



2024





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3		ISO 14064-1		2018			
4		GHG					
5							
6		GHG		2024 1 1		2024 12 31	
(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)
466.78	5251.49	1493.55	20240.05			27451.8	
				2025 09 12			



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1	4
1.1	4
1.2	4
1.3	4
1.4	5
1.5	5
2	5
2.1	5
2.1.1	5
2.1.2	5
2.2	6
2.2.1	6
2.2.2	7
2.3	8
2.4	8
3	10
3.1	10
3.2 GHG	10
3.3 GHG	.....	12
3.3.1	.....	13
3.3.2	.....	17
3.3.3	.....	20
3.3.4	.....	20
3.3.5	.....	22
3.3.6	.....	25
3.4	.....	25
3.5 GHG	.....	25
4	.....	26
5	.....	27



1

1.1

GHG

GHG

GHG

GHG

GHG

GHG

GHG

1.2

1-1

	GHG
1	GHG
2	
GHG	
3	
4	
5	GHG
6	GHG
/ /	GHG
	CO ₂ CH ₄ N ₂ O HFCs PFCs SF ₆ NF ₃



	2024	1	1	2024	12	31
	2024					

1.3

ISO 14064-1 2018

ISO 14064-3 2019

1

2 2006 IPCC 2019

3 IPCC

4 2022

5

1.4

1.5

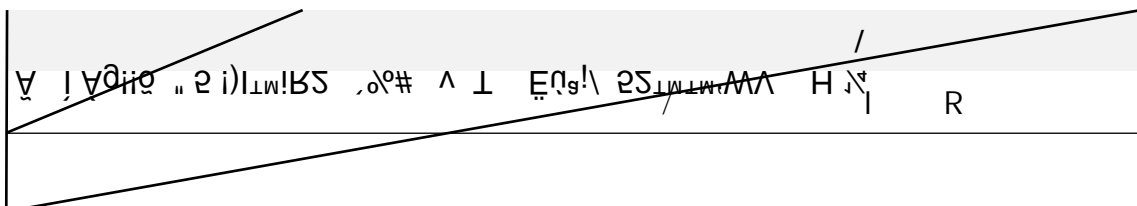
5%

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2.1

2.1.1

2-1 /





2.1.2

2-2 /

2025.8.11	
2025.8.21	
2025.9.12	/
2025.9.18	

2.2

2.2.1

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4) GHG /

5) GHG GHG

6) GHG GHG /

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9) GHG

10) GHG

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2024

2

3)

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CO₂ CH₄ N₂O HFCs

GHG

GHG

6 CO₂ CH₄ N₂O HFCs

7

8

GHG

9 GHG

10 GHG

2.2.2

ISO14064-3 2019



ISO14064-3 2019

6.1.2

1

GHG

2

1

GHG

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GHG

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2.3

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	/	/	/
2025.8.21 9:00-9:15		/ / / / / / / / / / / /	
2025.8.21 9:15-9:30	➤ CCSC ➤ ➤	/ / / / / / / /	



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2025.8.21 16:00-16:30		/ / / / / / / / / /	/ / / / / / / / / / /QS /	
2025.8.21 16:30-17:00		/ / / / / / / / / /	/ / / / / / / / / / /QS /	
2025.8.21 17:00-17:30	➤ ➤ ➤	/ / / / / / / / / /	/ / / / / / / / / / /QS /	

2.4

ISO 14064-1:2018

ISO14064-3:2019

3

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3-1

	19



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			13231	
	2025-01-08			
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3.2 GHG

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3-2

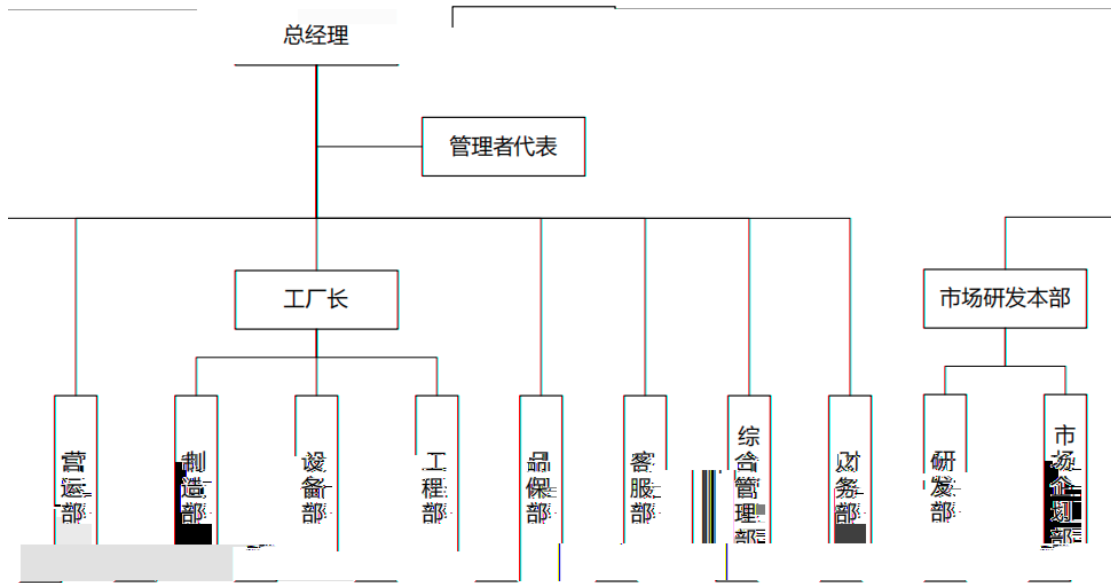
1		-	-	1	
2			2.5S	1	



3-3

1		GUWD-6A	5kW	1		
2		GUWD-6A+G WD-6A	5kW	1		
3		GUWD-6A+G WD-6A	5kW	2		
4		GUC-280MR-R 2R	25kW	2		
5		RPAALO514	19kW	1		
6		VIEWMAXL10 .12.3	3kW	1		
7			5kW	1		
8		E450i	450kW	1		
9		ZK1.75	150	4		

GHG



3-1 GHG



3.3 GHG

3.3.1



3-4

GHG						
	2.0761	m ³		2024	2024	2.0761
			m ³			
	4.87	t		2024	6666.13L	
			4.87t	0.73kg/L		
	0Tf7A63028					



	GHG						
		(2t)					
		(2t)		2465.00	t·km		
		(2t)		260.00	t·km		
		(2t)		420.00	t·km		
		(2t)		125.00	t·km		
		(2t)		200.00	t·km		
		(10t)		7560000.00	t·km	2024	
				72000.00	.	2024 72000.00	2024
				1320000.00	.	2024 1320000.00	2024



	GHG							
				262800.00	.	2024 262800.00	2024	
				28	t	2024		
				756	t	2024		
				23905		2024		
				493	t	2024		
				260	t	2024		
				420	t	2024		
				125	t	2024		
				40	t	2024		
				1.311	t	2024		
			(2t)		47.69	t·km	2024	
			(8t)		50.87	t·km	2024	



3.3.2

2006 IPCC

2019

2023

GBT 2589-2020

2022

2024

33

CPCD

3-5

	CO ₂ CH ₄ N ₂ O	GBT 2589-2020 2006 IPCC 2019 2.2	38931.00kJm ³ 56100kgCO ₂ /TJ 1.0 kgCH ₄ /TJ 0.1 kgN ₂ O/TJ	
	CO ₂ CH ₄ N ₂ O	GBT 2589-2020 2006 IPCC 2019 3.2.1& 3.2.2 2.2	43070 kJ/kg 69300kgCO ₂ /TJ 25kgCH ₄ /TJ 8kgN ₂ O/TJ	
HFCs	HFCs	1	1.000kgHFCs/Kg	
	CH ₄	COD COD	0.010206 kgCH ₄ / .	



		<p>325mg/L</p> <p>BOD/COD=0.43 BDO</p> <p>139.75mg/L</p> <p>179 / *d</p> <p>0.85 BOD</p> <p>=139.75*179*0.85/1000=</p> <p>21.2630g/ *d</p> <p>IPCC2019 6.3</p> <p>0.6kgCH4/kgBOD</p> <p>MCF 0.8</p> <p>=0.6*0.8*21.2630/1000=0.01020</p> <p>6kgCH4/ .</p>		
	CO ₂	<p>2022</p> <p>2024 33</p>	0.5366	tCO ₂ /MWh
(2t)	CO ₂	CPCD	0.286kgCO ₂ e/(t·km))
(2t)	CO ₂	CPCD	0.334kgCO ₂ e/(t·km))
(8t)	CO ₂	CPCD	0.115kgCO ₂ e/(t·km))
(10t)	CO ₂	CPCD	0.162kgCO ₂ e/(t·km))
	CO ₂	CPCD	0.0555	kgCO ₂ e/(t·km)



CO₂



3.3.3

IPCC

3-6

	GWP
CO ₂	1
CH ₄	



3-7

	GHG					tCO ₂
				2.0761	m ³	4.53
				4.87	t	15.15



	GHG			tCO ₂
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1.	1
2.	3
3.	6



4							
		5.0	5.0	4.0			
4.0	3.0	3.0	2.0		2.0		
					3.143		
			3-12				
		3-12					
1		6	2	3	3.67	0.02%	0.0006
2		3	2	6	3.67	0.06%	0.0020
3		3	6	6	5.00	1.57%	0.0787
4		1	3	1	1.67	0.06%	0.0009
6		6	3	6	5.00	19.13%	0.9565
7		3	2	3	2.67	0.01%	0.0001
8		3	2	3	2.67	4.46%	0.1190
9		1	2	3	2.00	0.97%	0.0195
10							



3.3.6

2024 27451.87tCO₂e
27451.87tCO₂e 0

3.4

ISO 14064-1

2018 ISO 14064-3 2019

a)

GHG

b)

GHG

c)

d)

e)2024

3.5 GHG

GHG

a)

5%

b)

GHG

GHG



c)

d)

e)

2024

4

1



2

ISO 14064-1 2018

3

4

GHG

5

6

GHG

2024

1

1

2024

12

31

4-1

(tCO₂e)

(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)	(tCO ₂ e)
466.78	5251.49	1493.55	20240.05	/	/	27451.87

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15.	2024 /
16.	2024 /
17.	2024
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