

Feedback WG System Operations 21 November 2012

User Group – 06/12/2012

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- Feedback IGCC
- Winter action plan
- Draft ENTSO-E winter outlook 2012 – 2013
- Capaciteit noordgrens
- Overview of dynamic analysis

IGCC: International grid control cooperation

IGCC – Participation Elia:

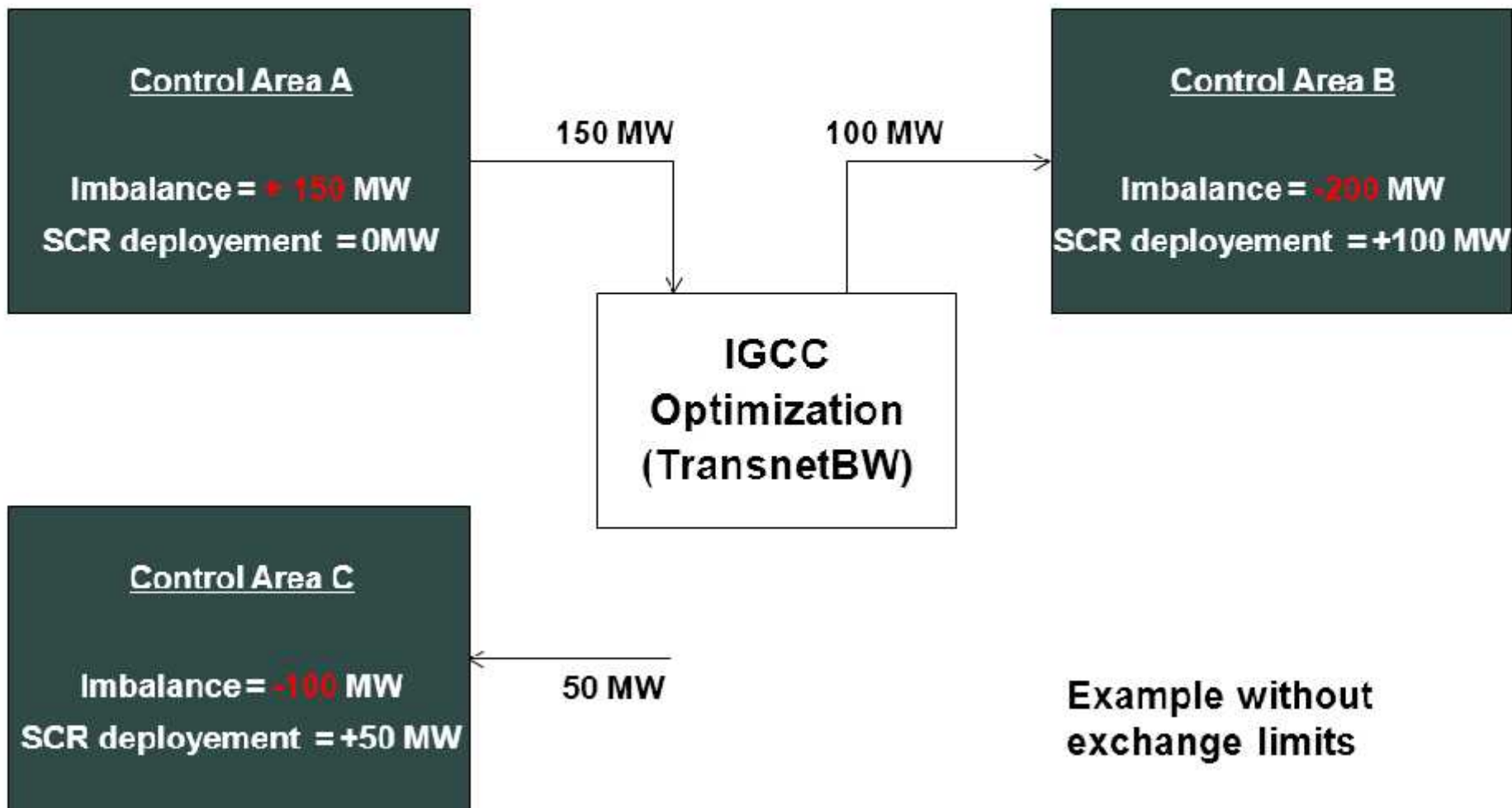
▶ What is IGCC (International Grid Control Cooperation)



- On 01/10/2012 Elia started with IGCC for a trial period of 1 year.
- Presently: Energinet (DK-W), TenneT TSO (NL), SwissGrid (CH), Ceps (Czech Republic) and Elia
- What: IGCC aims to prevent counteracting deployment of secondary reserves in separate control blocks, by exchanging opposing imbalances between TSOs
- IGCC adjusts the imbalances of the control areas by netting all imbalances
 - Dynamic, real time
 - Limited to remaining ATC after Intra-Day Closure
 - Within the limits made available to the market → no extra risk
 - After closure of the market → no impact on the market
 - Limited to contracted volume R2 (140MW)
 - Exchange can be suspended at any moment for technical reasons

IGCC – Participation Elia:

► Introduction to IGCC concept - example



- Imbalance Tariff:

		Net Regulation Volume (NRV)	
		Negative <small>(Net downward regulation)</small>	Positive <small>(Net Upward regulation)</small>
ARP Imbalance	Positive	MDP - α1	MIP - β1
	Negative	MDP + β2	MIP + α2

- No Impact NRV

- IGCC exchanged volumes are considered as a part of the NRV

- Minimal Impact Marginal Prices

- Instead of activating Secondary reserves, the imbalance will be exchanged via IGCC

- IGCC exchanges are considered at R2 price in the imbalance tariff

- Calculation of alpha is based on the system imbalance, no changes

- Conclusion: IGCC will not impact the imbalance

IGCC – Participation Elia:

► IGCC information on website Elia



- Volumes exchanged via IGCC

Non validated data for 20/11/2012

20/11/2012

Quarter	NRV (MW)	Upward regulation Volume					Downward regulation Volume				
		GIUV (MW)	IGCC+ (MW)	R2+ (MW)	Bids+ (MW)	R3+ (MW)	GDV (MW)	IGCC- (MW)	R2- (MW)	Bids- (MW)	R3- (MW)
03:15 > 03:30	-25,9						25,9	18,6	7,3		
03:30 > 03:45	-45,9						45,9	45,0	0,9		
03:45 > 04:00	-80,0						80,0	43,9	36,1		
04:00 > 04:15	-133,0						133,0	12,9	120,1		
04:15 > 04:30	-171,3						171,3	50,6	120,7		
04:30 > 04:45	-250,3						250,3	133,5	116,8		

- Value IGCC exchanges in the imbalance tariff

Quarter	NRV (MW)	Incremental Prices					Decremental Prices				
		MIP (€/MWh)	IGCC+ (€/MWh)	R2+ (€/MWh)	Bids+ (€/MWh)	R3+ (€/MWh)	MDP (€/MWh)	IGCC- (€/MWh)	R2- (€/MWh)	Bids- (€/MWh)	R3- (€/MWh)
00:00 > 00:15	51,8	64,92		64,92			54,92	54,92			
00:15 > 00:30	84,9	64,92		64,92			54,92	54,92			
00:30 > 00:45	66,6	64,92		64,92			54,92	54,92			
00:45 > 01:00	-70,7						54,92	54,92	54,92		
01:00 > 01:15	4,9	64,92		64,92			54,92	54,92			
01:15 > 01:30	35,5	64,92		64,92			54,92	54,92			
01:30 > 01:45	-14,9						54,92	54,92	54,92		
01:45 > 02:00	-161,6						54,92	54,92	54,92		
02:00 > 02:15	-64,2						54,92	54,92	54,92		
02:15 > 02:30	76,6	64,92		64,92			54,92	54,92			

Dynamic analysis: main conclusions



During the winter 2012-2013, in absence of D3 and T2 and in full availability of network elements,

- **BE can import 3500MW** (Sum of NTC) in the winter under the condition that **no more than 2400MW** of this power is supplied by NL (or north of DE).
- BE can import **4500 MW**, under the condition that the imported **power is supplied by DE** (center or south).
- No condition on FR import is required in these scenarios.

Capaciteit op Noordgrens

1. Fysische limiet noordgrens

= Beschikbare maximale fysische capaciteit (N-1 veilig):

2750 MVA onder voorwaarden van volledig net, gelijkmatige verdeling van de fluxen, specifieke temperatuur,...

2. Verdeling tussen Noord- en zuidgrens

Huidig:

- Noordgrens 1401MW
- Zuidgrens 2100 MW
- Globale importlimiet in winter 3500 MW

Noordgrens 1401: is een **relatieve** waarde

Kan **verhoogd** worden op **voorwaarde** van:

- Respecteren van de maximale beschikbare fysische capaciteit (**2750 MW**)
- Respect van totale importlimiet **3500 MW**

Afspraken met TenneT om capaciteit op noordgrens te verhogen, in kritische omstandigheden: **maximaal 300 MW** als dag- en intradaycapaciteit onder voorwaarde van positieve veiligheidsevaluatie

Verhoging van NTC op noordgrens



2 stappen:

- **Dagcapaciteit (marktkoppeling) op basis van assessment in D-2**

stap 1 (nu): + 55 MW (van 1401 naar 1456 MW)

Stap 2 (2 januari 2012): + 54 MW (van 1456 naar 1510 MW)

} **Max. ~100 MW**

- **Intradaycapaciteit in blokken van 4u**

Stap 1 (nu): + max 100 MW bijkomende intraday capaciteit

Stap 2 (in loop van januari) + max 100 MW

} **Max. ~200 MW**

- **Totaal: max 300 MW**

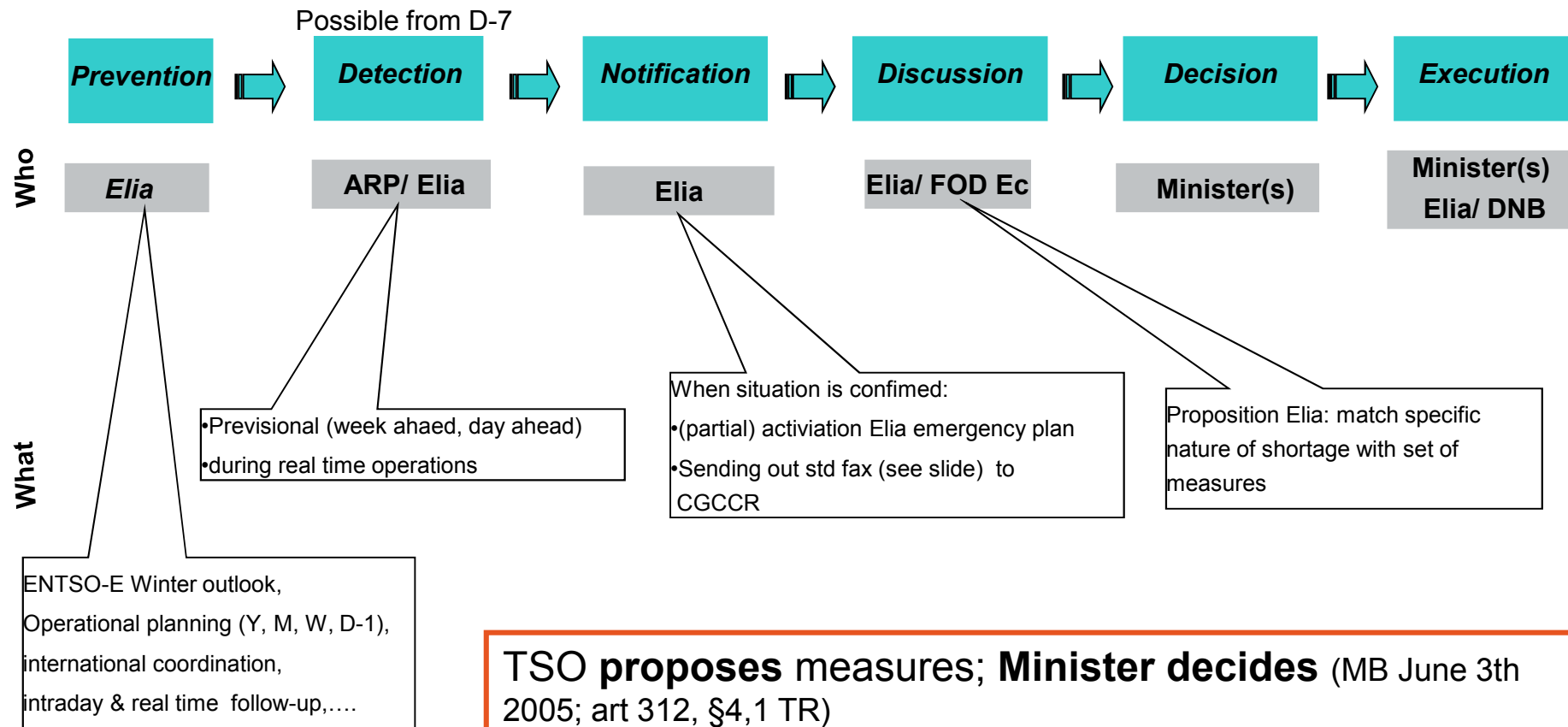
- **Niet-gegarandeerd** en onder voorwaarde van **positieve veiligheidsevaluatie** van zowel TenneT en Elia

Status Elia winter action plan



- ENTSO-E Winter **outlook**: normal and severe conditions
- Specific impact study: CWE → possible critical situation on N- border
- **Dynamic analysis** - voltage **stability**
- Maximize **availability** of grid and generation during winter period
- Specific **monitoring** of system adequacy and margins: previsional and Real time (see slide)
- Availability of **exchange** of power between TSO's (TenneT & RTE)
- **Guarantee import capacity** (3500 MW)
- Prepare actions with **authorities** (see next slides)
- Preparation with **DSO's (synergrid)** next slides
- Internal **training**
- **Communication (see web site) , information, sensibilibize,....**: next slides
- ...

Energy shortage: processes



TSO proposes measures; Minister decides (MB June 3th 2005; art 312, §4,1 TR)

Minister informs public through the **media**

Extreme situation of energy shortage: operational procedure

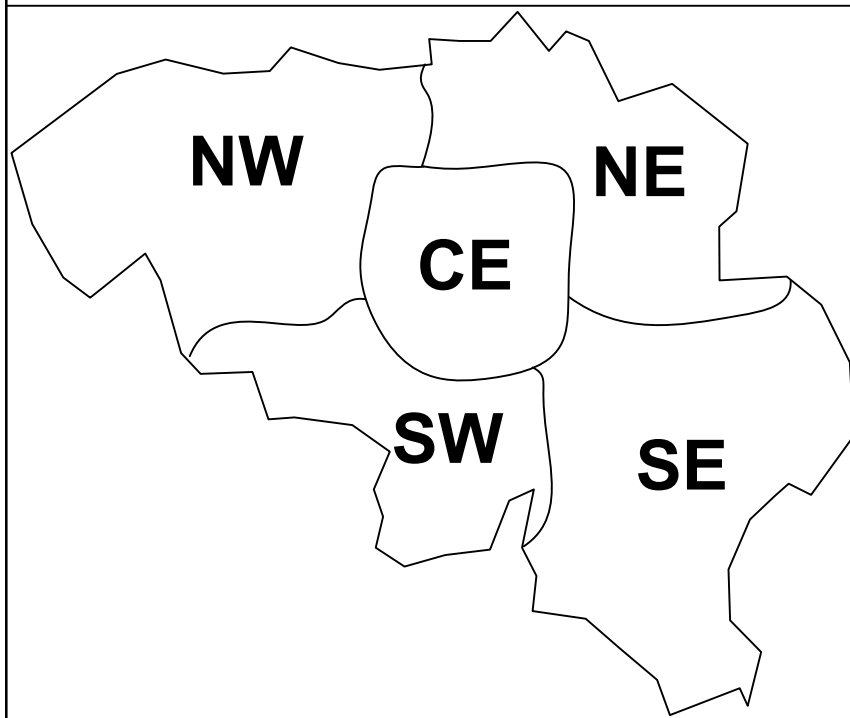
1. Demand limitation measures

- Sensibilisation of public: lowering down demand through media (radio, TV, websites,...)
- Shift demand peak
- Use other means

2. Prohibition to use electricity for certain purposes: examples

- Industry: limited use of airco, prohibition to use electricity for certain processes, reduce power to cooling installations for limited period, reducing outside lighting,
- Tertiary: limited use of airco, electrical heating, lighting during peak hours,...

Load shedding: manual activation



schijven	frequentie-relais	elektrische zones				
		NW	NE	CE	SW	SE
1	49.00	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
2	48.90	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
3	48.80	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
4	48.70	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
5	48.60	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
6	48.50	~100 MW	~100 MW	~100 MW	~100 MW	~100 MW
		$\Sigma = 600$	$\Sigma = 600$	$\Sigma = 600$	$\Sigma = 600$	$\Sigma = 600$

3000 MW

Load shedding in **rural grids**
Elia in collaboration with **DSO's**

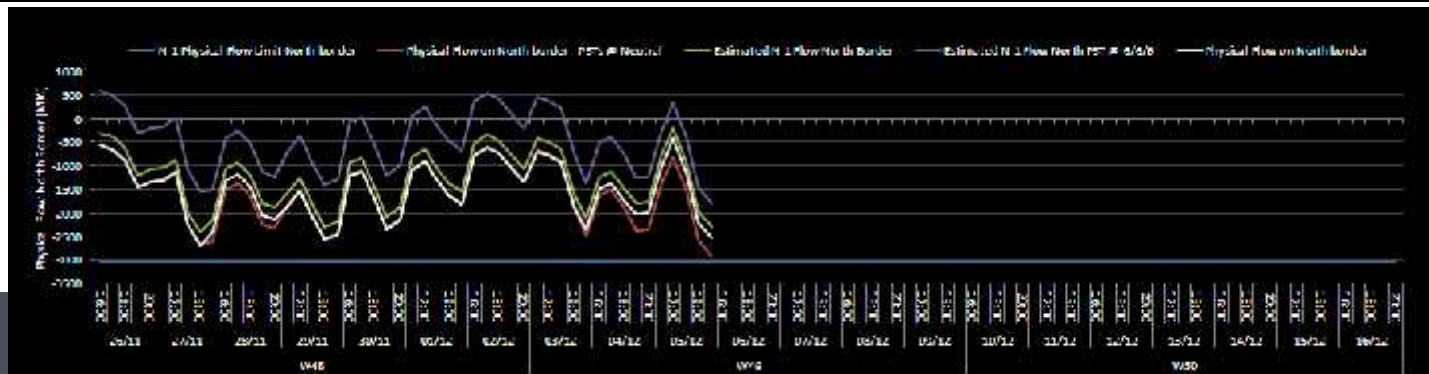
Internal monitoring

elia		W40	W40	W40	W40	W50	W50	W50	W50	
		D	D+1	D+2	D+3	D+4	D+5	D+6	D+7	
		06/12/2012	07/12/2012	08/12/2012	09/12/2012	10/12/2012	11/12/2012	12/12/2012	13/12/2012	
1	Temperature									
2	Remaining margin with current imports									
3	Remaining margin with max imports									
4	Remaining margin with no imports									
	Eq. Temperature	1.18	1.07	-1.24	-0.20	1.91	1.28	-0.84	-1.47	
	Prod. Incl. (MW)	13748	12808	11813	10710	12825	13148	13195	12730	
	Import in Peak load	2060	2060	2074	2074	2060	2060	2090	2074	
	SCARCITY INDICATOR	Level 1	Level 1	Level 1	Level 0	Level 1	Level 1	Level 1	Level 1	
GUI updated: 6/12/2012 12:22:41									V02	
Data updated: 6/12/2012 17:05:58									Next data update: 6/12/2012 13:09:08	
Send to	TOP	Temperature	Margin	Flow North	Net Position	Prices	Elia Load	Adequacy	Generation	
RTE	RTE Load	83500	83400	77800	78300	89300	89300	89500	89300	
	RTE Reference Temperature	6.30	6.20	6.10	6.00	5.90	5.90	5.80	5.70	
	RTE Temperature Deviation from Ref	-2.30	-2.10	-4.10	-6.40	-5.70	-4.90	-4.50	-4.50	



Temperature Margin Flow North Net Position Prices Elia Load Adequacy Generation

RTE	RTE Load	83500	83400	77800	78300	89300	89300	89500	89300
	RTE Reference Temperature	6.30	6.20	6.10	6.00	5.90	5.90	5.80	5.70
	RTE Temperature Deviation from Ref	-2.30	-2.10	-4.10	-6.40	-5.70	-4.90	-4.50	-4.50



Elia web site


BALANCE BETWEEN ELECTRICITY OFFER AND DEMAND IN BELGIUM





Elia keeps you up-to-date on the balance between electricity offer and demand this winter.



Ready for winter

[more info](#)



-  Offer and demand are in balance
-  Increased risk of electricity shortages
Take action! Citizens, businesses and institutions are encouraged to voluntarily reduce their electricity consumption at peak times (between 6 p.m. and 8 p.m.), so we can all help to ensure that extreme measures (such as power shut-offs) are not needed.
-  Electricity shortages
There is a shortage of electricity! We need to reduce our electricity consumption at peak times. Authorities can also define prohibitive measures for institutions and businesses.
-  Selective load shedding plan activated
The electricity supply to some electricity consumers is temporarily shut off to prevent a major imbalance.
The federal authorities have notified the local authorities concerned.