

JCM Project Design Document Form

Note: This JCM Project Design Document (PDD) is drafted as the result of the GEC's JCM Feasibility Study Programme in JFY2013. Therefore, this draft PDD is not officially approved by any governments involved in JCM, and is subject to change in the future.

A. Project description

A.1. Title of the JCM project

Olkaria X Unit Y Geothermal Project (TBD) *1

A.2. General description of project and applied technologies and/or measures

The objective of the Olkaria X Unit Y Geothermal Project, which has been proposed by the Kenya Electricity Generating Company Limited (KenGen), is to add about *564,144 MWh(TBD)* per year of geothermal-generated electricity to the Kenya national grid system. The project is a renewable energy project which will utilise steam collected from geothermal wells for electricity generation. The following activities are to be undertaken as part of the implementation of the project activity:

- i. Drilling of steam production wells and reinjection wells to provide adequate steam capacity for the *70 MW(TBD)* power plant
- ii. Constructing the steam gathering and reinjection pipeline networks and the associated infrastructure, such as access roads and new well pads
- iii. Construction of power house, installing turbine, generator and its auxiliary equipment
- iv. Construction of switchyard and double circuit 220 KV transmission line

A.3. Location of project, including coordinates

Country	Kenya
Region/State/Province etc.:	Nakuru County
City/Town/Community etc:	Naivasha
Latitude, longitude	(TBD)

A.4. Name of project participants

The Republic of Kenya	KenGen
Japan	-

A.5. Duration

Starting date of project operation	July 1 2016 (TBD)
Expected operational lifetime of project	20-25 years (TBD)

A.6. Contribution from developed countries

(Detail information will be described when decided)

The project will consist of two identical 70 MW units .The geothermal technology applied will consist of a flash condensing turbine manufactured by some Japanese company and a generator manufactured by some Japanese company.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	-
Version number	3.0
Selected approved methodology No.	Installation of geothermal power plants in Kenya
Version number	-
Selected approved methodology No.	-
Version number	3.0

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	The project activity is the installation or expansion of a geothermal power plant at Kenya.	Olkaria X Unit Y project is the installation or expansion of power plant.
Criterion 2	Net electricity generated by the project activity is delivered to Kenyan national grid system	Net electricity generated by the Olkaria X Unit Y is delivered to Kenyan national grid system

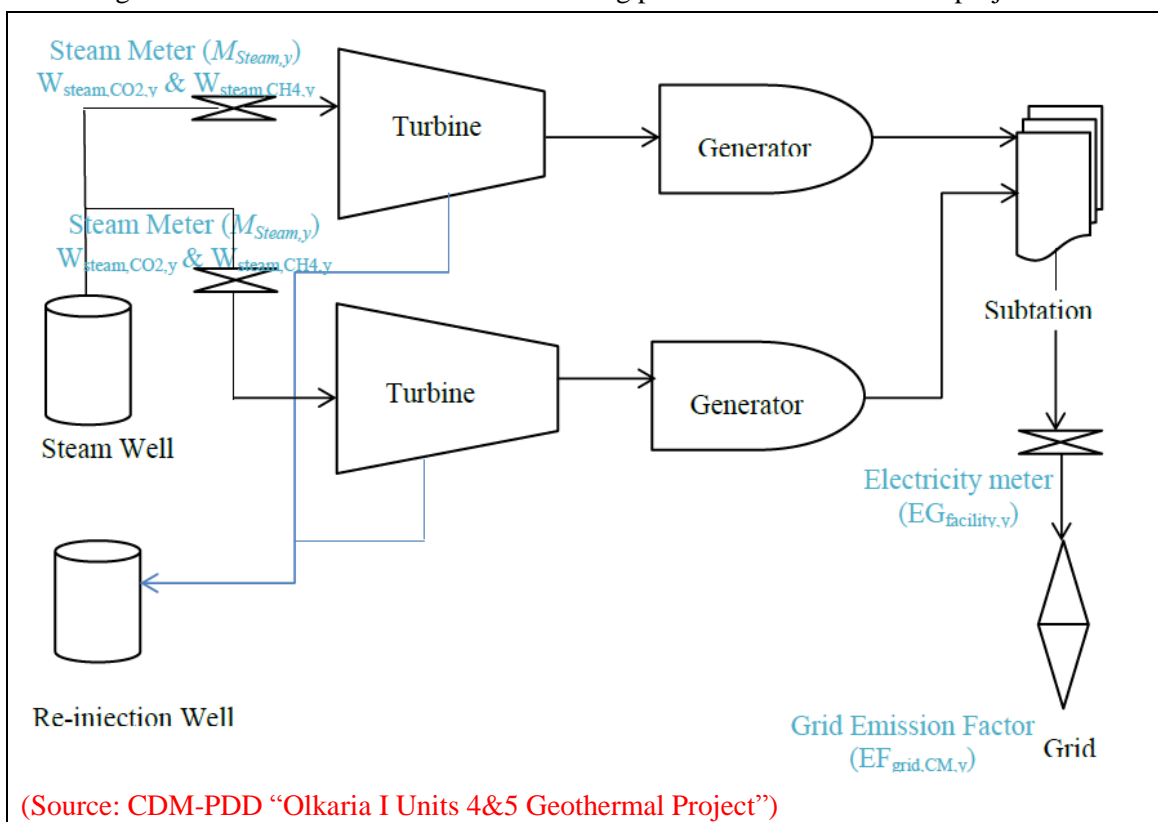
C. Calculation of emission reductions

C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions	
Emission sources	GHG type
CO ₂ emissions from electricity generation in fossil fuel power plants that are displaced due to the project activity	CO ₂

Project emissions	
Emission sources	GHG type
Fugitive emissions of CH ₄ and CO ₂ from NCGs contained in geothermal steam	CO ₂
	CH ₄
CO ₂ emissions from combustion of fossil fuels for electricity generation in geothermal power plants	CO ₂

C.2. Figure of all emission sources and monitoring points relevant to the JCM project



C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO _{2e})	Estimated Project Emissions (tCO _{2e})	Estimated Emission Reductions (tCO _{2e})
2015	155,027	15,655	139,372
2016	310,054	31,311	278,744
2017	310,054	31,311	278,744
2018	310,054	31,311	278,744
2019	310,054	31,311	278,744
2020	310,054	31,311	278,744
Total (tCO _{2e})	1,705,297	172,210	1,533,092

D. Environmental impact assessment/ social impact assessment/ strategic environmental assessment	
Legal requirement of environmental impact assessment/ social impact assessment/ strategic environmental assessment for the proposed project	A full Environmental Social Impact Assessment (ESIA) study will be carried out by an external consultant. The report will be prepared in accordance with the Environmental (Impact Assessment and Audit) Regulations of 2003. It is also guided by the World Bank's requirements for industrial projects and IFC's EHS Guidelines for Geothermal Projects and /or appropriate guidelines where they may be applicable.

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Consultative meetings at district and local levels included discussions with the provincial administration, village elders, KenGen staff, specialists and key informants will be conducted. The consultations will be conducted in plenary meeting where the stakeholders are given chance to air their views and comments. The consultations will be invited through letters, word of mouth and through use of village elders who were tasked with announcing to their people about the meetings.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
TBD	TBD	TBD

F. References

Reference lists to support descriptions in the PDD, if any.

Annex

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Revision history of PDD		
Version	Date	Contents revised
0.1	2/12/2013/	First Draft
1.0	20/2/2013/	Second Draft

*1 Referred project related information is based on the most recent project anticipated in the region with publically available information. Project specific information shall be included in the future utilization of the PDD.