



## CDM: Recommendation Form for Small Scale Methodologies (version 01)

*(To be used for presenting questions/proposals/amendments to the  
simplified methodologies for small-scale CDM project activity categories)*

<b>Date of SSC WG meeting:</b>	01–03 September 2008, SSC WG 17
<b>Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):</b>	Selection of suitable SSC methodology
<b>Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.</b>	AMS-II.C and AMS-II.B
<b>Name of the authors of the query:</b>	Hyon K. Tak Institution: Ecosense Co., Ltd hktak@ecosense.co.kr

### **Summary of the query:**

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

[Original text from Project Participants:

The proposed bundled project activity involves commercial “Night Fishing Boats” equipped with sets of metal halide lamps (about 50 lamps/boat) to lure the fishes to the surface of sea water to catch them. The electricity is supplied by an on-site diesel generator in the capacity of 130-175Kw range, which is necessary for the metal halide lamps of 1500W each. The project activity will replace the inefficient metal halide lamps with highly efficient LED lamps rated at 75W each, in an effort to reduce the diesel fuel usage by replacing the larger/heavier existing generator with much smaller/lighter generator In the capacity of 10Kw range. By using much smaller capacity generator, the diesel fuel usage will be reduced drastically, and it will result in the GHG emission reduction.

Thus, the following two modifications are made to the fishing boat by the project activity,

- Electricity generator replacement to smaller 10 Kw capacity unit: Supply side, and
- Metal halide lamp replacement to LED lamps: Demand side

Metering the “energy use” issue in Monitoring:

Due to the continuous movements of fishing boat, it is very difficult to meter the fuel usage exactly with a simple device because the liquid level in fuel tank fluctuate continuously. Therefore, we need mass flow meters (two each, one at the feed line and another one at excess fuel return line), and it is really cost-inhibitive to fishermen.

As an alternative, we wonder whether it is acceptable calculating the fuel usage from a table containing data on Kw electricity measured vs. fuel used, instead of measuring the fuel usage by flow meters. On the condition that such a table is prepared by the electric generator manufacturer and is certified by a government approved organization. Since the electricity generated on-site are used in other areas also,

e.g., GPS, electric blanket, etc., we are planning to install an electric meter just in front of the LED lamp stand to measure what portion of electricity generated is actually consumed for lighting purposes only, and calculate the diesel fuel usage from the table.

The Small Scale Working Group is thus requested to clarify,

- 1) Which category is more appropriate, AMS-II.B or AMS-II.C, to the proposed project activity?
- 2) whether it is appropriate to calculate the emission reduction by multiplying the Emission Efficiency of diesel fuel to the reduced amount of diesel fuel usage, and
- 3) metering the "energy use" issue.

Further information provided by project participants in response to Secretariat questions regarding the comparability of level of service in the baseline and project case:

Referring to para. 2. in AMS-II.C./Version 10." For each replaced appliance/equipment the capacity or output or level of service (e.g., light output, room temperature and comfort, the rated output capacity of air-conditioners etc.) is not significantly larger or smaller (maximum  $\pm 10\%$ ) than the baseline."

In the proposed project activity, the total lumens are;

- 1500 W Metal halide lamp - about 150,000 lumen
- 75W LED lamp - about 7,500 lumen

The differences are much higher than 10% range, however the following facts and differences in applications should be considered.

1. The above paragraph 2 is appropriate when the project activity is involved with appliance/equipment replacements in residential or commercial environment where resident's living comforts are important and need to be maintained, while reducing the electricity consumptions which leads to reduction of GHG at the power plants.
2. The main objective of lamp replacements in the proposed project activity, however, is to reduce the diesel fuel consumption at the on-site generator, by replacing the existing bigger one to much smaller one, and thus reduce the GHG emission.
3. The reduced total lumen from the LED lamps does not interfere with any residents' living comforts nor the fishermen's activity and still accomplishes its sole mission, luring the fish to the surface of sea water. This is possible because much lower lumen lights from LED lamps can be focused to narrow angle, which enables the light to penetrate deeper into the water, while metal halide lamps can only produce 360 degree diffused light only of which major portions are wasted.
4. The lamp replacement in the project activity doesn't save any grid electricity. Electricity generator replacement to lower capacity saves fuel consumption, and the less fuel usage reduces the GHG emission.
5. The lower lumen output from the LED lamps is sufficient enough to fulfill its mission, luring the fish to the surface, otherwise no fishermen will want the lamp replacement and the project activity is not needed.

Therefore, the project activity is different from the projects where para. 2. above from AMS-II.C are applicable. In this regard, the Small Scale WG is kindly requested for clarification on methodology selection.

## 6. Effect on fishermen's activity:

No references are available at the moment because this project activity is the first-of-its-kind as far as we are aware of. The night-fishing-boats are all commercial units. Every morning when they return to harbor after night fishing operation, all the fishes they caught are weighed and sold at the fishery joint-market located at the harbor. Currently, one boat is equipped with LED lighting as a pilot operation. This pilot unit boat with LED lamp replacement has been in operation for several months already, along with other boats still with metal halide lamps. So far, no significant differences in the amount of fish caught are noticed, and the record of the daily catch can be verified. Fishermen are very sensitive about their daily catch because it is directly related to their income, without their complains, LED lamp replacement has no adverse effect on their operation.]

**Recommendation by the SSC WG:**

Please use the space below to provide amendments/change (in your expert view, if necessary).

Please refer to paragraph 27 of the meeting report of the SSC WG 17  
([http://cdm.unfccc.int/Panels/ssc\\_wg](http://cdm.unfccc.int/Panels/ssc_wg)).

**Answer to authors of query by the SSC WG:**

Please use the space below to provide answer to the authors of the above query

The small-scale working group of the CDM Executive Board would like to thank the author for the submission.

1. The project participants can use AMS-II.C for the CDM project activity. The SSC WG agreed verifying that the level of service is the same in the base case and project case can be validated if the fisherman continue to use the LEDs, which would be determined in an annual audit of each fishing boat's fishing lamp system.
2. A chart of specific fuel consumption per kWh certified as approved by a government agency can be used for estimating the fuel consumption of the DG set.
3. The project participants can use the metering strategy described in the query of installing an electric meter (kWh) just in front of the LED lamp stand. However, the PP needs to provide an approach for controlling for potential extra operating hours for the project LEDs, versus the base case MH lamps, which if used directly or indirectly to determine base case energy consumption, could result in overestimates of emission reductions.
4. The project participants shall note that bunker fuels are not eligible for crediting under the CDM.

The project participants are also advised that instead of monitoring energy consumption of the project LEDs, they could possibly use run-time counters to monitor the duration of lighting use to determine the duration of lighting hours for the LED lights. The project lighting energy fuel consumption could then be estimated by multiplying lighting duration by power rating of LED lamps and the fuel/electricity efficiency of the project DG. Similarly the duration of the LEDs hours can be used, if they do not exceed base case operating hours, to determine base case electricity consumption of the base case lamps and the fuel consumption of base case DG.



Signature of SSC WG Chair .....

(Ulrika Raab)

Date: 03/09/2008



Signature of SSC WG Vice-Chair .....

(Kamel Djemouai)

Date: 03/09/2008

**Information to be completed by the secretariat**

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