JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Grocery Stores in Republic of Indonesia

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

The proposed JCM project aims to improve energy saving in grocery stores in Republic of Indonesia by introducing high-efficiency technologies. The project covers a total of 12 grocery stores owned by PT MIDI UTAMA INDONESIA Tbk located in Special Capital Region of Jakarta and its surrounding districts (locations indicated in section A.3).

3 types of key technologies listed below are implemented in all 12 stores.

(1) inverter-type air conditioning system (newly installed or installed to replace existing air conditioning system) (methodology used: ID_AM004)

(2) LED lighting (newly installed or installed to replace existing fluorescent lighting) (methodology used: ID_AM005)

(3) separate type fridge freezer showcase (newly installed or installed to replace existing built-in type fridge freezer showcase) (methodology used: ID_AM008)

The project is expected to reduce a total of 145 tCO_2 greenhouse gas annually, among which 37 tCO_2/year consists of reduction by inverter-type air conditioning system, 19 tCO_2/year by LED lighting, and 89 tCO_2/year by separate type fridge freezer showcase.

A.3. Location of project, including coordinates

Country	Republic of Indonesia
Region/State/Province etc.:	Special Capital Region of Jakarta and its surrounding districts
City/Town/Community etc:	Store 1 (Raden Saleh 3): Kel. Meruya Utara Kec. Kembangan JakBar Store 2 (Kebagusan 2): Kel. Jagakarsa Kec. Jagakarsa Jakarta Selatan Store 3 (Surya Darma): Kel. Neglasari Kec. Neglasari, Tangerang Store 4 (Meruyung): Meruyung Limo Store 5 (Tebet Timur Dalam):

	Kel. Tebet Timur Kec. Tebet, Jakarta Selatan Store 6 (Palmerah Utara): Kel. Palmerah Kec. Palmerah, JakBar Store 7 (Matraman Raya): Palmerah Matraman, Jakarta Timur Store 8 (Raya Tengah): Kel. Gedong Kec. Pasar Rebo, Jakarta Timur Store 9 (Muncang): Kel. Lagoa Kec. Koja Jakarta Utara Store 10 (Ceger Raya 2): Kel. Jurangmangu Kec. Pondok Aren TangSel Store 11 (Sawangan 3): Kel. Pancoran Mas , Depok Store 12 (Kampung Asem): Kel. Mustika Jaya Bekasi
Latitude, longitude	Store 1: S6.196687, E106.724439 Store 2: S6.31824, E106.82492 Store 3: S6.140649, E106.632588 Store 4: S6.38269, E106.76871 Store 5: S6.233291, E106.856846 Store 6: S6.20418, E106.79345 Store 7: S6.20104, E106.85588 Store 8: S6.299088, E106.859263 Store 9: S6.115741, 106.907058 Store 10: S6.262454, 106.731617 Store 11: S6.396444, E106.804556 Store 12: S6.296151, E107.020927

A.4. Name of project participants

The Republic of Indonesia	PT MIDI UTAMA INDONESIA Tbk
Japan	Lawson, Inc.

A.5. Duration

Starting date of project operation	Store 1: 21 February 2014 Store 2: 10 March 2014 Store 3: 20 March 2015

	Store 4: 10 February 2015 Store 5: 15 March 2015 Store 6: 18 March 2015 Store 7: 20 March 2015 Store 8: 21 March 2015 Store 9: 21 March 2015 Store 10: 19 March 2015 Store 11: 24 February 2015 Store 12: 18 March 2015
Expected operational lifetime of project	Inverter-type air conditioning system: 8 years LED lighting: 8 years Separate type fridge-freezer showcase: 8 years

A.6. Contribution from developed countries

The proposed project was partially supported by the Ministry of the Environment, Japan through the financing program for JCM model projects which provided financial supports up to 50% of initial investment for the projects in order to acquire JCM credits. Apart from support from financing program for JCM model projects, the project was also financially supported by Japanese company.
In terms of technology transfer, during the installation of advanced energy saving technologies (inverter-type air conditioning system, LED lighting and separate type fridge freezer showcase), Panasonic Corporation has conducted training sessions to the grocery store staffs on the appropriate operation of equipment.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	ID_AM004
Version number	2.0
Selected approved methodology No.	ID_AM005
Version number	2.0
Selected approved methodology No.	ID_AM008
Version number	2.0

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

[ID_AM004]

<table>
<tr><th>Eligibility criteria</th><th>Descriptions specified in the methodology</th><th>Project information</th></tr>
<tr><td>Criterion 1</td><td>Single split inverter-type air conditioning system is newly installed or installed to replace existing air conditioning system for grocery store whose selling area is less than 400 (four hundred) $m^{2.}$</td><td>In grocery stores 1, 2, 3, 11, 12, inverter-type air conditioning systems are newly installed. In grocery stores 4-10, inverter-type air conditioning systems are installed to replace existing air conditioning system. All air conditioning systems installed are of Model No. CS-S24PKP manufactured by Panasonic Corporation. All stores have selling areas less than 400 m^2.</td></tr>
<tr><td>Criterion 2</td><td>The installed air conditioning system is wall mounted type and/or ceiling cassette type, and has a COP value higher than that of the value indicated in the table below.
<table><tr><th>Cooling Capacity [kW]</th><th>Reference COP</th></tr><tr><td>$2.5 < x \leqq 4.1$</td><td>4.00</td></tr><tr><td>$4.1 < x \leqq 5.3$</td><td>3.59</td></tr><tr><td>$5.3 < x \leqq 7.1$</td><td>2.96</td></tr><tr><td>$7.1 < x \leqq 14.2$</td><td>2.85</td></tr></table></td><td>The installed air conditioning system is wall mounted type. Cooling capacity and COP of air conditioning system is 6.25 kW and 3.32 respectively.</td></tr>
<tr><td>Criterion 3</td><td>Ozone Depletion Potential (ODP) of the refrigerant used for the installed air conditioning system is 0 (zero).</td><td>The refrigerant used in installed air conditioning system is HFC (R410A), which ODP is 0.</td></tr>
<tr><td>Criterion 4</td><td>A Plan for not releasing refrigerant used for project air conditioning system is prepared. In the case of replacing the existing air conditioning system with the project air conditioning system, a plan is prepared in which refrigerant used for the existing air conditioning system is</td><td>Installation of project air conditioning system in all stores is conducted by PT Gobel Dharma Nusantara (GDN), local associated company of Panasonic Corporation, by following the manual on refrigerant leakage prevention of Panasonic Corporation. Hence, no refrigerant from project air</td></tr>
</table>

	not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.	conditioning system is being released during the process. In the case of replacement of air conditioning systems in stores 4-10, all existing air conditioning systems are removed by GDN. Similar to installation, removal is conducted by following the manual on refrigerant leakage prevention of Panasonic Corporation without dismantling. Hence, no refrigerant from existing air conditioning system is being released during the process. Execution of the prevention plan for installation and removal of air conditioning system is checked at the time of verification, through confirmation of supporting documents regarding the execution (e.g. reports or letters from PT MIDI UTAMA INDONESIA Tbk, etc). *Manual of Panasonic Corporation: During installation and removal of air conditioning system, refrigerant is prevented from being released to the air by sealing it within the structure of the air conditioning system through pump-down method.

[ID_AM005]

Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	LED lighting is newly installed or installed to replace existing fluorescent lighting for grocery store whose selling area is less than 400 (four hundred) $m^{2.}$	In grocery stores 1, 2, 3, 11, 12, LED lighting is newly installed. In grocery stores 4-10, LED lighting is installed to replace existing lighting. The LED lighting installed in grocery stores 1 and 2 comprise of frame No. NNFK90509 and light bar No. NNU502005KLA9, whereas the LED lighting installed in stores 3-12 comprise of frame No. NNLK41515 and light bar No. NNL4300EN DZ9, all of which are manufactured by Panasonic Corporation. All stores have selling areas less than 400 m^2.
Criterion 2	The installed LED lighting is a straight type LED with color temperature between 5,000 and 6,500 K, length between 602.5 and 1,513.0 mm, and luminous efficiency of more than 120 lm/W.	The LED lighting installed in stores 1 and 2 is a straight type with color temperature 5,000 K, length 1,225 mm, and luminous efficiency of 133.3 lm/W. Whereas the LED lighting installed in stores 3-12 is a straight type with color temperature 5,000 K, length 1,250 mm, and luminous efficiency of 137.9 lm/W.
Criterion 3	A measurement result of the illuminance (lux (lm/m2)) of the installed LED lighting which is equal or above the minimum value (300 lux) for illuminance of grocery store is obtained. See explanatory note for the measurement method.	Measurement of illuminance for all grocery stores are conducted by PT Panasonic Gobel Eco Solution Sales Indonesia based on measurement method indicated in the approved methodology ID_AM005. All measurement results are confirmed to be equal or above the minimum value 300 lux.

Criterion 4	In the case of replacing existing fluorescent lighting with the project LED lighting, mercury contained in existing fluorescent lighting is not released to the environment.	In the case of replacement of lighting in stores 4-10, the existing fluorescent lightings are removed by PT MIDI UTAMA INDONESIA Tbk. After the removal process, the fluorescent lighting is either reused in other grocery stores or sold to the second-hand market without being dismantled. Hence no mercury is released to the environment.

[ID_AM008]

Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	The project is to install a separate type fridge-freezer showcase by using natural refrigerant or replacing the existing at a grocery store which is equipped with wall mounted type and/or ceiling cassette type air conditioning system and whose selling area is less than 400 (four hundred) m^2.	In grocery stores 1, 2, 3, 11, 12, separate type fridge-freezer showcases are newly installed. In grocery stores 4-10, separate type fridge-freezer showcases are installed to replace the existing. The refrigerant used for all installed separate type fridge-freezer showcases are CO_2 (natural refrigerant). For fridge showcases, outdoor condensing unit No. OCU-CR1000VF are installed, and for freezer showcases, outdoor condensing unit No. OCU-CR200VLF are installed, with both types manufactured by Panasonic Corporation. All stores are equipped with wall mounted type air conditioning system, and have selling areas less than 400 m^2.
Criterion 2	In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, the	In stores 4-10 where existing fridge-freezer showcases are replaced, the existing one is a built-in type

	existing one is a built-in type showcase.	showcase.
Criterion 3	A plan for not releasing refrigerant used for project fridge-freezer showcase is prepared. In the case of replacing the existing fridge-freezer showcase with the project fridge-freezer showcase, a plan is prepared in which refrigerant used in the existing fridge-freezer showcase is not released to the air e.g. re-use of the refrigerant. Execution of the prevention plan is checked at the time of verification, in order to confirm that refrigerant used for the existing one replaced by the project is not released to the air.	In the project, all installed separate type fridge-freezer showcases use CO_2 (natural refrigerant) as a refrigerant. CO_2 refrigerant is an environmental-friendly refrigerant which has 0 ODP and a low GWP (1), and is not a subject of regulation under the Japanese CFC Rules. Hence, refrigerant leakage prevention plan for such equipment is not necessary. In the case of replacement of fridge-freezer showcases in stores 4-10, the existing fridge-freezer showcases are removed by PT MIDI UTAMA INDONESIA Tbk to be sold to the second-hand market without being dismantled. As the existing showcase is a built-in type, the refrigerant is completely sealed inside the structure of the showcase. Since during the removal only the power plug is unplugged and no actions which cause refrigerant leakage are taken on the showcase, no refrigerant is released to the atmosphere. For installed separate type fridge-freezer showcase, since prevention plan is not necessary, checking of execution of prevention plan does not occur at the time of verification. For removed built-in type

		fridge-freezer showcase, execution of the prevention plan is checked at the time of verification, through confirmation of supporting documents regarding the execution (e.g. receipt from second-hand collectors, reports or letters from PT MIDI UTAMA INDONESIA Tbk, etc).

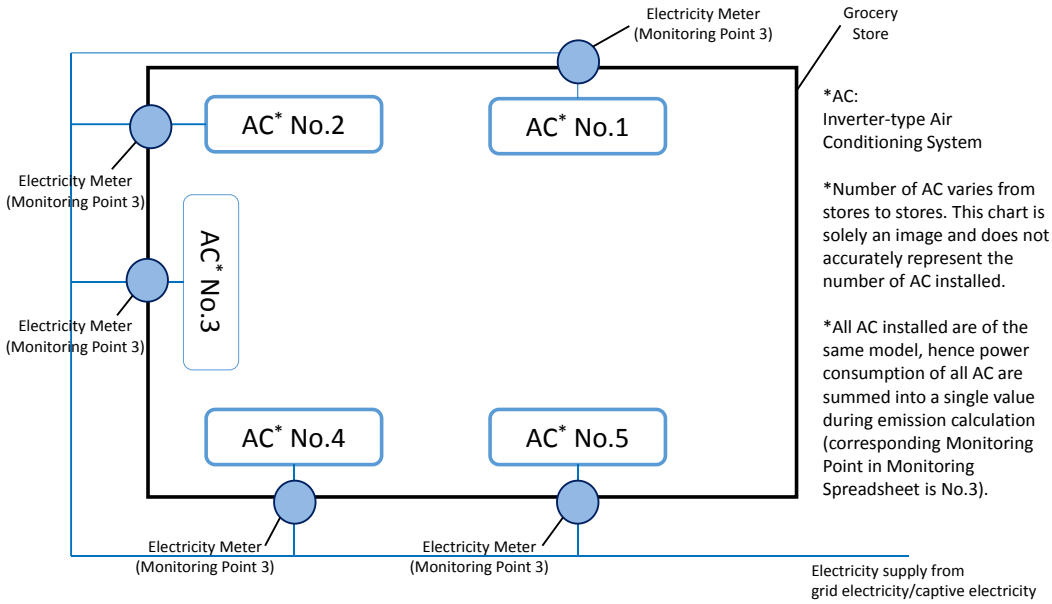
C. Calculation of emission reductions

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

Reference emissions	
Emission sources	GHG type
Power consumption by reference air conditioning system	CO_2
Power consumption by reference lighting	CO_2
Power consumption by reference fridge showcase	CO_2
Power consumption by reference freezer showcase	CO_2
Project emissions	
Emission sources	GHG type
Power consumption by project air conditioning system	CO_2
Power consumption by project LED lighting	CO_2
Power consumption by project fridge showcase	CO_2
Power consumption by project freezer showcase	CO_2

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

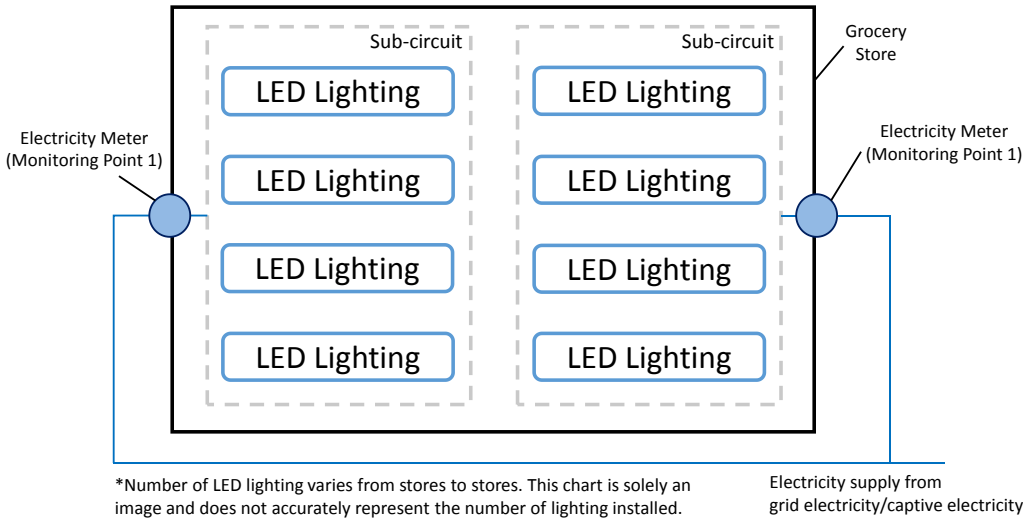
[Emission sources and monitoring points for methodology ID_AM004]



* Emission sources for methodology ID_AM004 are inverter-type air conditioning system.

* An electric meter is attached to each air conditioning system to monitor power consumption. All power consumption is summed into a single value during calculation of emission reduction.

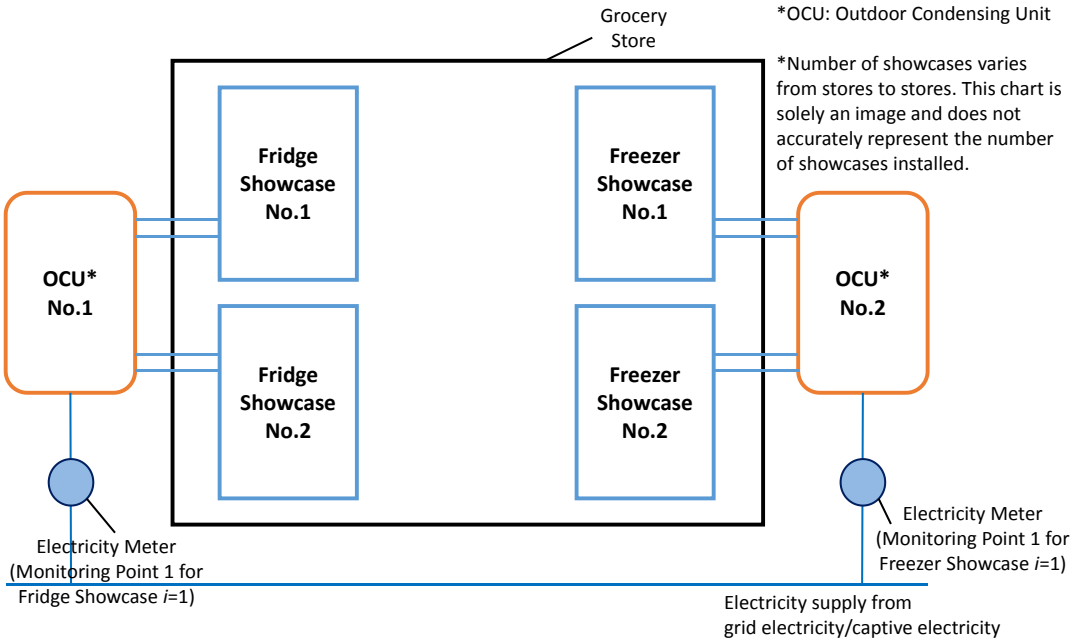
[Emission sources and monitoring points for methodology ID_AM005]



* Emission sources for methodology ID_AM005 are LED lighting.

* An electric meter is attached to each lighting sub-circuit to monitor total power consumption of the sub-circuit.

[Emission sources and monitoring points for methodology ID_AM008]



* Emission sources for methodology ID_AM008 are separate type fridge-freezer showcase.

* An electric meter is attached to each outdoor condensing unit (OCU) and showcase to monitor power consumption (among which power consumption of OCU is used for emission estimation).

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2014	155	136	19
2015	647	569	78
2016	1,105	960	145
2017	1,105	960	145
2018	1,105	960	145
2019	1,105	960	145
2020	1,105	960	145
2021	1,105	960	145
2022	1,105	960	145
Grand Total	8,537	7,425	1,112

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	NO

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Since the project activity is limited to installation of inverter-type air conditioning system, LED lighting and separate type fridge-freezer showcase in grocery stores with a limited level of potential social and environmental impact, the project participants (PP) identified direct stakeholders as the company which owns and manages the grocery stores (PT MIDI UTAMA INDONESIA Tbk) and staffs who operate the grocery stores.

As a JCM project, indirect stakeholders are identified to be Indonesian Retail Merchants Association (APRINDO: Asosiasi Pengusaha Ritel Indonesia), an organization which contributes to the development of retail sector in Indonesia.

The PP conducted face-to-face local stakeholder consultation meetings described as below:

No.	Stakeholder	Date	Venue
1	PT MIDI UTAMA INDONESIA Tbk	August 4, 2015	Conference Room of PT MIDI UTAMA INDONESIA Tbk, Tangerang
2	Indonesian Retail Merchants Association (APRINDO: Asosiasi Pengusaha Ritel Indonesia)	August 5, 2015	Plaza Semanggi, Jakarta
3	Alfamidi Stores	August 6, 2015	(1) Alfamidi Palmerah Utara, Palmerah, Jakarta Barat (2) Alfamidi Tebet Timur Dalam, Tebet, Jakarta Selatan (3) Alfamidi Matraman Raya, Palmerah Matraman, Jakarta Timur

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Technical Support & Maintenance Manager (person-in-charge of management of the project), PT MIDI UTAMA INDONESIA Tbk	(1) We have high expectations on the project. The project has a high social significance, considering that it aids in reducing GHG emission in Indonesia. (2) Among the 3 technologies implemented, the separate type fridge-freezer showcases contributed in improving the freshness and appearance of our fresh foods, which is highly correlated to customer satisfaction. (3) We wish to expand the project to other grocery stores and supermarkets since they are highly beneficial.	No action is needed.
Chairman, Indonesian Retail Merchants Association (APRINDO: Asosiasi Pengusaha Ritel Indonesia)	(1) Indonesia is facing rapid increase in population and electricity demand due to economic development. In such circumstances, APRINDO is fully aware of the importance of energy-saving projects such as this project. (2) Support from the Japanese government in expanding energy-saving technologies in Indonesia, including the JCM scheme, is important and highly appreciated. The JCM scheme and its contribution to Indonesia should be publicized more.	No action is needed.
Area Coordinator, Manager, Deputy Manager and Store Staff of Alfamidi Stores	(1) We hope that these technologies become more widespread throughout the retail sector in Indonesia, to help us retailers provide a more comfortable and cleaner selling space for our	No action is needed.

	customers. (Alfamidi Palmerah Utara, Alfamidi Matraman Raya) (2) As compared to existing technologies with similar capacity, the energy-saving technologies installed in the project are more beneficial because they help to reduce the utility expenses of the stores. (Alfamidi Tebet Timur Dalam)	

F. References

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

Annex
Annex 1: Estimated emissions reductions in each year for methodology ID_AM004
Annex 2: Estimated emissions reductions in each year for methodology ID_AM005
Annex 3: Estimated emissions reductions in each year for methodology ID_AM008

Revision history of PDD		
Version	Date	Contents revised
1.0	xx/xx/2015	First edition

JCM Project Design Document

Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Convenience Stores in Republic of Indonesia

Annex 1: Estimated emissions reductions in each year for methodology ID_AM004

Estimated emissions reductions for each grocery store as well as grand total of emissions reductions for the installation of inverter-type air conditioning system are shown below.

1. Estimated emissions reductions for each grocery store

Store 1 (Raden Saleh)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	23	20	3	26.2
2015	28	25	3	31.8
2016	28	25	3	31.8
2017	28	25	3	31.8
2018	28	25	3	31.8
2019	28	25	3	31.8
2020	28	25	3	31.8
2021	28	25	3	31.8
2022	28	25	3	31.8
Total	**247**	**220**	**27**	**280.3**

(REMARKS) Starting date: 21 February 2014

Store 2 (Kebagusan)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	15	13	2	17.3
2015	24	21	3	26.8
2016	24	21	3	26.8
2017	24	21	3	26.8
2018	24	21	3	26.8
2019	24	21	3	26.8
2020	24	21	3	26.8
2021	24	21	3	26.8
2022	24	21	3	26.8
Total	**207**	**181**	**26**	**231.7**

(REMARKS) Starting date: 10 March 2014

Store 3 (Surya Darma)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	11	10	1	12.9
2016	23	20	3	25.8
2017	23	20	3	25.8
2018	23	20	3	25.8
2019	23	20	3	25.8
2020	23	20	3	25.8
2021	23	20	3	25.8
2022	23	20	3	25.8
Total	**172**	**150**	**22**	**193.5**

(REMARKS) Starting date: 20 March 2015

Store 4 (Meruyung)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	14	13	1	16.3
2016	25	22	3	28.0
2017	25	22	3	28.0
2018	25	22	3	28.0
2019	25	22	3	28.0
2020	25	22	3	28.0
2021	25	22	3	28.0
2022	25	22	3	28.0
Total	**189**	**167**	**22**	**212.5**

(REMARKS) Starting date: 10 February 2015

Store 5 (Tebet Timur Daram)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	12	11	1	14.2
2016	25	22	3	28.4
2017	25	22	3	28.4
2018	25	22	3	28.4
2019	25	22	3	28.4
2020	25	22	3	28.4
2021	25	22	3	28.4
2022	25	22	3	28.4
Total	**187**	**165**	**22**	**213.3**

(REMARKS) Starting date: 15 March 2015

Store 6 (Palmerah Utara)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	17	15	2	19.1
2016	34	30	4	38.2
2017	34	30	4	38.2
2018	34	30	4	38.2
2019	34	30	4	38.2
2020	34	30	4	38.2
2021	34	30	4	38.2
2022	34	30	4	38.2
Total	**255**	**225**	**30**	**286.2**

(REMARKS) Starting date: 18 March 2015

Store 7 (Matraman Raya)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	20	18	2	23.1
2016	41	37	4	46.3
2017	41	37	4	46.3
2018	41	37	4	46.3
2019	41	37	4	46.3
2020	41	37	4	46.3
2021	41	37	4	46.3
2022	41	37	4	46.3
Total	**307**	**277**	**30**	**346.9**

(REMARKS) Starting date: 20 March 2015

Store 8 (Raya Tengah)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	25	22	3	28.0
2016	50	44	6	56.0
2017	50	44	6	56.0
2018	50	44	6	56.0
2019	50	44	6	56.0
2020	50	44	6	56.0
2021	50	44	6	56.0
2022	50	44	6	56.0
Total	**375**	**330**	**45**	**420.1**

(REMARKS) Starting date: 21 March 2015

Store 9 (Muncang)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	7	6	1	8.0
2016	14	12	2	16.0
2017	14	12	2	16.0
2018	14	12	2	16.0
2019	14	12	2	16.0
2020	14	12	2	16.0
2021	14	12	2	16.0
2022	14	12	2	16.0
Total	**105**	**90**	**15**	**120.4**

(REMARKS) Starting date: 21 March 2015

Store 10 (Ceger Raya 2)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	12	11	1	14.5
2016	25	23	2	28.9
2017	25	23	2	28.9
2018	25	23	2	28.9
2019	25	23	2	28.9
2020	25	23	2	28.9
2021	25	23	2	28.9
2022	25	23	2	28.9
Total	**187**	**172**	**15**	**216.8**

(REMARKS) Starting date: 19 March 2015

Store 11 (Sawangan 3)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	9	8	1	10.3
2016	18	16	2	20.6
2017	18	16	2	20.6
2018	18	16	2	20.6
2019	18	16	2	20.6
2020	18	16	2	20.6
2021	18	16	2	20.6
2022	18	16	2	20.6
Total	**135**	**120**	**15**	**154.7**

(REMARKS) Starting date: 24 February 2015

Store 12 (Kampung Asem)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Power consumption of project air conditioning system 3 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	12	11	1	13.8
2016	24	22	2	27.6
2017	24	22	2	27.6
2018	24	22	2	27.6
2019	24	22	2	27.6
2020	24	22	2	27.6
2021	24	22	2	27.6
2022	24	22	2	27.6
Total	**180**	**165**	**15**	**207.3**

(REMARKS) Starting date: 18 March 2015

2. Grand total of emissions reductions

Store 1-12	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)
2014	38	33	5
2015	191	171	20
2016	331	294	37
2017	331	294	37
2018	331	294	37
2019	331	294	37
2020	331	294	37
2021	331	294	37
2022	331	294	37
Grand Total	**2,546**	**2,262**	**284**

*Values in “C.3. Estimated emissions reductions in each year” are calculated by summing grand total of emissions reductions of ID_AM004, ID_AM005, ID_AM008.

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Installation of Inverter-type Air Conditioning System, LED Lighting and Separate Type Fridge Freezer Showcase to Convenience Stores in Republic of Indonesia

Annex 2: Estimated emissions reductions in each year for methodology ID_AM005

Estimated emissions reductions for each grocery store as well as grand total of emissions reductions for the installation of LED lighting are shown below.

1. Estimated emissions reductions for each grocery store

Store 1 (Raden Saleh)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	7	6	1	7.5
2015	8	7	1	9.2
2016	8	7	1	9.2
2017	8	7	1	9.2
2018	8	7	1	9.2
2019	8	7	1	9.2
2020	8	7	1	9.2
2021	8	7	1	9.2
2022	8	7	1	9.2
Total	**71**	**62**	**9**	**81.1**

(REMARKS) Starting date: 21 February 2014

Store 2 (Kebagusan)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	7	6	1	8.2
2015	10	8	2	10.6
2016	10	8	2	10.6
2017	10	8	2	10.6
2018	10	8	2	10.6
2019	10	8	2	10.6
2020	10	8	2	10.6
2021	10	8	2	10.6
2022	10	8	2	10.6
Total	**87**	**70**	**17**	**93.3**

(REMARKS) Starting date: 10 March 2014

Store 3 (Surya Darma)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	2	1	1	2.0
2016	4	3	1	4.0
2017	4	3	1	4.0
2018	4	3	1	4.0
2019	4	3	1	4.0
2020	4	3	1	4.0
2021	4	3	1	4.0
2022	4	3	1	4.0
Total	**30**	**22**	**8**	**30.0**

(REMARKS) Starting date: 20 March 2015

Store 4 (Meruyung)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	2	1	1	2.5
2016	4	3	1	4.2
2017	4	3	1	4.2
2018	4	3	1	4.2
2019	4	3	1	4.2
2020	4	3	1	4.2
2021	4	3	1	4.2
2022	4	3	1	4.2
Total	**30**	**22**	**8**	**32.1**

(REMARKS) Starting date: 10 February 2015

Store 5 (Tebet Timur Daram)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	3	2	1	3.6
2016	7	5	2	7.3
2017	7	5	2	7.3
2018	7	5	2	7.3
2019	7	5	2	7.3
2020	7	5	2	7.3
2021	7	5	2	7.3
2022	7	5	2	7.3
Total	**52**	**37**	**15**	**54.6**

(REMARKS) Starting date: 15 March 2015

Store 6 (Palmerah Utara)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	4	3	1	4.9
2016	9	7	2	9.8
2017	9	7	2	9.8
2018	9	7	2	9.8
2019	9	7	2	9.8
2020	9	7	2	9.8
2021	9	7	2	9.8
2022	9	7	2	9.8
Total	**67**	**52**	**15**	**73.3**

(REMARKS) Starting date: 18 March 2015

Store 7 (Matraman Raya)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	3	2	1	3.6
2016	7	5	2	7.1
2017	7	5	2	7.1
2018	7	5	2	7.1
2019	7	5	2	7.1
2020	7	5	2	7.1
2021	7	5	2	7.1
2022	7	5	2	7.1
Total	**52**	**37**	**15**	**53.4**

(REMARKS) Starting date: 20 March 2015

Store 8 (Raya Tengah)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	4	3	1	4.6
2016	9	7	2	9.1
2017	9	7	2	9.1
2018	9	7	2	9.1
2019	9	7	2	9.1
2020	9	7	2	9.1
2021	9	7	2	9.1
2022	9	7	2	9.1
Total	**67**	**52**	**15**	**68.5**

(REMARKS) Starting date: 21 March 2015

Store 9 (Muncang)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	3	2	1	3.1
2016	6	4	2	6.1
2017	6	4	2	6.1
2018	6	4	2	6.1
2019	6	4	2	6.1
2020	6	4	2	6.1
2021	6	4	2	6.1
2022	6	4	2	6.1
Total	**45**	**30**	**15**	**45.8**

(REMARKS) Starting date: 21 March 2015

Store 10 (Ceger Raya 2)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	4	3	1	4.6
2016	9	7	2	9.3
2017	9	7	2	9.3
2018	9	7	2	9.3
2019	9	7	2	9.3
2020	9	7	2	9.3
2021	9	7	2	9.3
2022	9	7	2	9.3
Total	**67**	**52**	**15**	**69.5**

(REMARKS) Starting date: 19 March 2015

Store 11 (Sawangan 3)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	1	1	0	1.7
2016	3	2	1	3.5
2017	3	2	1	3.5
2018	3	2	1	3.5
2019	3	2	1	3.5
2020	3	2	1	3.5
2021	3	2	1	3.5
2022	3	2	1	3.5
Total	**22**	**15**	**7**	**26.0**

(REMARKS) Starting date: 24 February 2015

Store 12 (Kampung Asem)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Total power consumption of project lighting during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.
2015	2	2	0	2.5
2016	5	4	1	5.1
2017	5	4	1	5.1
2018	5	4	1	5.1
2019	5	4	1	5.1
2020	5	4	1	5.1
2021	5	4	1	5.1
2022	5	4	1	5.1
Total	**37**	**30**	**7**	**38.2**

(REMARKS) Starting date: 18 March 2015

2. Grand total of emissions reductions

Store 1-12	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)
2014	14	12	2
2015	46	35	11
2016	81	62	19
2017	81	62	19
2018	81	62	19
2019	81	62	19
2020	81	62	19
2021	81	62	19
2022	81	62	19
Grand Total	**627**	**481**	**146**

*Values in “C.3. Estimated emissions reductions in each year” are calculated by summing grand total of emissions reductions of ID_AM004, ID_AM005, ID_AM008.

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Annex 3: Estimated emissions reductions in each year for methodology ID_AM008

Estimated emissions reductions for each grocery store as well as grand total of emissions reductions for the installation of separate type fridge-freezer showcase are shown below.

1. Estimated emissions reductions for each grocery store

	Applied Methodology ID_AM008				
Store 1 (Raden Saleh)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	47	42	5	22.4	6.6
2015	54	47	7	25.5	7.7
2016	54	47	7	25.5	7.7
2017	54	47	7	25.5	7.7
2018	54	47	7	25.5	7.7
2019	54	47	7	25.5	7.7
2020	54	47	7	25.5	7.7
2021	54	47	7	25.5	7.7
2022	54	47	7	25.5	7.7
Total	**479**	**418**	**61**	**226.4**	**68.1**

(REMARKS) Starting date: 21 February 2014

	Applied Methodology ID_AM008				
Store 2 (Kebagusan)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	56	49	7	26.7	7.6
2015	68	59	9	32.1	9.3
2016	68	59	9	32.1	9.3
2017	68	59	9	32.1	9.3
2018	68	59	9	32.1	9.3
2019	68	59	9	32.1	9.3
2020	68	59	9	32.1	9.3
2021	68	59	9	32.1	9.3
2022	68	59	9	32.1	9.3
Total	**600**	**521**	**79**	**283.2**	**82.4**

(REMARKS) Starting date: 10 March 2014

	Applied Methodology ID_AM008				
Store 3 (Surya Darma)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	27	25	2	14.5	1.9
2016	54	50	4	28.9	3.8
2017	54	50	4	28.9	3.8
2018	54	50	4	28.9	3.8
2019	54	50	4	28.9	3.8
2020	54	50	4	28.9	3.8
2021	54	50	4	28.9	3.8
2022	54	50	4	28.9	3.8
Total	**405**	**375**	**30**	**216.8**	**28.7**

(REMARKS) Starting date: 20 March 2015

	Applied Methodology ID_AM008				
Store 4 (Meruyung)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	36	32	4	17.2	4.9
2016	62	54	8	29.5	8.5
2017	62	54	8	29.5	8.5
2018	62	54	8	29.5	8.5
2019	62	54	8	29.5	8.5
2020	62	54	8	29.5	8.5
2021	62	54	8	29.5	8.5
2022	62	54	8	29.5	8.5
Total	**470**	**410**	**60**	**223.5**	**64.2**

(REMARKS) Starting date: 10 February 2015

	Applied Methodology ID_AM008				
Store 5 (Tebet Timur Daram)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	33	29	4	15.5	4.6
2016	66	57	9	30.9	9.2
2017	66	57	9	30.9	9.2
2018	66	57	9	30.9	9.2
2019	66	57	9	30.9	9.2
2020	66	57	9	30.9	9.2
2021	66	57	9	30.9	9.2
2022	66	57	9	30.9	9.2
Total	**495**	**428**	**67**	**232.0**	**69.2**

(REMARKS) Starting date: 15 March 2015

	Applied Methodology ID_AM008				
Store 6 (Palmerah Utara)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	35	31	4	16.8	4.7
2016	71	62	9	33.6	9.5
2017	71	62	9	33.6	9.5
2018	71	62	9	33.6	9.5
2019	71	62	9	33.6	9.5
2020	71	62	9	33.6	9.5
2021	71	62	9	33.6	9.5
2022	71	62	9	33.6	9.5
Total	**532**	**465**	**67**	**251.7**	**71.2**
(REMARKS)	Starting date: 18 March 2015				

	Applied Methodology ID_AM008				
Store 7 (Matraman Raya)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	28	25	3	13.1	4.4
2016	57	49	8	26.1	8.8
2017	57	49	8	26.1	8.8
2018	57	49	8	26.1	8.8
2019	57	49	8	26.1	8.8
2020	57	49	8	26.1	8.8
2021	57	49	8	26.1	8.8
2022	57	49	8	26.1	8.8
Total	**427**	**368**	**59**	**195.9**	**66.3**
(REMARKS)	Starting date: 20 March 2015				

	Applied Methodology ID_AM008				
Store 8 (Raya Tengah)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	33	29	4	15.4	4.8
2016	66	57	9	30.8	9.6
2017	66	57	9	30.8	9.6
2018	66	57	9	30.8	9.6
2019	66	57	9	30.8	9.6
2020	66	57	9	30.8	9.6
2021	66	57	9	30.8	9.6
2022	66	57	9	30.8	9.6
Total	**495**	**428**	**67**	**230.9**	**71.9**
(REMARKS)	Starting date: 21 March 2015				

	Applied Methodology ID_AM008				
Store 9 (Muncang)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	32	28	4	14.8	4.8
2016	64	56	8	29.6	9.7
2017	64	56	8	29.6	9.7
2018	64	56	8	29.6	9.7
2019	64	56	8	29.6	9.7
2020	64	56	8	29.6	9.7
2021	64	56	8	29.6	9.7
2022	64	56	8	29.6	9.7
Total	**480**	**420**	**60**	**221.9**	**72.4**
(REMARKS)	Starting date: 21 March 2015				

	Applied Methodology ID_AM008				
Store 10 (Ceger Raya 2)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	22	20	2	10.1	3.5
2016	45	39	6	20.3	7.1
2017	45	39	6	20.3	7.1
2018	45	39	6	20.3	7.1
2019	45	39	6	20.3	7.1
2020	45	39	6	20.3	7.1
2021	45	39	6	20.3	7.1
2022	45	39	6	20.3	7.1
Total	**337**	**293**	**44**	**152.0**	**53.0**
(REMARKS)	Starting date: 19 March 2015				

	Applied Methodology ID_AM008				
Store 11 (Sawangan 3)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	24	22	2	11.6	3.5
2016	49	43	6	23.2	6.9
2017	49	43	6	23.2	6.9
2018	49	43	6	23.2	6.9
2019	49	43	6	23.2	6.9
2020	49	43	6	23.2	6.9
2021	49	43	6	23.2	6.9
2022	49	43	6	23.2	6.9
Total	**367**	**323**	**44**	**173.7**	**51.8**
(REMARKS)	Starting date: 24 February 2015				

	Applied Methodology ID_AM008				
Store 12 (Kampung Asem)	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)	Electricity consumption of the project fridge showcase 1 during the period *p* (MWh/p)	Electricity consumption of the project freezer showcase 1 during the period *p* (MWh/p)
2014	n.a.	n.a.	n.a.	n.a.	n.a.
2015	18	16	2	7.9	3.4
2016	37	31	6	15.8	6.8
2017	37	31	6	15.8	6.8
2018	37	31	6	15.8	6.8
2019	37	31	6	15.8	6.8
2020	37	31	6	15.8	6.8
2021	37	31	6	15.8	6.8
2022	37	31	6	15.8	6.8
Total	**277**	**233**	**44**	**118.5**	**50.6**
(REMARKS)	Starting date: 18 March 2015				

2. Grand total of emissions reductions

Store 1-12	Reference emissions during the period *p* (tCO2/p)	Project emissions during the period *p* (tCO2/p)	Emissions reductions during the period *p* (tCO2/p)
2014	103	91	12
2015	410	363	47
2016	693	604	89
2017	693	604	89
2018	693	604	89
2019	693	604	89
2020	693	604	89
2021	693	604	89
2022	693	604	89
Grand Total	**5,364**	**4,682**	**682**

*Values in “C.3. Estimated emissions reductions in each year” are calculated by summing grand total of emissions reductions of ID_AM004, ID_AM005, ID_AM008.