220kV 110kV

( )

2018 9

1 —— 30 (
)
2 ——
3 ——
4 ——
5 ——
6 ——
7 ——
8 ——

1

2 110kV

3 220kV 110kV

4

5

6

1

2

3

4

5

	220kV 110kV				
	42				
	13877686635		/		533000
				2018-451002-44-02-004872	
				2018 14	
	√ □ □			D4420	
( )	/		( )	/	
	16207		58		0.36%
( )	—			2019 3	

1

1 “ ”

3

110kV 3 110kV 220kV ~

~ 2 110kV 2016

103MW

“ ” 2018 110kV

432MW 2016 4 2020 110kV 864MW

2018 220kV 110kV

110kV 648MVA 1.3 2020

0.6 110kV

“ ”

220kV 110kV

2018 3.1 2020 2

Q/GDW156-2006

“ ”

10kV

220kV 110kV

220kV 110kV

10 110kV 2 × 16.9km

3.5km 16207 20%

2018 3 22

2018 14 2018-451002-44-02-004872

1

“ ” “ 181

” “ 100 ”

2

1

220kV 110kV

2

3

4

5 16207

220kV **110kV**

A. ~ 110kV 0.45km 1.75km

8.6km 2 × 10.8km

B. ~ 110kV 0.45km 1.55km

2 × 2km

C. ~ 110kV 0.45km 1.65km

2 × 2.1km

D. ~ 110kV 0.45km 1.55km

2 × 2km

E. ~ T 220kV 110kV 0.25km

0.75km 1.0km 2km

F. ~ T 220kV 110kV 0.25km

0.25km 1.0km 1.5km

1.0km 2.0km 6.5km

8.6km 4.1km

A. ~ 1 OPGW-24 11.2km

12.1km

B. ~ 2 OPGW-24 , 2×5.3km

2×5.7km

C. ~ 1 OPGW-48 5.3km

5.7km

D. ~ 1 OPGW-24 4.1km

4.4km

E. 220kV 2.5km 110kV

0.5km 110kV 1km

1-1

1	~ 110kV	2km 2 × 10.8km 300mm^2	- 1 OPGW-24 11.2km 12.1km	220kV 2.5km 110kV

-

~ G80 2 0.5km

2 110kV G23# OPGW-24 , 110kV

2 × 2km 2 × 5.3km

300mm^2 2 × 5.7km 1km

~ G80

3 110kV G23#

2 ×

2.1km

220kV 220kV 12 10

2 110kV GIS 16 110kVGIS

110kV

10

SJ4 STJ261

110kV

110kV G323 300

110kV 8 7 1

7

1 C B A

3 “ ” “ ” “

” “ ”

~ 110kV

JC4

110kV

110kV X736 X736

200

110kV 5 3 2

3 I 2

2 3 “ I ” “ ” “ ”

“ ”

- 110kV

3km “ 110kV I

”

110kV

110kV

110kV 2

C B A 110kV ~

110kV 220kV ~ 110kV

1.7km “ 110kV ” 1.3km “

110kV I ”

110kV

110kV 200

110kV 4

4# 3# 2# 1# A B C

~ 110kV “ 2# ” “ 3# ”

2

~ 110kV

220kV 110kVGIS

250 220kV II 50

220kV I 150

220kV

110kV 2km 220kV

110kV 110kV II 110kV II

110kV X736 1.5km

G80

500 110kV II

G323 110kV

110kV 500

300 220kV 110kV

2 × 10.8km 1.95 150-250

~ **110kV**

220kV 110kVGIS

250 220kV II 50

220kV I 150

220kV 110kV

110kV 110kV II G80 110kV

110kV 110kV “ 110kV

I ”G23# 110kV

“ 110kV I

”G23# 2 × 2.0km 1.15

150-250

~ **110kV**

220kV 110kVGIS

250 220kV II 50

220kV I 150

~

220kV 110kV 110kV 110kV II

G80 110kV 110kV 110kV “

110kV I ”G23#

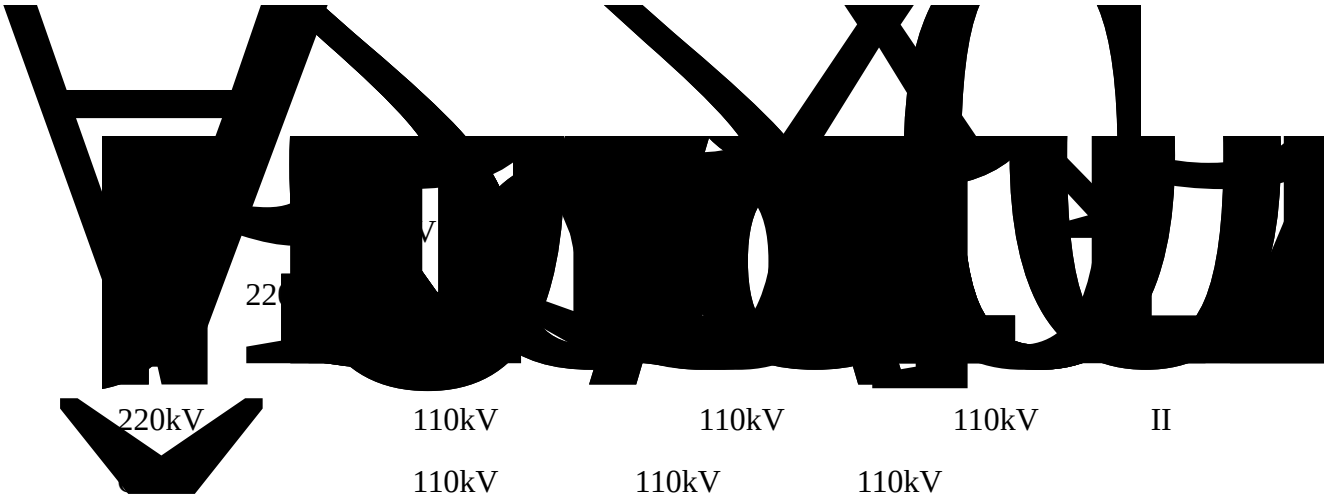
110kV

“ 110kV I

”G23# 2×2.1km 1.20

150-250

~ **110kV**



220kV 110kV 110kV 110kV II

110kV 110kV 110kV

~ 110kV N14

N14# 2

2 0kV 300mm^2

2 0kV 220

300mm^2

2 110kV 220kV

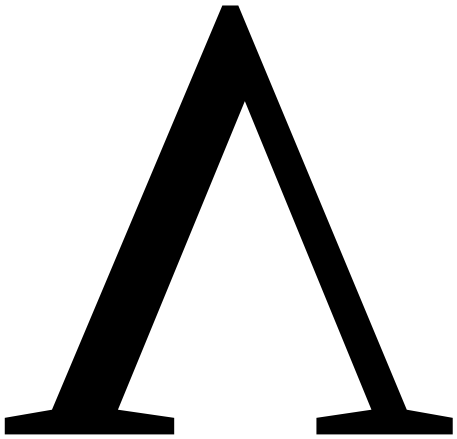
300mm^2

2

2 110kV 220kV

300mm^2 1 110kV

300mm^2



1-1 220kV 110kV

4

1-2 1-3 1-4

1-2

~ 110kV ~ 110kV

1 110kV 110kV

2

220kV

3

1-3

		~ 110kV	~ 110kV
1		110kV	110kV
2			
		220kV	220kV
		G23#	N14
3	km	2×2.1	2×2.0
		1.20	1.30
	m	150~250	150~250
		9	11
4	m	132	129
		8	7
	m	194	194
		JL/G1A-3	
5			

1			110kV	110kV
2				
			N23	T
			220kV	220kV
3	km		2.0	1.5
			1.39	1.59
	m		150~250	150~250
			8	6
4	m		194	179
			7	6
	m		219	179
5			JL/G1A-240/30 JLB20A-100 YJLW02-Z	
6			64/110kV1×800 U70BP 70CN	
7	m/s		27	
	mm		5	
8			VII	
9			71	
10			e	
11			0%	0%
			67%	64%
			33%	36%
12			0%	0%
			10%	10%
			0%	0%
			20%	20%
			30%	30%
			40%	40%
13				

(

42kj/

726km 40204km² 538.7m3/s

118km 3713km² 100m³/s

11.5 m³ 39km² 56.6 m³

147km²

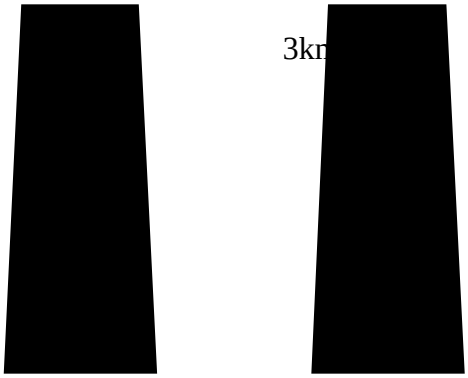
2005 6

3km

3km

—

4



500m

2018 8 1 ~8

3 “

2018 6 25 2018 7 1 ”

1

“ 2018 6 25 2018 7 1

” 3-1

3-1 **μg/m³**

SO_2 NO_2 PM_{10} $PM_{2.5}$

GB3095-2012

2

2018 8 1

~8 3 3 W1

500m W2 1000m

3-2

3-2 **pH** **mg/L**

“ L ”

GB3838-2002

3

2

GB3096-2008 2

220kV

2018 8 1 ~8 2

4 3-3

3-4

3-3

3-4 **dB(A)**

GB3096-2008 2

110kV

2018 8 1 ~8 2

5 3-5

3-6

3-5

3-6 **dB(A)**

GB3096-2008 2

110kV

2018 8 1 ~8 2

7 3-7

3-8

3-7

3-8 **dB(A)**

GB3096-2008 2

110kV

2018 8 1 ~8 2

4 3-9

3-10

3-9

3-10 **dB(A)**

GB3096-2008 2

110kV

2018 8 1 ~8 2

5 3-11

3-12

3-11

3-12 **dB(A)**

GB3096-2008 2

4

HJ24-2014

220

3-13

E- B-

3-14

220

4.264 4.473V/m

0.019 0.309T GB8702-2014 50Hz

4000V/m 100μT

5

200m

30m 200m

500m

1

GB3095-2012

4-1

4-1 GB3095-2012

	μg/m³		
	1	**24**	
TSP		300	200
SO_2	500	150	60
NO_2	200	80	40
PM_{10}		150	70
$PM_{2.5}$		75	35

2

GB3838-2002 4-2

4-2 GB3838-2002

1	pH	6~9
2	COD	≤20
3	BOD_5	≤4
4		≤1
5	SS	≤30
6		≤0.05
7	DO	≥5

pH mg/L

GB5084-2005

4-3 GB5084-2005 pH mg/L

	pH	CODcr		BOD_5	SS
	5.5-8.5	200	≤4000 /100L	100	100

3

GB3096-2008 2

4-4

4-4 GB3096-2008 dB A

2	60	50

1

(GB16297-1996) 2 4-5

4-5 (GB16297-1996)

		(mg/m^3)
		1.0

2

(GB12523-2011)

4-6

4-6 dB A

70	55

3

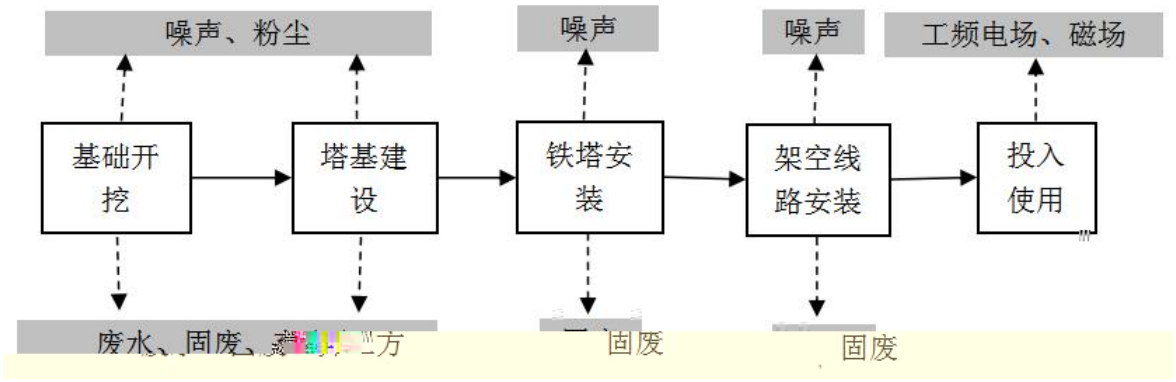
GB18599-2001 2013

GB18597-2001 2013

5

GB8702-2014 0.05kHz

4000V/m 100μT



5-1

1

1

1.5~30mg/Nm^3

2

30km/h 15.0g/km. 1.33g/km.

1.67g/km.

50m

2

1

20

50L/ ·d 150

1m^3/d 0.8 Ð * ﻳﻢ

5-1

5-1

			CODcr	**BOD_5**	**SS**	**NH_3-N**
$120m^3$		mg/L	300	200	200	25
		t	0.036	0.024	0.024	0.003
		mg/L	200	100	100	20
		t	/	/	/	/

2

3

90dB(A)

1m 80~100dB(A)

5-2

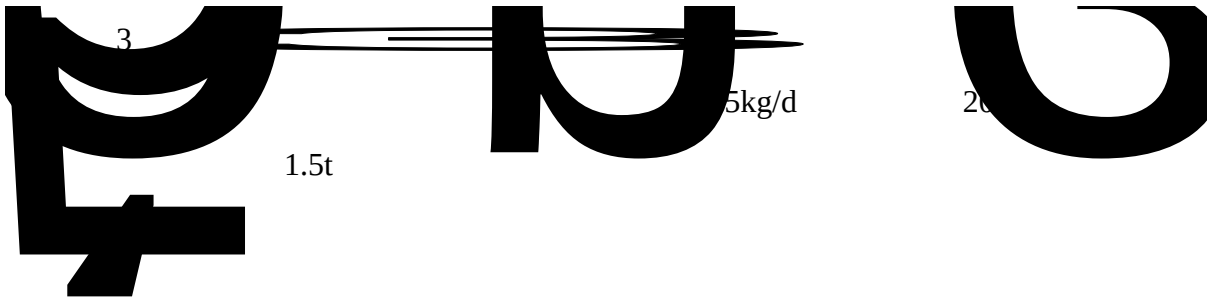
5-2

		dB(A)	
1		90~100	
2		90~100	
3		80~90	
4		90~100	

4

1

2



3

5kg/d

2

1.5t

1

CO NO_X

SS		0
	$120m^3$	0
COD_{cr}	300mg/L 0.036t/a	
BOD_5	200mg/L 0.024t/a	
SS	200mg/L 0.024t/a	
	25mg/L 0.003t/a	
	1.5t	0

1

1

2.4m/s

TSP 1.5 2.3 150m

0 50m 50 100m 100 150m

2

SO_2 NO_X TSP

SO_2 NO_X TSP

2

3

GB12523-2011

4

1

2

0.5kg/d

4t

3

5

1

2

6

1

7-1

7-1

110KV	1.	2.	10m 10m
220~330KV	1.	2.	15m 15m
500KV	1.	2.	20m 20m
±400KV	/	/	
	/	/	

7-2

220kV		220kV	2×630mm^2	2
		110kV	1×300mm^2	2
		110kV	1×300mm^2	2
		110kV	1×300mm^2	2
		110kV	1×300mm^2	2
~	T	110kV	1×240mm^2	1
~	T	110kV	1×240mm^2	1

GB8702-2014 4.0×10^3V/m 100μT(0.1mT)

GB8702-2014 4.0×10^3V/m

100μT(0.1mT)

3

4

5

8

220kV

0kV

9

2011 2013

21 “ ” “

”

2018 14

10

16207 58 0.36%

7-5

7-5

1			2
2			2
3			3
4			1
5			20
			30
			58

11 **“** ㎡" * **”**

2

7-7

7-7

		—			

CO NO_2

THC

GB16297-1996

TSP

COD_{cr}

BOD_5

SS

1

110kV 10 110kV

2×16.9km 3.5km

16207 58

2

1

?ô

$PM_{2.5}$ PM_{10} GB3095-2012

2

eî‡Õ‡

(GB3838-2002)

3

GB3096-2008 2

2

3

50m

GB12523-2011

200m

(12:00 14:30) (22:00 6:00)

5 2

4

5

4

1

GB8702-2014 4.0×10^3V/m 100μT(0.1mT)

2

3

4

5

5

16207 58 0.36%

6

220kV 110kV

7

2011 2013

21 “ ” “

”

2018 14

1

2

4

10

“ ”