



SECTORAL BRIEFING TO SC 661 COMMITTEE

STATUS OF ELECTRICITY SECTOR

PRESENTATION BY:

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NEW YORK
20 NOVEMBER 2001**



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PRESENTATION STRUCTURE

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STATUS OF APPLICATIONS

(As at 5 November 2001)

	US \$ M
Allocation (Phase I to X)	3,370.0
Applications received	3,941.8
Notified	0.4
Under processing	43.6
Non compliant applications	117.1
Inactive applications	16.8
Applications circulated to committee	3,703.9
Applications pending at the committee	0
Applications approved by committee	2,580.2
Applications on hold	1,060.1
Inactive holds	63.6

STATUS OF IMPLEMENTATION

(As at 5 November 2001)

IMPLEMENTATION STATUS	US \$ M
Arrival	1,053
Implemented	421
Not implemented	632

Implemented: Means installed and operational

REASONS FOR SLOW ARRIVALS:

- Long lead time before materials are delivered
- Item are on hold

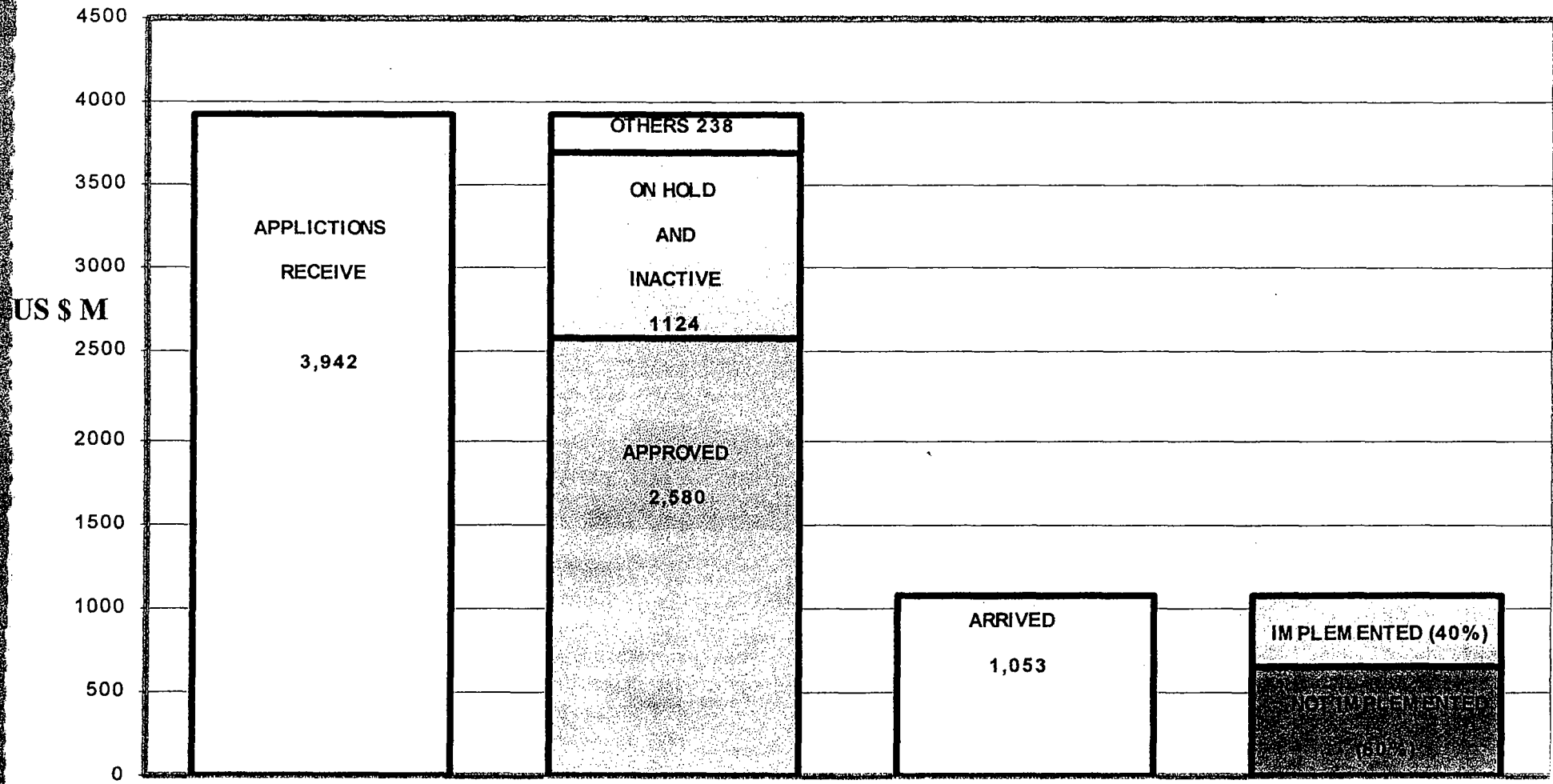
REASONS FOR SLOW IMPLEMENTATION:

- Long time required for site preparation , construction and commissioning after arrival of goods
- Many times, key complementary items are not delivered on time or are on hold
- Installation is delayed until off peak demand periods



STATUS OF APPLICATIONS / IMPLEMENTATION

(As at 5 November 2001)



ELSWG DEPLOYMENT PLAN

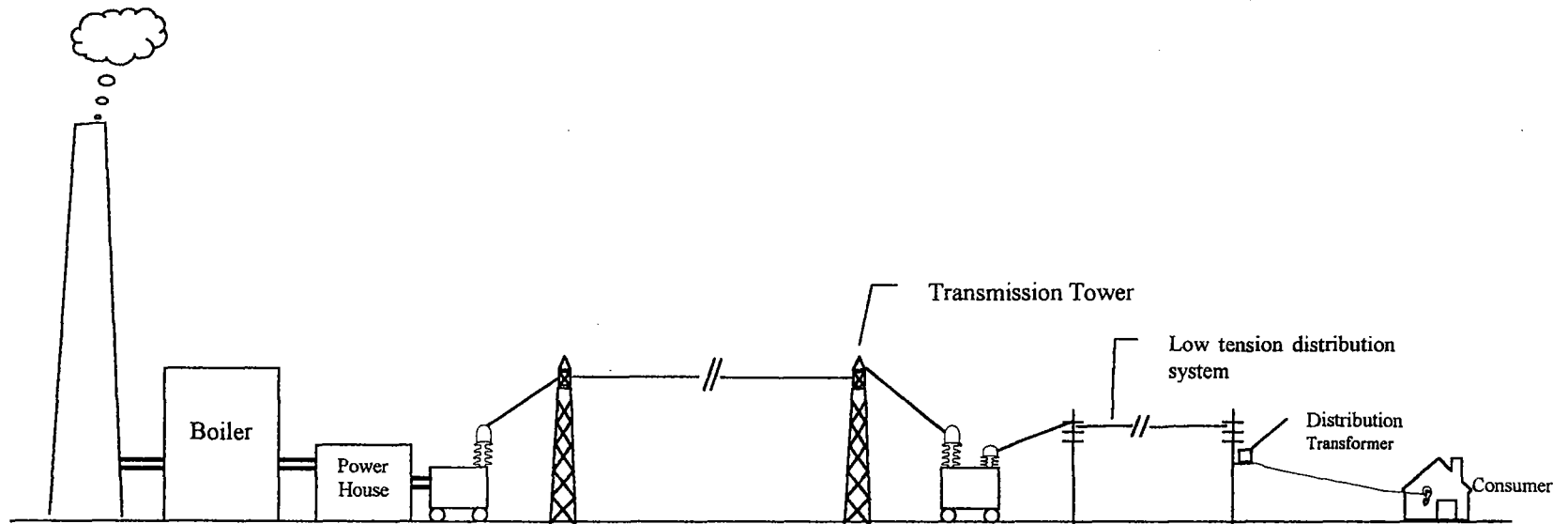
(OCTOBER 2001)

				1 ^{bet}	2 ^{bet}	3 ^{bet}	4 ^{bet}	7 ^{bet}	8 ^{bet}	9 ^{bet}	10 ^{bet}	11 ^{bet}	14 ^{bet}	15 ^{bet}	16 ^{bet}	17 ^{bet}	18 ^{bet}	21 ^{bet}	22 ^{bet}	23 ^{bet}	24 ^{bet}	28 ^{bet}	29 ^{bet}	30 ^{bet}	31 ^{bet}	
1	AM	Ausama	Abdulla	23	23	23	23	23	23	23	23							AD	AD	AD	AD	AD				
2	AS	Aida	Sendic	15	15	15	15	15	15	15	15															
3	ATJ	Ali Tahsin	Jumma		2	28	28	28	28	28	28	28	28	28	28	28	28	9	10							
4	BA	Basim	Al Atar																							
5	BK	Byeong-kil	Oh	14	14	14	14	14	14	14	14	14	14	14	14	14	14	9	10		31	31	14	14	14	14
6	CG	Carlos	Guerra			3	31															31				
7	DS	Douglas	Seath																				AD	AD	AD	AD
8	HM	Hameed	Al-Saeedy			3				22	22	22	22	22	22	22	22	22	22	22	22					
9	KK	Kamal	Al-Khashab	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
10	KM	Kadambari	Mallikarjun	14	14	14	14			31	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
11	KP	Kantharaj	Prabhakar	15	15	3	15																			
12	KS	Khalid	Syed																							
13	MA	Marcel	Alberts			3																				
14	MP	Mihail	Petrescu		2													9	10							
15	MZ	Mi	Zhengyuan													31		9	10		31	31				
16	PH	Peter	Hogan	15	15	15	15					20				31	20	20	20			20	20	20	20	
17	QS	Qudsia	Siddiqui		2	31	15	15	15	15	15	AD	AD	AD	AD	AD	AD					20	20	20	20	20
18	SP	Steven	Priem							31		13	13	13	13	13	13	18	18	18		30	30	30	30	30
19	ZS	Zina	Al-Souahil	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

- | | | | | | |
|----|----------------------------|----|--------------------------------|----|---|
| 1 | Muthana Dist. | 13 | Qadissiya Dist. | 24 | Hold clarification(Power stations) |
| 2 | Najaf Dist. | 14 | Methodology | 25 | Hold clarification(Water treatment) |
| 3 | Samara HPS | 15 | Job Preparation | 26 | Hold Clarification(Industrial companies) |
| | Yousifya PS | 16 | Report for Oor state company | 27 | Hold clarification(New Generation) |
| 5 | Wasit Dist. | 17 | Report Qadissiya state company | 28 | Need assessments for Transmission and Dist. |
| | Mulla Abdalla PS | 18 | New Database for T & D | 29 | End user observation reports updating |
| | Al-Tammem Dist. & Dibis PS | 19 | Coordination with WFP | 30 | Assess.reports for Generation and Rehabilitation projects |
| | Saddam HPS | 20 | Coordination | 31 | Coordination with WHO & Educ.sector for Joint obs. |
| 9 | Nasiriya PS | | Quality control | | Field report preparation |
| 10 | Hartha PS & Basrah Dist. | | Hold clarification(T&D) | | Leave |
| | Najibiya PS | 22 | Hold clarification(Commun.) | | AD AD HOC TASKS (Tentative Main WH visits in Baghdad) |



POWER SUPPLY SYSTEM



Generation

Transmission

Distribution

(400 & 132 kV)

(33 kV & below)

Applications

3137

235

522

(US \$ M)

80%

6%

14%

Electricity sector is a chain, from the power generation station to the consumers. Missing or malfunctioning of any link will effect the consumers



EXISTING AVAILABLE POWER GENERATION

EXISTING POWER STATIONS (CENTER / SOUTH)

TYPE	NUMBER	NUMBER OF UNITS	INSTALLED CAPACITY (MW)	AVAILABLE CAPACITY SUMMER PEAK LOAD (MW)
Thermal	8	34	5,415	2,631
Gas Turbine	10	65	1,638	581
Hydro Turbine	4	21	1844	*355
Total	22	120	8897	3,567

* Due to prolonged drought causing shortage of water

EXISTING POWER STATIONS (NORTH)

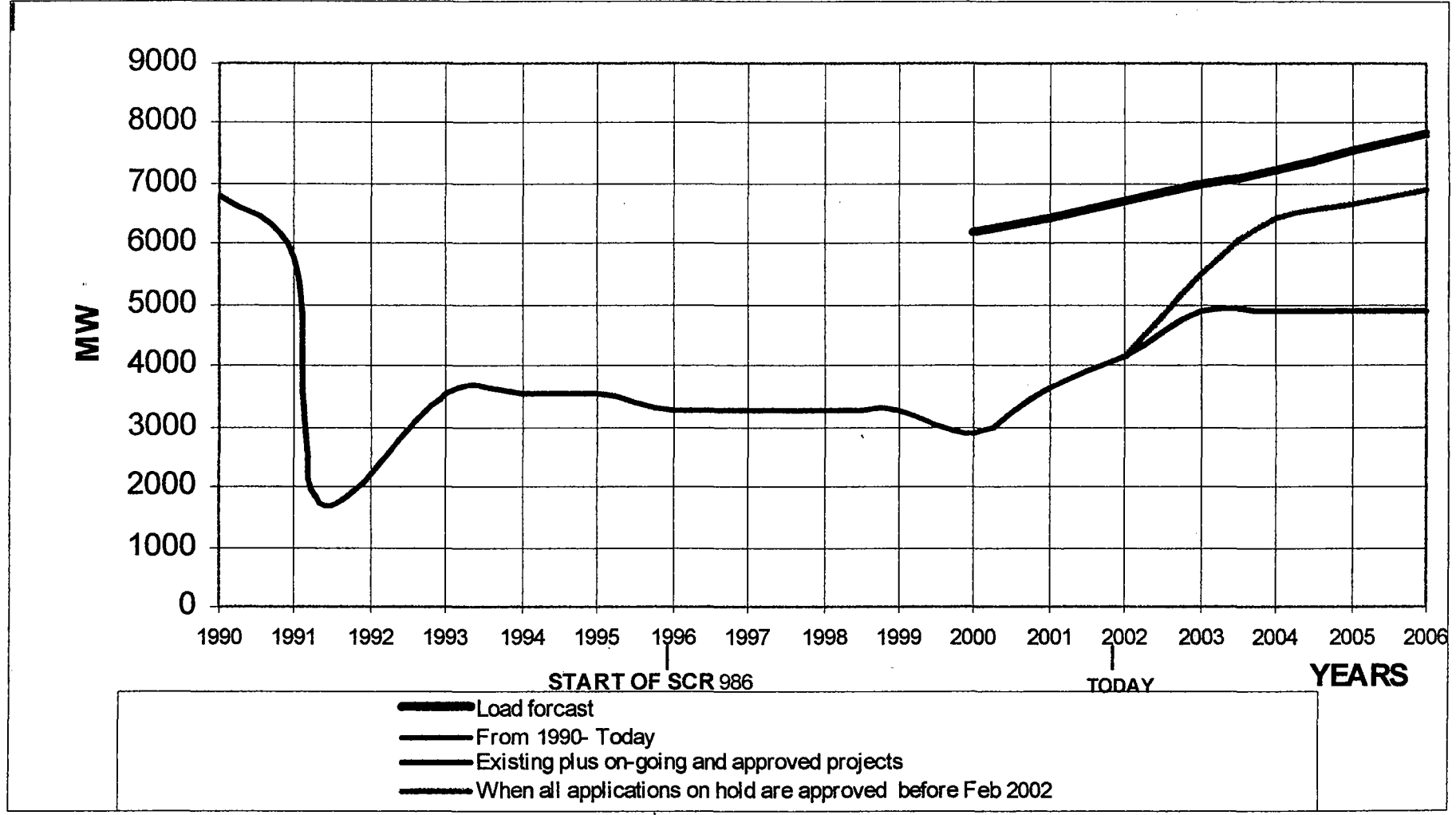
TYPE	NUMBER	NUMBER OF UNITS	INSTALLED CAPACITY (MW)	AVAILABLE CAPACITY SUMMER PEAK LOAD (MW)
Hydro Turbine	2	8	659	70

Grand Total for the country	24	128	9,556	3,637
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OVERALL AVAILABILITY DURING SUMMER PEAK LOAD 38 % OF INSTALLED CAPACITY



AVAILABLE GENERATION CAPACITY SINCE 1990



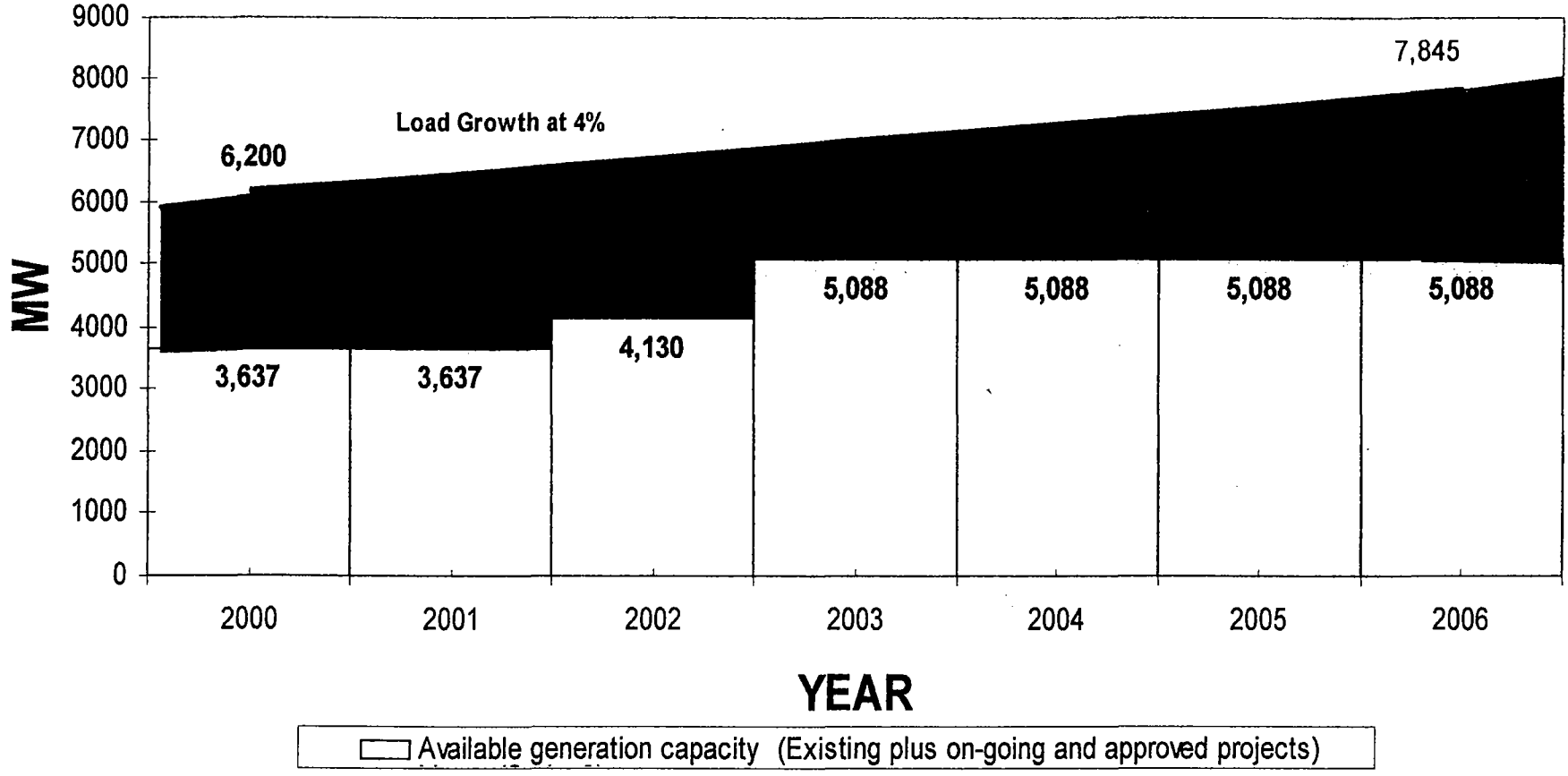
LOAD FORECAST AND EXPECTED AVAILABLE GENERATION CAPACITY

ASSUMPTIONS

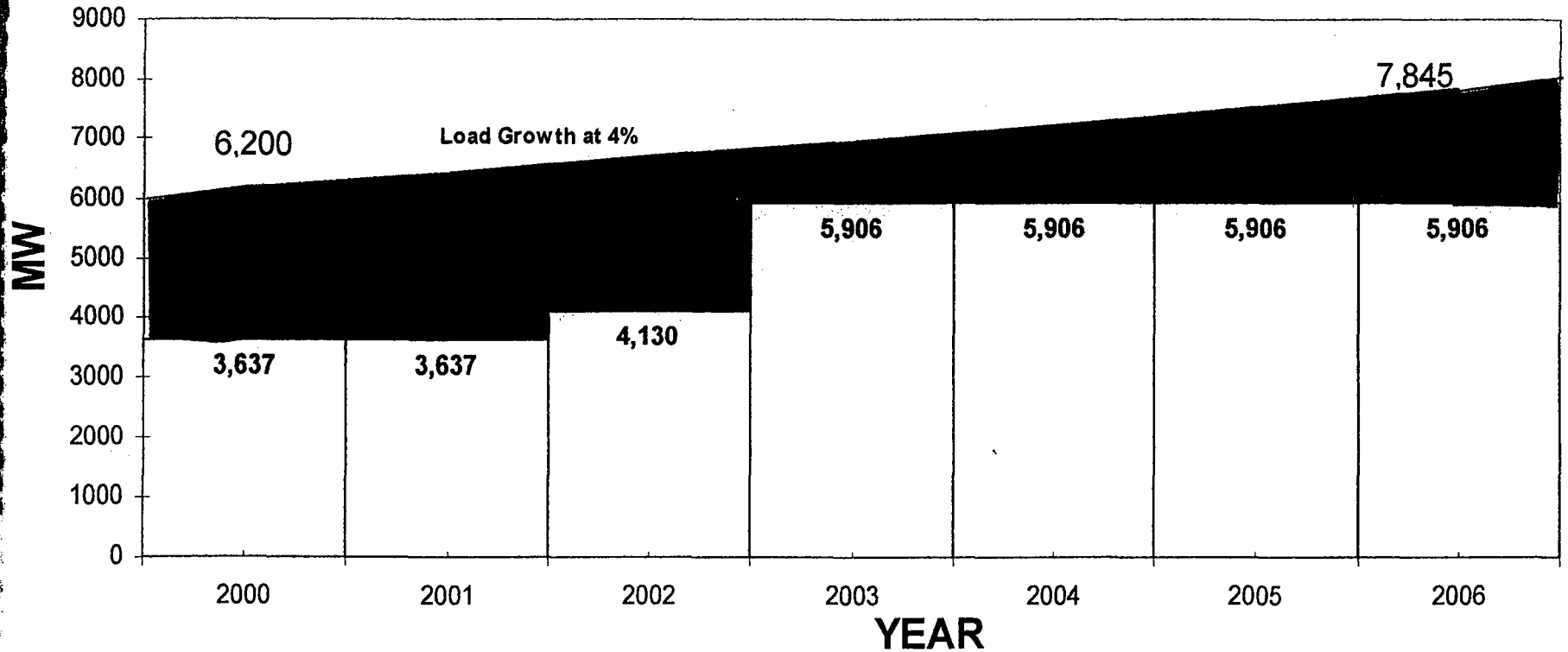
- Load growth of 4 % per year
- Summer peak load
- Expected Available Generation Capacity
 - Derating factor and auxiliary load : 20%
 - Availability : 80%



LOAD FORECAST, AVAILABLE CAPACITY AND GENERATION DEFICIT (Scenario A)

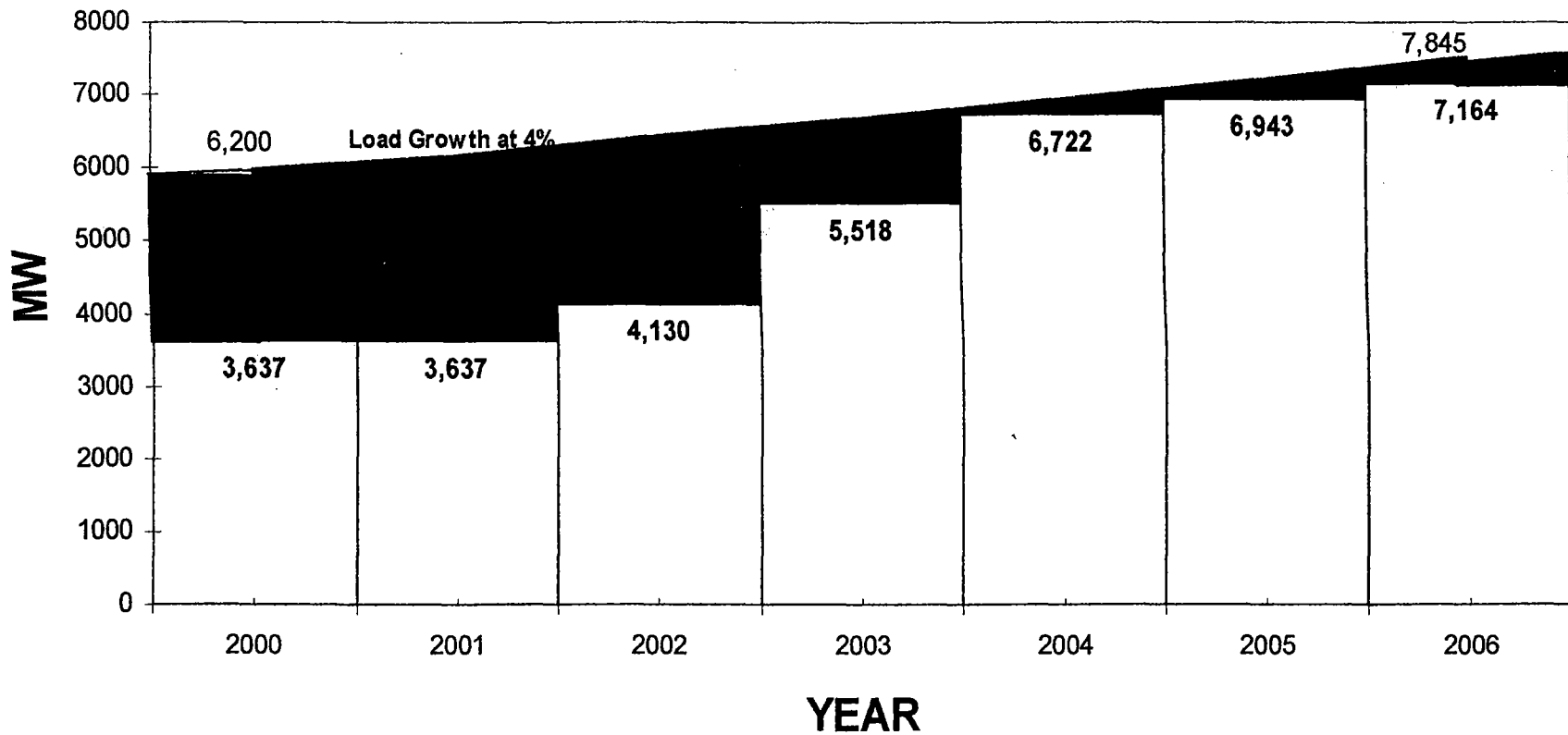


LOAD FORECAST, AVAILABLE CAPACITY AND GENERATION DEFICIT (Scenario -B)



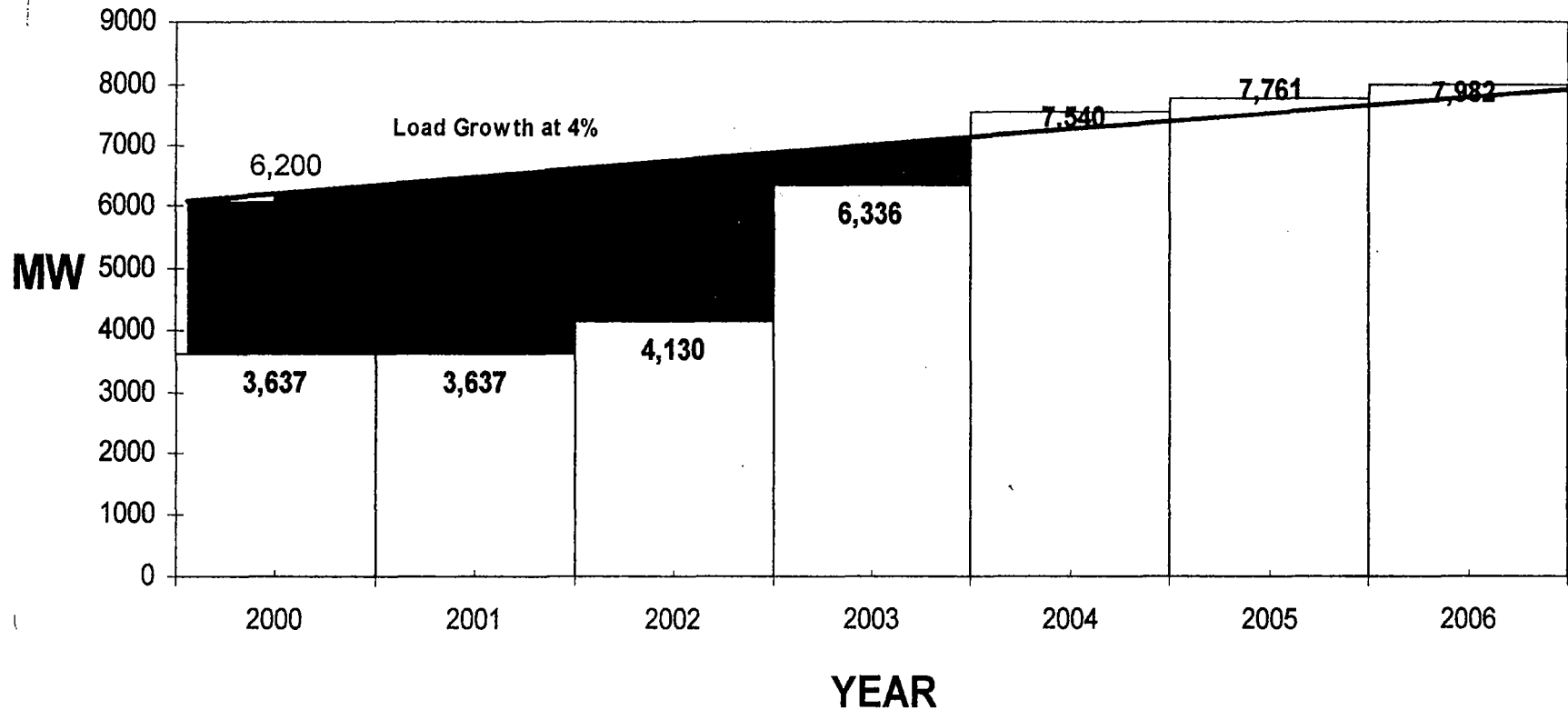
□ Available Generation Capacity (Existing plus on-going and approved projects) and all hydro power stations operating on 50% capacity starting from July 2003

LOAD FORECAST, AVAILABLE CAPACITY AND GENERATION DEFICIT (Scenario -C)



□ Available Capacity when all applications are approved before Feb 2002 and current drought continues

LOAD FORECAST, AVAILABLE CAPACITY AND GENERATION DEFICIT (Scenario- D)



□ Available Capacity when all applications are approved before Feb 2002 and all hydro power stations are operating on 50% capacity as of July 2002

BREAKDOWN OF SCR 986 ALLOCATIONS

FOR GENERATION

DESCRIPTION	US \$M
Total applications received for phase I to IX	3940
Applications for power generation (80% of total applications)	3137
Break down	
O & M costs for power generation	557
Rehabilitation costs of power plants (910 MW) (Approved)	404
New power generation & projects under construction (1985 MW) (Approved)	917
Non - compliant applications for power generation (126 MW)	200
Applications on hold for new power generation (1586 MW)	883
Applications on hold for maintenance and rehabilitation (660 MW)	176

STATUS OF POWER GENERATION

- The National power deficit (shortage) during summer peak load is 2800 MW
- The programme has so far focused on maintenance, rehabilitation of the existing power plants and installation of new gas turbine units
- Rehabilitation and new gas units under MoU programme has added 400MW generating capacity
- Some power plants are over 25 years old and technically obsolete (Estimated capacity 1500 MW, replacement value \$ US 1.2 billion)
- The situation in some power plants continues to be hazardous and unsafe due to lack of adequate maintenance spares and safety equipment
- Power plants are not equipped with environmental protection



STATUS OF TRANSMISSION

TRANSMISSION	US \$M	%
Applications received	235	6% (*1)
Approved	184	78% (*2)
On hold	51	22% (*2)
Arrived	123	52% (*2)

(*1) -% of total sector applications (*2) - % of applications received for transmission

- The 400 / 132 kV network is sufficient to cope with the present power generation
- Power management system is completely obsolete and non operational. All applications for the new system are on hold
- To cope with the additional power generation in the future, the transmission network will have to be reinforced
- In the Commission of Electricity, the priority is moving towards transmission
- Releasing of applications would augment the transmission capacity of the network in the country

STATUS OF DISTRIBUTION

DISTRIBUTION	US \$M	%
Applications received	522	13% (*1)
Approved	476	91% (*2)
On hold	46	9% (*2)
Arrived	270	51% (*2)

(*1) -% of total sector applications (*2) - % of applications received for distribution

- A large number of consumers do not have access to the electricity network
- Additional consumers will increase the power cuts
- The MoU supplies ordered so far have not been sufficient even to carry out routine maintenance
- In the power supply system the distribution network has the lowest priority
- Releasing of applications on hold would ensure effective maintenance of distribution system and retard further deterioration

STATUS OF INDUSTRIAL COMPANIES

SLIDE 17

INDUSTRIAL COMPANIES	US \$M	%
Allocation	48	2% (*1)
Approved	43	90% (*2)
On hold	5	10% (*2)
Arrived	15	31% (*2)

(*1) -% of total sector applications (*2) - % of applications received for ind. companies

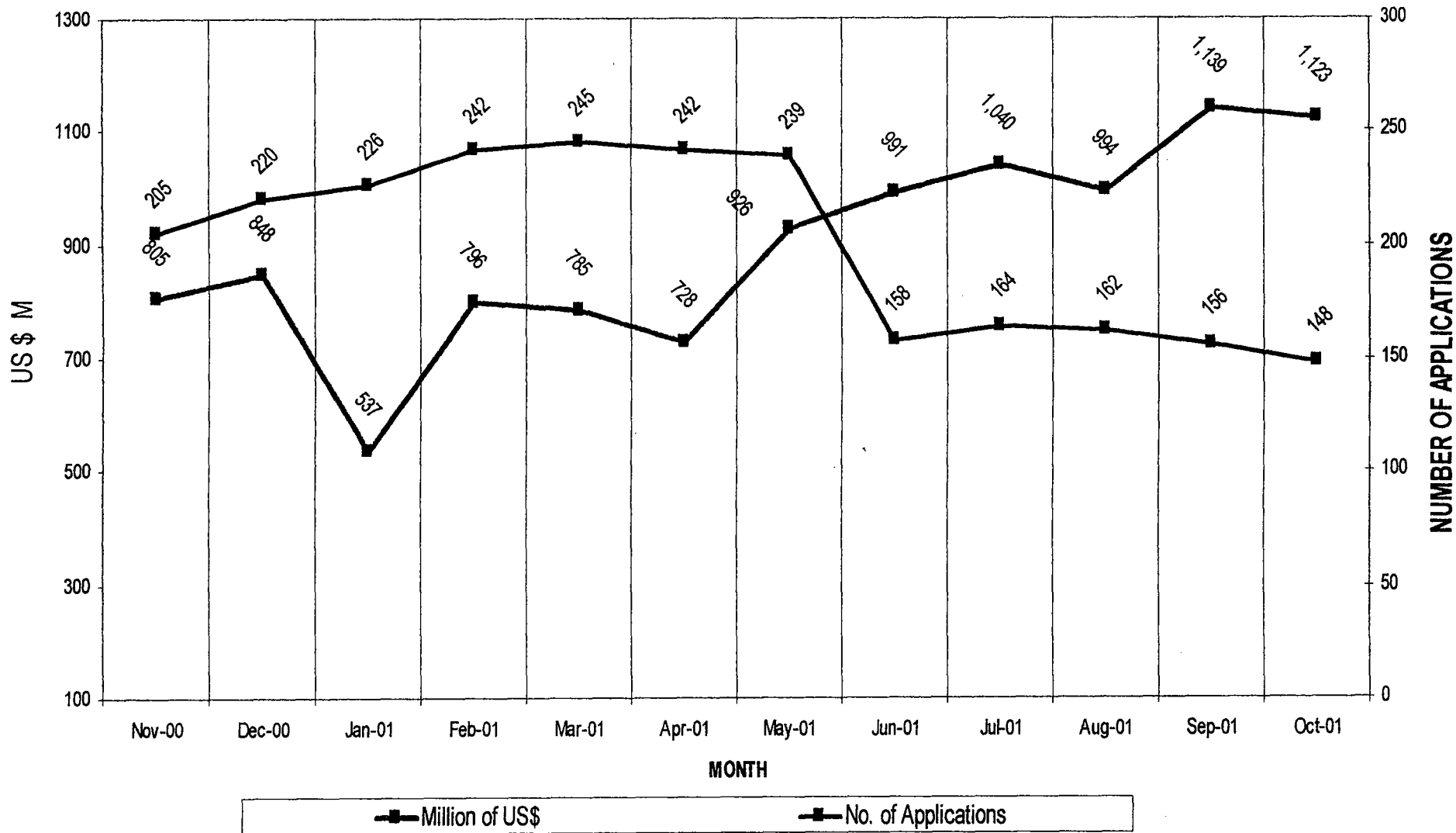
- The essential output of the two manufacturing companies producing such materials as distribution transformers, low tension cables, and conductors is severely hampered by a lack of raw materials
- Approval of Industrial sub-sector contracts would give much needed impetus to partially meet the basic electrical equipment requirements in the country



INVOLVEMENT OF ELSWG IN PREPARATION OF CLARIFICATIONS FOR APPLICATIONS ON HOLD

- Assessing needs to meet the humanitarian requirements
- Visiting the Commission of Electricity in Headquarters and in the field to:
 - Discuss and observe the end use/ user
 - Discuss alternatives for items on 1051 list or deletion of these items from the applications
- Quantifying the impact of hold in the electricity sector
- Preparing clarification reports to be forwarded to SC 661 committee

NUMBER AND VALUE OF APPLICATIONS ON HOLD



BREAKDOWN OF APPLICATIONS ON HOLD

CATEGORIES	NUMBER OF APPLICATIONS ON HOLD	US \$ M	% OF TOTAL VALUE	IMPACT (MW)
Operation and maintenance of power plants	84	53.1	4.7	
Rehabilitation of existing power plants	13	122.7	10.9	660
New Thermal Plants	12	567.6	50.5	630
New Gas plants	4	299.7	26.7	930
Hydro Plants	2	15.1	1.3	26
Transmission	8	32.2	2.8	
Distribution	16	29.6	2.6	
Industrial Companies	9	3.5	0.3	

STATUS OF HOLDS

MAIN REASONS FOR HOLD	APPLICATIONS		VALUE
	US \$M	#	%
Only additional information requested and subsequently provided	490.7	41	43.3
Only additional information requested but not yet provided	394.2	48	35.1
Goods on the 1051 list as indicated by both the secretariat and holding mission	53.7	8	4.8
Goods on the list as indicated by the holding mission prior to February 2000 (Legacy Comms)	13.5	16	1.2
Goods on the list as indicated by holding mission after February 2000 (1051 disagreement)	130.5	16	11.6
Dual Use	10.0	12	0.9
Pending further evaluation / Consideration	27.0	4	2.4
Others	3.4	3	0.3
Total	1123.0	148	100



TYPE OF GOODS FREQUENTLY PLACED ON HOLD

- **Boiler and turbine system equipment**
- **Pumps, compressors and rotary equipment**
- **Water treatment chemicals and equipment**
- **Transmission equipment (cables, transformers, etc;)**
- **Control and protection equipment (including testing and communication equipment)**
- **Vehicles**

IN THE ELECTRICITY SECTOR MANY GOODS ARE VULNERABLE TO BE PLACED ON HOLD

BREAKDOWN OF ON HOLD PERIOD

SLIDE 23

MONTHS	NUMBER OF APPLICATIONS ON HOLD	AS % OF TOTAL NUMBER OF APPLICATIONS ON HOLD
Over 24	20	13%
12-24	51	35%
9-12	20	13%
6-9	20	13%
3-6	17	12%
2-3	7	5%
1-2	9	6%
Less than 1	4	3%
TOTAL	148	100%

UNITED NATIONS SECURITY COUNCIL



SIMILAR APPROVED APPLICATIONS

NUMBER OF APPLICATIONS ON HOLD	148	100%
NUMBER OF APPLICATIONS WITH ALL QUESTIONED LINE ITEMS SIMILAR TO LINE ITEMS FROM PREVIOUSLY APPLICATIONS	105	71%
NUMBER OF APPLICATIONS WITH SOME QUESTIONED LINE ITEMS SIMILAR TO LINE ITEMS FROM PREVIOUSLY APPLICATIONS	13	9%
NUMBER OF APPLICATIONS WITHOUT ANY QUESTIONED LINE ITEMS SIMILAR TO LINE ITEMS FROM PREVIOUSLY APPLICATIONS	30	20%

REGULATIONS DIVISION/REGULATORY AFFAIRS/REGULATORY AFFAIRS



CONCLUSION

HOW DOES THE NEW OBSERVATION MECHANISM AFFECT THE OBSERVATION

- 13 ELSWG international observers (UNDP/DESA-6 and UNOHCI-7) working in close cooperation
- Ability to track all the contracts from arrival to delivery to end users
- Effective and efficient verification of all end use/user goods requested by the SC 661 committee
- On random sampling basis effective and efficient verification that goods other than requested by the SC 661 committee are used for the intended purposes



HOW ARE APPLICATIONS ON HOLD AFFECTING THE COUNTRY?

- Interruption of power supply affects humanitarian facilities such as hospitals, water treatment plants and educational institutes
- Power cuts affect households, agriculture and industries
- No generation capacity and distribution materials for new consumers



CONCLUSION

WHY RELEASE OF APPLICATIONS ON HOLD?

- **No substitutes are available for goods on the 1051 list**
- **To ensure continuation of operation and maintenance of the existing power plants and network**
- **To overcome electricity shortage (45 % of the needs) in the country:**
 - **by rehabilitating the existing power plants**
 - **by adding new generation plants**

CONCLUSION

APPEAL FOR RELEASE OF APPLICATIONS ON HOLD

- **Release of all applications, and in particular, immediate release of applications listed in the priority list**
- **Release of all complimentary applications at once and as listed in the priority list**

CONCLUSION

PRIORITY FOR RELEASING OF APPLICATIONS ON HOLD

	Item description	*	Value in US \$	Number of App.	Additional MW	US \$/ MW
1	Operation, maintenance and consumable materials for power stations, trans. and dist. network	S	5,973,524	15		To keep the power stations and electrical network in operation and to arrest deterioration
	Total for Short Term		5,973,524	15		
2	Rehabilitation of existing power stations	M	80,025,513	7	660	121,250
3	New gas turbine power stations	M	299,790,392	4	930	322,355
	Total for Medium Term		379,815,905	11		
4	New thermal power stations, Yousifiya (3 units)	L	414,637,766	12	630	658,155
	Total for Long Term		414,637,766	12		
	Grand total		800,427,195	38	2220	

* Impact on Short/ Medium/ Long Term

CONCLUSION

RELEASE OF APPLICATIONS ON HOLD PRIORITY-1

RANKING	POWER STATION	OPERATION, MAINTANACE AND CONSUMABLE MATERIALS APPLICATIONS		
		COMM. NUMBERS	VALUE IN US \$	ADDITIONAL MW
1	a- Water treatment chemicals	600964	162,000	To arrest the deterioration of the power stations, no significant impact on capacity
	b- Water treatment equipment	600190,600753,700795	519,265	
2	Ur state co.	600155	241,200	
3	Baghdad South TPS	702327	117,000	
4	Dura TPS	501031,701080	392,426	
5	Beji TPS	50752,600678,600910	1,891,298	
6	Hartha TPS	802274	1,775,020	
7	Mussaib TPS	702535, 801230	119,315	
8	Distribution	701407	756,000	
		15	5,973,524	

CONCLUSION

RELEASE OF APPLICATIONS ON HOLD PRIORITY-2

RANKING	ITEM	REHABILITATION OF THERMAL POWER STATIONS	COMM. NUMBERS	VALUE IN US\$	ADD MW	M US\$/ MW
1	1	Goods for boiler rehabilitation of Hartha TPS	501293	1,316,119	400	6,067
	2	Goods for boiler rehabilitation of Hartha TPS	501294	400,355		
	3	Goods for boiler rehabilitation of Hartha TPS	501295	347,924		
	4	Goods for boiler rehabilitation of Hartha TPS	901709	362,528		
2	5	Rehabilitation of water treatment plant of Nassiriya TPS	80227	2,781,257	200	122,700
	6	Rehabilitation of water closed cycle cooling system of Nassiriya TPS	900778	21,758,711		
3	7	Rehabilitation of turbine and control system of units 5 & 6 of Dura TPS	a-601700 b-802442	39,690,222 13,368,397	60	884,310
				80,025,513	660	

ITEM 1,2,3 AND 4 ARE COMPLIMENTARY

ITEM 5 AND 6 ARE COMPLIMENTARY

CONCLUSION

RELEASE OF APPLICATIONS ON HOLD PRIORITY-3

RANKING	GAS TURBINE POWER STATIONS	COMM. NUMBERS	VALUE IN US \$	ADD. MW	US\$/MW
1	Dibis Gas Power Station	702374	80,034,511	2X150 MW	266,781
2	Najaf Gas Power Station	600630	104,872,881	2X165 MW	317,796
3	Rumaila Gas Power Station	800701	97,383,000	2X125 MW	389,532
4	Mobile Gas Power Station	600620	17,500,000	2X25 MW	350,000
TOTAL		4	299,790,392	930 MW	



CONCLUSION

RELEASE OF APPLICATIONS ON HOLD PRIORITY-4

RANKING	THERMAL POWER STATION	COMM. NUMBERS	VALUE IN US \$	ADD. MW	US \$ / MW
1	Yousifiya TPS	801479, 900325, 901624, 901749, 901750, 901751, 901752	414,637,767	630	658,154
TOTAL		7	414,637,767	630	658,154



PROFILE OF INTERNATIONAL OBSERVERS IN ELSWG

S/N	AGENCY	NAME OF OBSERVER	QUALIFICATION WITH DATES	EDUCATIONAL QUALIFICATION WITH DATES EDUCATIONAL	ARRIVAL DATE
1	UNDP/DESA	Marcel ALBERTS	M.Sc Electrical Engineer- 1969	Electrical Power Eng.	24. 01.01
2	UNDP/DESA	Kantharaj PRABHAKAR	B.E. Electrical Engineering- 1987	Electrical Power Eng.	22.01.00
3	UNDP/DESA	Aida SENDIC	B.Sc Electrical Power Eng. -1973	Transmission Systems	02.05.01
4	UNDP/DESA	Peter HOGAN	B.E Electrical Eng.- 1989	Electrical Power Eng.	18.8.01
5	UNDP/DESA	Douglas SEATH	Diploma of Electrical Power Eng.	Electrical Power Eng.	16.10.01
6	UNDP/DESA	Jerzy PAWLOWSKI	M. SC Mechanical Eng.- 1979	Mechanical Eng.	ETA Jan. 2002
7	UNOHCI	Khalid SYED	B.Sc Electrical Engineering- 1967 (PGD) Post Graduate Diploma in Electrical Engineer- 1978	Electrical Eng.	24.12.00
8	UNOHCI	Steven PRIEM	B.Sc Electrical Eng.- 1959	Electrical Eng.	03.05.01
9	UNOHCI	Carlos GUERRA	Ph.D Engineering Science/ M.S. Eng./ B.Sc Eng.	Chemical Eng.	01.03.01
10	UNOHCI	Qudsia SIDDIQUI	M.Sc Engineering- 1997 B.Sc Engineering- 1988	Electrical Eng.	30.10.00
11	UNOHCI	Zhengyuan MI	Training in Thermal Eng. (1965-1970) at University Training in Operation of 600 MW Units (1984) Training in Power Plants Management (1992)	Electrical Eng.	25.03.01
12	UNOHCI	Mallikarjun KADAMBAI	B.Sc Electrical & Electronically Eng.-1991	Instruments & Control	06.04.01
13	UNOHCI	Byeong Kil OH	B. Sc Electrical Engineering M. Sc Construction Management	Electrical Eng. Project Mgt.	19.04.01

IRAQ, LOCATIONS OF POWER STATIONS

SLIDE 35

INDEX	POWER STATION NAME
1	Saddam HPS
2	Mousil GPS
3	Al-Shimal TPS (under construction)
4	Dokan HPS
5	Dibis TPS, GPS
6	Al-Tameem GPS
7	Derban Dikhan HPS
8	Beji TPS, GPS
9	Salah Al-Din TPS (under construction)
10	Al-Adhim HPS (under construction)
11	Qadissiya HPS
12	Himreem HPS
13	Samara HPS
14	Anbar TPS (under construction)
15	Taji GPS
16	Dura TPS, GPS
17	Al-Quds GPS
18	Yousifiya TPS (under construction)
19	Baghdad South TPS, GPS
20	Msayiab TPS
21	Hilla GPS
22	Najaf GPS
23	Nasriya TPS
24	Hartha TPS
25	Najibiya TPS
26	Shuaiba GPS
27	Khor Al-Zuber GPS
28	Rumaila GPS (under construction)

