

INTERNAL VERIFICATION FORM: GS VER MICRO-SCALE PROJECTS

Title: Energy Efficiency measures in DMRC Phase II stations
GS ID: GS1246
GS Version: 2.1
Submitted by: Delhi Metro Rail Corporation
Submitted on: 02/09/2013 (Fee paid on 15/08/2012, documents submitted on 02/09/2013)
Contact: Mr. S.A Verma (saverma_rs@yahoo.com)
Date of GS feedback – I round: 22/12/2014
Date of GS feedback – II round: 23/02/2015

Registration Date: 20/12/2013
Crediting Period Start Date: 01/01/2012
1st Monitoring Period: 01/01/2012 to 31/12/2013
Amount of VERs under review: 12195 tCO₂eq

Year	GS VERs (tCO ₂ e)
01/01/2012 to 31/12/2012	6152
01/01/2013 to 31/12/2013	6043
Total	12195

Summary:

Energy Efficiency measures in DMRC Phase II stations developed by Delhi Metro Rail Corporation Ltd. (DMRC) is located in state of Delhi, India. The project activity includes 37 over-ground (elevated) metro station buildings forming a part of Phase II of Delhi Metro. The project involves implementation of energy efficiency measures in selected stations of Phase II of Delhi Metro managed by DMRC. The energy efficiency measures have been undertaken primarily in the Heating, Venting and Air Conditioning (HVAC) system, lighting system and other energy efficient measures of station buildings. The measures

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adopted in the HVAC system result in reduction in electrical energy consumption, in comparison to that for a station building forming a part of Phase I of Delhi Metro with similar size (in terms of floor area) and architectural perspectives. This project is retroactive project. The project has chosen a fixed crediting period of 10 years and expected to reduce 7,484 tCO₂ eq annually.

General comments:

The Gold Standard has identified clarification and corrective action requests as outlined in the table below. These issues must be resolved before the project may be submitted for issuance of Gold Standard VERs. Please provide your responses in the table below along with the revised project documentation and any other supporting documents that may be required to resolve the issues.

Documents reviewed (I round)

Monitoring Report for GSVER project.pdf (Date 27/08/2014, version 1; Date of uploading – 09/09/2014)

VER excel sheet for GSVER project.xlsx (Date of uploading – 09/09/2014)

GS 1246_PDD_rev3_track change.doc

Documents reviewed (II round)

v2 2_ANNEX-AR 15182014.doc

Decision:

Rejected	<input type="checkbox"/>
Request for clarifications and /or corrective action	<input checked="" type="checkbox"/>
To be submitted for external verification	<input type="checkbox"/>
Verified	<input type="checkbox"/>

Requests for clarifications and/or corrective actions:

Sections	Clarifications and/or corrective action needed	Reasons for clarification and/or corrective action	Suggestions on how to proceed	Response by Project Proponent
Emission reduction calculations				
Project emissions				
	1. The PP shall please provide the sample of the scan of the logbook of the metre readings.			Hereby attached as Annexure-I, scanned copy of log book for energy consumption as samples for station Shivaji Park, Dwarka Sec-8, Jhilmil and Sarita Vihar.
The comment/request is closed.				
SD Monitoring				
	1. The PP shall submit or provide the weblink of annual report of the DMRC, which is used as a reference document for the justification of many sustainable development indicators.			Weblinks for annual reports for 2011-12, 2012-13 and 2013-14 are below- 1. http://www.delhimetrorail.com/OtherDocuments/Annual-Report11-12(English).pdf safety programs-pg. 7, CSR & HRM-pg.8, conservation of energy-pg.9 2. http://www.delhimetrorail.com/OtherDocuments/DMRC_Annual-Report-2012-2013.pdf safety programs- pg.6, CSR- pg. 7, HRM- pg. 8, conservation of energy-pg. 9, environment initiatives- pg. 10 3. http://www.delhimetrorail.com/OtherDocuments/EnglishAR201314Low.pdf Safety during tunnelling- pg.7, MoU with SECI- pg. 6, safety programs pg. 12, CSR & HRM- pg. 14, conservation of energy pg. 16,

Sections	Clarifications and/or corrective action needed	Reasons for clarification and/or corrective action	Suggestions on how to proceed	Response by Project Proponent
				environment initiatives- pg. 17
<p>The comment/request is closed. The PP shall please include the weblink in the monitoring report as well and upload the revise document on the registry.</p>				
	2. The PP shall please submit some samples of the ambient air quality monitored in this verification period.			Hereby attached as Annexure-II, scanned copy of ambient air quality monitoring report of Huda city center, Jasola, Nehru Place and Tughlakabad .
<p>The comment/request is closed.</p>				
	3. The PP shall submit some samples of the water quality analysis for the current monitoring period.			Hereby attached in Annexure-III, scanned copy of ground water quality monitoring results of Sarita Vihar, Sultanpur and Yamuna Bank
<p>The comment/request is closed.</p>				
	4. The PP shall provide some samples of the noise monitoring for this verification period.			Hereby attached as Annexure-IV, scanned copy of Ambient Noise Monitoring for Karkardooma, Yamuna Bank, Sarita ViharandMayur Vihar.
<p>The comment/request is closed.</p>				
	5. The PP shall please elaborate further on the medical and education facilities provided under the parameter livelihood of the poor.			DMRC, as part of its CSR activity, has started children's home named "ARMAN" for orphans which provide shelter and is equipped with basic facilities including education and health for overall development of poor street children. Also it has opened winter old age homes for men providing basic medical assistance. It will provide accommodation, food health check-ups,

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				physiotherapy and medical help. DMRC has also started "AANCHAL" for children in the age group of 2 to 12 years equipped with modern amenities including computer for educational purposes. Press releases, circulars and notes samples have been attached for the same in Annexure-V.
The comment/request is closed.				
SD Verification Report				
	1. The PP shall provide information on continuous input mechanism, if any query has been received during the monitoring period.			DMRC records grievances at stations as well as via email and it has appropriately and timely responded to the query/ grievances. DMRC also took corrective actions for the same. Hereby attached in Annexure-VI, are some responses towards the queries like increasing AFC gates at various metro stations, reviewing train frequency, grievances w.r.t construction of metro tunnels and assistance from token counters and staff concerned.
The comment/request is closed.				
	2. The PP shall tick mark the box with microscale scheme under Section A.			Corrected
The comment/request is closed.				
	3. Since no Objective Observer was sent in this			Corrected

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	verification, PP shall please remove the response from Section B.			
The comment/request is closed.				
Emission Reduction Calculations				
	1. The PP shall please explain some negative values under the parameter Estimation of per unit energy efficiency factor in the excel sheet.			In some of the project stations, the efficiency measures could not be implemented as per planning due to various limitations during actual construction and operations. This has resulted in few negative values in the Energy efficiency factor. These negative values have been considered in the ER calculation resulting in overall reduction in emission reductions hence a conservative approach.
The comment/request is closed.				

Conclusion – The GS opinion is that 12195 VERs (Monitoring Period - 01/01/2012 till 31/12/2013) are verified after the above clarifications and/or corrective actions have been taken care of in a satisfactory way.