingly competitive world of electricity generation, companies should expect confidential treatment of commercially sensitive information. However, there should be no presumption that non-economic information such as that required to assess environmental performance is commercially sensitive. On the contrary, it should be presumed that any project-specific environmental information produced in an EA process is *not* commercially sensitive.

Ideally, there should be a procedure established to handle requests for confidential treatment of documentation on a case-by-case basis. However, in the absence of any

formal oversight body that could make such determinations, it is hard to see how such a process could be structured. Under these conditions, the certification decision (with respect to environmental performance) must be based only on information made public by the applicant.

Recommendation

We therefore recommend adding the following provision:

> 13b) All documentation and data provided to or generated by the ECP concerning the environmental impacts of a facility for which certification is requested shall be made available to the interested public.

Finally, we recommend that, given the uniquely complex nature of the electricity market, ECP create a public oversight body to review the application of these Guidelines to electricity generators, with members chosen on a rotating basis from the stakeholder community, and with sufficient resources to allow careful review of certification decisions.