



**CLEAN DEVELOPMENT MECHANISM
FORM FOR SUBMISSION OF BUNDLED SMALL SCALE PROJECT ACTIVITIES
(SSC-CDM-BUNDLE)**

SECTION A. General description of the Bundle

A.1. Title of the Bundle:

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Korea Land & Housing Corporation (LH Corporation)'s National Rental House PV power plant bundling CDM project

A.2. Version and Date :

>>

Version: 07

Date: 5 July 2011

A.3. Description of the Bundle and the subbundles :

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Purpose of the project

Korea Land & Housing Corporation(hereinafter referred to as LH Corporation)'s National Rental House PV power plant CDM project is 36 photovoltaic power plants which is located on the roof of the National Rental House. LH Corporation is one of the largest Korean Public Enterprise which has the role of improving national house life and efficient use of the country land with proper development, maintenance and management.

The PV power plant generates electricity utilizing photovoltaic which emits zero greenhouse gas(GHG) into the atmosphere or water system without any natural resources depletion.

Summary of the project

LH Corporation's project is to install photovoltaic generation facility in National Rental House of 2009(the 1st stage) and of 2010(the 2nd stage)

The project will generate 3,771MWh/yr and all the electricity will be supplied to households displacing electricity supplied from KEPCO¹(Korea Electric Power Corporation, hereinafter referred to as KEPCO) grid. So approximately 2,420 tCO₂e/yr of GHG emission reduction will be realized on average during the crediting period.

Korea has given high concerns on the renewable energies including solar power and make efforts to reduce fossil fuel usage in various ways. As those fossil fuel based power plants cover 64.21% of electricity generation in Korea based on 2009(Korea Electric Power Statistics²), the proposed project is

¹ KEPCO is a national electric power company in Korea.

²Korea Electric Power Statistics("KEPCO in brief, 31 Dec 2009", <http://www.kepco.co.kr>)



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expected to contribute to decrease the usage of fossil fuels and also serve to development and diffusion of renewable energy technologies in the country.

Contribution to sustainable development

The proposed project will contribute to sustainable development such as acquaintance of advanced technological experiences and maintenance know-how, creation of job opportunities in the country as follows:

- Social/ Technological aspects
 - The proposed project can diversify sources of electric generation and be a model case as a PV power plant that utilizes solar energy.
 - The proposed project will contribute to revitalization of local energy industry under the corporation of a local government.
- Economical aspects
 - The proposed project will supply households with the available electric power and contribute to national energy supply.
 - The proposed project will create job opportunities directly and indirectly through construction and operation of the plant.
 - The proposed project will improve the local residents' living standard.
- Environmental and National aspects
 - The photovoltaic power plant replaces coal-fired power plants and contributes to reduce GHG emissions of the nation.
 - The plant will contribute toward improvement of air quality and better living conditions of the country by reducing the air pollution.

A.4. Project participants:

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Name of Party involved(*) ((host)indicates a host Party)	Private and/or public entity(ies) project participants(*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant(Yes/No)
Republic of Korea (host)	<ul style="list-style-type: none"> • Public entity: <ul style="list-style-type: none"> - Korea Land & Housing Corporation(LH Corporation) • Private entity: <ul style="list-style-type: none"> - Ecoeye Co., Ltd 	No

SECTION B. Technical description of the Bundle:

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B.1. Location of the Bundle:

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B.1.1. Host Party(ies):

>>

Republic of Korea



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B.1.2. Region/State/Province etc.:

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Gangwon-do, Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Jeollanam-do, Jeollabuk-do, Chungcheongnam-do, Chungcheongbuk-do

B.1.3. City/Town/Community etc:

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36 PV power plants are established in 8 provinces which is located in Republic of Korea.

No.	PV power plant	Cities or towns
1	Icheon Galsan(2)	630-1, Galsan-dong, Icheon-Si
2	Chuncheon Mancheon	824-1, Mancheon-ri, Dong-myeon, Chuncheon-si
3	Gunsan Guam	417-1, Guam-dong, Gunsan-si
4	Nonsan Daegyo	279-2, Daegyo-dong, Nonsan-si
5	Gimcheon Daesin	793-1, Sineum-dong, Gimcheon-si
6	Gyeongsan Sadong(1)	696, Pyeongsan-dong, Gyeongsan-si
7	Gyeongsan Sadong(2)	Taekji 1-2BL, Sa-dong, Gyeongsan-si
8	Sacheon Yonggang(2)	568-2, Yonggang-dong, Sacheon-si
9	Goseong Dongoe	572, Dongoe-ri, Goseong-eup, Goseong-gun
10	Yangsan Daesuk	797-1, Sangbuk-myeon, Yangsan-si
11	Gongju Singwan(6)	San 30-21, Singwan-dong, Gongju-si
12	Chungju Yeonsu (6)	259-4, Yeonsu-dong, Chungju-si
13	Jecheon Gangjeo(A1)	Jecheon gangjeo national rental house A-1BL, Gangje-dong, Jecheon-si
14	Cheongyang Eumnae	300-1, Eumnae-ri, Cheongyang-eup, Cheongyang-gun
15	Gochang Eumnae	686, Eumnae-ri, Gochang-eup, Gochang-gun
16	Gimje Hadong	366-33, Ha-dong, Gimje-si
17	Yeongam Yongang	190-4, Yongang-ri, Samho-eup, Yeongam-gun
18	Geoje Irun	341, Sodong-ri, Irun-myeon, Geoje-si
19	Wonju Musil(2)	Taekji 2-1BL, Musil-dong, Wonju-si
20	Eumseong Maengdong(1)	130-5, Ssangjeong-ri, Maengdong-myeon, Eumseong-gun
21	Eumseong Gamgok	624, Ohyang-ri, Gamgok-myeon, Eumseong-gun
22	Jecheon Gangjeo(A3)	Hyumeonsia 2-danji, 2053, Yeongcheon-dong, Jecheon-si
23	Taeon Pyeongchun(1)	735-1, Pyeongcheon-ri, Taeon-eup, Taeon-gun
24	Asan Inju	283-1, Mildu-ri, Inju-myeon, Asan-si
25	Iksan Hamyeol	208-13, Wa-ri, Hamyeol-eup, Iksan-si
26	Sunchang Pungsan	725, Daega-ri, Pungsan-myeon, Sunchang-gun
27	Iksan Baesan(1)	399, Mohyeon-dong 1-ga, Iksan-si
28	Iksan Baesan(3)	Baesan taekji 1 BL, Mohyeon-dong 1-ga, Iksan-si
29	Yeosu Jungnim(A1)	Jungnim taekji A-1BL, Jungnim-ri, Sora-myeon, Yeosu-si
30	Yeosu Jungnim(A2)	Jungnim taekji A-2BL, Jungnim-ri, Sora-myeon, Yeosu-si
31	Uiseong Sangni	560-1, Sangni-ri, Uiseong-eup, Uiseong-gun
32	Goryeong Dasan(3)	129-8, Gwakchon-ri, Dasan-myeon, Goryeong-gun
33	Yangsan Pyeongsan	352-7, Pyeongsan-dong, Yangsan-si
34	Pohang Jangnyang	San 118-3, Yangdeok-dong,



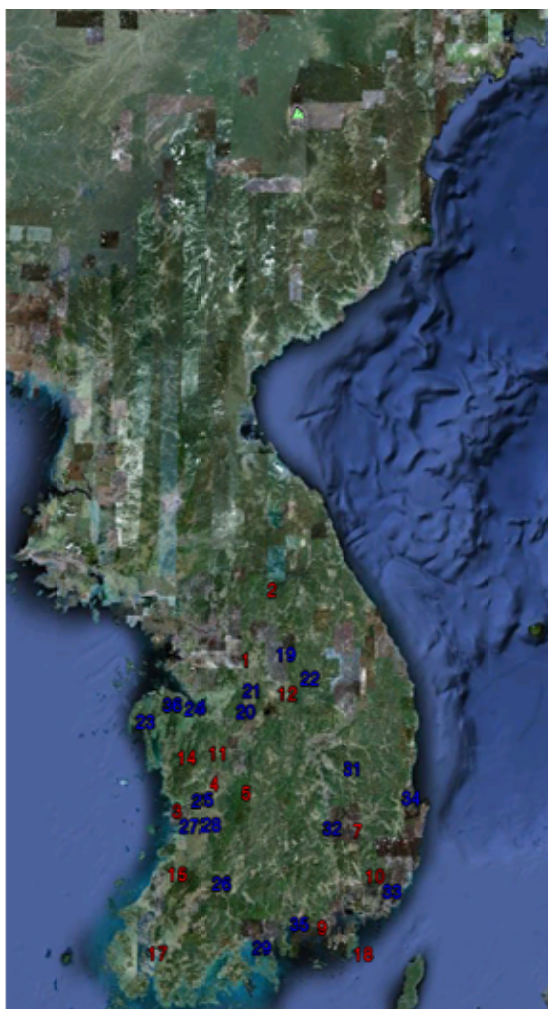
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		Buk-gu, Pohang-si
35	Sacheon Yonghyeon	Yonghyeon taekji 1BL, Deokgok-ri, Yonghyeon-myeon, Sacheon-si
36	Dangjin Chaeun	522-10, Chaeun-ri, Dangjin-eup, Dangjin-gun

B.1.4. Details of physical location, including information allowing the unique identification of this Bundle:

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The each location of 36 PV power plants is presented as follows:



- 1 – 28 (red color) : PV Power Plant of 2000 (1st stage)
- 29 – 36 (blue color) : PV Power Plant of 2000 (2nd stage)

No	PV power plant	Latitude	Longitude
1	Icheon Galsan(2)	37.281571°	127.457187°
2	Chuncheon Mancheon	37.883509°	127.759113°
3	Gunsan Guam	35.987072°	126.744486°
4	Nonsan Daegyo	36.211532°	127.090417°
5	Gimcheon Daesin	36.137251°	127.457187°
6	Gyeongsan Sadong(1)	35.808066°	128.761637°
7	Gyeongsan Sadong(2)	35.811552°	128.755755°
8	Sacheon Yonggang(2)	34.948195°	128.085365°
9	Goseong Dongoe	34.967897°	128.330410°
10	Yangsan Daesuk	35.418364°	129.064869°
11	Gongju Singwan(6)	36.475914°	127.133849°
12	Chungju Yeonsu (6)	36.992622°	127.939589°
13	Jecheon Gangjeo(A1)	37.117533°	128.218473°
14	Cheongyang Eumnae	36.448415°	126.799072°
15	Gochang Eumnae	35.439775°	126.693864°
16	Gimje Hadong	35.813299°	126.896025°
17	Yeongam Yongang	34.745161°	126.474091°
18	Geoje Irun	34.837800°	128.695529°
19	Wonju Musil(2)	37.330040°	127.922954°
20	Eumseong Maengdong(1)	36.928814°	127.564455°
21	Eumseong Gamgok	37.109571°	127.646473°
22	Jecheon Gangjeo(A3)	37.123397°	128.204219°
23	Taeon Pyeongcheon(1)	36.750828°	126.310357°
24	Asan Inju	36.869449°	126.880600°
25	Iksan Hamyeol	36.077435°	126.965468°
26	Sunchang Pungsan	35.349127°	127.172862°
27	Iksan Baesan(1)	35.951114°	126.943630°
28	Iksan Baesan(3)	35.948977°	126.941032°



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	29	Yeosu Jungnim(A1)	34.792271°	127.634558°
	30	Yeosu Jungnim(A2)	34.761004°	127.633354°
	31	Uiseong Sangni	36.350654°	128.708868°
	32	Goryeong Dasan(3)	35.831669°	128.451462°
	33	Yangsan Pyeongsan	35.378368°	129.146564°
	34	Pohang Jangnyang	36.091490°	129.381909°
	35	Sacheon Yonghyeon	35.000093°	128.065847°
	36	Dangjin Chaeun	36.899546°	126.623115°



<Figure A-1>

View of Icheon Galsan(2) PV power plant



<Figure A-2>

View of Chuncheon Manchaeon PV power plant



<Figure A-3>

View of Gunsan Guam PV power plant



<Figure A-4>

View of Nonsan Daegyo PV power plant



<Figure A-5>

View of Gimcheon Daesin PV power plant



<Figure A-6>

View of Gyeongsan Sadong(1) PV power plant



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<Figure A-7>

View of Gyeongsan Sadong(2) PV power plant



<Figure A-8>

View of Sacheon Yonggang(2) PV power plant



<Figure A-9>

View of Goseong Dongoe PV power plant



<Figure A-10>

View of Yangsan Daesuk PV power plant



<Figure A-11>

View of Gongju Singwan(6) PV power plant



<Figure A-12>

View of Chungju Yeonsu (6) PV power plant



<Figure A-13>

View of Jecheon Gangjeo(A1) PV power plant



<Figure A-14>

View of Cheongyang Eumnae PV power plant



<Figure A-15>
View of Gochang EumnaePV power plant



<Figure A-16>
View of Gimje Hadong PV power plant



<Figure A-17>
View of Yeongam Yongang PV power plant



<Figure A-18>
View of Geoje Irun PV power plant



<Figure A-19>
View of Wonju Musil(2) PV power plant



<Figure A-20>
View of Eumseong Maengdong(1) PV power plant



<Figure A-21>
View of Eumseong Gamgok PV power plant



<Figure A-22>
View of Jecheon Gangjeo(A3) PV power plant



<Figure A-23>

View of Taean Pyeongcheon(1) PV power plant



<Figure A-24>

View of Asan Inju PV power plant



<Figure A-25>

View of Iksan Hamyeol PV power plant



<Figure A-26>

View of Sunchang Pungsan PV power plant



<Figure A-27>

View of Iksan Baesan(1) PV power plant



<Figure A-28>

View of Iksan Baesan(3) PV power plant



<Figure A-29>

View of Yeosu Jungnim(A1) PV power plant



<Figure A-30>

View of Yeosu Jungnim(A2) PV power plant



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<Figure A-31>

View of Uiseong Sangni PV power plant



<Figure A-32>

View of Goryeong Dasan(3) PV power plant



<Figure A-33>

View of Yangsan Pyeongsan PV power plant



<Figure A-34>

View of Pohang Jangnyang PV power plant



<Figure A-35>

View of Sacheon Yonghyeon PV power plant



<Figure A-36>

View of Dangjin Chaeun PV power plant

B.2. Type(s), category(ies) and technology/(ies)/Measure/(s) of the bundle:

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This project is a small-scale CDM project activity and according to the Appendix B of “*the simplified modalities and procedures for small-scale CDM project activities*” of UNFCCC, type and category of the project can be confirmed as follows;

- Type : I – Renewable Energy Projects
- Category : I.F – Renewable electricity generation for captive use and mini-grid

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2 weather observation panels (thermometer, pyreheliometer, level meter) were connected to stanchion part of solar cells for remote operation and monitoring of photovoltaic generation facility, and the connector band of solar cells sends signal of weather condition to main communication part of inverter.

The communication board of inverter sends various data such as generation quantity, voltage, current, frequency, power factor etc of photovoltaic generation to control room (monitoring computer) for observation and measuring. The system should constitute in a way that above observation and measuring could be possible through LAN or modem and a fast action could be done understanding defects quickly even in remote place, KEMCO³ (Korea Energy Management Corporation, hereinafter referred to as KEMCO) by installing RTU(Remote Terminal Unit).

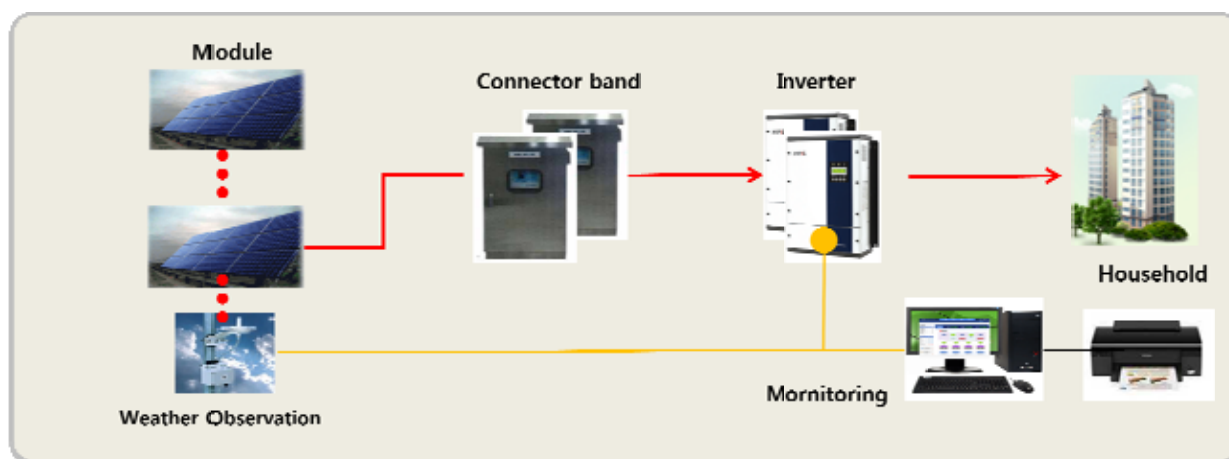
Solar cells, main technology of the project, are produced by CU Electronics, S-Energy, Canadian Solar, LG Electronics and Kyung Won Co., LTD.

DOPCO Corp. /Ilkwang Synthesis Technique Corp. /KEPID Corp./WOOJIN Corp./ Kolon Corp. which provide solar cells from CU Electronics, S-Energy, Canadian Solar, LG Electronics, Kyung Won Co., LTD will install the PV power plant and guarantee maintenance and repairs of solar cells for 3 years after the installation. Through this process, DOPCO Corp. /Ilkwang Synthesis Technique Corp. /KEPID Corp./WOOJIN Corp./ Kolon Corp. will acquire the technology and mechanism of solar cells. Based on acquired technology, the study for photovoltaic generation will continuously progress.

The project generates electricity utilizing renewable energy, photovoltaic power and all generated electricity will be supplied to households displacing electricity supplied from KEPCO grids.

Furthermore, purpose of the project is to build up a power plant with 2.876 MW of installed capacity which is less than 15MW. Therefore the project is eligible for type I.F. project activity.

The project activity generates electricity by using countless insolation from the sun, there are no severe impact on environment. Accordingly, technology applied to this project is environmentally safe and sound. Photovoltaic system feature that displaces electricity supplied from grid is as follows:



³ KEMCO seeks to implement projects efficiently for the rationalization of energy use, thereby reducing carbon dioxide emission and contributing to the sound development of the national economy.



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No.	PV power plant	Solar cells					Inverter					
		Type	Capacity (kW)	Module maximum output power (w)	Number of module	Source of imports	Type	Output (kVA)	Rated voltage (DC V)	Control method	Node form (phase-wire)	Number of units
1	Icheon Galsan(2)	Si	76.80	200	384	S-Energy	Indoor , Vertical-mount	20, 15, 11	380 V	PWM	3-4	1, 4, 1
2	Chuncheon Mancheon	Si	86.40	200	432	CU Electron	Indoor , Vertical-mount	15, 10	380 V	PWM	3-4	3, 6
3	Gunsan Guam	Si	45.60	200	228	S-Energy	Indoor , Vertical-mount	20, 15, 11	380 V	PWM	3-4	1, 1, 2
4	Nonsan Daegyo	Si	91.20	200	456	Canadian Solar	Indoor , Vertical-mount	20, 15, 10	380 V	PWM	3-4	3, 2, 2
5	Gimcheon Daesin	Si	84.00	200	420	CU Electron	Indoor , Vertical-mount	15	380 V	PWM	3-4	6
6	Gyeongsan Sadong(1)	Si	158.40	200	792	S-Energy	Indoor , Vertical-mount	20, 15	380 V	PWM	3-4	6, 4
7	Gyeongsan Sadong(2)	Si	88.80	200	444	S-Energy	Indoor , Vertical-mount	20, 15	380 V	PWM	3-4	2, 4
8	Sacheon Yonggang(2)	Si	55.20	200	276	Canadian Solar	Indoor , Vertical-mount	15, 10	380 V	PWM	3-4	1, 6
9	Goseong Dongoe	Si	72.00	200	360	Canadian Solar	Indoor , Vertical-mount	15	380 V	PWM	3-4	5



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10	Yongsan Daesuk	Si	100.80	200	504	Canadian Solar	Indoor , Vertical-mount	15, 10	380 V	PWM	3-4	6, 4
11	Gongju Singwan(6)	Si	67.20	200	336	CU Electron	Indoor , Vertical-mount	20, 10	380 V	PWM	3-4	3, 2
12	Chungju Yeonsu (6)	Si	60.00	200	300	CU Electron	Indoor , Vertical-mount	15, 10	380 V	PWM	3-4	2, 4
13	Jecheon Gangjeo(A1)	Si	88.80	200	444	Canadian Solar	Indoor , Vertical-mount	15, 11	380 V	PWM	3-4	6, 2
14	Cheongyan g Eumnae	Si	40.80	200	204	S-Energy	Indoor , Vertical-mount	15	380 V	PWM	3-4	3
15	Gochang Eumnae	Si	81.60	200	408	S-Energy	Indoor , Vertical-mount	15, 11	380 V	PWM	3-4	4, 5
16	Gimje Hadong	Si	38.40	200	192	Canadian Solar	Indoor , Vertical-mount	30, 15	380 V	PWM	3-4	1, 1
17	Yeongam Yongang	Si	81.60	200	408	Canadian Solar	Indoor , Vertical-mount	15	380 V	PWM	3-4	6
18	Geoje Irun	Si	52.80	200	264	Canadian Solar	Indoor , Vertical-mount	20, 15, 10	380 V	PWM	3-4	1, 2, 2
19	Wonju Musil(2)	Si	59.80	230	260	LG Electronics	Indoor , Vertical-mount	10	380 V	PWM	3-4	10
20	Eumseong Maengdong (1)	Si	28.98	230	126	LG Electronics	Indoor , Vertical-mount	10	380 V	PWM	3-4	4
21	Eumseong Gamgok	Si	52.44	230	228	LG Electronics	Indoor , Vertical-mount	10, 15	380 V	PWM	3-4	5, 1



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22	Jecheon Gangjeo(A 3)	Si	110.8 6	230	482	LG Electronics	Indoor , Vertical-mount	10, 15	380 V	PWM	3-4	3, 6
23	Taeon Pyeongcheon(1)	Si	91.08	230	396	LG Electronics	Indoor , Vertical-mount	10, 15, 20	380 V	PWM	3-4	2, 4, 1
24	Asan Inju	Si	94.30	230	410	LG Electronics	Indoor , Vertical-mount	15, 20	380 V	PWM	3-4	2, 4
25	Iksan Hamyeol	Si	74.75	230	325	LG Electronics	Indoor , Vertical-mount	15, 20	380 V	PWM	3-4	4, 1
26	Sunchang Pungsan	Si	28.75	230	125	LG Electronics	Indoor , Vertical-mount	15	380 V	PWM	3-4	2
27	Iksan Baesan(1)	Si	92.00	230	400	LG Electronics	Indoor , Vertical-mount	10, 15, 20	380 V	PWM	3-4	4, 2, 2
28	Iksan Baesan(3)	Si	139.3 8	230	606	LG Electronics	Indoor , Vertical-mount	10, 15, 20	380 V	PWM	3-4	6, 2, 4
29	Yeosu Jungnim(A 1)	Si	31.28	230	136	LG Electronics	Indoor , Vertical-mount	10	380 V	PWM	3-4	4
30	Yeosu Jungnim(A 2)	Si	69.92	230	304	LG Electronics	Indoor , Vertical-mount	10 ,15	380 V	PWM	3-4	6, 1
31	Uiseong Sangni	Si	55.20	230	240	Kyung Won Co., LTD	Indoor , Vertical-mount	10.5, 15	380 V	PWM	3-4	3, 2
32	Goryeong Dasan(3)	Si	57.96	230	252	Kyung Won Co., LTD	Indoor , Vertical-mount	10.5, 15	380 V	PWM	3-4	3, 3
33	Yangsan Pyeongsan	Si	184.9 2	230	804	Kyung Won Co., LTD	Indoor , Vertical-mount	10.5, 15, 20	380 V	PWM	3-4	2, 5, 6



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34	Pohang Jangnyang	Si	151.34	230	658	Kyung Won Co., LTD	Indoor , Vertical-mount	20, 25	380 V	PWM	3-4	6, 2
35	Sacheon Yonghyeon	Si	96.14	230	418	Kyung Won Co., LTD	Indoor , Vertical-mount	10.5, 15	380 V	PWM	3-4	1, 7
36	Dangjin Chaeun	Si	86.94	230	378	LG Electronics	Indoor , Vertical-mount	15, 20	380 V	PWM	3-4	3, 3

B.3 Estimated amount of emission reductions over the chosen crediting period:

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The estimated emission reductions in the 10 years of crediting period are [24,200tCO₂e] as presented below.

Year	Annual estimation of emission reductions In tonnes of CO ₂ e
Year 1	2,420
Year 2	2,420
Year 3	2,420
Year 4	2,420
Year 5	2,420
Year 6	2,420
Year 7	2,420
Year 8	2,420
Year 9	2,420
Year 10	2,420
Total estimated reductions(tonnes of CO ₂ e)	24,200
Total number of crediting years	10
Annual average of the estimated reductions over the crediting period (tCO ₂ e)	2,420

SECTION C. Duration of the project activity / Crediting period:**C.1. Duration of the Bundle**

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C.1.1. Starting date of the Bundle:

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24/04/2009(the earliest date)



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Table C-1. Starting date of the LH Corporation's 36 PV power plant

No	PV Power Plant	Starting date	Note	
1	Icheon Galsan(2)	2009.05.07	Facility supply and installation contract	2009(the 1 st stage) PV power plant
2	Chuncheon Mancheon	2009.04.24	Facility supply and installation contract	
3	Gunsan Guam	2009.05.07	Facility supply and installation contract	
4	Nonsan Daegyo	2009.04.24	Facility supply and installation contract	
5	Gimcheon Daesin	2009.04.24	Facility supply and installation contract	
6	Gyeongsan Sadong(1)	2009.05.07	Facility supply and installation contract	
7	Gyeongsan Sadong(2)	2009.05.07	Facility supply and installation contract	
8	Sacheon Yonggang(2)	2009.04.24	Facility supply and installation contract	
9	Goseong Dongoe	2009.04.24	Facility supply and installation contract	
10	Yangsan Daesuk	2009.04.24	Facility supply and installation contract	
11	Gongju Singwan(6)	2009.04.24	Facility supply and installation contract	
12	Chungju Yeonsu (6)	2009.04.24	Facility supply and installation contract	
13	Jecheon Gangjeo(A1)	2009.04.24	Facility supply and installation contract	
14	Cheongyang Eumnae	2009.05.07	Facility supply and installation contract	
15	Gochang Eumnae	2009.05.07	Facility supply and installation contract	
16	Gimje Hadong	2009.04.24	Facility supply and installation contract	
17	Yeongam Yongang	2009.04.24	Facility supply and installation contract	
18	Geoje Irun	2009.04.24	Facility supply and installation contract	
19	Wonju Musil(2)	2010.08.02	Facility supply and installation contract	2010(the 2 nd stage) PV power plant
20	Eumseong Maengdong(1)	2010.08.02	Facility supply and installation contract	
21	Eumseong Gamgok	2010.08.02	Facility supply and installation contract	
22	Jecheon Gangjeo(A3)	2010.08.02	Facility supply and installation contract	
23	Taeon Pyeongcheon(1)	2010.08.02	Facility supply and	



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			installation contract
24	Asan Inju	2010.08.02	Facility supply and installation contract
25	Iksan Hamyeol	2010.08.02	Facility supply and installation contract
26	Sunchang Pungsan	2010.08.02	Facility supply and installation contract
27	Iksan Baesan(1)	2010.08.02	Facility supply and installation contract
28	Iksan Baesan(3)	2010.08.02	Facility supply and installation contract
29	Yeosu Jungnim(A1)	2010.08.02	Facility supply and installation contract
30	Yeosu Jungnim(A2)	2010.08.02	Facility supply and installation contract
31	Uiseong Sangni	2010.08.20	Facility supply and installation contract
32	Goryeong Dasan(3)	2010.08.20	Facility supply and installation contract
33	Yangsan Pyeongsan	2010.08.20	Facility supply and installation contract
34	Pohang Jangnyang	2010.08.20	Facility supply and installation contract
35	Sacheon Yonghyeon	2010.08.20	Facility supply and installation contract
36	Dangjin Chaeun	2010.11.04	Facility supply and installation contract

C.2. Choice of crediting period and related information:

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C.2.1. Renewable crediting period:

>>

C.2.1.1. Starting date of the first crediting period:

>>

N/A

C.2.1.2. Length of the first crediting period:

>>

N/A

C.2.2. Fixed crediting period:

>>

C.2.2.1. Starting date:

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The crediting period will begin on 01/October/2010 or the date of request for registration.

**C.2.2.2. Length:**

>>

10 years

SECTION D. Application of a monitoring methodology:

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Data and parameters monitored:

Data / Parameter:	EG _{y,LH corp.}
Data unit:	MWh
Description:	Quantity of net electricity supplied to grid connected end users as a result of the implementation of the CDM project activity
Source of data to be used:	Calculated
Value of data	3,771 MWh/yr
Description of measurement methods and procedures to be applied:	<p>EG_y means the quantity of net electricity supplied to households. The net electricity generation is the difference between the total quantity of electricity generated by this project and the auxiliary electricity consumption.</p> <p><u>As for the total quantity of electricity generated by this project,</u></p> <p>Measuring equipment : Electricity meter (the measuring device in inverter) Procedure : refer to B.7.2 Calibration frequency : 3 year Accuracy of measurement method : Allowable error range $\pm 3.0\%$ Responsible person : Refer B.7.2 Measurement interval : Automatically measured</p> <p><u>As for the auxiliary electricity consumption (of connector bands and inverters),</u></p> <p>The auxiliary electricity consumption is calculated according to the Section B.7.2.</p>
QA/QC procedures to be applied:	- QA/QC procedure : Refer to B.7.2
Any comment:	<p>- Data will be at least recorded monthly and aggregated yearly.</p> <p>- Data will be kept at least for two years after the end of the last crediting period.</p>

Description of the monitoring plan:

The main monitoring data are electricity supplied to households displacing electricity supplied from KEPCO grid. To check the amount of generated electricity, the electricity meter will be installed.

The monitoring plan has been developed based on approved methodology AMS- I.F. and more details are as follows:

- Monitoring equipment : Electricity meter (the measuring device in inverter)



- Relevant laws and standards of Korea :
 - Electric Utility Act
 - Guideline for the support on the new & renewable energy equipments

Quality Assurance and Quality Control

- Measure and Archive :
 - In accordance with Article 63 of Electric Utility Act, photovoltaic generation electrical equipments (electrical equipments for self-use) will be used after they have passed an Inspection Prior to Operation that is conducted by the Minister of Knowledge Economy or the Mayor or/Do governor.
 - Regarding the monitoring equipments, Electricity meter will be installed in accordance with Table 2, “Monitoring system equipment installation standard” of “Guideline for the support on the new & renewable energy equipments”.
 - The net electricity generation is the difference between the total quantity of electricity generated by this project and the auxiliary electricity consumption.
 - The quantity of generated electricity will be automatically measured and archived electronically.
 - The auxiliary electricity consumption (of connector bands and inverters) will be very small; however, the auxiliary electricity consumption will be conservatively calculated using recording annually the number of systems operating and estimating the annual hours of systems operating (Equation : The auxiliary electricity consumption = Standby power⁴ (of connector bands and inverters) * Numbers * Hours).
 - The data archived electronically will be kept at least for two years after the end of the last crediting period.
 - The electricity data of PV power plant will be saved in storage device and submitted to LH Corporation’s Office in a paper.
- Contingency Plan :
 - In case of measurement equipment trouble or data transferring error, the person in charge of monitoring is responsible for prompt grasping the problem and restoring it in due course. Also the person will report progress to each regional headquarter.
- Calibration of equipment :
 - Measuring equipment will be recalibrated at least once in 3 years according to “*Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories*” (EB^{54th} Annex 14)
- Management of monitoring and electricity safety :
 - The person in charge of monitoring and electricity safety will be trained according to the LH Corporation’s guideline. LH Corporation will prepare a plan on staff training for monitoring.

⁴ Standby power is the electric power consumed by electronic appliances while they are switched off or in a standby mode and is based on the letter (or evidence) from manufacturers.



- Monitoring organization and responsibility :

LH Corporation's Office

: General duty of whole management

Gangwon-do headquarter

Chuncheon Mancheon
Wonju Musil(2)

Gyeonggi-do headquarter

Icheon Galsan(2)

Gyeongsangnam-do headquarter

Sacheon Yonggang(2)
Goseong Dongoe
Geoje Irun
Yangsan Pyeongsan
Yangsan Daesuk
Sacheon Yonghyeon

Gyeongsangbuk-do headquarter

Gimcheon Daesin
Gyeongsan Sadong(1)
Gyeongsan Sadong(2)
Uiseong Sangni
Goryeong Dasan(3)
Pohang Jangnyang

Jeollanam-do headquarter

Yeongam Yongang
Yeosu Jungnim(A1)
Yeosu Jungnim(A2)

Jeollabuk-do headquarter

Gunsan Guam
Gochang Eumnae
Gimje Hadong
Iksan Hamyeol
Sunchang Pungsan
Iksan Baesan(1)
Iksan Baesan(3)

Chungcheongnam-do headquarter

Nonsan Daegyo
Gongju Singwan(6)
Cheongyang Eumnae
Taeon Pyeongcheon(1)
Asan Inju
Dangjin Chaeun

Chungcheongbuk-do headquarter

Chungju Yeonsu(6)
Jecheon Gangjeo(A1)
Eumseong Maengdong(1)
Eumseong Gangmok
Jecheon Gangjeo(A3)

: General management of electricity,
monitoring Practical operation and
maintenance

: General management of electricity,
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- Persons in charge of monitoring from 36 regions will report general contents of operation such as running photovoltaic generation facilities, monitoring, emergency response, etc. to each regional headquarter of LH Corporation. Each regional headquarter will then report each of contents to LH Corporation's Office.
- All records will be documented and maintained by LH Corporation for certification.