Gold Standard for the Global Goals

TEMPLATE

KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.2**

RELATED SUPPORT

- **TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2**

This document contains the following Sections

This template has been revised to aid a consistent interpretation and to better support project developers submitting documentation for certification. Please read the accompanying guide to understand how to complete this template accurately.
TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2

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KEY PROJECT INFORMATION

GS ID of Project	GS11535
Title of Project	Clean Electric Cooking for Households in Malawi
Time of First Submission Date	21/03/2022
Date of Design Certification	
Version number of the PDD	1.0
Completion date of version	21/03/2022
Project Developer	atmosfair gGmbH
Project Representative	atmosfair gGmbH
Project Participants and any communities involved	-
Host Country (ies)	Malawi
Activity Requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Scale of the project activity	☒ Micro scale ☐ Small Scale ☐ Large Scale
Other Requirements applied	-
Methodology (ies) applied and version number	Custom methodology derived from Methodology for metered & measured energy cooking devices
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label

	☐ N/A
Project Cycle:	☒ Regular ☐ Retroactive

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
13 Climate Action (mandatory)	Emission reductions	7,421	VERs
3 Good Health and Well-being	Carbon monoxide emission reductions	2,429	tonnes
7 Affordable and Clean Energy	Amount of clean energy used for cooking	5,124	MWh
15 Life on Land	Non-renewable wood consumption reductions	4,247	tonnes

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

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The goal of the project *Clean Electric Cooking for Households in Malawi* is to provide access to clean and affordable electric cooking for electrified households in Malawi in order to displace the use of unsustainably sourced firewood and charcoal for cooking purposes. The project targets households connected to mini-grids powered by renewable energy. Despite having access to electricity, it is still common for households to cook with biomass as the high investment costs for electric cooking equipment still represent a barrier for the replacement of biomass stoves and three-stone fire cooking setups. The project aims at helping households overcome this barrier by providing electric cooking sets at a subsidised price and a flexible payment model along with the necessary training and safety instructions to guarantee a successful experience for the users.

Figure 1: A couple with an electric cooking set

Apart from reducing emissions associated with combustion of non-renewable biomass, the project aims to generate a number of benefits for the participating households and communities. Open fire cooking with biomass as practiced by the vast majority of Malawian households is associated with adverse health effects caused by indoor air pollution. In fact, respiratory tract infections are one of the leading causes of death for Malawians[1]. The high demand for wood as a cooking fuel has led to Malawian forest cover disappearing at alarming rates[2] and people having to travel further and further to source firewood, reducing time available for other productive activities (including schooling). As women and children are disproportionately in charge of firewood collection and cooking, they are most exposed to these effects.

By introducing modern electric cooking equipment, households are encouraged to not

[1] http://www.healthdata.org/malawi
[2] https://africageographic.com/stories/addressing-malawis-deforestation-crisis/

only use biomass resources for cooking more efficiently but to give them up altogether. As it is ensured that only electricity from renewable sources is used to power the electric cooking equipment, household gain access to emission-free cooking. At the same time, electric cooking is healthier, time-saving and in many cases more convenient for households.

In order to ensure that users can benefit from their electric cooking devices as long as possible, they will be offered a repair service for broken devices. Furthermore, unrepairable devices that have reached the end of their lifetime will be collected for proper disposal.

A pilot project to test the acceptance of electric cooking sets has already been implemented in a mini-grid in Mulanje, together with Mulanje Mountain Conservation Trust (MMCT) and the operator of the mini-grid, Mulanje Electricity Generation Agency (MEGA).

Figure 2: An electric cooking set installed in a pilot household

A.1.1. Eligibility of the project under Gold Standard

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General eligibility criteria under condition 3.1.1 of GS4GG Principles and Requirements

a) Types of Project	The project meets this criterion since it falls under the pre-identified eligible project types under the GS Activity Requirement 'Community Services' in 3.1.1. The distributed electric cooking sets fall under (b) End-use energy efficiency: "Project activities that reduce energy requirements as compared to baseline scenario without affecting the level and quality of services or products, where the end-user of the products and services are clearly identified and when the physical intervention is required at the user end. For example, efficient cooking, heating, lighting, etc."
b) Location of Project	The project is located in Malawi.
c) Project Area, Boundary and Scale	The project is not registered under any other compliance or voluntary carbon project scheme. There is no risk of double counting as only households that are not currently participating in another carbon credit programme are eligible for participation. Furthermore, the electric cooking equipment distributed through the project is marked with unique identifiers and is registered in a database. The micro-scale limit of 10,000 tCO_{2eq} per annum is applied.
d) Host Country Requirements	The project complies with Malawi's legal, environmental, ecological and social regulations. Malawi currently does not have any emission trading scheme or emission reduction cap enforced.
e) Contact Details	The contact details for atmosfair gGmbH are given in Appendix 1.
f) Legal Ownership	Users transfer the legal ownership of the verified emission reduction to atmosfair in the purchase agreement for the electric cooking sets. The relevant part of this contract will be provided.
g) Other Rights	No other rights are affected by the project implementation.

f) Official Development Aid Declaration	No ODA is involved in the project funding. The ODA declaration will be provided.

Eligibility requirements of the Community Service Activity Requirements

Eligible Project Types		
2.1.1	All Community Service Activities (CSA – as defined in this document) for which Gold Standard certification is being sought shall fulfil the requirements as set out in this document and those referenced or associated	The Project fulfils all requirements as set out in the relevant documents.
2.1.2	All CSA Projects shall lead to climate change mitigation and/or adaptation by providing or improving access to services/resources at the household or community or institution level. Eligible services include electricity and energy, water and sanitation, waste management, housing, etc.	The Project contributes to climate change mitigation and adaptation by providing access to clean electric cooking to households previously relying on biomass for cooking.
2.1.3	In relation to the above, all Projects shall, therefore, conform to the Principles & Requirements (and associated documents).	The Project conforms to the Principles & Requirements.
General eligibility criteria		
3.1.3	Types of Project	b) The project falls under the project type End-use energy efficiency, because it reduces the energy requirement of end-users as compared to the baseline scenario and improves the level and quality of service (cooking). The electric cooking sets are implemented at the user end.

3.1.2	Project area, boundary and scale	a) The micro-scale limit of 10,000 tCO_{2eq} per annum is applied.
3.1.3	Suppressed demand	Not applicable
3.1.3	Legal ownership	a) In the purchase agreements that end users sign upon purchasing an electric cooking set, they are informed about the subsidy of the electric cooking set covered by carbon finance. They are informed that in signing the purchase agreement, they transfer the legal ownership of the verified emission reduction to atmosfair. The relevant part of this contract will be provided. b) The generation of carbon credits and the transfer of emission reductions was discussed

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

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Upon signing the purchase agreement for an electric cooking set, users cede the rights to the emission reductions generated by the electric cooking devices to atmosfair gGmbH, who thus obtains the legal ownership of the emission reductions.

A.2 Location of project

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Republic of Malawi

Figure 3: Maps of Malawi[3]

A.3 Technologies and/or measures

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The electric cooking sets distributed in this project typically consist of

1. an electric cooking device
2. suitable pots
3. the *Wonderbox* (heat retention device)
4. an electricity meter

The electric cooking device will typically be a single or double hotplate with a power rating between 1000 to 2500W.

[3] https://de.wikipedia.org/wiki/Malawi

Figure 4: Examples for electric cooking devices distributed by the project

High quality durable pots matching the size of the hotplate will be supplied as part of the electric cooking sets. This is to ensure that devices can be used efficiently as users are switching from cooking with biomass for which pots with rounded bottoms are commonly used.

Figure 5: Example for steel pot and the Wonderbox distributed by the project

The Wonderbox is a highly insulating box, also called a fireless cooking, which can be used for simmering foods or keeping foods warm (or cold). It has the potential to significantly cut energy consumption of food preparation, especially for long-cook foods such as legumes.

The electric cooking devices are connected to electricity meters to record electricity consumption.

In order to be eligible to receive an electric cooking set under the programme, households need to be connected to a (mini-)grid that is powered by renewable sources, such as solar or hydro power, exclusively.

A.4 Scale of the project

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Microscale, as the project will issue emission reductions less than or equal to 10,000 tCO2eq per year.

A.5 Funding sources of project

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The project is funded by atmosfair gGmbH. It does not receive public funding.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

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Methodology for metered & measured energy cooking devices

B.2. Applicability of methodology (ies)

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2.2.1 a	The electric cooking devices supplied in the project will have rated thermal efficiencies of at least 40%.
b	The electric cooking devices supplied in the project will have power ratings of maximum 2.5 kW.
c	The project activity is implemented by atmosfair gGmbH and does not include additional project participants.
d	Households in the project activity are incentivised to switch to electric cooking by subsidising the electric cooking equipment and providing training on correct usage of the devices.
e	All households participating in the project are informed of the transfer of emission reductions as a requirement for obtaining an electric cooking set through the project. Participants consent to this in the written purchase agreement of the transaction. In order to clearly define the project boundary, all electric cooking devices supplied under this project are marked with a unique ID number and registered in a database. Before inclusion of a household in the project it is ensured that the household is not currently part of a similar project activity.
f	The project activity introduces a new technology by introducing electric cooking devices.
g	The electric cooking devices do not use fossil fuels.
h	The electric cooking devices use electricity from a local mini-grid.
i	The project devices are equipped with power meters recording the power consumed for electric cooking. The project developer maintains a database with these power records.

B.3. Project boundary

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Source		GHGs	Included?	Justification/Explanation
Baseline	Combustion of non-renewable biomass	CO_2	**Yes**	**Major emission source**
		CH_4	**No**	**Negligible**
		N_2O	**No**	**Negligible**
Project	-	CO_2	-	-
		CH_4	-	-
		N_2O	-	-

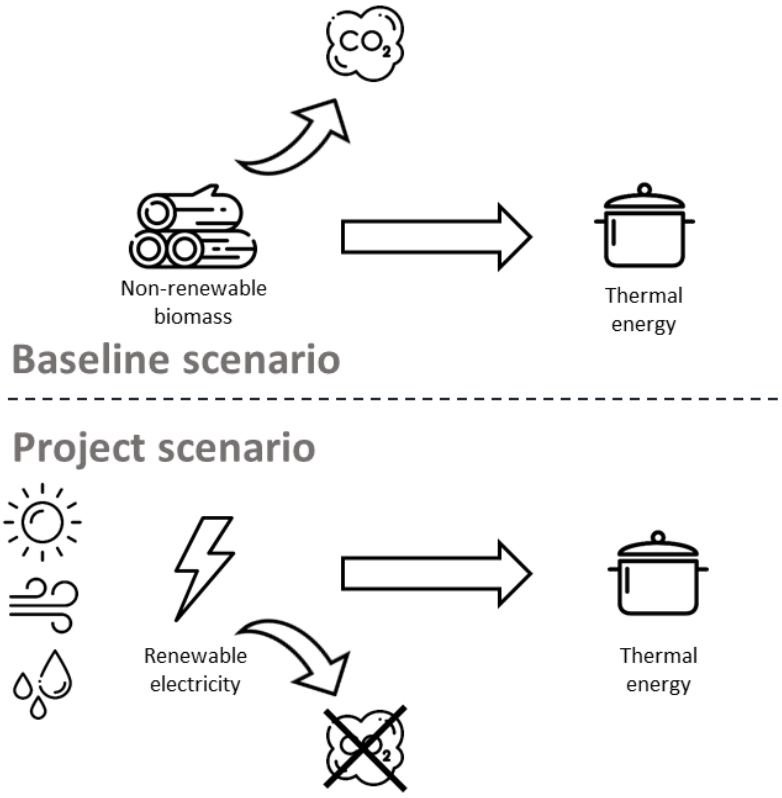

Figure 6: Flow diagram for baseline and project scenario

B.4. Establishment and description of baseline scenario

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In the baseline scenario, households use inefficient biomass cooking setups, such as three stone fires or simple biomass cookstoves. As cooking fuels, biomass such as firewood and charcoal are used. A large share of this biomass can be considered non-renewable. The widespread use of biomass for cooking purposes puts pressure on Malawian forests and is a main contributor to dramatic rates of deforestation in the entire country.

B.5. Demonstration of additionality

Use this table for Automatic Additionality Only – delete if N/A

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	**Community Services Activity Requirements Version 1.2, paragraph 4.1.9 (a), (b) and (c)**
Describe how the proposed project meets the criteria for deemed additionality.	The project meets the criteria for deemed additionality as it is (a) on the positive list in Annex B (1.1.3 and 1.1.5), (b) located in Malawi, which is an LDC and (c) is a Microscale project

B.5.1 Prior Consideration

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N/A

B.5.2 Ongoing Financial Need

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N/A

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

SDG Impact

Sustainable Development Goals Targeted	Most relevant SDG Target	Indicator (Proposed or SDG Indicator)
13 Climate Action (mandatory)	N/A	Emission reductions in tCO2/year
3 Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Carbon monoxide emission reductions in t/year
7 Ensure access to affordable, reliable, sustainable and modern energy for all	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	Clean energy used for cooking in kWh
15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	Non-renewable wood consumption reduced in t/year

B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

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SDG 13

Baseline emissions are calculated as follows:

$$BE_{b,y} = P_{b,y} \times f_{NRB} \times EF_b \times NCV_b \quad \text{(Equation 1)}$$

Where:

$BE_{b,y}$ = Emissions for baseline scenario b during the year y (tCO2e)

$P_{b,y}$	=	Quantity of fuel consumed in baseline scenario b during year y (tons)
$f_{NRB,y}$	=	Fraction of biomass used during year y for the considered scenario that can be established as non-renewable biomass
NCV_b	=	Net calorific value of the fuel that is substituted or reduced
EF_b	=	CO2 emission factor of the fuel that is substituted or reduced

$P_{b,y}$ is derived as follows:

$$P_{b,y} = N_{HH,y} \times N_{p,HH} \times (BC_{BL,PP,y} - BC_{PJ,PP,y}) \quad \text{(Equation 2)}$$

Where:

$N_{HH,y}$	=	Number of households with functional cookstoves distributed under the project activity in year y (number)
$N_{p,HH}$	=	Average number of persons served per household (number)
$BC_{BL,PP,y}$	=	Average annual consumption of woody biomass per person before the start of the project activity or at the renewal of each crediting period whichever is later (tonnes/person/year)
$BC_{PJ,PP,y}$	=	Average annual consumption of woody biomass per person in the pre-project devices during the project activity (tonnes/person/year).

The cooking energy need of a household will either be met by consuming electricity, biomass, or both. It can therefore be deducted that the energy not provided by electricity is provided by biomass. This is illustrated in

Figure : In the ideal case where households switch to 100% electric cooking, no biomass is consumed in the project scenario. The opposite extreme, where households only consume biomass for cooking, is marked by the baseline consumption $BC_{BL,PP,y}$.

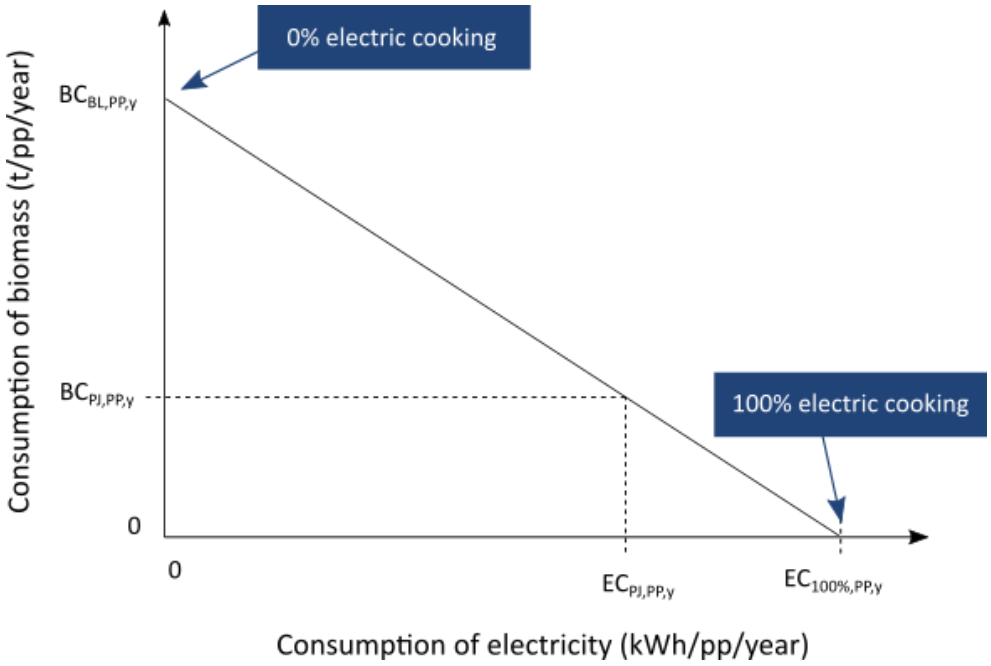

Figure 1: Relation between electricity and biomass consumption for cooking

As stove stacking is a common practice in Malawi, it is expected that households will still consume some amount of biomass in the project scenario, $BC_{PJ,PP,y}$, and therefore be located somewhere between the two extremes.

The slope of the curve illustrating the relationship between electricity and biomass consumption gives the substitution factor $S_{ec,b}$, which expresses the amount of biomass displaced by a certain amount of electricity.

$$S_{ec,b} = BC_{BL,PP,y}/EC_{100\%,PP,y} \quad \text{(Equation 3)}$$

$BC_{PJ,PP,y}$ can then be obtained as follows:

$$BC_{PJ,PP,y} = (EC_{100\%,PP,y} - EC_{PJ,PP,y}) \times S_{ec,b} \quad \text{(Equation 4)}$$

Where

$EC_{100\%,PP,y}$	=	Annual consumption of electricity per person when 100% of cooking energy needs are met with electricity (kWh/person/year)
$EC_{PJ,PP,y}$	=	Annual average consumption of electricity per person in the project scenario (kWh/person/year)
$S_{ec,b}$	=	Amount of biomass displaced by 1kWh of electricity (tons/kWh)

SDG 3

In the baseline scenario, harmful carbon monoxide (CO) emissions are generated in the cooking process. As no such emissions arise when cooking with electricity, the reduction in CO emissions ER_{CO} is given by:

$$ER_{CO} = B_{b,y} \times NCV_{b,fuel} \times EF_{b,fuel,CO} \qquad \text{(Equation 4)}$$

Where

$EF_{b,fuel,CO}$ = CO (carbon monoxide) emission factor arising from the use of fuels in baseline scenario (t/TJ)

SDG 7

The impact on SDG 7 will be quantified by the renewable electricity consumed for cooking. It can thus be measured by $EC_{PJ,y}$.

SDG 15

The impact on SDG 15 will be quantified by the amount of non-renewable firewood saved, $P_{b,NRB,y}$, which is given by

$$P_{b,NRB,y} = P_{b,y} \times f_{NRB}. \qquad \text{(Equation 5)}$$

B.6.2 Data and parameters fixed ex ante

Copy the table for each piece of data and parameter; use headings to group parameter tables by SDG

SDG13

Data/parameter	EF_b
Unit	tCO_2/TJ
Description	CO_2 emission factor arising from use of fuels in baseline scenario
Source of data	IPCC Default
Value(s) applied	112 tCO_2/TJ
Choice of data or Measurement methods and procedures	
Purpose of data	Calculation of SDG 13 impacts

Additional comment	

Data/parameter	$BC_{BL,PP,y}$
Unit	tonnes/person/year
Description	Average annual consumption of woody biomass per person before the start of the project activity or at the renewal of each crediting period whichever is later
Source of data	Default value
Value(s) applied	0.5 t/pp/year
Choice of data or Measurement methods and procedures	
Purpose of data	Calculation of SDG 13 impacts
Additional comment	

Data/parameter	$NCV_{b,fuel}$
Unit	TJ/ton
Description	Net calorific value of wood fuel
Source of data	IPCC Default
Value(s) applied	0.015 TJ/ton
Choice of data or Measurement methods and procedures	
Purpose of data	Calculation of SDG 13 impacts
Additional comment	

SDG 3

Data / Parameter	$EF_{b,fuel,CO}$
Unit	t/TJ
Description	CO (carbon monoxide) emission factor arising from the use of fuels in baseline scenario
Source of data	IPCC Emission Factor Database https://www.ipcc-nggip.iges.or.jp/EFDB/find_ef.php?reset
Value(s) applied	11.0 t/TJ
Measurement methods and procedures	
Purpose of data	Calculation of SDG 13 impacts
Additional comment	

B.6.3 Ex ante estimation of SDG Impact

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SDG 13

Calculation of $P_{b,y}$

In order to establish $P_{b,y}$, monitoring data on electricity consumption from electric cooking shall be used to find the continued use of biomass consumption in the project scenario, $BC_{PJ,PP,y}$, according to Equation 3.

To do so, the relationship between electricity and biomass consumption first needs to be established by finding the average biomass consumption with 0% electric cooking and the average electricity consumption with 100% electric cooking.

In the baseline case of 0% electric cooking, the conservative CDM default value of

$BC_{BL,PP,y}$ = 0.5 t/pp/year

is used.

The energy need for cooking with 100% electricity, $EC_{100\%,PP,y}$, is dependent on the energy efficiency of the electric cooking equipment and its thermal heat detention capacity, as well as cooking habits of the users. It will be established by a survey at the beginning of the first crediting period. In this survey, users are asked and incentivised to cook only using electricity for at least 3 consecutive days, during which their electricity consumption for cooking is recorded. Accompanying the electricity

metering, users will be interviewed during the 3 days to determine whether indeed all cooking energy needs were met with electricity.

For the ex-ante estimation, a literature value shall be used for $EC_{100\%,PP,y}$. The energy need for electric cooking has been studied extensively by the UK Aid programme Modern Energy Cooking Services (MECS) in different countries of the Global South. According to their research, a reasonable estimate for hotplates is 0.49 kWh/pp/day[4], i.e.

$EC_{100\%,PP,y}$= 180 kWh/pp/year.

The resulting relationship between electricity consumption and firewood consumption is shown in

Figure 7. If the electric cooking equipment is used only half of the time (and thus consumes 90 kWh/pp/year) it can be derived that an additional 0.25 t/pp/year of firewood are consumed to meet cooking energy needs.

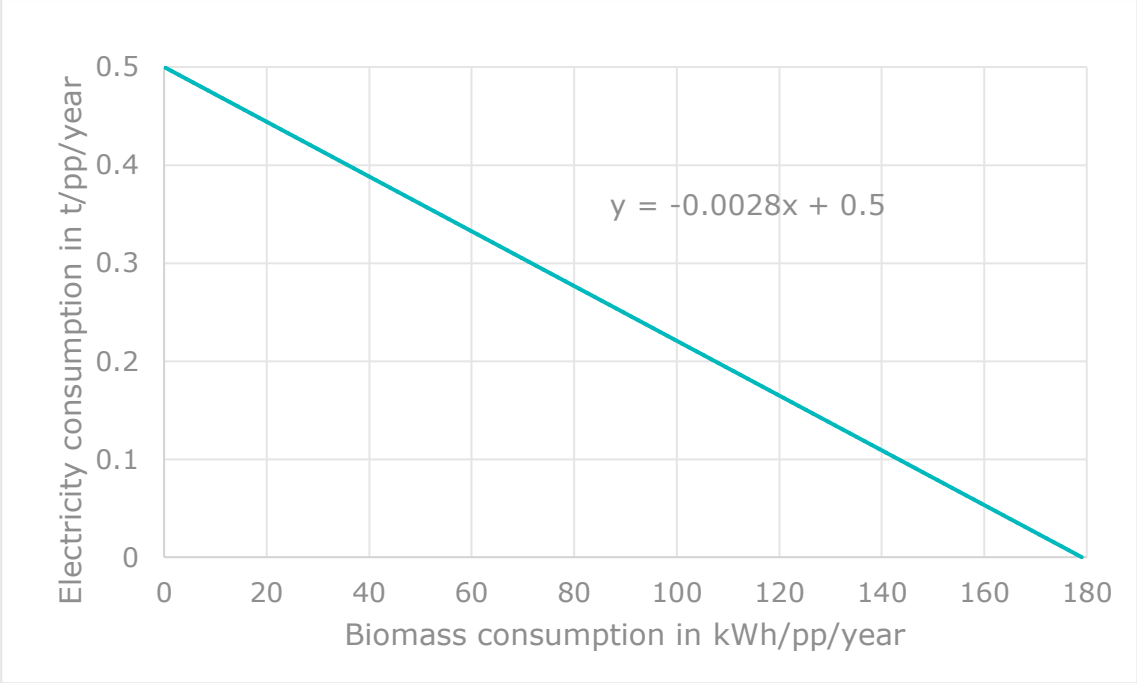

Figure 7: Relationship between electricity and firewood consumption based on electricity consumption data from Modern Energy Cooking Services (MECS)

[4] Cooking with Electricity : A Cost Perspective, Worldbank, 2020
https://openknowledge.worldbank.org/handle/10986/34566

The substitution factor for electricity and biomass is derived as the slope of the curve, i.e.

$S_{ec,b}$ = 0.0028 t/kWh.

For the ex-ante estimation, it is assumed that households will consume 60% of $EC_{100\%,PP,y}$ and use firewood for their remaining cooking energy needs, i.e

$EC_{PJ,PP,y}$ = 108 kWh/pp/year.

From this it is found that

$BC_{PJ,PP,y}$ = 0.2 t/pp/year.

Applying Equation 2 for one household, i.e. $N_{HH,y}$ = 1, and $N_{p,HH,y}$ = 4.5 then yields

$P_{b,y}$ = 1.3 t/year.

Calculation of $BE_{b,y}$

In order to calculate baseline emissions $BE_{b,y}$, Equation 1 is applied with the following values:

$NCV_{b,fuel}$	=	0.015 t/TJ
EF_b	=	112 t/TJ
$f_{NRB,y}$	=	30%

From this is follows that for one household

$BE_{b,y}$ = 0.7 tCO_{2eq}/year.

SDG 3

The reduction in carbon monoxide emissions is obtained by applying Equation 4 using

ER_{CO} = 11.0 t/TJ.

SDG 7

The amount of renewable electricity consumed for cooking is given by $EC_{PJ,y}$.

SDG 15

The amount of non-renewable firewood saved is obtained by applying Equation 5.

B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 13

Emission reductions in tCO2/year

Year	Baseline estimate	Project estimate	Net benefit
Year 1	106	0	106
Year 2	704	0	704
Year 2	1,408	0	1,408
Year 4	3,519	0	3,519
Year 5	7,038	0	7,038
Year 6	9,854	0	9,854
Year 7	9,854	0	9,854
Year 8	9,854	0	9,854
Year 9	9,854	0	9,854
Year 10	9,854	0	9,854
Year 11	9,854	0	9,854
Year 12	9,854	0	9,854
Year 13	9,854	0	9,854
Year 14	9,854	0	9,854
Year 15	9,854	0	9,854
Total	**111,313**	**0**	**111,313**
Total number of crediting years			
Annual average over the crediting period	**7,421**	**0**	**7,421**

SDG 3

Carbon monoxide emission reductions in t/year

Year	Baseline estimate	Project estimate	Net benefit
Year 1	35	0	35
Year 2	230	0	230
Year 2	461	0	461
Year 4	1,152	0	1,152
Year 5	2,304	0	2,304
Year 6	3,226	0	3,226
Year 7	3,226	0	3,226
Year 8	3,226	0	3,226
Year 9	3,226	0	3,226
Year 10	3,226	0	3,226
Year 11	3,226	0	3,226
Year 12	3,226	0	3,226
Year 13	3,226	0	3,226
Year 14	3,226	0	3,226
Year 15	3,226	0	3,226
Total	**36,442**	**0**	**36,442**
Total number of crediting years			
Annual average over the crediting period	**2,429**	**0**	**2,429**

SDG 7

Clean energy used for cooking in kWh

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0	73	73
Year 2	0	486	486
Year 2	0	972	972
Year 4	0	2,430	2,430
Year 5	0	4,860	4,860
Year 6	0	6,804	6,804
Year 7	0	6,804	6,804
Year 8	0	6,804	6,804
Year 9	0	6,804	6,804
Year 10	0	6,804	6,804
Year 11	0	6,804	6,804
Year 12	0	6,804	6,804
Year 13	0	6,804	6,804
Year 14	0	6,804	6,804
Year 15	0	6,804	6,804
Total	**0**	**76,861**	**76,861**
Total number of crediting years			
Annual average over the crediting period	**0**	**5,124**	**5,124**

SDG 15

Non-renewable wood consumption reduced in t/year

Year	Baseline estimate	Project estimate	Net benefit
Year 1	0	60	60
Year 2	0	403	403
Year 2	0	806	806
Year 4	0	2,014	2,014
Year 5	0	4,028	4,028
Year 6	0	5,640	5,640
Year 7	0	5,640	5,640
Year 8	0	5,640	5,640
Year 9	0	5,640	5,640
Year 10	0	5,640	5,640
Year 11	0	5,640	5,640
Year 12	0	5,640	5,640
Year 13	0	5,640	5,640
Year 14	0	5,640	5,640
Year 15	0	5,640	5,640
Total	**0**	**63,709**	**63,709**
Total number of crediting years			
Annual average over the crediting period	**0**	**4,247**	**4,247**

B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

(Copy the table for each piece of data and parameter; use headings to group parameter tables by SDG)

SDG 13

Data / Parameter	$EC_{100\%,PP,y}$
Unit	kWh/pp/year
Description	Annual consumption of electricity when 100% of cooking energy needs are met with electricity
Source of data	Study at beginning of crediting period
Value(s) applied	180 kWh/pp/year
Measurement methods and procedures	$EC_{100\%,PP,y}$ shall be determined for the local cooking habits and the electric cooking devices used by performing a study on a representative sample size. In this study, users will be instructed and incentivised to cook only with electricity for a few consecutive days, while the electricity consumption of their cooking devices is being recorded. During the study, users will be interviewed to verify if cooking was performed with electricity exclusively.
Monitoring frequency	Established once at the beginning of each crediting period
QA/QC procedures	
Purpose of data	Calculation of SDG 13 impacts
Additional comment	

Data / Parameter	$EC_{PJ,PP,y}$
Unit	kWh/person/year
Description	Annual average consumption of electricity in the project scenario per person

Source of data	Electricity consumption records
Value(s) applied	108 kWh/pp/year
Measurement methods and procedures	All electric cooking equipment will be installed with electricity meters to record electricity consumption for cooking. The value is capped at the value of $EC_{100\%,PP,y}$.
Monitoring frequency	Monthly
QA/QC procedures	
Purpose of data	
Additional comment	

Data / Parameter	$f_{NRB,y}$
Unit	Fractional non-renewability
Description	Non-renewability status of woody biomass fuel in scenario I during year y
Source of data	Default value from methodology
Value(s) applied	30%
Measurement methods and procedures	Default value from methodology
Monitoring frequency	n/A
QA/QC procedures	n/A
Purpose of data	Calculation of baseline emissions
Additional comment	

Data / Parameter	$N_{HH,y}$
Unit	Number
Description	Number of households with functional cookstoves distributed under the project activity in year y

Source of data	User database
Value(s) applied	
Measurement methods and procedures	All electric cooking equipment is marked with a unique identifier and recorded in a user database.
Monitoring frequency	Annual
QA/QC procedures	
Purpose of data	
Additional comment	

Data / Parameter	$N_{p,HH}$
Unit	Number
Description	Average number of persons served per household
Source of data	User database
Value(s) applied	
Measurement methods and procedures	The number of people per household is recorded in the user database
Monitoring frequency	Annual
QA/QC procedures	
Purpose of data	
Additional comment	

Data / Parameter	$N_{p,y}$
Unit	Project technologies credited (units)
Description	Technologies in the project database for project scenario p through year y
Source of data	Total sales record

Value(s) applied	
Measurement methods and procedures	
Monitoring frequency	Annual or more frequently, in all cases on time for any request for issuance
QA/QC procedures	Transparent data analysis and reporting
Purpose of data	
Additional comment	

(SDG n…)

B.7.2 Sampling plan

>>

B.7.3 Other elements of monitoring plan

>>

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

>>

April 2022 (expected)

C.1.2 Expected operational lifetime of project

>>

15 years

C.2. Crediting period of project

C.2.1 Start date of crediting period

>>

C.2.2 Total length of crediting period

>>

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in Appendix 1, ongoing monitoring is summarised below.

Principles	Mitigation Measures added to the Monitoring Plan
n/a	

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	The project follows the guidelines and requirements of gender-sensitive design and implementation as outlined in the gender policy. The purpose of the project is to distribute electric cooking devices, which will primarily improve the lives of the women in the target communities. This is because women are the ones primarily responsible for cooking and collecting firewood in Malawian households. The project thereby has a very strong gender aspect in giving Malawian women a safer, healthier way of cooking and relieves them from the burden of collecting firewood. In a pilot project implemented to validate the technology, numerous users reported that the electric cooking appliances changed the cooking habits of the households in that men, who were previously not involved in cooking, also used the hotplate. The project therefore can also contribute to breaking with stereotypical gender roles.

Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	The project activity aligns with Malawi's National Gender Policy[5], specifically with its targets of economic empowerment and health improvements for women. The latter one plays a particularly big role, because women being the primary cooks in Malawian households, are also the ones most exposed to indoor air pollution as a result of indoor cooking on open fire.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	No
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	No

SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

The below is a summary of the 2 step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

>>

Some comments repeatedly came up in all of the meetings conducted as part of the Local Stakeholder Consultation. One of them was the scope of the project. Many stakeholders criticised that the project would in the beginning focus on the MEGA mini-grid in Mulanje district and expressed the wish that the project be scaled up to households connected to other mini-grids as well as the national grid as soon as possible.

Another repeated feedback was that there should be a mechanism in place to ensure that broken cooking devices get repaired so that the project does not create e-waste and users can benefit from the devices for a long time. atmosfair will develop a maintenance and collection system for the electric devices to ensure their longevity and proper disposal once they have reached the end of their lifetime.

Some stakeholders also mentioned that the user's safety needs to be paid attention to, as they are not used to cooking with electric devices. Electric cooking can generally be considered

[5] https://cepa.rmportal.net/Library/government-publications/National%20Gender%20Policy%202015.pdf

safer than cooking on open fire, but nonetheless atmosfair will ensure that users receive the relevant safety instructions upon installation of their electric cooking devices.

Finally, many stakeholders commented that the equipment should be sourced locally rather than be imported from abroad. atmosfair will therefore make sure to source as many components of the electric cooking sets locally or from local suppliers.

E.2 Final continuous input / grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input / Grievance Expression Process Book (mandatory)	a book for grievance expression will be placed in the Mulanje district commissioner's office
GS Contact (mandatory)	help@goldstandard.org
Other	

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into SECTION D above. Please refer to the instructions in the Guide to Completing this Form.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights 2. The Project shall not discriminate with regards to participation and inclusion	No		
Principle 2. Gender Equality			
1. The Project shall not directly or indirectly lead	No	1. The project will not lead to adverse impacts on	

to/contribute to adverse impacts on gender equality and/or the situation of women 2. Projects shall apply the principles of nondiscrimination, equal treatment, and equal pay for equal work 3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks 4. (where required) Summary of opinions and recommendations of an Expert Stakeholder(s)		gender equality or the situation of women. On the contrary, women will be the main beneficiaries of the project, as they are commonly in charge of cooking and firewood collection and are more exposed to health impacts of indoor air pollution. 2. The principles of non-discrimination, equal treatment and equal pay are applied by all project partners involved. 3.	
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community		1. The project will not create any adverse health effects. On the contrary, the implementation of clean electric cooking devices will reduce indoor air	

		pollution and its associated health effects.	
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	**No**	The project area does not include sites of cultural and historical heritage.	
>>			
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	**No**	The project does not cause the relocation of peoples.	
>>			
Principle 4.3 Land Tenure and Other Rights			
a. Does the Project require any change, or have any uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership?	**No**	The project does not affect land tenure, access or usage rights in any way.	

b. For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?			
>>			
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	**No**	The project does not affect any areas of influence or claimed by indigenous people.	
>>			
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects	**No**	The project will not involve or contribute to corruption in any way.	
Principle 6.1 Labour Rights			
1. The Project Developer shall ensure that all employment is in	**No**		

compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions 2. Workers shall be able to establish and join labour organisations 3. Working agreements with all individual workers shall be documented and implemented and include: a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND			

e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not including sick and casual leave. 4. No child labour is allowed (Exceptions for children working on their families' property requires an Expert Stakeholder opinion) 5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures			
Principle 6.2 Negative Economic Consequences			

1. Does the project cause negative economic consequences during and after project implementation?			
>>			
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	**No**	The project will not increase greenhouse gas emissions over the Baseline Scenario as the project makes use of renewable energy only to power the electric cooking devices.	
>>			
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	**Yes**	The project uses energy from local mini-grids, of which the project beneficiaries are customers. For every mini-grid where electric cooking devices are sold it will be established in close cooperation with the mini-grid operator that sufficient energy generation capacity is	
>>			

		available, such that no energy is diverted from other users.	
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	**No**	The project does not affect the natural patterns of watercourse.	
>>			
Principle 8.2 Erosion and/or Water Body Instability			
a. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? b. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	**No**	The project does not affect erosion of water body instability and its area of influence is not susceptible to such.	
>>			
Principle 9.1 Landscape Modification and Soil			

Does the Project involve the use of land and soil for production of crops or other products?	**No**	The project does not involve the use of land and soil.	
>>			
Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	**No**	The project will not be susceptible to or lead to increased vulnerability to natural disaster. On the contrary, the project aims at protecting forests by reducing the consumption of firewood, which can prevent landslides and erosion.	
>>			
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	**No**	The project does not affect and is not affected by genetically modified organisms (GMOs).	
>>			

Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	**No**	The project cannot result in the release of pollutants to the environment. On the contrary, cooking with renewable electricity is less polluting than cooking with biomass.	
>>			
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	**No**	The project will not involve hazardous chemicals or materials of any kind.	
>>			
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	**No**	The project will not involve the application of pesticides and fertilisers.	
>>			
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	**No**	The project will not involve the harvesting of forests. On the contrary, the project aims	
>>			

		to protect forests by reducing the demand for firewood.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	**No**	The project does not modify the quantity or nutritional quality of food.	
>>			
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	**No**	The project will not involve animal husbandry.	
>>			
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	**No**	The project does not physically affect or alter high conservation value areas or critical habitats.	
>>			
Principle 9.11 Endangered Species			

a. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)? b. Does the Project potentially impact other areas where endangered species may be present through transboundary affects?	**No**	The project does have no effect on endangered species.	
>>			

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	atmosfair gGmbH
Registration number with relevant authority	
Street/P.O. Box	Zossener Straße 55-58
Building	
City	Berlin
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E-mail	projekte@atmosfair.de
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Contact person	
Title	
Salutation	Ms.
Last name	Richter
Middle name	
First name	Annika
Department	Project development
Mobile	
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Personal e-mail	richter@atmosfair.de

APPENDIX 3- LUF ADDITIONAL INFORMATION

Risk of change to the Project Area during Project Certification Period:	
Risk of change to the Project activities during Project Certification Period:	
Land-use history and current status of Project Area:	
Socio-Economic history:	
Forest management applied (past and future)	
Forest characteristics (including main tree species planted)	
Main social impacts (risks and benefits)	
Main environmental impacts (risks and benefits)	
Financial structure	
Infrastructure (roads/houses etc):	
Water bodies:	
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	
Where indigenous people and local communities are situated:	
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Please refer to Design Change Requirements for more information on procedures governing Design Changes

Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption