Comment No. 1

Ref No.: VN005
Title: Introduction of High Efficiency Air-conditioning in Hotel

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Part of the document (A/B/C/etc): B.2. Criterion 5 of JCM_VN_F_PDD_ver01.0
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The methodology VN_AM006 repeats similar erroneous assumptions in the emission reduction calculation than
the JCM refrigeration and air-conditioner ("RAC") methodologies in Bangladesh and Indonesia. The baseline ought
to include the leakage of refrigerant in the baseline case and the project emissions ought to include the leakage of
refrigerant in the project case. Both in baseline and project case leakage is assumed zero.

There seems to be a pattern among all JCM methodologies that a "monitoring plan to prevent the emission
of refrigerants during replacement" is deemed sufficient. Typically including a declaration of intent what project
participants want to do without means to verify whether they eventually act accordingly. The criterion 5 on page 2 of
JCM_VN_F_PDD_ver01.0 is another version of similar criteria for refrigerant emissions.
However, refrigerant emissions do not only occur during the replacement of equipment but also during normal operation. Certainly air-conditioner manufacturers know quite well what the leakage is and furthermore loss of refrigerant during
operation can easily be monitored by documenting how much refrigerant is being refilled.

It is worrying that a PDD does not include details about the project equipment and this one has exceptionally little information.
Despite of this lack of transparency, it is possible to estimate refrigerant emissions during operations:
assuming a refrigerant charge of 0.2 kg R410a / kW and twelve air-conditioners of 109 kW
the total volume of refrigerant is 261 kg R410a. With GWP of 2088 and 5% leakage per year, the
leakage in the project case amounts to 27.2 tCO2e.
Because R410a consists of two HFC gases, it is relevant to underline that it is dealt with both by the
Montreal Protocol and the Kyoto Protocol.

As I have commented previously on JCM projects and methodologies, I would like to point out that your
baseline for refrigerant emissions is incomplete and fundamentally of lower environmental integrity than
other RAC methodologies.

Bangladesh chiller methodology BD_PM001 does not account for the impact of the re-use of
refrigerant and does to account for leakage from the project chiller that uses HFC-245 as refrigerant.
https://www.jcm.go.jp/bd-jp/methodologies/32/comment_file criterion 5
Indonesia ID_AM003 and ID_AM004 do not account for the re-use of old refrigerant and
do not account for normal leakage of refrigerant from the project chillers.
https://www.jcm.go.jp/id-jp/projects/2/public_comment_file criterion 7

Final comment for the proposed project concerns the level of efficiency of the project equipment.
The air-conditioners have an average COP around 4.09.
Related JCM projects in Thailand, Bangladesh and Indonesia have efficiency levels in the present

market on average between COP 5 to 6, for inverter type equipment. The proposed equipment
in Vietnam compares somewhat unfavourably.

I don't want to abuse your attention, but I would like to point out that the interactions between different climate regimes
can be taken into account. Regarding VN_AM006, as for BD_PM001, ID_AM002 and ID_AM003, there are interactions
and overlapping effects with the Montreal Protocol, with the Californian emission trading because of its CFC destruction
projects, and with the Kyoto Protocol CDM with its methodologies AM0060 and AMS-III.X.
Perhaps these interactions can be encouraged or be prevented, reflecting what policy goals are important to JCM.

And the encouragement or discouragement of the relations between VN_AM006 and Montreal Protocol projects, the
Californian "Compliance Offset Protocol Ozone Depleting Substances", ACR "Use of Certified Reclaimed HFC
Refrigerants and Advanced Refrigeration Systems" and CDM might be adequately defined at the methodology level
because thereby a precedent is set for fruitful co-existence between various national and regional
emissions trading systems. The case of refrigerants could be suitable for this also because the interactions can be
defined in physical quantities (kg of CFC or HFC), rather than interactions via prices and markets.

It might be of overarching policy concern to JCM, in light of the Paris Agreement Article 6.2, that these differences
in accounting of refrigerant emissions should be aligned so as to not block the integration of JCM under the
Paris Agreement.

I would be pleased to provide more information or comment on the accounting of refrigerant emissions.
sincerely yours
Thomas Grammig