

4.4 配電 SCADA システムの提案

本節では、配電 SCADA 導入案について、より具体的な検討をする。前節では、Ranga Reddy と Hyderabad の変電所およびフィーダの平均的な値に基づいて検討した。ここでは、個別変電所のデータに目を向けて検討する。

4.4.1 既存 SCADA と配電 SCADA 機能

既存 SCADA は、主に配電用変電所内までを対象に、設備の監視制御を行っている。しかし、ソフトウェアとしては既に DMS(Distribution Management System)機能のような配電 SCADA 機能を装備している。これは、将来配電 SCADA 機能を導入することを狙ったものであると考えられる。

さらに、既存 SCADA の無線通信設備もある程度の容量的余裕を持っており、また、光ファイバーケーブルも、Hyderabad の市街エリアの主要道路沿いに既に敷設されている。これは、既に配電 SCADA 導入のインフラがかなり整備済みであることを意味している。

表 4.12 は DMS 機能とその装備についての提案を示す。

表 4.12 DMS 機能と導入優先順位

機能	優先度	対応方針
a. 緊急負荷遮断 (高圧需要家)	6	優先度が低いので、優先度の高い機能を装備後導入する。
b. 負荷制御 (高圧需要家)	4	負荷平準化に関する機能であるので、優先度の高い機能を装備後導入する。
c. 自動検針 (高圧需要家)	3	優先度が中位であり、また、配電 SCADA が導入された後、導入が容易な機能なので、近い将来の導入を考慮する。
d. 事故評定	1	最優先項目で、基本的な機能であるので、配電 SCADA 導入時の装備機能として採用する。
e. 負荷の均等化	2	第2位の優先項目であり、重要な機能なので、配電 SCADA 導入時の装備機能として採用する。
f. 自動作図および設備管理	7	優先度は低いですが、地理情報システム (GIS) が普及しつつあり、このプロジェクトでも検討されているので、GIS と関連付けて導入を考慮する。
g. トラブル処理	5	この機能は既に、既設 SCADA とは独立してシステム (コールセンター) が設置されているので、お互いを連絡する機能を装備する。

(1) Call Center (SCADA Center に設置)の性能等

- ◆ 電話番号 : 1912。24 の独立ラインがセンターに接続。
- ◆ 16 回線が受信専用, 4 ラインが送信専用。
- ◆ 組織 : ADE+AE+ システムエンジニアがメンバー, オペレータは委託, 24 時間体制。
- ◆ LAN network, データ量 1,040,624 (Hyderabad), Ranga Reddy Circle の 797,732 が増設予定。
- ◆ データ内容 : 住所, 電話番号, 顧客 ID, 変電所名, フィーダ名, FOC オフィス名, ER オフィス名
- ◆ 顧客は 1912 に電話し, クレームが受け付けられる。クレームは顧客番号, 電話番号あるいは家屋番号で登録される。

- ◆ データベースソフトウェア: ORACLE data base
- ◆ 本センターは SCADA への連携が提案されている。フィーダ事故時、本センターの全モニターに情報が映し出される。

(2) SCADA センターの負荷監視システム

- ◆ 対象郡: 6 郡: Ranga redy, Medak, Nalgonda, Mahaboob Nagar, Kurnool, Anatzapur.
- ◆ 変電所数およびフィーダ数: 363 変電所 and 667 フィーダ (全変電所数 827, 全フィーダ数 2,500 (都市部; 800, 郊外; 1,700))。
- ◆ 監視項目: V, I, P, kVA, PF (フィーダ出口, 4 DTRs(配電用変圧器)の2次側など。
- ◆ 通信手段: 公衆電話回線, GSM 携帯電話回線。
- ◆ 注意事項: 農事用の3相給電(9時間)および単相給電(15時間)の監視。
- ◆ オペレータ: 2 交替制 (1シフト6人)。
- ◆ メータ仕様:
 - メータのプロトコル: SEM by SECURE
 - 36 日間のデータ収集可能。
 - オプションデータポート: 遠隔検針用。
 - SECURE 社メータ ; RS-232C (Hyderabad SCADA プロジェクト)
- ◆ システム構築ファイナンス:
 - World Bank: APL-1 (Adaptable Program of Lending 1)
 - メータ数: 1000 (4 DISCOMs)
 - 材料供給および設置工事: SECURE 社
 - ローン金額: 10 億 US\$ (400 億 Rs)

4.4.2 システム設計

(1) 通信システム

図 4.12, 図 4.13 および 図 4.14 に通信システム構成案を示す。

- ◆ 案 1 (図 4.12) : DCC と柱上装置(pole top SW, RTU)を直接連係。
- ◆ 案 2 (図 4.13) : DCC と柱上装置を TDMA Repeater Station および/または TDMA Out Station を経由して連係。
- ◆ 案 3 (図 4.14) : DCC 柱上装置を TDMA Repeater Station, TDMA Out Station および MARS Remote Station を経由して連係 (現無線通信経路と同じ)。

各案に対し、考えられる具体的に設置が考えられる装置について、表 4.13 に示す。

無線 (MARS) の場合は、セキュリティ面で問題があり、また、見通しのきかない場所で通信ができない。

光ファイバーは既に 200km に亘って敷設され、ある程度インフラが整っている。

費用については、後の節で検討しているが、その結果もここで勘案すれば、次の方法が提案可能である。

- ◆ Fiber Optic Cable (Case 1)
- ◆ RF Mobile System

(2) 設備の仕様

設備とソフトウェアについては、以下を提案する。

- ◆ フィーダの区分数は 2 または 3。
- ◆ 装備済みのソフトウェアで、先ずハードウェアと一緒に実装すべきものは、事故点評定分離、負荷バランス機能。

表 4.13 通信方法とシステム構成

手法		柱上設置装置	通信ラインの設置	変電所, 配電制御所の RTU 等
Idea1				
光ファイバケーブル	Case 1 (光ファイバケーブルのインフラが十分整備されている)	- RTU 付き自動開閉器	- フィーダ長の 1% 敷設	- DCC の既設 RCS の 10% 相当分を改造
	Case 2 (ある程度整備されている)		- フィーダ長の 10% 敷設	
	Case 3 (殆ど整備されていない)		- フィーダ長の 50% 敷設	
制御線		同上	- フィーダ長と同じ長さを敷設	
携帯電話無線		- RTU および通信装置付き自動開閉器	不要	- DCC の既設 RCS の 50% 相当分を改造
Idea2				
MARS 無線		- RTU および通信装置付き自動開閉器	不要	- 既設 MARS Master および DCC の RCS の 50% を新設または改造
Idea3				
電力線搬送 (Vo キャリア)		- RTU 付き自動開閉器	不要	- 変電所および DCC の RTU を新設

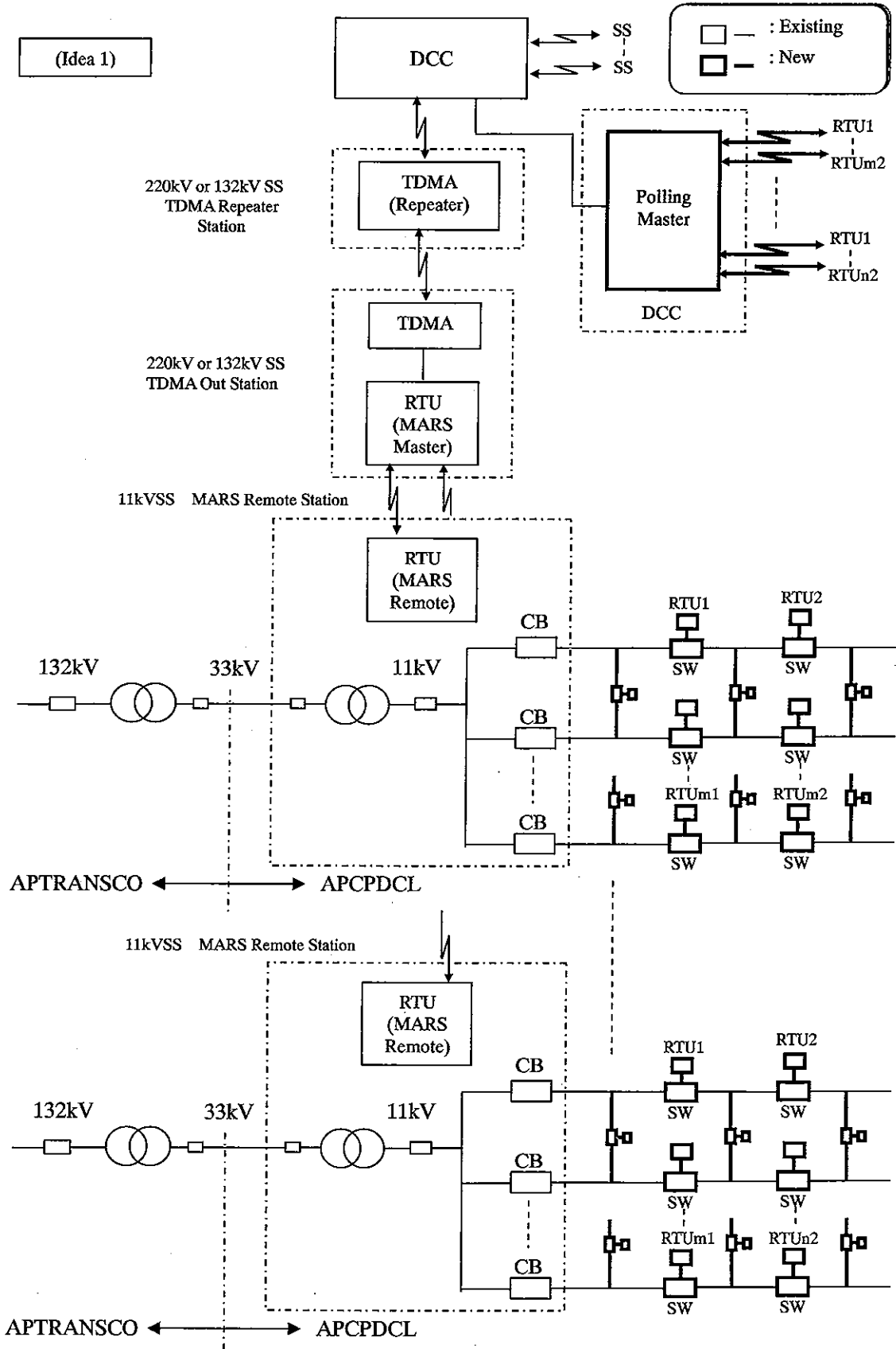


図 4.12 通信システム構成(案 1)

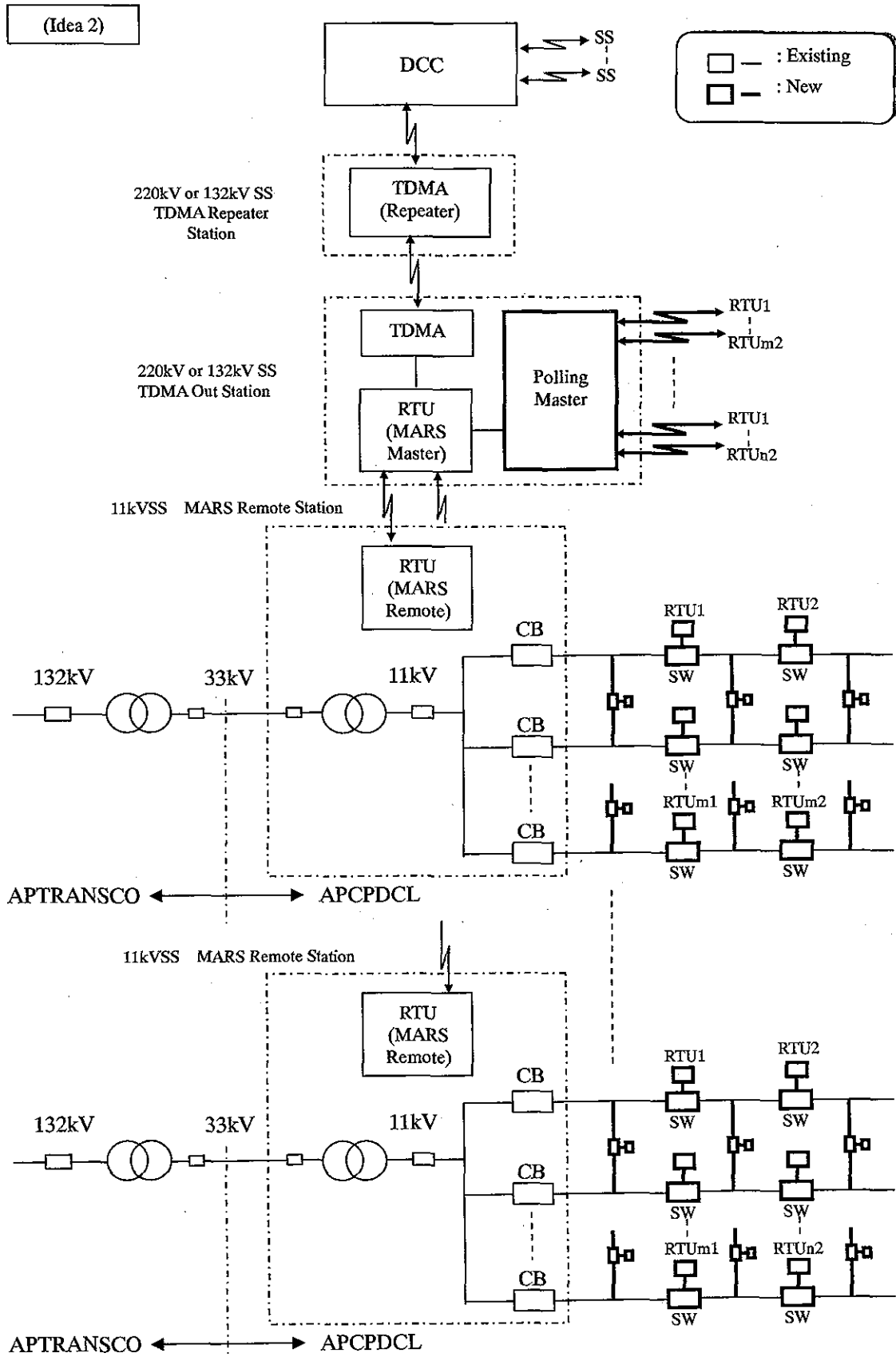


図 4.13 通信システム構成 (案 2)

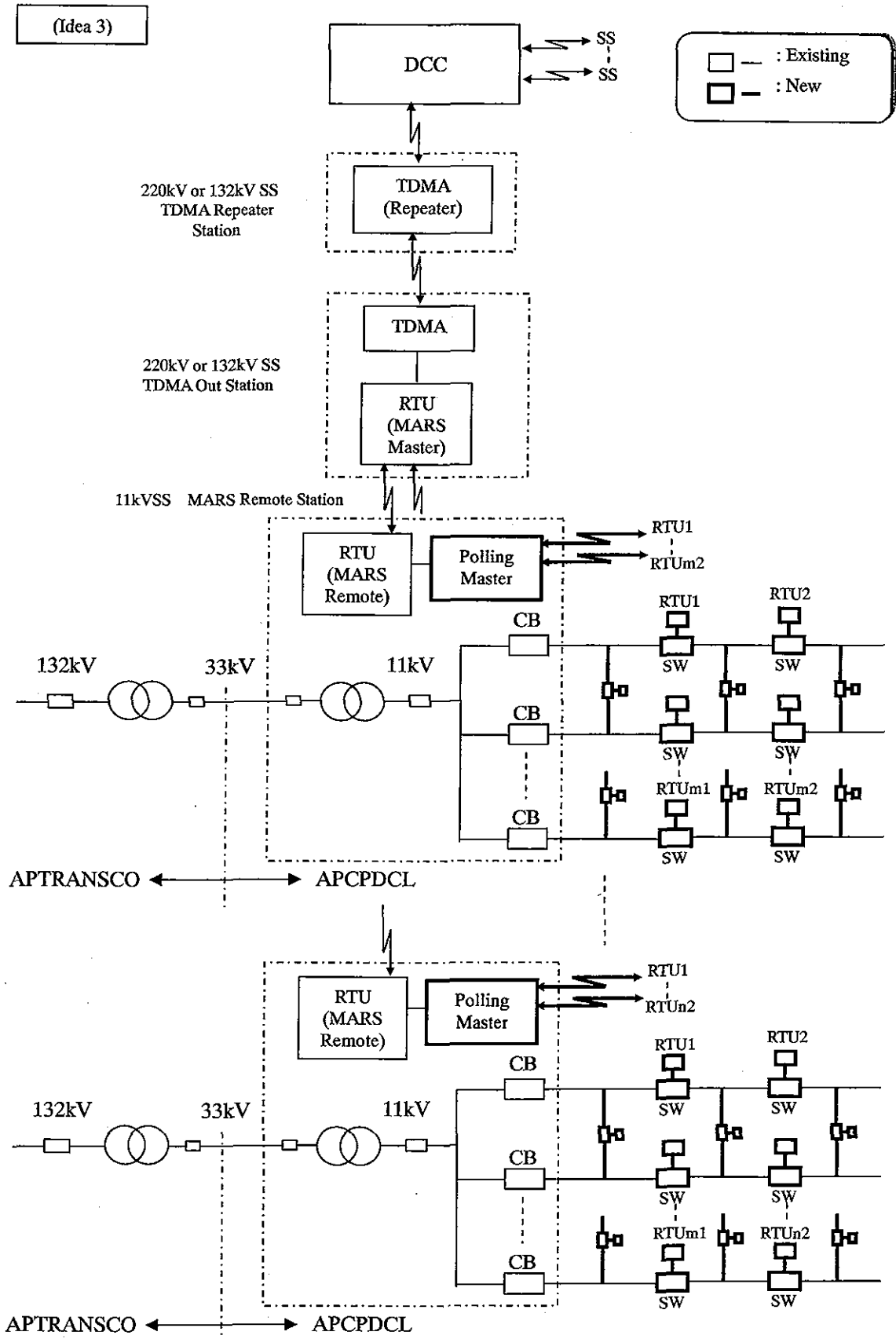


図 4.14 通信システム構成 (案 3)

4.4.3 システム構成別の概算費用

前節で述べた各システム構成について、その経済性の概算結果を表 4.14 および図 4.14 に示す。また、この結果の詳細な計算表を表 4.15 に示す。計算条件は計算表に記載のとおりであるが、主な前提条件は以下のとおりである。

- 区分開閉器の個数は2個/フィーダ
- 建設期間は5年で、96箇所の変電所、546フィーダ
- 計算の前提条件は表 4.8 に同じ

この結果より、通信設備の新たな設置が不要な Fiber Optic Cable (Case 1), RF Mobile System, RF MARS の通信手法を用いる方法の経済性が優れ、投資の回収期間は9~10年である。

表 4.14 システム構成別費用

(Million Rs)				
手法	設備コスト (時価)	NPV (20年)	資本回収期間(年)	
Idea1				
光ファイバケーブル	Case 1 (光ファイバケーブルのインフラが十分整備されている)	598	418	10
	Case 2 (ある程度整備されている)	815	145	16
	Case 3 (殆ど整備されていない)	1,778	-1,070	20 以上
制御線	2,911	-2,497	20 以上	
携帯電話無線	530	503	9	
Idea2				
MARS 無線	573	450	9	
Idea3				
電力線搬送 (VO キャリア)	1,100	-216	20 以上	

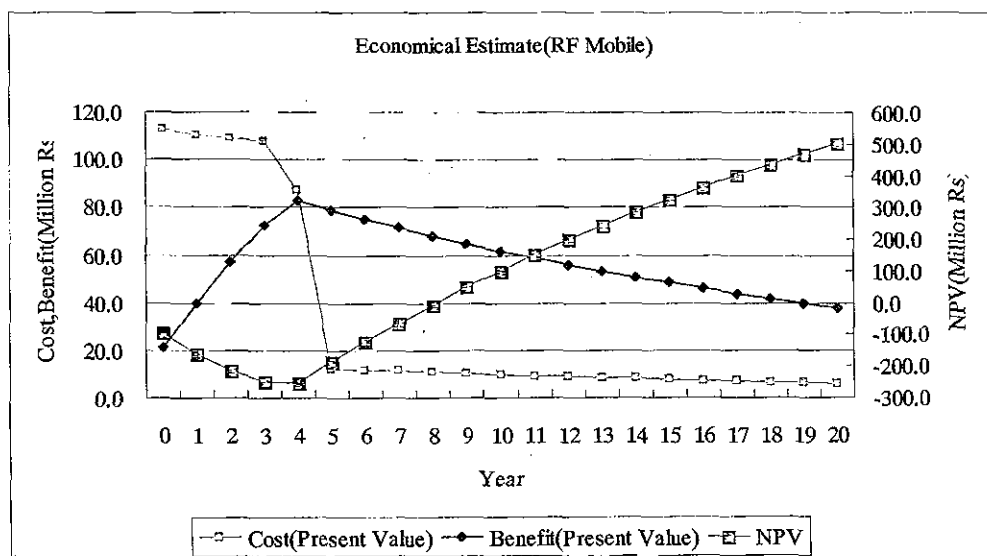


図 4.15 経済性評価例 (RF Mobile System)

表 4.15 システム別コストの計算
Ideal:Fiber Optic Cable (Case 1) Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total Equip.
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	Total
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	Total
Amount of Construction Facilities																						
Substation Number	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
Feeder Length(km)	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744
Cost																						
Pole SW,RTU etc.	104.42	105.47	106.52	107.59	86.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	511
Acquisition Cost	3.13	6.30	9.49	12.72	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	292
Maintenance Factor (%)																						
Fiber Optic Cable	4.92	4.97	5.02	5.07	4.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24
Acquisition Cost (km/feeder km)	12.63	12.75	12.88	13.01	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62
Maintenance (km/ss)	0.53	1.06	1.60	2.14	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	49
Maintenance Factor (%)																						
For Fiber at DCC	9.804																					1
Acquisition Cost	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1
Maintenance Factor (%)																						
Total Cost	126.6	130.6	135.5	140.6	119.5	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	940
Present Value	126.6	124.4	122.9	121.4	98.3	14.1	13.4	12.7	12.1	11.6	11.0	10.5	10.0	9.5	9.1	8.6	8.2	7.8	7.5	7.1	6.8	598
Benefit																						
Outage 19,729 (kWh/feeder/Y)	8.9	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
Loss 97,096 (kWh/SS/Y)	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
Worker 0.12 (10 ⁶ Rs/SS/Y)	2.4	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
Tariff Rate 5 (Rs/kWh)																						
Outage Reduction Rate 0.75																						
Total	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,972
Benefit Return	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172
Current Value	-105.7	-88.6	-72.6	-56.6	-18.7	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	82.8	983
Present Value	-105.7	-84.4	-65.8	-48.9	-15.4	64.9	61.8	58.8	56.0	53.4	50.8	48.4	46.1	43.9	41.8	39.8	37.9	36.1	34.4	32.8	31.2	418
Return Accumulation																						
Benefit - Total Cost	-105.7	-194.3	-266.8	-323.4	-342.2	-259.4	-176.6	-93.7	-10.9	71.9	154.7	237.5	320.3	403.1	485.9	568.7	651.5	734.3	817.1	899.9	982.8	
Present Value	-105.7	-190.0	-255.9	-304.8	-320.2	-255.3	-193.5	-134.6	-78.6	-25.2	25.6	74.0	120.1	164.1	205.9	245.7	283.6	319.8	354.2	387.0	418.2	

(表 4.15 Continue)

Ideal:Fiber Optic Cable (Case 2) Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	Total
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	Total

Amount of Construction Facilities

Substation Number	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
Feeder Length(km)	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744

Cost

Pole Mount.	SW,RTU etc.	104.42	105.47	106.52	107.59	86.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	511
	Acquisition Cost	104.42	105.47	106.52	107.59	86.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	511
	Maintenance	3.13	6.30	9.49	12.72	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	292
	Maintenance Factor (%)	3																					
Com. Line	Fiber Optic Cable	49.24	49.73	50.23	50.73	40.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	241
	Acquisition Cost	49.24	49.73	50.23	50.73	40.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	241
	Acquisition Cost (km/Feeder.km)	12.63	12.75	12.88	13.01	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62
	Maintenance (km/ss)	1.86	3.73	5.62	7.54	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	9.08	173
	Maintenance Factor (%)	3																					
RTU etc. at SS, DCC	For Fiber at DCC	0.98																					1
	Acquisition Cost	0.98																					1
	Maintenance (Nos/System)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1
	Maintenance Factor (%)	3																					
	Total Cost	172.3	178.0	184.8	191.6	162.9	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	815
	Present Value	172.3	169.5	167.6	165.5	134.0	19.1	18.2	17.4	16.5	15.8	15.0	14.3	13.6	13.0	12.3	11.8	11.2	10.7	10.2	9.7	9.2	1,027

Benefit

Outage	19,729	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
	(kWh/Feeder/Y)	19,729	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
Loss	97,096	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
	(kWh/SS/Y)	97,096	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
Worker	0.12	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
	(10 ⁶ Rs/SS/Y)	0.12	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
Tariff Rate	5																						
	(Rs/kWh)	5																					
Outage Reduction Rate	0.75																						
Total	Current Value	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922
Benefit	Present Value	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172

Return

Benefit - Total Cost	Current Value	-151.3	-136.0	-121.8	-107.7	-62.1	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	642
	Present Value	-151.3	-129.6	-110.5	-93.0	-51.1	59.8	56.9	54.2	51.6	49.2	46.8	44.6	42.5	40.5	38.5	36.7	35.0	33.3	31.7	30.2	28.8	145
Return Accumulation	Current Value	-151.3	-287.3	-409.1	-516.8	-578.9	-502.6	-426.3	-350.0	-273.7	-197.4	-121.1	-44.8	31.5	107.8	184.1	260.4	336.7	413.0	489.3	565.6	641.9	
	Present Value	-151.3	-280.8	-391.3	-484.3	-535.4	-475.7	-418.7	-364.5	-312.9	-263.7	-216.8	-172.2	-129.7	-89.3	-50.7	-14.0	20.9	54.2	85.9	116.1	144.9	

(表 4.15 Continue)

Ideal: Fiber Optic Cable (Case 3) Cash Flow Analysis (Money unit: 10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total		
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total		
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377			
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220			
Amount of Construction Facilities																								
Substation Number	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96		
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576		
Feeder Length(km)	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744		
Cost																								
Pole Mount.	0.4351 (10 ⁶ Rs/Unit)	Acquisition Cost	104.42	105.47	106.52	107.59	86.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	511	
Maintenance Factor	2	(Nos/Feeder)	3.13	6.30	9.49	12.72	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	292	
Fiber Optic Cable	0.6313 (10 ⁶ Rs/km)	Acquisition Cost	246.19	248.65	251.14	253.65	204.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,205	
Line	0.5 (km/Feeder km)	Acquisition Cost	12.63	12.75	12.88	13.01	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62	
Maintenance Factor	1	(km/ss)	7.76	15.61	23.53	31.53	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	37.99	724	
RTU etc. at DCC	9.804 (10 ⁶ Rs/Unit)	Acquisition Cost	0.98																				1	
SS, DCC Maintenance Factor	0.1 (Nos/System)	Maintenance	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1	
Total Cost			375.1	388.8	403.6	418.5	355.7	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	2,795	
			375.1	370.3	366.1	361.5	292.7	41.8	39.8	37.9	36.1	34.4	32.8	31.2	29.7	28.3	26.9	25.7	24.4	23.3	22.2	21.1	20.1	1,778
Benefit																								
Outage	19,729 (kWh/Feeder/Y)	Current Value	8.9	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813	
Loss	97,096 (kWh/SS/Y)	Current Value	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889	
Worker	0.12 (10 ⁶ Rs/SS/Y)	Current Value	2.4	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220	
Tariff Rate	5 (Rs/kWh)																							
Outage Reduction Rate	0.75																							
Total		Current Value	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922	
Benefit		Present Value	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172
Return																								
Benefit - Total Cost		Current Value	-354.2	-346.8	-340.6	-334.6	-255.0	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	-873	
Return Accumulation		Present Value	-354.2	-330.3	-309.0	-289.0	-209.8	37.1	35.4	33.7	32.1	30.6	29.1	27.7	26.4	25.1	23.9	22.8	21.7	20.7	19.7	18.8	17.9	-1,070
Benefit - Total Cost		Current Value	-354.2	-701.0	-1041.6	-1376.2	-1651.2	-1883.8	-1536.4	-1489.0	-1441.6	-1394.2	-1346.8	-1299.4	-1252.0	-1204.6	-1157.2	-1109.8	-1062.4	-1015.1	-967.7	-920.3	-872.9	
		Present Value	-354.2	-684.5	-993.4	-1282.4	-1492.2	-1455.1	-1419.7	-1386.0	-1354.0	-1323.4	-1294.3	-1266.6	-1240.2	-1215.1	-1191.1	-1168.3	-1146.6	-1126.0	-1106.3	-1087.5	-1069.6	

(表 4.15 Continue)

Ideal Metallic Cable Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	Total
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	Total

Amount of Construction Facilities

Substation Number	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
Feeder Length(km)	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744

Cost

Pole Mount.	0.4351 (10 ⁶ Rs/Unit)	Acquisition Cost	104.42	105.47	106.52	107.59	86.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	511
	2 (Nos/Feeder)	Maintenance	3.13	6.30	9.49	12.72	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	15.33	292
	3 (%)	Maintenance Factor																						
Com. Line	0.6128 (10 ⁶ Rs/km)	Acquisition Cost	478.01	482.79	487.62	492.49	397.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,339	
	1 (km/Feeder km)	Acquisition Cost	12.26	12.38	12.50	12.63	10.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60	
	1 (km/ss)	Maintenance	14.71	29.56	44.57	59.72	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	71.96	1,372	
	3 (%)	Maintenance Factor																						
RTU at ss, DCC	9.804 (10 ⁶ Rs/Unit)	Acquisition Cost	0.98																				1	
	0.1 (Nos/System)	Maintenance	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	1	
	3 (%)	Maintenance Factor																						
Total Cost		Current Value	613.5	636.5	660.7	685.2	582.4	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	87.3	4,576	
		Present Value	613.5	606.2	599.3	591.9	479.1	68.4	65.2	62.1	59.1	56.3	53.6	51.1	48.6	46.3	44.1	42.0	40.0	38.1	36.3	34.6	32.9	3,669

Benefit

Outage	19,729 (kWh/Feeder/Y)	Current Value	8.9	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
Loss	97,096 (kWh/SS/Y)	Current Value	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
Worker	0.12 (10 ⁶ Rs/SS/Y)	Current Value	2.4	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
Tariff Rate	5 (Rs/kWh)																							
Outage Reduction Rate	0.75																							
Total Benefit		Current Value	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922
		Present Value	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172

Return

Benefit - Total Cost		Current Value	-592.6	-594.5	-597.8	-601.2	-481.6	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	-2,653
		Present Value	-592.6	-566.2	-542.2	-519.4	-396.3	10.5	10.0	9.5	9.1	8.7	8.2	7.8	7.5	7.1	6.8	6.5	6.1	5.9	5.6	5.3	5.1	-2,497

Return Accumulation

Benefit - Total Cost		Current Value	-592.6	-1187.1	-1784.9	-2386.1	-2867.7	-2854.3	-2840.9	-2827.5	-2814.1	-2800.7	-2787.2	-2773.8	-2760.4	-2747.0	-2733.6	-2720.1	-2706.7	-2693.3	-2679.9	-2666.5	-2653.0
		Present Value	-592.6	-1158.8	-1701.0	-2220.3	-2616.6	-2806.1	-2596.1	-2586.5	-2577.5	-2568.8	-2560.6	-2552.7	-2545.2	-2538.1	-2531.4	-2524.9	-2518.8	-2512.9	-2507.3	-2502.0	-2497.0

(表 4.15 Continue)
Ideal:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total Equip.
Discount= $1/(1+i)^n$	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	
Amount of Construction Facilities																						
Substation Number	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
Feeder Length(km)	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744
Cost																						
Pole Mount.	108.02	109.10	110.19	111.30	89.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	529
SW,RTU etc.	3.24	6.51	9.82	13.16	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	302
Maintenance Factor	3																					
RTU etc. at	1.49																					1
DCC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
Maintenance Factor	3																					
Total Cost	112.8	112.8	112.8	112.8	105.8	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	833
Present Value	112.8	110.2	108.9	107.5	87.1	12.5	11.9	11.3	10.8	10.2	9.8	9.3	8.9	8.4	8.0	7.6	7.3	6.9	6.6	6.3	6.0	668
Benefit																						
Outage	19,729	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
Loss	97,096	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
Worker	0.12	2.4	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
Tarif Rate	5																					
Outage Reduction Rate	0.75																					
Total	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922
Benefit	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172
Return																						
Benefit - Total Cost	Current Value	-91.8	-73.7	-40.5	-5.1	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	84.8	1,089
Return Accumulation	Present Value	-91.8	-70.2	-51.8	-35.0	-4.2	66.5	60.3	57.4	54.7	52.1	49.6	47.2	45.0	42.8	40.8	38.9	37.0	35.3	33.6	32.0	503
Benefit - Total Cost	Current Value	-91.8	-165.5	-222.6	-263.1	-268.2	-183.4	-98.5	-13.7	71.1	156.0	240.8	325.6	410.5	495.3	580.2	665.0	749.8	834.7	919.5	1004.4	1089.2
Return Accumulation	Present Value	-91.8	-162.0	-213.8	-248.8	-253.0	-186.5	-123.2	-62.9	-5.5	49.2	101.3	150.9	198.1	243.1	286.0	326.8	365.6	402.7	437.9	471.5	503.5

(表 4.15 Continue)
Idea2:RF MARS System (Increasing MARS Master) Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total Equip.	
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total	
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377		
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220		
Amount of Construction Facilities																							
Substation Number	20	20	20	20	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
Feeder Number	120	120	120	120	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
Feeder Length(km)	780	780	780	780	780	624	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,744
Cost																							
Pole Mount.	108.02	109.10	110.19	111.30	89.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	529
SW,RTU etc.	3.24	6.51	9.82	13.16	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	15.86	302
Maintenance Factor	3																						
For RF at SS	5.40	5.45	5.51	5.56	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26
MAR Master	0.16	0.33	0.49	0.66	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	15
etc. at SS,	3.30	3.34	3.37	3.40	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16
DCC	1.49	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
Maintenance Factor	3																						
Total Cost	121.8	125.0	129.7	134.5	114.4	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	900
	121.8	119.0	117.7	116.2	94.1	13.5	12.8	12.2	11.6	11.1	10.5	10.0	9.6	9.1	8.7	8.3	7.9	7.5	7.1	6.8	6.5	6.2	573
Benefit																							
Outage	19,729	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
Loss	97,096	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
Worker	0.12	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
Tarif Rate	5																						
Outage Reduction Rate	0.75																						
Total Benefit	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922
Return	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	36.0	1,172
Benefit-Total Cost	-100.8	-83.0	-66.8	-50.6	-13.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	83.6	1,022
Return Accumulation	-100.8	-79.1	-60.6	-43.7	-11.2	65.5	62.4	59.4	56.6	53.9	51.3	48.9	46.5	44.3	42.2	40.2	38.3	36.5	34.7	33.1	31.5	30.0	450
Benefit-Total Cost	-100.8	-183.8	-250.5	-301.1	-314.7	-231.2	-147.6	-64.1	19.5	103.1	186.6	270.2	353.8	437.3	520.9	604.4	688.0	771.6	855.1	938.7	1022.3	1105.9	1189.5
Return Accumulation	-100.8	-179.8	-240.4	-284.1	-295.3	-229.8	-167.4	-108.1	-51.5	2.4	53.7	102.5	149.0	193.4	235.6	275.8	314.0	350.5	385.2	418.3	449.8	481.3	512.8

(表 4.15 Continue)

Idea3 : PLC Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	Total
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	Total

Idea3:PLC Cash Flow Analysis (Money unit:10⁶ Rs)

Amount of Construction Facilities		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	Total	
Substation Number		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0	96
Feeder Number	6 (Nos/SS)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	0	576
Feeder Length(km)	6.5 (km/Feeder)	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	0	3,744

Pole Mount.	SW,RTU etc. (PLC)	132.29	133.61	134.95	136.30	110.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	647
	Acquisition Cost	132.29	133.61	134.95	136.30	110.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	647
	Maintenance Factor	3.97	7.98	12.03	16.11	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	19.42	370
Com. Line	Fiber Optic Cable	12.63	12.75	12.88	13.01	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62
	Acquisition Cost	12.63	12.75	12.88	13.01	10.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62
	Maintenance Factor	0.38	0.76	1.15	1.54	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	35
RTU etc. at SS, DCC	For PLC at SS	78.28	79.06	79.85	80.65	65.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	383
	Acquisition Cost	78.28	79.06	79.85	80.65	65.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	383
	Maintenance Factor	2.35	4.72	7.12	9.53	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	11.49	219
	For PLC at SS, DCC	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	8
	Acquisition Cost	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	7.87	8
	Maintenance Factor	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	5
	Maintenance Factor	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	5
Total Cost	Current Value	238.0	239.1	248.2	257.4	218.8	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	1,729
	Present Value	238.0	227.7	225.1	222.3	180.0	25.9	24.6	23.5	22.3	21.3	20.3	19.3	18.4	17.5	16.7	15.9	15.1	14.4	13.7	13.1	12.4	1,387

Benefit	Outage	19,729	17.8	26.6	35.5	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	813
	Loss	97,096	9.7	19.4	29.1	38.8	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	46.6	889
	Worker	0.12	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
	Tariff Rate	5	4.8	7.2	9.6	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	220
	Outage Reduction Rate	0.75																					
Total	Current Value	21.0	42.0	63.0	84.0	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	100.7	1,922
Benefit Return	Present Value	21.0	40.0	57.1	72.5	82.9	78.9	75.2	71.6	68.2	64.9	61.8	58.9	56.1	53.4	50.9	48.5	46.2	44.0	41.9	39.9	38.0	1,172

Return Accumulation	PLC(a+e+h)	-217.0	-197.1	-185.2	-173.4	-118.1	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	67.7	193
	Present Value	-217.0	-187.8	-168.0	-149.8	-97.1	53.1	50.6	48.1	45.9	43.7	41.6	39.6	37.7	35.9	34.2	32.6	31.0	29.6	28.1	26.8	25.5	-216
	Current Value	-217.0	-141.1	-59.4	-772.8	-890.9	823.1	-755.4	-687.6	-619.9	-552.2	-484.4	-416.7	-348.9	-281.2	-213.4	-145.7	-77.9	-10.2	57.5	125.3	193.0	
	Present Value	-217.0	-404.8	-572.8	-722.6	-819.7	-766.6	-716.1	-667.9	-622.1	-578.4	-536.8	-497.2	-459.5	-423.6	-389.4	-356.8	-325.7	-296.2	-268.0	-241.2	-215.7	

4.4.4 変電所別の概算費用

本項では、変電所毎のロスの回復電力量と停電時供給停止電力量について検討する。図 4.16～図 4.19 に変電所毎のロスと停電電力の回復量の合計を示す。表 4.16 はそれらの中から、年間 100,000kWh 以上の値が予想される変電所をリストアップしたものであり、その量の大きいものから順に並べてある。

ここで、このリストアップ変電所の上から順に効果の大きいところを選んで、配電 SCADA 導入検討することを提案する。

費用対効果について、表 4.16 から 4 箇所の変電所を、また、重要地区にある変電所 2 箇所を選んで試算した。4 変電所は、Ranga Reddy, Hyderabad のそれぞれから、表の中で回復電力が最大のもので、回復電力の合計が 100,000kWh 付近に分類されるものを選んだ。重要地区の 2 箇所については、長時間の停電が好ましくない地区にある変電所から選んだ。

システム構成手法は、最も有望な RF Using Mobile System を用いる場合を適用した。試算結果を次の表 4.17 にまとめて示す。その計算表を表 4.18 に示す。

表 4.17 変電所別 費用対効果概算結果

(Million Rs)

Substation name	Reason for selection	Feeder Nos.	Length (km/F)	Loss recovery + outage energy (kWh/Y)	Equipment cost	NPV (20 years)	Recovery period (year)
Vanastalipram (RR)	Most recovery energy	4	19.8	1,311,352	5	71	1
Asif Nagar (Hydera)		9	8.5	530,505	10	21	4
NGRI (RR)	Around 100,000 kWh of recovery energy	6	2.2	188,987	7	4	11
Air Port (Hydera)		6	2.6	101,096	7	-2	Over 20
Mytrivanam	Important area	6	9.7	161,794	7	1	15
Srinagar		5	14.4	59,124	6	-3	Over 20

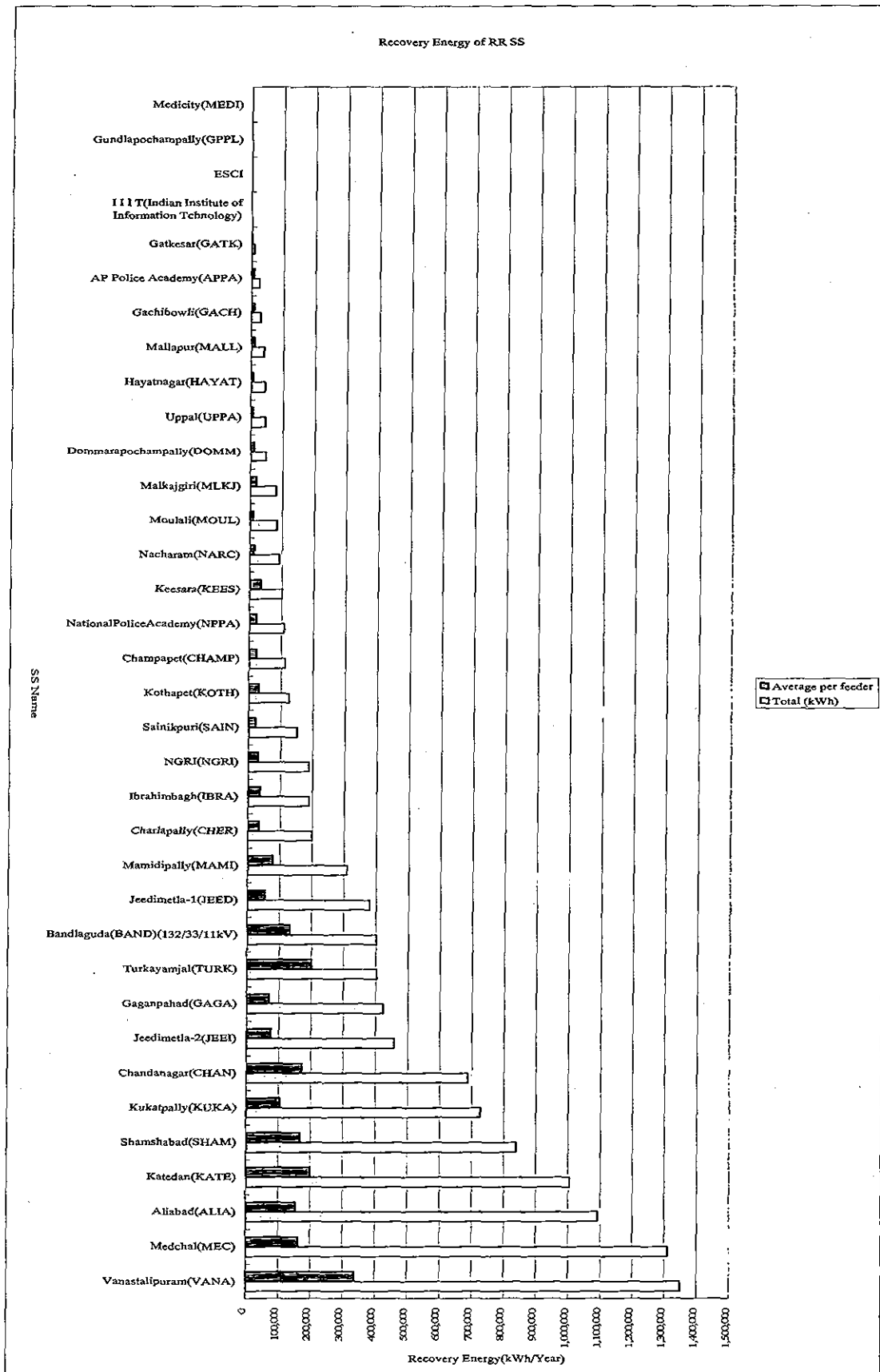


図 4.16 変電所別回復電力量 (Ranga Reddy)

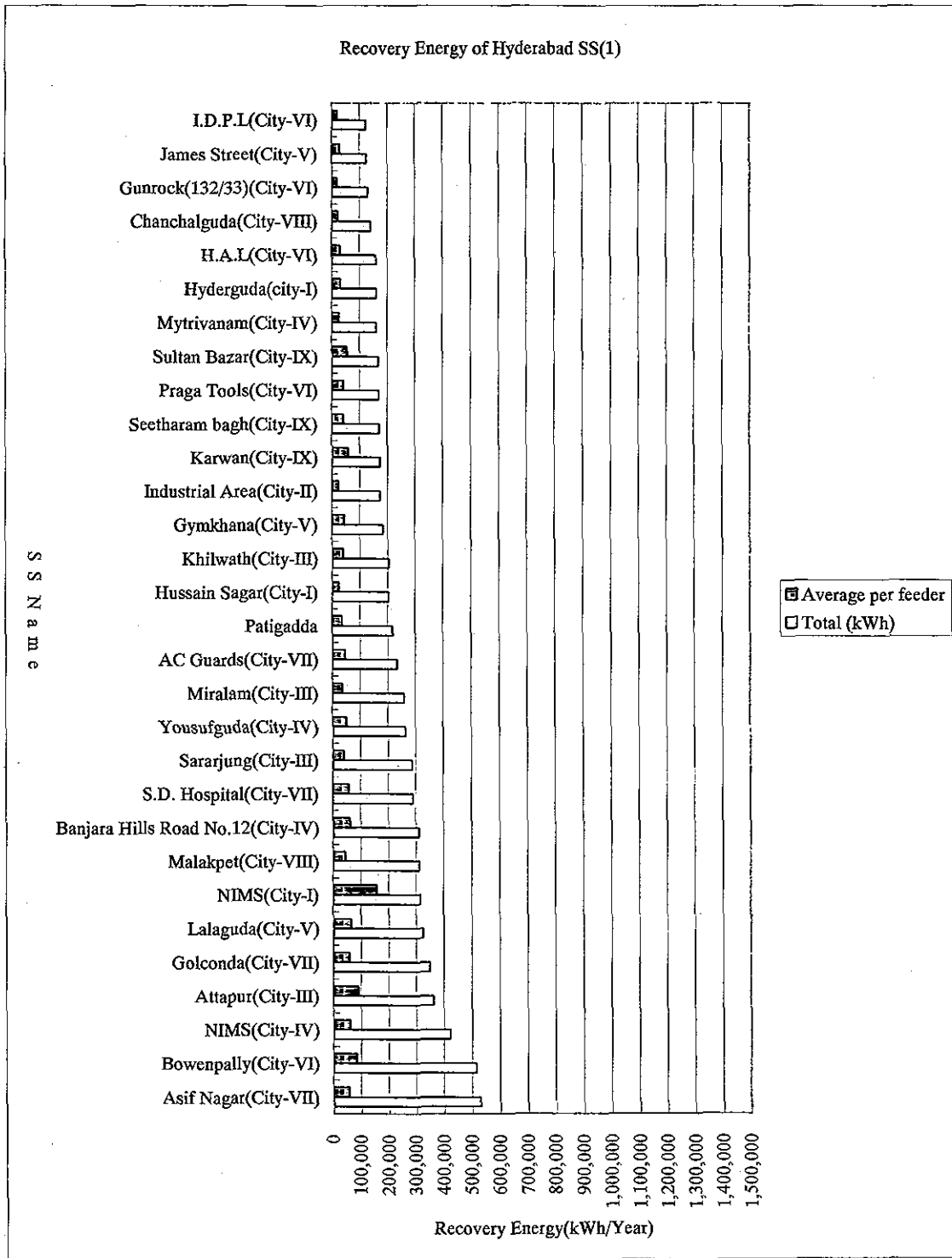


図 4.17 変電所別回復電力量 (Hyderabad -1)

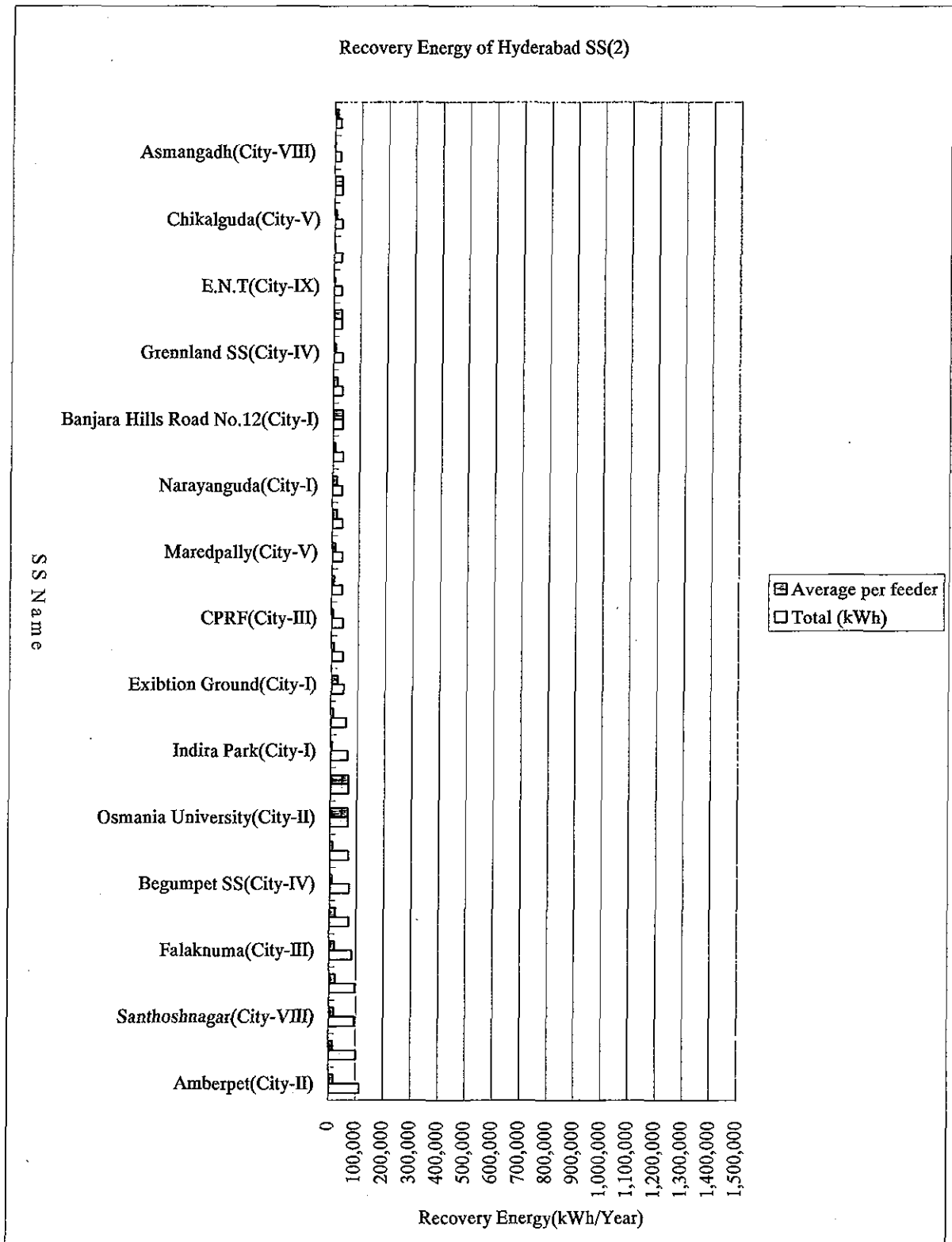


図 4.18 変電所別回復電力量 (Hyderabad -2)

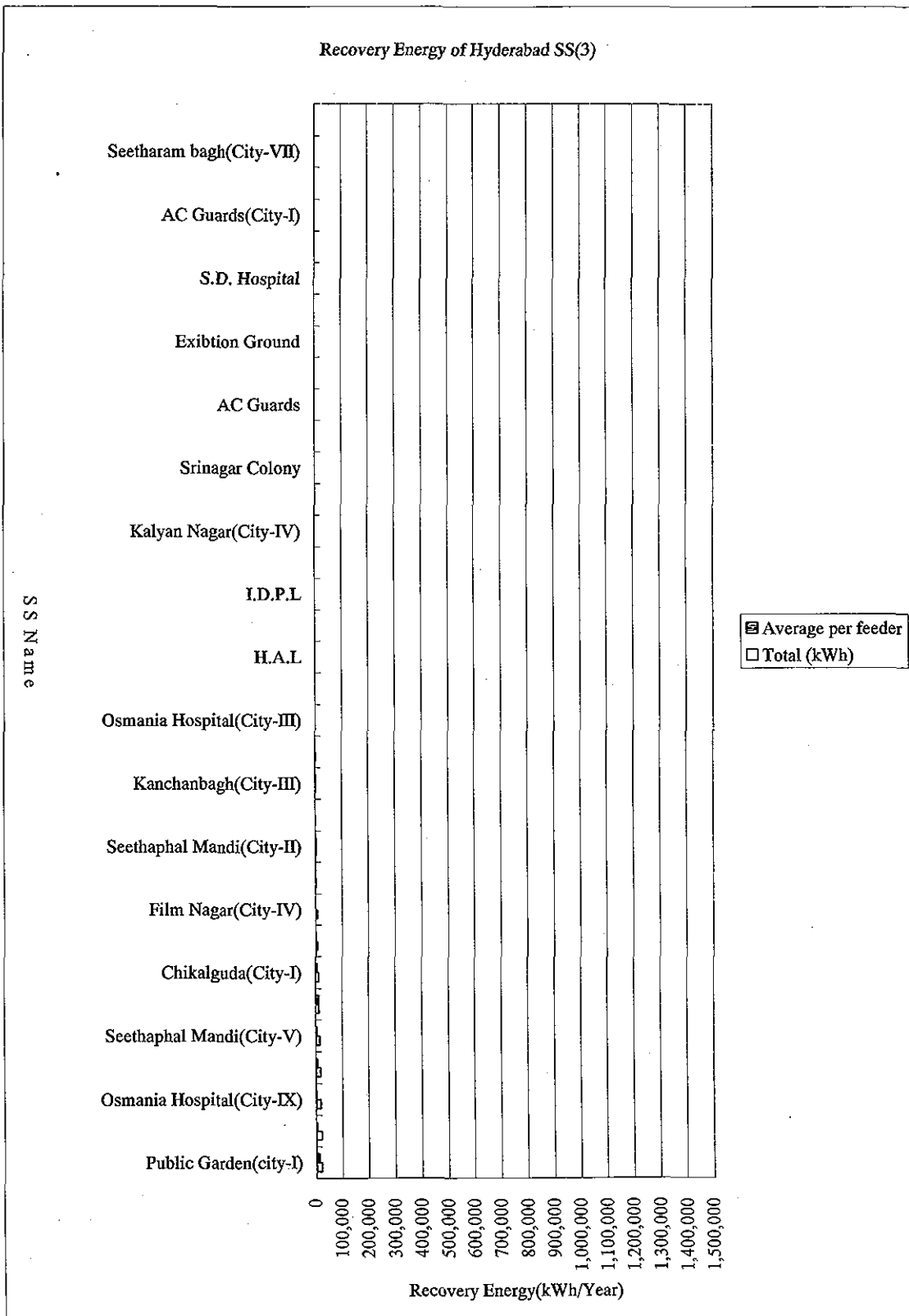


図 4.19 変電所別回復電力量 (Hyderabad -3)

表 4.16 ロス回復電力量と停電供給停止電力量の変電所リスト (100,000kWh/Year/Substation 以上)

No.	North South	Name	11kV feeder					Loss Data No	Loss Recovery	Recovery Rate (%)	Outage (m)	Outage Energy (kWh)	Total (kWh)	Average per feeder	
			No	Data No	Max Load(A)	Length (km)	Loss(kWh/Y) L.L. Loss(kWh/Y)								
1	S	Vanastalipuram(VANA)	4	4	590	79.2	4,651,842	4,131,842	4	520,001	11.2	2452.0	828,816	1,348,817	337,204
2	N	Medchal(MEC)	8	8	837	190	7,891,370	6,900,848	8	990,522	12.6	1035.0	320,830	1,311,352	163,919
3	N	Aliabad(ALJA)	7	7	570	111	4,071,906	3,050,392	6	1,021,513	25.1	260.0	70,736	1,092,250	156,036
4	S	Katedan(KATE)	5	5	880	39.8	3,481,466	2,956,261	5	525,205	15.1	1017.0	479,148	1,004,352	200,870
5	S	Shamshabad(SHAM)	5	5	600	69.2	3,045,884	2,585,814	5	460,071	15.1	1248.0	377,373	837,444	167,489
6	N	Kukatpally(KUKA)	7	7	765	72	3,252,417	2,650,719	6	601,698	18.5	395.0	125,489	727,187	103,884
7	N	Chandanagar(CHAN)	4	4	630	75	4,891,035	4,461,253	4	429,782	8.8	720.0	259,253	689,035	172,259
8	N	Jeedimetta-2(JEED)	6	6	730	23.2	1,063,045	823,955	6	239,090	22.5	761.0	219,985	459,075	76,513
9	S	Gaganpahad(GAGA)	6	6	620	52.16	1,630,836	1,526,059	6	104,777	6.4	1376.0	319,243	424,020	70,670
10	S	Turkayamjal(TURK)	2	2	240	12.3	424,719	424,719	2	0	0.0	1484.0	403,741	403,741	201,870
11	S	Bandlaguda(BAND)(132/33/11kV)	3	3	265	30	1,376,885	1,050,168	3	326,716	23.7	271.0	74,522	401,239	133,746
12	N	Jeedimetta-1(JEED)	7	7	985	30.5	1,637,419	1,447,846	7	189,572	11.6	635.0	189,990	379,563	54,223
13	S	Mamidipally(MAMI)	4	4	430	82	3,981,444	3,755,748	4	225,696	5.7	240.0	83,716	309,412	77,353
14	N	Charlapally(CHER)	6	6	770	36	1,824,576	1,729,289	6	95,287	5.2	345.0	105,878	201,165	33,527
15	S	Ibrahimbagh(IBRA)	5	5	500	118	4,111,471	4,056,799	5	54,673	1.3	556.0	136,326	190,999	38,200
16	N	NGRI(NGRI)	6	6	730	13	799,946	678,521	6	121,425	15.2	241.0	67,562	188,987	31,498
17	N	Sainikpuri(SAIN)	7	7	1080	58	3,140,074	3,140,074	7	0	0.0	485.0	151,788	151,788	21,684
18	S	Kothapet(KOTH)	4	4	370	36.31	1,407,531	1,407,531	4	0	0.0	359.0	124,355	124,355	31,089
19	S	Champapet(CHAMP)	5	5	510	41.9	1,480,331	1,480,331	5	0	0.0	421.0	110,661	110,661	22,132
20	S	NationalPoliceAcademy(NPPA)	5	5	433	35.5	1,246,000	1,181,285	5	64,716	5.2	180.0	43,428	108,144	21,629
21	N	Keesara(KEES)	3	3	360	41	1,859,346	1,757,734	3	101,612	5.5	0.0	0	101,612	33,871

(表 4.16 Continue)

Hyderabad City

No.	North Central South	Name	11kV feeder						Loss Data No	Loss Recovery	Recovery Rate (%)	Outage (m)	Outage Energy (kWh)	Total (kWh)	Average per feeder
			No	Data No	Max Load(A)	Length(km)	Loss(kWh/Y)	Loss(kWh/Y)							
1	C	Asif Nagar(City-VII)	9	9	950	76.15	3,345,931	2,978,210	9	367,721	11.0	742.0	162,784	530,505	58,945
2	N	Bowenpally(City-VI)	6	5	660	43.72	2,275,957	1,826,680	5	449,278	19.7	199.0	65,964	515,241	85,874
3	N	NIMS(City-IV)	7	5	545	11.17	468,194	468,194	5	0	0.0	1100.0	422,286	422,286	60,327
4	S	Attapur(City-III)	4	4	610	23.95	1,596,501	1,335,610	4	260,891	16.3	283.0	102,636	363,526	90,882
5	C	Golconda(City-VII)	6	6	510	51.23	1,725,187	1,375,182	5	350,006	20.3	0.0	0	350,006	58,334
6	N	Lalaguda(City-V)	5	5	540	21.3	994,249	917,276	5	76,973	7.7	675.0	247,169	324,142	64,828
7	N	NIMS(City-I)	2	2	160	6.83	109,026	109,026	2	0	0.0	1658.0	316,318	316,318	158,159
8	S	Malakpet(City-VIII)	7	7	810	21.1	1,041,174	991,398	7	49,775	4.8	3542.0	262,654	312,429	44,633
9	N	Baniara Hills Road No.12(City-I)	5	3	245	9.24	330,434	245,581	3	84,853	25.7	943.0	225,619	310,473	62,095
10	C	S.D. Hospital(City-VII)	5	5	525	35.63	1,267,447	1,267,447	5	0	0.0	1020.0	291,005	291,005	58,201
11	S	Sarajung(City-III)	7	7	1040	24.59	1,553,475	1,371,589	6	181,886	11.7	332.0	105,968	287,855	41,122
12	N	Yousufguda(City-IV)	5	5	385	18.91	530,635	478,936	5	51,699	9.7	773.0	211,959	263,659	52,732
13	S	Miralam(City-III)	7	7	1020	39.14	2,590,584	2,447,206	7	143,378	5.5	307.0	117,078	260,455	37,208
14	C	AC Guards(City-VII)	5	5	425	32.63	1,074,212	943,286	4	130,926	12.2	512.0	101,808	232,734	46,547
15	N	Patigadda	6	6	659					0		558.0	217,002	217,002	36,167
16	C	Hussam Sagar(City-I)	8	8	820	26.22	1,026,638	920,346	7	106,291	10.4	413.0	97,602	203,894	25,487
17	S	Khilwath(City-III)	5	5	770	26.54	1,713,215	1,568,313	5	144,901	8.5	153.0	58,902	203,803	40,761
18	N	Gymkhana(City-V)	4	4	620	22.4	1,537,881	1,477,859	4	60,022	3.9	321.0	125,500	185,523	46,381
19	C	Industrial Area(City-II)	7	7	770	42.31	1,412,990	1,331,646	7	81,344	5.8	387.0	92,909	174,253	24,893
20	S	Karwan(City-IX)	3	3	500	16.52	1,098,304	1,098,304	3	0	0.0	464.0	173,712	173,712	57,904
21	S	Seetharam bagh(City-IX)	4	4	460	11.85	497,976	400,270	4	97,706	19.6	251.0	73,548	171,254	42,813
22	N	Praga Tools(City-VI)	4	4	460	23.39	784,844	779,887	4	4,957	0.6	514.0	164,983	169,940	42,485
23	S	Sultian Bazar(City-IX)	3	3	545	11.155	895,653	784,908	3	110,746	12.4	136.0	56,498	167,244	55,748
24	N	Mytrivanam(City-IV)	6	6	550	9.74	337,478	262,109	6	75,369	22.3	269.0	86,425	161,794	26,966
25	C	Hyderguda(city-I)	5	5	780	9.76	619,720	569,552	5	50,168	8.1	308.0	110,820	160,989	32,198
26	N	H.A.I.(City-VI)	5	5	460	16.5	518,881	420,244	5	98,637	19.0	150.0	61,668	160,305	32,061
27	S	Chanalguda(City-VIII)	6	5	600	15.46	571,882	533,834	5	38,048	6.7	365.0	103,792	141,840	23,640
28	N	Gunrock(132/33)(City-VI)	7	5	610	65.41	3,190,893	3,190,893	5	0	0.0	445.0	130,159	130,159	18,594
29	N	James Street(City-V)	4	4	590	6.44	435,749	335,973	4	99,776	22.9	121.0	25,823	125,599	31,400
30	N	I.D.P.L.(City-VI)	6	6	730	57.9	2,279,294	2,207,908	6	71,386	3.1	186.0	52,848	124,234	20,706
31	C	Amberpet(City-II)	6	6	610	27.46	875,745	875,745	6	0	0.0	388.0	114,062	114,062	19,010
32	N	Air Port(City-IV)	6	6	700	15.46	989,350	933,439	6	55,911	5.7	127.0	45,185	101,096	16,849

表 4.18 個別変電所の経済性試算例

VANA:RF Using Mobile Communication Cash Flow Analysis (Money unit:10 ⁶ Rs)																							
Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total	
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377		
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220		
Amount of Construction Facilities																							
Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Feeder Number	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Feeder Length(km)	19.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	
Cost																							
Pole SW,RTU etc.	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4
Mount.	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	2
Maintenance Factor	3																						
RTU RCS for RF at	1.49																						1
etc. at DCC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC Maintenance Factor	3																						
Current Value	5.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	8
Present Value	5.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	7
Benefit																							
Outage 207,204 (kWh/Feeder/Y)	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	65
Loss 520,001 (kWh/SS/Y)	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	55
Worker 0.12 (10 ⁶ Rs/SS/Y)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Tariff Rate	5																						
Outage Reduction Rate: 0.75 (Rs/kWh)																							
Total	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	122
Benefit	5.8	5.6	5.3	5.0	4.8	4.6	4.3	4.1	3.9	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.2	78
Return																							
Benefit - Total Cost	0.6	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	114
Present Value	0.6	5.4	5.1	4.9	4.7	4.4	4.2	4.0	3.8	3.7	3.5	3.3	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.2	2.1	2.1	71
Return Accumulation																							
Benefit - Total Cost	0.6	6.3	11.9	17.6	23.3	29.0	34.6	40.3	46.0	51.7	57.3	63.0	68.7	74.4	80.0	85.7	91.4	97.1	102.7	108.4	114.1	114.1	
Present Value	0.6	6.0	11.1	16.0	20.7	25.2	29.4	33.4	37.3	40.9	44.4	47.7	50.9	53.9	56.8	59.5	62.1	64.6	66.9	69.2	71.3	71.3	

(表 4.18 Continue)

AsifNagar:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount=1/(1+i) ⁿ	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	Total
Price=(1+i) ⁿ	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	Total

Amount of Construction Facilities

Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Feeder Number	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Feeder Length(km)	8.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76

Cost

Pole Mount.	0.4501 (10 ⁶ Rs/Unit)	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8
SW,RTU etc.	2.2 (Nos/Feeder)	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	5
Maintenance Factor	(%)	3																					1
RTU etc. at	RCS for RF at	2.976 (10 ⁶ Rs/Unit)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC	DCC	0.5 (Nos/System)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
Maintenance Factor	(%)	3																					10
Total Cost		9.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	16
		9.9	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	13

Benefit

Outage Loss	18,087 (kWh/Feeder/Y)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	13
Worker Tariff Rate	0.12 (10 ⁶ Rs/SS/Y)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	39
Outage Reduction Rate	0.75 (Rs/kWh)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Total Benefit		2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	54
Return		2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.0	35

Benefit - Total Cost

Current Value	-7.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	38
Present Value	-7.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.9	0.9	0.9	21

Return Accumulation

Current Value	-7.3	-5.0	-2.7	-0.5	1.8	4.1	6.4	8.7	10.9	13.2	15.5	17.8	20.1	22.3	24.6	26.9	29.2	31.5	33.8	36.0	38.3	
Present Value	-7.3	-5.1	-3.1	-1.1	0.8	2.6	4.3	5.9	7.4	8.9	10.3	11.6	12.9	14.1	15.3	16.4	17.4	18.4	19.4	20.3	21.1	

(表 4.18 Continue)
NGRI:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total Equip.	
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total	
Discount=1/(1+i) ⁿ rate i= 0.05	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377		
Price=(1+i) ⁿ rate i= 0.01	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220		
Amount of Construction Facilities																							
Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Feeder Number	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
Feeder Length(km)	2.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	
Cost																							
Pole SW,RTU etc.	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
Maintenance	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	3
Maintenance Factor	3																						
RTU RCS for RF at etc. at	1.49																						1
SS,DC Maintenance Factor	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC	3																						
Current Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11
Present Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10
Benefit																							
Outage	11,260	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	5
Loss	121,425	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	13
Worker	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Tarif Rate	5																						
Outage Reduction Rate - 0.75																							
Total	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	21
Benefit	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	13
Return																							
Return Accumulation																							
Benefit - Total Cost	-6.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	9
Present Value	-6.1	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	4
Return Accumulation																							
Benefit - Total Cost	-6.1	-5.3	-4.6	-3.8	-3.0	-2.2	-1.5	-0.7	0.1	0.8	1.6	2.4	3.2	3.9	4.7	5.5	6.3	7.0	7.8	8.6	9.4		
Present Value	-6.1	-5.4	-4.7	-4.0	-3.4	-2.8	-2.2	-1.6	-1.1	-0.6	-0.1	0.3	0.7	1.2	1.5	1.9	2.3	2.6	2.9	3.2	3.5		

(表 4.18 Continue)
AirPort:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount= $1/(1+i)^n$	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	
Price= $(1+i)^n$	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	
Amount of Construction Facilities																						
Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Feeder Number	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Feeder Length(km)	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Cost																						
Pole SW,RTU etc.	0.4501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
Mount.	2	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	3
Maintenance Factor (%)	3																					
RTU RCS for RF at etc. at	1.49	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
DCC	0.5	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC	3	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11
Maintenance Factor (%)	3																					
Current Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11
Present Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10
Total Cost																						7
Benefit																						
Outage Loss	7,531	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	4
Worker	55,911	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	6
Tariff Rate	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Outage Reduction Rate	5																					
Current Value	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	12
Present Value	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	8
Return																						
Benefit - Total Cost		-6.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1
Return Accumulation		-6.5	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	-2
Benefit - Total Cost		-6.5	-6.2	-5.8	-5.4	-5.1	-4.7	-4.4	-4.0	-3.6	-3.3	-2.9	-2.5	-2.2	-1.8	-1.5	-1.1	-0.7	-0.4	0.0	0.4	0.7
Return Accumulation		-6.5	-6.2	-5.9	-5.5	-5.2	-5.0	-4.7	-4.4	-4.2	-4.0	-3.7	-3.5	-3.3	-3.1	-2.9	-2.8	-2.6	-2.4	-2.3	-2.1	-2.0

(表 4.18 Continue)
Mytrivnam:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount= $1/(1+i)^n$ rate i= 0.05	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	
Price= $(1+i)^n$ rate i= 0.01	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	
Amount of Construction Facilities																						
Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Feeder Number	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Feeder Length(km)	1.62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Cost																						
Pole Mount.	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
SW,RTU etc.	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	3
Maintenance Factor (%)	3																					
RTU etc. at	1.49																					1
DCC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
Maintenance Factor (%)	3																					
SS,DC	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11
Maintenance Factor (%)	3																					
Total Cost																						
Current Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	11
Present Value	7.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10
Benefit																						
Outage	14,404	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	7
Loss	75,369	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	8
Worker	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Tariff Rate	5																					
Outage Reduction Rate	0.75																					
Total	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	17
Benefit	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	11
Return																						
Benefit - Total Cost	-6.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	6
Present Value	-6.3	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	1
Return Accumulation																						
Benefit - Total Cost	-6.3	-5.7	-5.0	-4.4	-3.8	-3.2	-2.6	-2.0	-1.4	-0.7	-0.1	0.5	1.1	1.7	2.3	2.9	3.6	4.2	4.8	5.4	6.0	
Present Value	-6.3	-5.7	-5.1	-4.6	-4.1	-3.6	-3.2	-2.7	-2.3	-1.9	-1.5	-1.2	-0.8	-0.5	-0.2	0.1	0.4	0.7	0.9	1.1	1.4	

(表 4.18 Continue)
Srinagar:RF Using Mobile Communication Cash Flow Analysis (Money unit:10⁶ Rs)

Relative Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total Equip.
Calendar Year(n)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount= $1/(1+i)^n$	1.000	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614	0.585	0.557	0.530	0.505	0.481	0.458	0.436	0.416	0.396	0.377	
Price= $(1+i)^n$	1.000	1.010	1.020	1.030	1.041	1.051	1.062	1.072	1.083	1.094	1.105	1.116	1.127	1.138	1.149	1.161	1.173	1.184	1.196	1.208	1.220	
Amount of Construction Facilities																						
Substation Number	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Feeder Number	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Feeder Length(km)	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Cost																						
Pole Mount.	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5
SW,RTU etc.	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	3
Maintenance Factor	2																					
RTU etc. at	1.49																					1
DCC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
SS,DC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1
Maintenance Factor	3																					
Current Value	6.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	10
Present Value	6.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	8
Benefit																						
Outage	7,574	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Loss	21,262	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2
Worker	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3
Tariff Rate	5																					
Outage Reduction Rate	0.75																					
Total	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	8
Benefit	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	5
Return																						
Benefit - Total Cost																						
Current Value	-5.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-2
Present Value	-5.8	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-3
Return Accumulation																						
Benefit - Total Cost																						
Current Value	-5.8	-5.6	-5.4	-5.2	-5.0	-4.9	-4.7	-4.5	-4.3	-4.1	-3.9	-3.7	-3.5	-3.3	-3.2	-3.0	-2.8	-2.6	-2.4	-2.2	-2.0	
Present Value	-5.8	-5.6	-5.4	-5.3	-5.1	-5.0	-4.8	-4.7	-4.6	-4.5	-4.3	-4.2	-4.1	-4.0	-3.9	-3.8	-3.8	-3.7	-3.6	-3.5	-3.4	

4.5 提言

本調査に基づいて、配電 SCADA 導入について以下の事項が提言できる。

- 停電時間がかなり長いので、事故点評定分離機能を装備する。この結果、停電時の供給支障電力量が減少し、これに伴い料金収入も回復する。
- フィーダ負荷の変電所フィーダ間のアンバランスも、改善によりその効果がかなり期待できる程度にある。したがって、負荷バランス機能も配電 SCADA 導入時に実装すべき機能である。
- 配電フィーダの操作はほぼ全てに亘り人的操作に頼っているのが現状のため、配電 SCADA システムの導入の効果は上記以外にも期待できる。
- フィーダの自動開閉器による区分数は、当初は、経済性を考慮して2又は3が好ましい。
- 通信手法については、インフラの整備状況およびこれによる経済性効果を考慮して、光ファイバあるいは無線が推奨できる。特に、光ファイバは、プロジェクトエリアにかなり敷設済みであり、セキュリティ、通信容量などの点から最も好ましい。携帯電話回線利用の無線も、インフラが整備されており光ファイバの利用が割高になる場合や、むしろ利用可能なところは積極的に利用すべきである。
- 多くの変電所への継続的な導入に当っては、個々の変電所によって導入効果が異なるので、その導入順序に傾注すべきである。非常に導入効果の大きい変電所も存在する。

Period	Area	Total recovery energy	Number of substations
Phase I	Ranga Reddy	>500,000 kWh/Y	7
	Hyderabad	>200,000 kWh/Y	17
Phase II	Ranga Reddy	>200,000 kWh/Y	7
	Hyderabad	>100,000 kWh/Y	15
Phase III	Ranga Reddy	>100,000 kWh/Y	6
	Hyderabad	>50,000 kWh/Y	10
Phase IV	Ranga Reddy	Others	10
	Hyderabad	Others	10
Phase V	Ranga Reddy	Others	5
	Hyderabad	Others	9
Total			96

添付資料

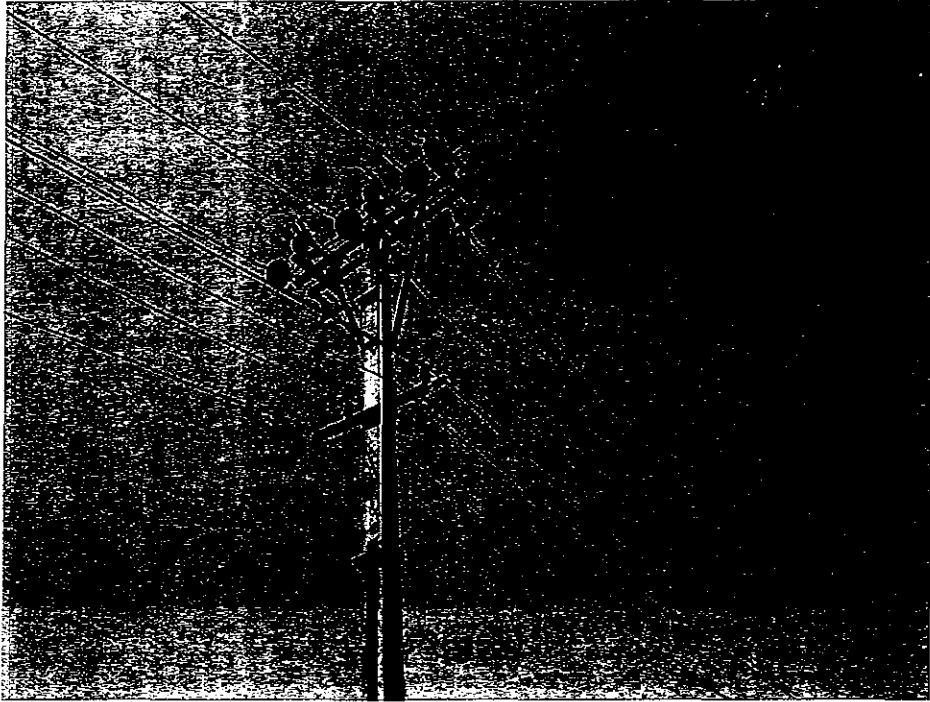
添付資料 4.1 Picture of Some Equipment

添付資料 4.2 変電所・フィーダ調査結果

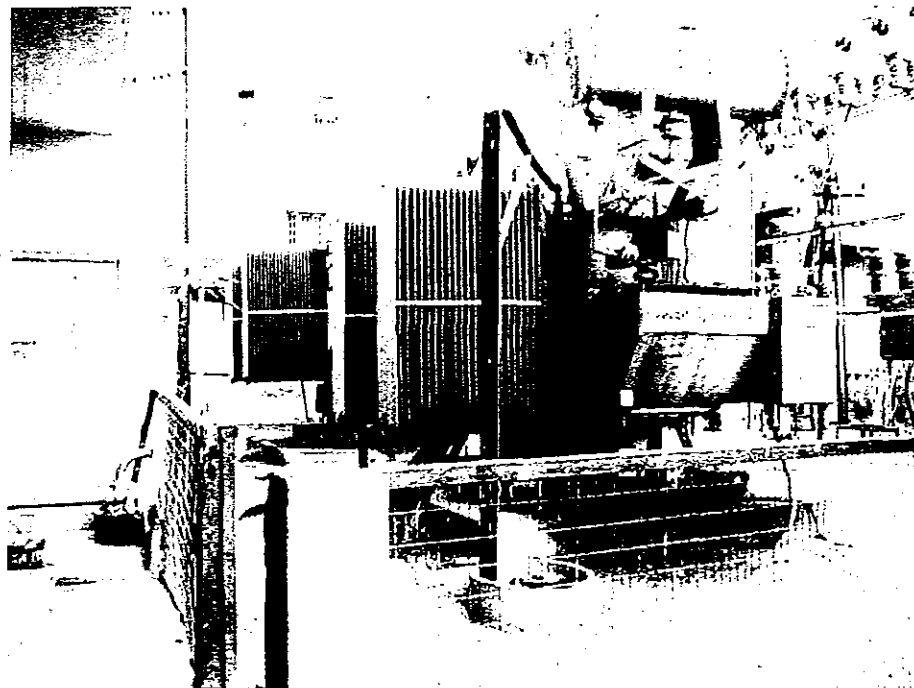
添付資料 4.3 停電データおよび供給支障電力量

添付資料 4.4 ロス回復電力量および停電供給支障電力量

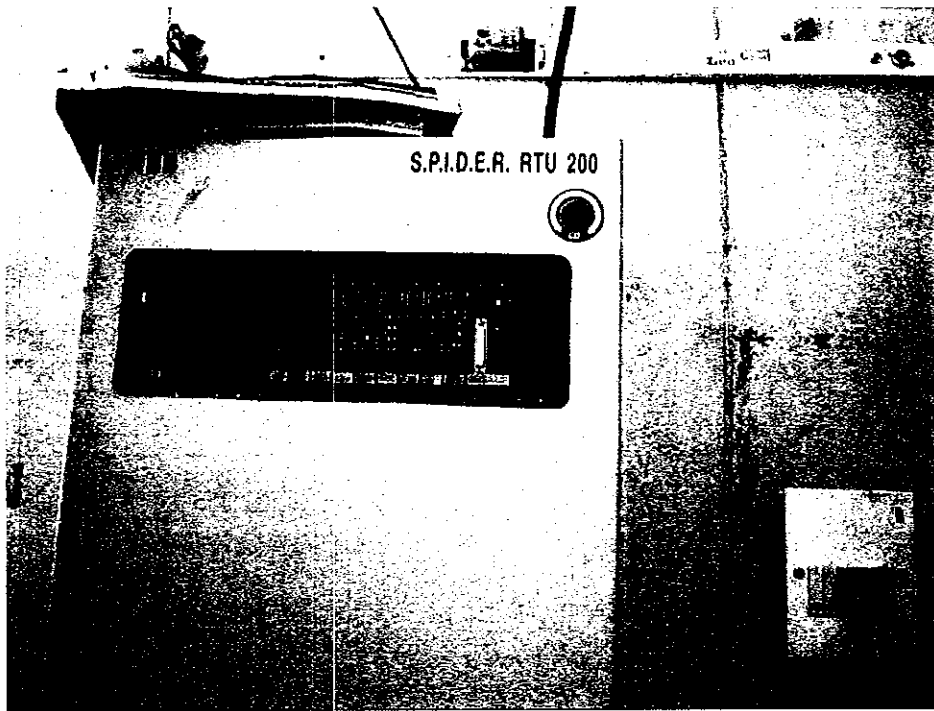
Annex 4.1 Picture of Some Equipment



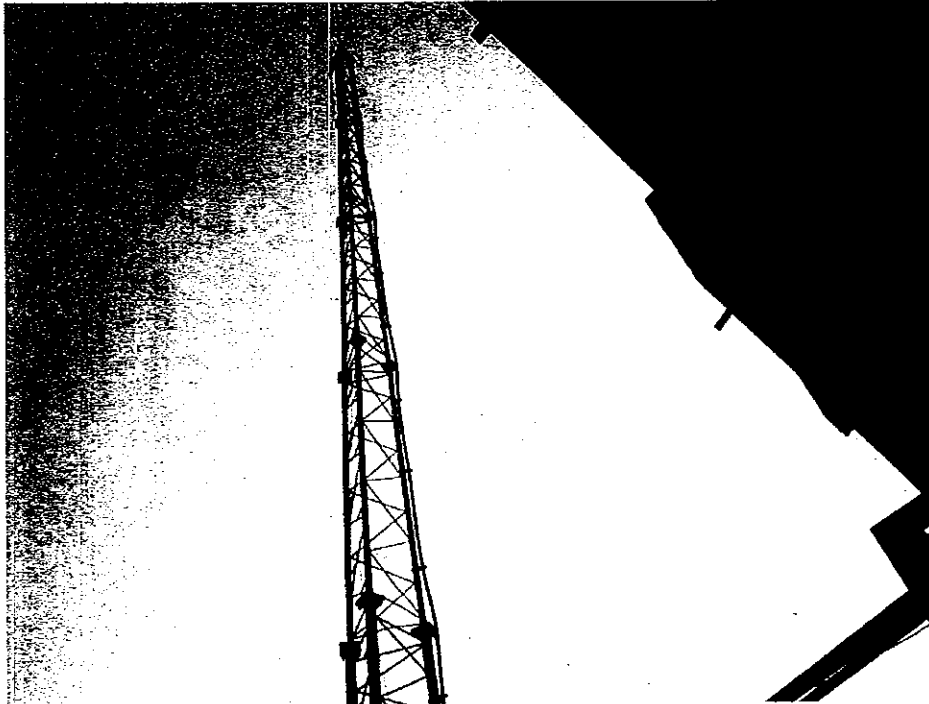
(Feeder AB SW for sectionalizing)



(SS Outlook at Kotapet)



(SS RTU)



(SS Antenna for SCADA)

ANNEX Photograph



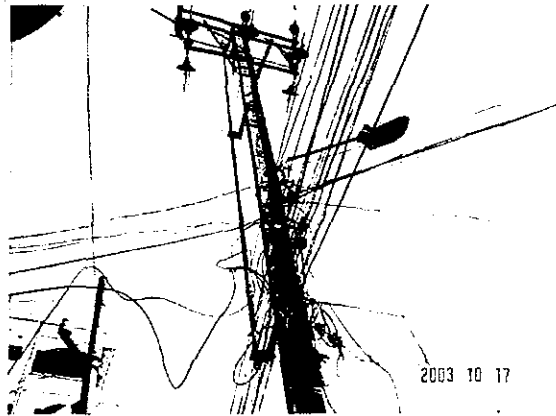
Asif Nagar Cut Point



Asif Nagar Double Feed Point



Asif Nagar Double Feed Point with AB Switch



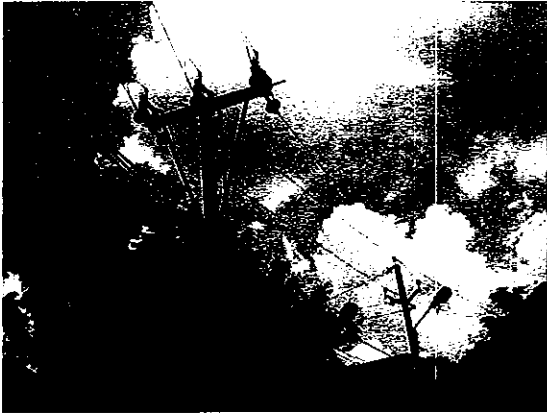
Asif Nagar AB Switch in Line



Mytrivanam Cable Standing Point



Mytrivanam Double Feed Point



Mytrivanam AB Switch in Line



Mytrivanam Double Feed Point with AB Switch



Vanastlipuram Double Feed Point (Connect)



Vanastlipuram Fault Point by Tree Falling (22/10/2003)

添付資料 4.2 変電所・フィーダ調査結果

添付資料 4.2 変電所・フィード調査結果

List of Substations Covered by SCADA

Ranga Reddy

No.	Mark. Sess	Name	11kV feeder						Fault(per month)						Nos of customer	Remarks				
			No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down				(1) + (2)			
										No	minute	Missed/No	No	Minute			Missed/No	No	Minute	Missed/No
1	N	Gachibowli(GACH)	4	4	120	36	22	22	4	12	123	10.3	0	0	0	12	123	10.3		
2	N	111T(Indian Institute of Information Technology)	4	3	32	14	6	6	4	1	5	5.0	0	0	0	1	5	5.0		
3	N	Aliabad(ALIA)	7	6	500	104	15	28	0	75	260	3.5	0	0	0	75	260	3.5		
4	N	Chandanagar(CHAN)	4	4	630	75	16	23	0	60	650	10.8	2	70	35.0	62	720	11.6		
5	N	Dommarapochampally(DOMM)	4	4	464	105	0	26	3	25	180	7.2	0	0	0	25	180	7.2		
6	N	ESCI	3	0		26	2	9	0	25	180	7.2	0	0	0	25	180	7.2		
7	N	Gundlapochampally(GPPL)	4	0		52	8	19	0	47	255	5.4	0	0	0	47	255	5.4		
8	N	Jeedimetta-1(JEED)	7	7	985	30.5	10	42	10	52	345	6.6	5	290	58.0	57	635	11.1		
9	N	Jeedimetta-2(JEED)	6	6	730	23.2	12	28	11	43	270	6.3	9	491	54.6	52	761	14.6		
10	N	Kukatpally(KUKA)	7	6	765	68	18	33	0	38	395	10.4	0	0	0	38	395	10.4		
11	N	Medchal(MEC)	8	8	837	190	33	58	0	157	850	5.4	4	185	46.3	161	1,035	6.4		
12	N	Medicity(MED)	3	0		40.05	8	12	0	25	135		1	70	70.0	26	205	7.9		
13	N	Charlapally(CHER)	6	6	770	36	9	22	0	4	20	5.0	3	325	108.3	7	345	49.3		
14	N	Gatkesar(GATK)	8	7	415	113	6	31	4	10	62	6.2	0	0	0	10	62	6.2		
15	N	Keesara(KEES)	3	3	360	41	6	14	0	0	0	0	0	0	0	0	0	0		
16	N	Malkajgiri(MLKJ)	4	4	590	15	6	18	4	0	0	0	2	90	45.0	2	90	45.0		
17	N	Mallapur(MALL)	4	4	315	20	2	3	1	3	15	5.0	2	165	82.5	5	180	36.0		
18	N	Moulali(MOUL)	8	8	940	33	8	7	0	3	15	5.0	3	125	41.7	6	140	23.3		
19	N	Nacharam(NARC)	7	7	705	22.5	5	16	5	3	15	5.0	1	65	65.0	4	80	20.0		
20	N	NGRI(NGRI)	6	6	730	13	11	13	6	22	176	8.0	1	65	65.0	23	241	10.5		
21	N	Sainikpuri(SAIN)	7	7	1,080	58	18	32	0	18	100	5.6	6	385	64.2	24	485	20.2		
22	N	Uppal(UPPA)	7	5	580	34	7	17	1	15	80	5.3	1	75	75.0	16	155	9.7		
23	S	Kothapet(KOTH)	4	4	370	36.31	2	50	1	25	119	4.8	3	240	80.0	28	359	12.8		
24	S	Katedan(KATE)	5	5	880	39.8	6	21	5	36	189	5.3	5	828	165.6	41	1,017	24.8		
25	S	AP Police Academy(APPA)	3	3	217	43.4	2	12	0	5	25	5.0	1	50	50.0	6	75	12.5		
26	S	Champapet(CHAMP)	5	5	510	41.9	7	19	5	65	204	3.1	4	217	54.3	69	421	6.1		

No.	Mark. Sess	Name	11kV feeder						Fault(per month)						Nos of customer	Remarks				
			No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down				(1) + (2)			
										No	minute	Missed/No	No	Minute			Missed/No	No	Minute	Missed/No
27	S	Gaganpahad(GAGA)	6	6	620	52.16	8	15	7	62	739	11.9	4	637	159.3	66	1376	20.8		5,280
28	S	Hayatnagar(HAYAT)	7	7	550	72	9	74	1	34	134	3.9	2	85	42.5	36	219	6.1		
29	S	Ibrahimbagh(IBRA)	5	5	500	118	9	26	0	41	256	6.2	4	300	75.0	45	556	12.4		
30	S	Mamidipally(MAMI)	4	4	430	82	1	13	2	20	105	5.3	3	135	45.0	23	240	10.4		6,000
31	S	NationalPoliceAcademy(NPPA)	5	5	433	35.5	6	32	2	13	65	5.0	5	115	23.0	18	180	10.0		12,344
32	S	Shamshabad(SHAM)	5	5	600	69.2	9	19	4	29	795	27.4	8	453	56.6	37	1,248	33.7		11,200
33	S	Turkayamjal(TURK)	2	2	240	12.3	4	7	3	20	1439	72.0	1	45	45.0	21	1,484	70.7		6,475
34	S	Vanastalipuram(VANA)	4	4	590	79.2	19	16	18	81	2052	25.3	6	400	66.7	87	2,452	28.2		14,025
35	S	Bandlaguda(BAND)(132/33/11kV)	3	3	265	30	3	7	2	53	271	5.1	0	0	0	53	271	5.1		5,000

North Total	121	105	11,548	1,149	228	479	53	638	4,131	6.5	40	2,401	60.0	678	6,532	9.6		
South Total	58	58	6,205	712	85	311	50	484	6,393	13.2	46	3,505	76.2	530	9,898	18.7		
Gross Total	179	163	17,753	1,861	313	790	103	1,122	10,524	9.4	86	5,906	68.7	1,208	16,430	13.6		

Average per feeder

Area	11kV feeder						Fault(per month)						Nos of customer					
	No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down			(1) + (2)				
								No	minute	Missed/No	No	Minute		Missed/No	No	Minute	Missed/No	
North			110.6	9.9	2.0	4.2	0.5	5.8	38.0	6.6	0.6	36.4	60.0	5.7	55.6	9.7		
South			107.0	12.3	1.5	5.5	0.9	8.5	112.2	13.2	1.0	79.7	76.2	9.1	170.7	18.7		
Gross			109.3	10.7	1.8	4.6	0.6	6.7	63.2	9.4	0.8	53.7	68.7	6.9	93.3	13.6		

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad City

No.	North, Central, South	Name	11kV feeder						Fault(per month)						Nos of customer	Remarks					
			No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down				(1) + (2)				
										No	minute	Minute/No	No	Minute			Minute/No	No	Minute	Minute/No	
1	N	Guarock(132/33)(City-V)	1	1	130	7.7	2	8	2	5	42	8.4	0	0	5	42	8.4				
		Guarock(132/33)(City-VI)	7	5	610	65.41	16	37	16	41	240	5.9	6	205	34.2	47	445	9.5			
2	N	Jubilee Hills(132/33)(City-IV)	5	5	200	17.76	3	19	5	11	12	1.1	0	0	11	12	1.1				
		Jubilee Hills(132/33)	3																		
3	N	Air Port(City-IV)	6	6	700	15.46	6	23	1	6	67	11.2	1	60	60.0	7	127	18.1			
4	N	Allwyn SS(City-IV)	8	7	470	16.61	14	21	18	10	40	4.0	4	207	51.8	14	247	17.6		ND(1feeder)	
5	N	Banjara Hills Road No.12(City-I)	1	1	125	4.45	1	5	1	8	50	6.3	3	371	123.7	11	421	38.3			
		Banjara Hills Road No.2(City-I)	5	3	245	9.24	6	12	3	17	128	7.5	8	815	101.9	25	943	37.7		ND(2feeder)	
6	N	Banjara Hills Road No.2(City-IV)	6	4	335	15.43	9	23	7	17	57	3.4	1	55	55.0	18	112	6.2		ND(2feeder)	
7	N	Begumpet SS(City-IV)	8	6	805	23.33	11	35	10	9	61	6.8	5	127	25.4	14	188	13.4		ND(2feeder)	
8	N	Bowenpally(City-VI)	6	5	660	43.72	11	32	11	26	199	7.7	0	0		26	199	7.7		*1	
9	N	Clock Tower(City-V)	4	4	755	8.5	10	18	5	13	107	8.2	1	37	37.0	14	144	10.3		ExceptUG	
10	N	Film Nagar(City-IV)	6	6	260	12.88	5	20	10	8	49	6.1	0	0		8	49	6.1			
11	N	Greenland SS(City-IV)	4	4	780	10.62	8	15	7	15	73	4.9	0	0		15	73	4.9			
12	N	H.A.L.(City-VI)	5	5	460	16.5	7	16	5	3	20	6.7	2	130	65.0	5	150	30.0			
		H.A.L.	1	0																	
13	N	H.M.T.(City-VI)	3	2	190	8.74	4	12	2	19	143	7.5	7	219	31.3	26	362	13.9		ExceptUG	
		H.M.T.	2	0																	
14	N	Hakimpet(City-VI)	4	3	245	33.56	7	16	8	20	180	9.0	1	20	20.0	21	200	9.5		*1	
15	N	I.D.P.L.(City-VI)	6	6	730	57.9	8	36	4	26	146	5.6	1	40	40.0	27	186	6.9			
		I.D.P.L.	3	0																	
16	N	James Street(City-V)	4	4	590	6.44	3	20	5	4	52	13.0	1	69	69.0	5	121	24.2		ExceptUG	
		James Street	2	0																	
17	N	Kalvan Nagar(City-IV)	8	6	600	20.49	7	37	10	13	71	5.5	2	69	34.5	0	0				
18	N	Lalaguda(City-V)	5	5	540	21.3	5	22	4	36	379	10.5	3	296	98.7	39	675	17.3			
19	N	Madhhapur(City-IV)	4	3	220	15.08	4	12	2	15	115	7.7	2	151	75.5	17	266	15.6		ND(1feeder)	
		Madhhapur	1	0																	
20	N	Maredpally(City-V)	3	3	435	19.4	3	15	5	9	42	4.7	2	55	27.5	11	97	8.8			
		Maredpally(City-VI)	3	3	115	23.47	5	11	4	5	20	4.0	0	0		5	20	4.0			
21	N	Myrivanam(City-IV)	6	6	550	9.74	7	26	10	18	144	8.0	3	125	41.7	21	269	12.8			
22	N	NIMS(City-I)	2	2	160	6.83	4	11	5	5	80	16.0	2	1578	789.0	7	1,658	236.9		ExceptUG	
		NIMS(City-IV)	7	5	545	11.37	7	29	7	16	156	9.8	8	944	118.0	24	1,100	45.8		ND(2feeder)	
23	N	Osmania University(City-II)	1	1	140	6.5	2	7	3	7	116	16.6	0	0		7	116	16.6			
		Osmania University(City-V)	3	3	230	11	2	8	4	4	24	6.0	2	135	67.5	6	159	26.5			
24	N	Patigadda	6	6	659																
25	N	Praga Tools(City-VI)	4	4	460	23.39	7	27	6	17	202	11.9	6	312	52.0	23	514	22.3			

No.	North, Central, South	Name	11kV feeder						Fault(per month)						Nos of customer	Remarks					
			No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down				(1) + (2)				
										No	minute	Minute/No	No	Minute			Minute/No	No	Minute	Minute/No	
26	N	R.P. Nilayam(City-VI)	4	3	310	39.4	6	21	8	15	185	12.3	0	0		15	185	12.3		ExceptUG	
27	N	Seethaphal Mandi(City-II)	1	1	155	3.51	1	5	2	2	9	4.5	0	0		2	9	4.5			
		Seethaphal Mandi(City-V)	4	4	360	16	1	13	2	11	64	5.8	0	0		11	64	5.8			
28	N	Srinagar Colony(City-IV)	5	5	720	14.42	8	39	13	18	100	5.6	1	20	20.0	19	120	6.3			
		Srinagar Colony	1	0																	
29	N	Yousufguda(City-IV)	5	5	385	18.91	7	20	29	24	181	7.5	6	592	98.7	30	773	25.8			
		Yousufguda	1	0																	
30	N	Gymkhana(City-V)	4	4	620	22.4	12	21	5	25	278	11.1	1	43	43.0	26	321	12.3			
		AC Guards(City-I)	1	1	115	3.94	2	6	1	3	51	17.0	1	24	24.0	4	75	18.8		ExceptUG	
31	C	AC Guards(City-VII)	5	5	425	32.63	6	32	4	15	165	11.0	5	347	69.4	20	512	25.6		*1	
		AC Guards	1	0																	
32	C	Amberpet(City-II)	6	6	610	27.46	10	39	7	28	234	8.4	3	154	51.3	31	388	12.5			
33	C	Asif Nagar(City-VII)	9	9	950	76.15	12	55	15	61	637	10.4	1	105	105.0	62	742	12.0			
		Asif Nagar	1	0																	
34	C	Chikalguda(City-I)	2	2	195	6.24	4	7	2	7	54	7.7	0	0		7	54	7.7			
		Chikalguda(City-II)	2	2	260	9.78	7	10	4	2	11	5.5	0	0		2	11	5.5			
		Chikalguda(City-V)	3	3	250	9.8	2	9	2	13	114	8.8	2	45	22.5	15	159	10.6			
35	C	Exhibition Ground(City-I)	2	2	245	4.57	3	5	3	7	136	19.4	0	0		7	136	19.4		ExceptUG	
		Exhibition Ground(City-VII)	1	1	150	5.74	1	5	2	6	93	15.5	0	0		6	93	15.5			
		Exhibition Ground	4	0																	
36	C	Golconda(City-VII)	6	6	510	51.23	4	26	7	36	355	9.9	8	355	44.4	0	0				
		Golconda	1	0																	
37	C	Hussain Sagar(City-I)	8	8	820	26.22	8	23	8	20	133	6.7	4	280	70.0	24	413	17.2		ExceptUG	
		Hussain Sagar(City-VII)	1	1	130	6.75	2	2	1	5	26	5.2	0	0		5	26	5.2			
38	C	Hyderguda(City-I)	5	5	780	9.76	2	22	4	15	168	11.2	3	140	46.7	18	308	17.1		ExceptUG	
39	C	Indira Park(City-I)	8	8	855	31.51	9	54	15	20	169	8.5	1	60	60.0	21	229	10.9		ExceptUG	
40	C	Industrial Area(City-II)	7	7	770	42.31	25	36	15	35	387	11.1	0	0		35	387	11.1		ExceptUG	
41	C	Lakeview(City-I)	2	2	245	6.25	1	11	2	7	46	6.6	1	49	49.0	8	95	11.9		ExceptUG	
42	C	Narayanguda(City-I)	2	2	230	7.96	6	12	3	12	116	9.7	1	45	45.0	13	161	12.4		ExceptUG	
		Narayanguda(City-II)	2	2	150	8.25	3	9	3	4	33	8.3	3	144	48.0	7	177	25.3		ExceptUG	
43	C	Public Garden(City-I)	2	2	340	4.58	2	5	3	3	15	5.0	1	43	43.0	4	60	15.0		ExceptUG	
44	C	S.D. Hospital(City-VII)	5	5	525	35.63	7	27	7	36	1020	28.3	0	0		36	1,020	28.3			
		S.D. Hospital	1	0																	
45	S	Asmanagadh(City-VIII)	6	6	595	21.78	8	37	16	13	36	2.8	1	52	52.0	14	88	6.3			
46	S	Attapur(City-III)	4	4	610	23.95	4	21	8	41	283	6.9	0	0		41	283	6.9			
47	S	Chanchalguda(City-VIII)	6	5	600	15.46	8	28	11	22	173	7.9	4	192	48.0	26	365	14.0			
48	S	E.N.T(City-IX)	6	5	415	10.82	6	27	10	15	113	7.5	1	12	12.0	16	125	7.8		ND(1feeder)	

No.	North, Central, South	Name	11kV feeder						Fault(per month)						Nos of customer	Remarks				
			No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down				(1) + (2)			
										No	minute	Minute/No	No	Minute			Minute/No	No	Minute	Minute/No
49	S	Falaknurna(City-III)	4	4	500	20.8	8	23	12	27	219	8.1	0	0	0	27	219	8.1		
		Falaknurna	2	0																
50	S	Kanchanbagh(City-III)	1	3	55		2	7	5	3	19	6.3	0	0	0	3	19	6.3		
		Kanchanbagh(City-VIII)	5	4	205	7.41	3	10	2	5	29	5.8	0	0	0	5	29	5.8		
51	S	Karwan(City-VII)	1	1	148	10.15	1	7	0	4	35	8.8	3	177	59.0	7	212	30.3		
		Karwan(City-IX)	3	3	500	16.52	5	22	7	17	137	8.1	6	327	54.5	23	464	20.2		
52	S	Khilwath(City-III)	5	5	770	26.54	5	25	12	28	153	5.5	0	0	0	28	153	5.5		1st feeder bagh
53	S	Malakpet(City-II)	1	1	150	4.13	2	7	1	6	147	24.5	0	0	0	6	147	24.5		
		Malakpet(City-VII)	7	7	810	21.1	19	25	9	25	631	25.2	1	2,911	2,911	26	3,542	136.2		
54	S	Miralam(City-III)	7	7	1,020	39.14	6	33	13	45	307	6.8	0	0	0	45	307	6.8		
55	S	Moosarambagh(City-VIII)	6	6	430	20.2	6	34	7	10	55	5.5	4	385	96.3	14	440	31.4		
56	S	Osmania Hospital(City-III)	1	1	20	2.49	0	2	0	1	5	5.0	0	0	0	1	5	5.0		
		Osmania Hospital(City-IX)	7	5	490	11.93	6	25	10	9	34	3.8	2	85	42.5	11	119	10.8		ND(2feeder)
57	S	Sarajung(City-III)	7	7	1,040	24.59	5	22	9	34	327	9.6	1	5	5.0	35	332	9.5		*2
58	S	Santhoshnagar(City-III)	2	2	210	11.59	3	13	5	14	163	11.6	0	0	0	14	163	11.6		
		Santhoshnagar(City-VIII)	5	5	660	15.22	7	22	7	24	238	9.9	0	0	0	24	238	9.9		
59	S	Seetharam bagh(City-VII)	2	2	180	9.42	2	11	1	3	14	4.7	0	0	0	3	14	4.7		
		Seetharam bagh(City-IX)	4	4	460	11.85	7	27	2	23	198	8.6	1	53	53.0	24	251	10.5		
60	S	Sultan Bazar(City-II)	1	1	140	2.91	1	5	1	1	8	8.0	0	0	0	1	8	8.0		Except TG
		Sultan Bazar(City-IX)	3	3	545	11.155	18	19	12	17	136	8.0	0	0	0	17	136	8.0		
61	S	CPRF(City-III)	6	6	566	23.75				22	144	6.5	1	35	35.0	23	179	7.8		*2
Total			367																	

North Total	178	146	15,494	655.3	219	692	239	522	4,154	8.0	81	6,911	85.3	588	10,925	18.6
Central Total	87	79	8,555	406.8	116	395	108	335	3,963	11.8	34	1,793	52.7	325	5,046	15.5
South Total	102	95	11,111	363.4	132	452	160	409	3,604	8.8	25	4,234	169.4	434	7,838	18.1
Gross Total	367	320	35,160	1,425	467	1,539	507	1,266	11,721	9.3	140	12,938	92.4	1,347	23,809	17.7

Average per feeder

Area	11kV feeder						Fault(per month)						Nos of customer				
	No	Data No	Max Load(A)	Length(km)	Sec. SW	spur L	Alter. L	(1) Interruption			(2) Break down			(1) + (2)			
								No	minute	Minute/No	No	Minute		Minute/No	No	Minute	Minute/No
North			100.3	4.7	1.6	4.9	1.7	3.6	27.3	7.6	0.5	49.1	91.2	4.2	78.1	18.7	
Central			100.4	5.0	1.4	4.7	1.3	3.5	42.9	12.1	0.4	23.1	60.9	3.7	62.2	17.0	
South			116.1	3.9	1.5	5.0	1.8	4.3	38.1	8.8	0.3	43.5	163.8	4.6	81.5	17.8	
Gross			104.4	4.5	1.5	4.9	1.6	3.8	34.5	9.2	0.4	40.3	95.6	4.1	74.7	18.0	

*1: Length data of 1 feeder is not available.

*2: Map data of feeder is not available.

添付資料 4.2 変電所・フィーダ調査結果

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load (A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
								(1) Interruption			(2) Break down			(1) + (2)			
								No	Minute	Min/Avg	No	Minute	Min/Avg	No	Minute	Min/Avg	
Gachibowli (SMVA x2)	University, ALIND	4	30	1	2	2	1	3	15	5.0				3	15	5.0	
	LINGGAMPALLY		50	10	8	8	1	6	18	3.0				6	18	3.0	
	KOTTAGUDA		32	20	10	10	1	3	90	30.0				3	90	30.0	
	GACHIBOWLIKALAGAYTHY		8	5	2	2	1	nil	nil								
IIT (Indian Institute of Information Tehnology) (8MVA New)	STADIUM	4	11	3	1	1	2							0	0		
	WIZCRAFT		Open	2	0	0	0	0						0	0		
	SPORT VILLAGE		3	1	0	0	0	0						0	0		
	SPORT VILLAGE EXTERNAL LIGHTING		18	10	5	5	2	1	5	5.0				1	5	5.0	
Aliabad(ALIA) 8MVAX2 3.15MVA	Ravileela	7	20	4	0	0	0	0	0					0	0		May/03
	Thurkapally		160	35	5	7	0	25	75	3.0				25	75	3.0	May/03
	Bommarajpet		120	20	4	7	0	15	40	2.7				15	40	2.7	May/03
	Aliabad		80	20	3	7	0	15	75	5.0				15	75	5.0	May/03
	Jaganguda		120	25	3	7	0	20	70	3.5				20	70	3.5	May/03
	H.B.L		70	5	0	0	0	0	0					0	0		May/03
	Survanshi		2	0	0	0	0	0	0					0	0		May/03
Chandanagar(CHAN) 8MVA 3.15MVA	Taranagar	4	150	18	5	6	0	15	145	9.7				15	145	9.7	May/03
	Chandanagar		130	10	3	4	0	20	205	10.3				20	205	10.3	May/03
	Hifeezpet(S.B)		160	22	5	7	0	15	145	9.7				15	145	9.7	May/03
	Miyapur		190	25	3	6	0	10	155	15.5	2	70	35.0	12	225	18.8	May/03
Dommarapocham-pally (DOMM) 5MVAX2	Bowrapmet	4	115	20	0	7	1	2	10	5.0				2	10	5.0	
	Satyam Computers(S.B)		115	50	0	6	0	2	70	35.0				2	70	35.0	
	Duridigal IDA		117	10	0	5	1	12	40	3.3				12	40	3.3	
	Gagillapur		117	25	0	8	1	9	60	6.7				9	60	6.7	
ESCI 3MVA	Gachibowli	3		10	0	4	0	10	80	8.0				10	80	8.0	
	Nanakramguda			15	2	5	0	15	100	6.7				15	100	6.7	
	E.S.C.I			1	0	0	0	0	0					0	0		

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
								(1) Interruption			(2) Break down			(1) + (2)			
								No	Minute	Min/Avg	No	Minute	Min/Avg	No	Minute	Min/Avg	
Gundlapocham-pally(GPPL) 8MVA	IDA	4		4	1	3	0	2	15	7.5				2	15	7.5	
	Gundla Pochampally(S.B)			25	3	5	0	10	45	4.5				10	45	4.5	
	Mysammaguda			8	2	7	0	15	75	5.0				15	75	5.0	
	Doolapally			15	2	4	0	20	120	6.0				20	120	6.0	
Jeedimeeta-1(JEED) 8MVAX3	Phase V	7	130	3.2	1	6	2	5	25	5.0				5	25	5.0	
	Vicchow		180	6.3	2	3	2	12	75	6.3	1	30	30.0	13	105	8.1	May
	SudershanDrugs		165	3.1	1	5	1	2	10	5.0				2	10	5.0	
	Phase I		175	4.9	2	8	1	8	65	8.1				8	65	8.1	
	Subhashnagar		120	4.9	1	8	1	12	90	7.5	1	50	50.0	13	140	10.8	May
	Shapuram		140	5.3	1	7	2	8	40	5.0	2	115	57.5	10	155	15.5	May
	Phase II		75	2.8	2	5	1	5	40	8.0	1	95	95.0	6	135	22.5	May
Jeedimeeta-2 (JEED) 8MVAX2	Gajularamaram	6	130	3.9	2	3	1	5	35	7.0	2	91	45.5	7	126	18.0	May
	Kompally		90	2.1	1	3	1	5	40	8.0				5	40	8.0	
	Surqaram		140	6.5	1	8	1	10	75	7.5	2	100	50.0	12	175	14.6	May
	Phase III		80	2.7	3	5	3	8	40	5.0	2	130	65.0	10	170	17.0	May
	Phase V		100	2.8	2	3	2	5	30	6.0	1	65	65.0	6	95	15.8	May
	Phase IV		190	5.2	3	6	3	10	50	5.0	2	105	52.5	12	155	12.9	May
Kukatpally(KUKA)	Travels Feeder	7	100	3	2	5	0	3	50	16.7				3	50	16.7	
	Hydernagar		140	8	3	6	0	5	70	14.0				5	70	14.0	
	Air Force			4	2	6	0	6	90	15.0				6	90	15.0	
	Venkateshwara		180	20	5	8	0	10	140	14.0				10	140	14.0	
	Bhagyanagar		120	10	3	5	0	6	45	7.5				6	45	7.5	
	JNTUCF		130	17	2	4	0	3	40	13.3				3	40	13.3	
	KPHB		95	10	3	5	0	11	50	4.5				11	50	4.5	
Medchal(MEC) 5MVAX2	Yellampet	8	83	30	3	7	0	15	70	4.7				15	70	4.7	
	Ravalkole		150	35	7	12	0	35	250	7.1				35	250	7.1	
	IDA Medchal II(S.B)		125	15	3	5	0	15	60	4.0	2	95	47.5	17	155	9.1	May
	Rural Medchal		70	25	3	7	0	25	75	3.0				25	75	3.0	
	IDA Medchal I		125	20	5	7	0	12	60	5.0	2	90	45.0	14	150	10.7	May
	kandlakoya		185	45	9	15	0	35	270	7.7				35	270	7.7	
	Medchal Town		75	15	3	5	0	20	65	3.3				20	65	3.3	
	Srinath Spinning Mills		24	5	0	0	0	0	0					0	0		

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
								(1) Interruption			(2) Break down			(1) + (2)				
								No	Minute	Minu/No	No	Minute	Minu/No	No	Minute	Minu/No		
Medicity(MEDI) SMVA,1.6MVA	Pudur	3		25	5	7	0	15	75	5.0	1	70	70.0	16	145	9.1	May	
	Raj Bollaram			15	3	5	0	10	60	6.0				10	60	6.0		
	Meditcity			0.05	0	0	0	0	0					0	0			
Charlapally(CHER)	ECIL	6		50	6	2	2	0	0	0		1	115	115.0	1	115	115.0	
	IDA Phase-I			70	4	1	3	0	0	0		0	0	0	0			
	IDA Phase-II			160	5	1	4	0	2	10	5.0	0	0	0	2	10	5.0	
	Krupp			190	7	2	4	0	1	5	5.0	0	0	0	1	5	5.0	
	Rampally			180	8	2	5	0	0	0		2	210	105.0	2	210	105.0	
	Nagaram			120	6	1	4	0	1	5	5.0	0	0	0	1	5	5.0	
Gatkesar(GATK)	Ghatkesar	8		120	15	1	5	0	2	7	3.5	0	0	2	7	3.5		
	Keesara																	
	Eoulabad			80	25	1	8	1	2	10	5.0	0	0	2	10	5.0		
	Aushapur			110	30	2	10	1	1	5	5.0	0	0	1	5	5.0		
	Medipally			70	25	2	8	1	2	10	5.0	0	0	2	10	5.0		
	Syndicate			20					1	10	10.0	0	0	1	10	10.0		
	HPCL			10	10	0	0	0	2	20	10.0	0	0	2	20	10.0		
	NTPC			5	8	0	0	1				0	0	0	0			
Keesara(KEES)	Cheral	3		170	18	2	5	0	0	0		0	0	0	0			
	Ankireddipally			70	8	2	4	0	0	0		0	0	0	0			
	Keesara			120	15	2	5	0	0	0		0	0	0	0			
Malkajgiri(MLK)	Anandbagh	4		120	3	1	5	1	0	0		1	55	55.0	1	55	55.0	
	Durga Nagar			220	3	2	4	1	0	0		0	0	0	0			
	M.K. Nagar			110	2		3	1	0	0		1	35	35.0	1	35	35.0	
	Suryanagar			140	7	3	6	1	0	0		0	0	0	0			
Mallapur(MALL)	Mallapur Village	4		100	8	2	3	1	3	15	5.0	2	165	82.5	5	180	36.0	
	IDA Phase-II			80	4	0	0	0	0	0		0	0	0	0			
	BEL			105	3	0	0	0	0	0		0	0	0	0			
	A.P. Food			30	5	0	0	0	0	0		0	0	0	0			

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
								(1) Interruption			(2) Break down			(1) + (2)				
								No	Minute	Minu/No	No	Minute	Minu/No	No	Minute	Minu/No		
Moulali(MOUL)	FBP	8		10	2	0	0	0	1	5	5.0	1	45	45.0	2	50	25.0	
	HCL			180	3	0	0	0	0	0		0	0	0	0			
	HMT			40	3	0	0	0	0	0		0	0	0	0			
	Malkajgiri			180	7	2	3	0	1	5	5.0			1	5	5.0		
	Meerpet			130	4	2	0	0	0	0		0	0	0	0			
	Mirjalguda			130	7	2	2	0	1	5	5.0	2	80	40.0	3	85	28.3	
	Moula-Ali			140	4	2	2	0	0	0		0	0	0	0			
	Spectra			130	3	0	0	0	0	0		0	0	0	0			
	S.R. Feeder			130	3	0	5	2	0	0		0	0	0	0			
Nacharam(NARC)	Multisteel	7		30	4	0	1	1			1	65	65.0	1	65	65.0		
	Tungabhadra			220	4	3	4	1	0	0		0	0	0	0			
	IPM			120	3.5	1	2	1	0	0		0	0	0	0			
	Laxmi Starch			150	5	1	4	0	3	15	5.0	0	0	3	15	5.0		
	NILE			45	2	0	0	0	0	0		0	0	0	0			
	India Extraction			10	1	0	0	0	0	0		0	0	0	0			
NGRI(NGRI)	Habsiguda	6		170	3	2	5	1	2	10	5.0	0	0	2	10	5.0		
	HMT			210	4	3	5	1	3	13	4.3	1	65	65.0	4	78	19.5	
	Kalyanpuri			130	1	2	1	1	5	30	6.0	0	0	5	30	6.0		
	NGRI			40	1			1	4	23	5.8	0	0	4	23	5.8		
	Penguin			20	2	1		1	1	65	65.0	0	0	1	65	65.0		
	S.O.I			160	2	3	2	1	7	35	5.0	0	0	7	35	5.0		
Sainikpuri(SAIN)	ASRAO Nagar	7		200	5	3	4	0	0	0		0	0	0	0			
	Kamalanagar			100	3	1	2	0	0	0		1	80	80.0	1	80	80.0	
	Kapra			110	10	2	4	0	3	15	5.0			3	15	5.0		
	Kushaiguda			170	5	2	5	0	4	20	5.0	1	30	30.0	5	50	10.0	
	Neredmet			180	5	3	4	0	6	30	5.0			6	30	5.0		
	Sainikpuri			180	5	3	5	0						0	0			
	Yapral			140	25	4	8	0	5	35	7.0	4	275	68.8	9	310	34.4	

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Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
								(1) Interruption			(2) Break down			(1) + (2)			
								No	Minute	Min/hr%	No	Minute	Min/hr%	No	Minute	Min/hr%	
Uppal(UPPA)	Boduppai	7	120	6	2	4	1	7	35	5.0	0	0		7	35	5.0	
	Doordarshan													0	0		
	Indi Ghatkesar		130	18	3	4	0	3	15	5.0	1	75	75.0	4	90	22.5	
	Nav Bharath		180	4	1	3	0	2	15	7.5	0	0		2	15	7.5	
	Ramanthapur													0	0		
	Uppal		50	2	1	3	0	2	10	5.0	0	0		2	10	5.0	
	Gangappa		100	4	0	3	0	1	5	5.0	0	0		1	5	5.0	

Ranga Reddy South

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length (km)	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
								(1) Interruption			(2) Break down			(1) + (2)			
								No	Minute	Min/hr%	No	Minute	Min/hr%	No	Minute	Min/hr%	
Kothapet(Mixed)(8MVAx2)	Kamalangar	4	85	10.54	0	13	0	7	29	4.1				7	29	4.1	2ways
	Sroornagar		170	16.56	1	12	0	16	52	3.3	3	240	80.0	19	292	15.4	
	Stadium(old Kothapet)		75	4.35	0	0	0	1	35	35.0				1	35	35.0	Kothapet to new SS
	Huda Complex		40	4.86	1	25	1	1	3	3.0				1	3	3.0	2ways
Katedan(Industry)(8MVAx2)	Katedan 1	5	170	6.2	0	5	1	5	30	6.0				5	30	6.0	
	Katedan 2		160	4.3	1	3	1	7	35	5.0	1	90	90.0	8	125	15.6	too many
	Balapur		220	17.5	4	4	1	12	62	5.2	4	738	184.5	16	800	50.0	too many
	Katedan 3		160	7.7	1	5	1	6	30	5.0				6	30	5.0	
	Katedan 4		170	4.1	0	4	1	6	32	5.3				6	32	5.3	
AP Police Academy(Himayar Sagar)(5MVAx1)	AP Police Academy	3	15	0.4										0	0		
	Himayar Sagar		22	12	1	3	0	3	15	5.0				3	15	5.0	
	Azz Nagar		180	31	1	9	0	2	10	5.0	1	50	50.0	3	60	20.0	
Champapet(8MVAx2)	Kharmanghat	5	130	4.8	1	5	1	13	60	4.6	0	0		13	60	4.6	
	Champapet		80	3.6	1	2	1	7	29	4.1	0	0		7	29	4.1	
	Sulthanvallua		40	3.3	0	1	1	2	14	7.0	1	67	67.0	3	81	27.0	
	Meerpat		150	13.7	3	5	1	17	91	5.4	2	105	52.5	19	196	10.3	
	Balapur		110	16.5	2	6	1	26	10	0.4	1	45	45.0	27	55	2.0	
Gaganpabad (GAGA) 8MVAx2	NPA(55mm2, 172A)	6	40	4.15	1	1	1	0	0		1	355	355.0	1	355	355.0	April data
	Gagan Pabad(ditto)		150	12.36	2	3	1	15	515	34.3	0	0		15	515	34.3	April data
	Jai Bhawani(ditto)		120	5.2	0	2	1	4	25	6.3	0	0		4	25	6.3	April data
	Manage(ditto)		140	8.35	1	3	2	18	90	5.0	1	38	38.0	19	128	6.7	April data
	Ralendra Nagar(ditto)		80	13.05	2	3	1	24	89	3.7	2	244	122.0	26	333	12.8	April data
	Shiva Shathi(ditto)		90	9.05	2	3	1	1	20	20.0	0	0		1	20	20.0	April data
Hyath Nagar(8MVAx3)	L.B. Nagar	7	45	9	1	10	0	5	21	4.2				5	21	4.2	
	Mansurabad		115	7	3	12	0	6	22	3.7				6	22	3.7	
	MothfrDairy		120	17	1	15	0	5	19	3.8				5	19	3.8	
	AutoNagar, HighCourtColony		120	10	1	12	0	7	27	3.9	1	45	45.0	8	72	9.0	
	Hyat Nagar		80	12	2	16	1	3	13	4.3				3	13	4.3	
	A.I.R.		10	7	0	1	0	3	11	3.7				3	11	3.7	
	SERIER		60	10	1	8	0	5	21	4.2	1	40	40.0	6	61	10.2	

Ranga Reddy South

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Length km	Nos of sect-ion SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
								(1) Interruption			(2) Break down			(1) + (2)			
								No	Minute	Min/Avg/No	No	Minute	Min/Avg/No	No	Minute	Min/Avg/No	
Ibrahimbagh(8MVAx2)	New Military	5	40	8	2	2	0	5	40	8.0				5	40	8.0	
	Osman Sagar		160	28	2	5	0	9	95	10.6	2	75	37.5	11	170	15.5	
	Military I		130	35	3	8	0	14	46	3.3	1	40	40.0	15	86	5.7	
	Military II		70	15	1	2	0	1	10	10.0	1	185	185.0	2	195	97.5	
	Pedda Mangalaran		100	32	1	9	0	12	65	5.4	0	0		12	65	5.4	
Mamidipally(MAM) 5MVAX2	Etrakunta(34mm2, 150A)	4	120	23	0	4	1	6	35	5.8	0	0		6	35	5.8	April data
	Pahachisharey(ditto)		125	27	0	4	0	4	20	5.0	1	40	40.0	5	60	12.0	April data
	Thukkuguda(ditto)		180	28	1	5	1	9	45	5.0	2	95	47.5	11	140	12.7	April data
	Catalytic(ditto)		5	4	0	0	0	1	5	5.0	0	0		1	5	5.0	April data
NationalPoliceAcademy(NPPA)5MVAX2	Sastri Puram(55mm2)	5	53	10	1	10	0	5	20	4.0	1	30	30.0	6	50	8.3	April data
	Uppar Pally(ditto)		175	11	2	11	1	4	25	6.3	1	20	20.0	5	45	9.0	April data
	Shivarampally(ditto)		134	8	3	6	1	2	10	5.0	2	45	22.5	4	55	13.8	April data
	NPA(ditto)		29	0.5	0	0	0	0	0	0				0	0		April data
	Kattadan(ditto)		42	6	0	5	0	2	10	5.0	1	20	20.0	3	30	10.0	April data
Shamshabad(SHAM) 8MVAX2	OmJaiBhavani(34mm2)	5	60	12.5	1	2	1	3	95	31.7	2	90	45.0	5	185	37.0	April data
	Shamshabad(ditto)		120	10	3	4	1	12	335	27.9	1	15	15.0	13	350	26.9	April data
	Narkuda(ditto)		200	18.5	2	5	0	4	175	43.8	2	213	106.5	6	388	64.7	April data
	Raikunta(ditto)		110	16.2	1	5	1	5	90	18.0	2	115	57.5	7	205	29.3	April data
	HameedullaNagar(ditto)		110	12	2	3	1	5	100	20.0	1	20	20.0	6	120	20.0	April data
Turkayamjal(TURK)(5+3.5)MVA	Turka Yanjal(55mm2)	2	120	5.8	2	3	2	8	864	108.0	1	45	45.0	9	909	101.0	April data
	Manneguda(55mm2)		120	6.5	2	4	1	12	575	47.9	0	0		12	575	47.9	April data
Vanastalipuram(VANA) 8MVAX2	Vanasthalipuram(55mm2)	4	140	9.7	4	6	4	12	329	27.4	1	20	20.0	13	349	26.8	April data
	NGO's(55mm2)		170	15.5	4	2	3	11	203	18.5	0	0		11	203	18.5	April data
	Injarpoor(55mm2)		170	38.6	7	3	5	41	945	23.0	3	275	91.7	44	###	27.7	April data
	Bairamlaguda(55mm2)		110	15.4	4	5	6	17	575	33.8	2	105	52.5	19	680	35.8	April data
Bandlaguda(BAND)(132/33/11kV) 5MVAX1	Nagole(55mm2)	3	150	23.5	3	5	1	22	146	6.6	0	0		22	146	6.6	mini75A, April data
	Alkapuri(55mm2)		100	4.5	0	2	1	21	107	5.1	0	0		21	107	5.1	mini60A, April data
	GSI(55mm2)		15	2	0	0	0	10	18	1.8	0	0		10	18	1.8	mini15A, April data

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Min/Sec/No	No	Minute	Min/Sec/No	No	Minute	Minute/No	
1 ALLWYN (City-IV) 8MVAX2	1 Industrial Estate	80	2.1	0	1	1	2	9	4.5	0	0	2	9	4.5	May/03	
	2 Crown Carting	10	3.6	5	3	2	1	2	2	0	0	1	2	2	May/03	
	3 IOL	140	2.38	1	5	3	1	6	6	0	0	1	6	6	May/03	
	4 Motinagar	80	2.64	3	4	3	0	0	0	0	0	0	0	0	May/03	
	5 ESI	20	2.24	2	2	3	5	18	3.6	3	147	49	8	165	20.625	May/03
	6 Sanathnagar	130	3.18	2	6	6	1	5	5	1	60	60	2	65	32.5	May/03
	7 Tele Exchange	10	0.47	1	0	0	0	0	0	0	0	0	0	0	0	May/03
	8 Allwyn Compressor	10					0	0	0	0	0	0	0	0	0	May/03
2 AIRPORT (City-IV) 8MVAX2	1 Air port	80	1.4	1	2	0	2	10	5	0	0	2	10	5	May/03	
	2 International Airport	60	0.22	0	0	0	0	0	0	0	0	0	0	0	UG,May/03	
	3 Domestic Airport	60	0.21	0	0	0	0	0	0	0	0	0	0	0	May/03	
	4 Chikoti Garden	140	3.24	2	8	1	0	0	0	1	60	60	1	60	60	May/03
	5 Prakash Nagar	190	5.32	2	7	0	3	52	17.3	0	0	3	52	17.333	May/03	
	6 Motilal Nagar	170	5.07	1	6	0	1	5	5	0	0	1	5	5	May/03	
3 ROAD NO: 2 8MVAX2	1 Sagar society	70	2.17	0	5	0	2	10	5	1	55	55	3	65	21.667	City-IV,May/03
	2 Road No.02	115	1.4	1	2	1	5	25	5	0	0	5	25	5	City-IV,May/03	
	3 Road No.10	85	5.61	4	9	2	9	17	1.89	0	0	9	17	1.8889	City-IV,May/03	
	4 Road No.14	145				2	10	5	0	0	2	10	5	5	May/03	
	5 L.V.Prasad Marg	65	6.25	4	7	4	1	5	5	0	0	1	5	5	City-IV,May/03	
	6 LV.Prasad film Lab	40													May/03	

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Min/Sec/No	No	Minute	Min/Sec/No	No	Minute	Minute/No	
4 BEGUMPET (City-IV) 8MVAX2	1 S.R.Nagar	145	4.5	1	7	3	3	19	6.33	2	50	25	5	69	13.8	May/03
	2 Yellamma Temple	65	5.22	2	7	2	0	0	0	0	0	0	0	0	May/03	
	3 Shantibagh	145	4.17	2	8	2	4	30	7.5	1	20	20	5	50	10	May/03
	4 AMP	55	4.09	2	6	3	0	0	0	1	25	25	1	25	25	May/03
	5 DKR	345	1.22	1	3	0	1	5	5	1	32	32	2	37	18.5	May/03
	6 Hyderabad Public School	120					8	43	5.38	1	20	20	9	63	7	April/03
	7 Maitrivanam	50	2.13	3	4	0	1	7	7	0	0	1	7	7	May/03	
	8 Vidut Soudha						0	0	0	0	0	0	0	0	0	UG
5 BOWENPLY (City-VI) 8MVAX2	1 Bapuji Nagar	195	12.48	3	8	1	9	53	5.89	0	0	9	53	5.8889	May/03	
	2 Bowenpally	100	6.6	1	8	3	2	25	12.5	0	0	2	25	12.5	May/03	
	3 Tadbund	100	9.97	3	8	4	5	53	10.6	0	0	5	53	10.6	May/03	
	4 IAF	25		0	3	3	1	20	20	0	0	1	20	20	May/03	
	5 Gputham Nagar	170	8.88	3	5	2	9	60	6.67	0	0	9	60	6.6667	May/03	
	6 Ferroi guda	95	5.79	1	3	1	1	8	8	0	0	1	8	8	May/03	
6 CLOCKTOWER (City-V) 8MVAX2 7.5MVA	1 Sangeeth	180	1	4	4	2	3	17	5.67	0	0	3	17	5.6667	May/03	
	2 Minerva	170	3	1	4	1	5	45	9	0	0	5	45	9	May/03	
	3 Natraj	185	1.5	3	5	1	0	0	0	0	0	0	0	0	May/03	
	4 St.Road	220	3	2	5	1	5	45	9	1	37	37	6	82	13.667	May/03
7 GREENLANDS (City-IV) 8MVAX2	1 Amecrpet	195	1.61	0	0	0	1	8	8	0	0	1	8	8	UG,May/03	
	2 Kundan bagh	190	2.54	0	3	0	0	0	0	0	0	0	0	0	UG,May/03	
	3 Rajiv Gandhi	190	3.43	3	7	4	9	44	4.89	0	0	9	44	4.8889	May/03	
	4 Somajiguda	205	3.04	5	5	3	5	21	0	0	5	21	4.2	May/03		

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No	
8 GYMKHANA (City-V) 8MVAX2	1 Paredgrounds	210	6	3	4	1	10	135	13.5	1	43	43	11	178	16.182	May/03
	2 Sikh village	85	3.9	0	2	0	4	31	7.75	0	0	4	31	7.75	May/03	
	3 Vikram Puri	195	6.5	3	9	2	3	12	4	0	0	3	12	4	May/03	
	4 Marredpally	130	6	6	6	2	8	100	12.5	0	0	8	100	12.5	May/03	
9 HAKIMPET (City-VI) 5MVAX2	1 M.Bollaram	110	13.38	3	6	2	10	106	10.6	0	0	10	106	10.6	May/03	
	2 Hakimpet Airforce	65		3	3	1	6	38	6.33	0	0	6	38	6.3333	May/03	
	3 Allen by lines	60	14.42	3	5	3	6	41	6.83	0	0	6	41	6.8333	May/03	
	4 Risak Bazar	75	5.76	1	5	3	4	33	8.25	1	20	20	5	53	10.6	May/03
10 HAL 8MVAX2	1 Sowbhagya Nagar	60	4.94	2	3	1	2	10	5	0	0	2	10	5	City-Vi,May/03	
	2 Sri Rama	50	2.08	2	3	0	0	0	0	0	0	0	0	0	City-Vi,May/03	
	3 NRSA	100	2.34	0	3	1	0	0	0	0	0	0	0	0	City-Vi,May/03	
	4 SAMRAT	190	4.44	2	5	1	1	10	10	2	130	65	3	140	46.667	City-Vi,May/03
	5 HAL	30					0	0		0	0	0	0	0	May/03	
	6 I.A.L	60	2.7	1	2	2	0	0		0	0	0	0	0	City-Vi,May/03	
11 HMT 8MVAX2	1 Chintal	150					13	60	4.62	1	75	75	14	135	9.6429	May/03
	2 HMT Road	40					0	0		0	0	0	0	0	City-Vi,UG,May/03	
	3 QBP	110					16	78	4.88	2	125	63	18	203	11.278	May/03
	4 G.N.R	60	2.8	1	4	0	9	60	6.67	4	149	37	13	209	16.077	City-Vi,May/03
	5 A.O.L	130	5.94	3	8	2	10	83	8.3	3	70	23	13	153	11.769	City-Vi,May/03

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No	
12 IDPL 3MVAX2(6.6kV) 5MVA 8MVAX3	1 6.6kV IDPL	60					0	0		0	0	0	0	0	0	May/03
	2 SIFCO	80	5.5	1	10	0	2	8	4	0	0	2	8	4	City-Vi,May/03	
	3 SVCIE	130	7.1	1	4	0	4	44	11	1	40	40	5	84	16.8	City-Vi,May/03
	4 Vijaya Electricals	130	13.5	1	2	1	12	41	3.42	0	0	12	41	3.4167	City-Vi,May/03	
	5 Oblum	150	13.1	2	6	1	0	0		0	0	0	0	0	City-Vi,May/03	
	6 Balanagar	100	9.8	1	6	2	4	25	6.25	0	0	4	25	6.25	City-Vi,May/03	
	7 IE	140	8.9	2	8	0	4	28	7	0	0	4	28	7	City-Vi,May/03	
	8 Moosapet	170					10	47	4.7	0	0	10	47	4.7	May/03	
	9 Bharath Nagar	80					3	8	2.67	0	0	3	8	2.6667	May/03	
13 FILMNAGAR (City-IV) 8MVAX2	1 Ambedkar Nagar	20	1.1	0	2	1	1	5	5	0	0	1	5	5	May/03	
	2 MLA colony	85	1.86	0	1	1	2	14	7	0	0	2	14	7	May/03	
	3 Padmalaya Studio	35	3.08	2	4	3	2	13	6.5	0	0	2	13	6.5	May/03	
	4 Ramanaidu Studio	25	0.9	1	4	1	0	0		0	0	0	0	0	May/03	
	5 Appollo	40	2.49	2	5	2	0	0		0	0	0	0	0	May/03	
	6 Bharathiya Vidya Bhavan	55	3.45	0	4	2	3	17	5.67	0	0	3	17	5.6667	May/03	
14 JAMES STREET 8MVAX2	1 Park Lane	185	0.69	2	3	2	0	0		0	0	0	0	0	City-V,May/03	
	2 P.G Road	190	3.62	1	10	1	1	5	5	0	0	1	5	5	City-V,May/03	
	3 M.G Road	125	1.37	0	3	0	0	0		0	0	0	0	0	City-V,UG+OH,May/03	
	4 Mahankali Temple	90	0.76	0	4	2	3	47	15.7	1	69	69	4	116	29	City-V,May/03
	5 S.D Temple															
	6 S.P Road															

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks		
							(1) Interruption			(2) Break down			(1) + (2)					
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
15 KALYANNAGAR (City-IV) 8MVAX3	1 Krishna Nagar	80	5.33	0	7	1	4	22	0	0	0	0	0	0	0	0	0	May/03
	2 Yousuf Guda	200	2.64	1	5	1	1	5	0	0	0	0	0	0	0	0	0	May/03
	3 Madhura Nagar	160	4.73	2	9	3	5	26	1	27	0	0	0	0	0	0	0	May/03
	4 V.Road Nagar	40	1.72	1	6	2	0	0	1	42	0	0	0	0	0	0	0	May/03
	5 A.G.Colony	80	3.77	2	8	2	1	6	0	0	0	0	0	0	0	0	0	May/03
	6 Sri.Ram Nagar	40	2.3	1	2	1	2	12	0	0	0	0	0	0	0	0	0	May/03
	7 CTI	5																Apr01/03
	8 SCADA																	
16 MADHAPUR 8MVAX2	1 Shilparamaam	50							0	0	0	0	0	0	0	0	0	May/03
	2 APIC-II	60	4.52	0	5	0	7	75	10.7	0	0	7	75	10.714	0	0	0	City-IV,May/03
	3 APIC I	100	1.44	1	0	1	4	20	5	0	0	4	20	5	0	0	0	City-IV,May/03
	4 HUDA	60	9.12	3	7	1	4	20	5	2	151	76	6	171	28.5	0	0	City-IV,May/03
	5 NAC GROUNDS		4.37	2	1	1												City-IV,May/03
17 MAITRIVANAM (City-IV) 8MVAX2	1 Sarathi Studio	80	2.67	1	5	3	4	66	16.5	0	0	4	66	16.5	0	0	0	May/03
	2 Srinivas Colony	30	1.38	0	5	0	2	10	5	0	0	2	10	5	0	0	0	May/03
	3 Mathrivanam	110	0.48	3	2	1	4	20	5	0	0	4	20	5	0	0	0	May/03
	4 Amberpet	180	3	3	8	2	6	38	6.33	3	125	42	9	163	18.111	0	0	May/03
	5 Anandbagh	100	1.85	0	5	4	2	10	5	0	0	2	10	5	0	0	0	May/03
	6 Aditya	50	0.36	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18 MARREDPALLY 8MVAX2	1 AOC	10	3.88	0	2	2	0	0	0	0	0	0	0	0	0	0	0	City-VI,May/03
	2 Mahindra Hills	130	6	1	5	2	5	21	4.2	1	14	14	6	35	5.8333	0	0	Cty-V,May/03
	3 Nehru Nagar	170	6.2	1	5	2	3	17	5.67	0	0	3	17	5.6667	0	0	0	Cty-V,May/03
	4 Military Hospital	20	6.85	2	3	1	2	9	4.5	0	0	2	9	4.5	0	0	0	City-VI,May/03
	5 Rly. Colony	135	7.2	1	5	1	1	4	4	1	41	41	2	45	22.5	0	0	Cty-V,May/03
	6 R.K.Puram	85	12.7	3	6	1	3	11	3.67	0	0	3	11	3.6667	0	0	0	City-VI,May/03

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks		
							(1) Interruption			(2) Break down			(1) + (2)					
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
19 NIMS 8MVAX3	1 GVK Hotel	90	4.59	2	5	3	0	0	0	0	0	0	0	0	0	0	0	City-IV,April/03
	2 Banjara Hills	70	3.08	2	6	3	4	75	18.8	1	410	410	5	485	97	0	0	City-I,April/03
	3 Panjagutta	80	1.64	0	7	0	1	25	25	2	162	81	3	187	62.333	0	0	City-IV,April/03
	4 NIMS	75					4	75	18.8	0	0	4	75	18.75	0	0	0	April/03
	5 Tata Rao	65	1.28	0	4	0	1	27	27	2	173	87	3	200	66.667	0	0	City-IV,April/03
	6 Sai baba temple	60	1.47	1	7	0	3	33	11	1	72	72	4	105	26.25	0	0	City-IV,April/03
	7 Road No.5	80					3	16	5.33	2	614	307	5	630	126	0	0	April/03
	8 Erramanzil	90	3.75	2	5	2	1	5	5	1	1,168	1,168	2	1,173	586.5	0	0	City-I,April/03
	9 Andhra Jyothi	250	2.19	4	6	4	11	71	6.45	3	537	179	14	608	43.429	0	0	City-IV,April/03
	10 BhaskaraPalace																	City-IUG New
20 PATIGADDA 8MVAX3	1 Ranigunj	115					4	100	25	0	0	4	100	25	0	0	0	02/03,May/03
	2 Rasoolpura	130					2	15	7.5	0	0	2	15	7.5	0	0	0	May/03
	3 Budda Bhavan	14					1	6	6	0	0	1	6	6	0	0	0	May/03
	4 Zeera	190					8	56	7	1	150	150	9	206	22.889	0	0	May/03
	5 Minister Road	190					8	140	17.5	1	86	86	9	226	25.111	0	0	May/03
	6 Sangevaiah park	20					1	5	5	0	0	1	5	5	0	0	0	May/03
21 R.P.NILAYAM (City-VI) 7.5MVA 8MVA	1 Alwal	110	11.74	2	6	3	6	100	16.7	0	0	6	100	16.667	0	0	0	May/03
	2 EME	80	14.85	2	7	2	8	80	10	0	0	8	80	10	0	0	0	May/03
	3 V.Puram	120	12.81	2	8	3	1	5	5	0	0	1	5	5	0	0	0	May/03
	4 R.P.Nilayam	5					0	0	0	0	0	0	0	0	0	0	0	UG,May/03
22 SRINAGAR COLONY 8MVAX2	1 Udyog Nagar	80	2.08	1	5	2	3	15	5	1	20	4	35	8.75	0	0	0	City-IV,May/03
	2 Kamlapuri colony	120					6	30	5	2	95	48	8	125	15.625	0	0	May/03
	3 Srinagar colony	180	3.58	3	10	4	5	25	5	0	0	5	25	5	0	0	0	City-IV,May/03
	4 Yella reddy guda	170	3.66	1	10	5	4	20	5	0	0	4	20	5	0	0	0	City-IV,May/03
	5 Satya sai nigam	150	1.05	1	3	0	6	40	6.67	0	0	6	40	6.6667	0	0	0	City-IV,May/03
	6 Nagarjuna Nagar	140	4.05	2	11	2	0	0	0	0	0	0	0	0	0	0	0	0

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No	
23 YOUSUF GUDA 8MVAX2	1 Borabonda	85	6.3	2	7	1	3	25	8.33	0	0	3	25	8.3333	City-IV,May/03	
	2 Vinayak Nagar	110	2.73	2	5	0	8	62	7.75	3	390	130	11	452	41.091	City-IV,May/03
	3 Police Lines	150	6.19	3	5	5	10	75	7.5	3	202	67	13	277	21.308	City-IV,May/03
	4 Gayatri Hills	35	2.81	0	2	22	0	0		0	0	0	0		City-IV,May/03	
	5 IOA	5	0.88	0	1	1	3	19	6.33	0	0	3	19	6.3333	City-IV,May/03	
	6 MLA colony	5					1	15	15	0	0	1	15	15		May/03
24 LALAGUDA (City-V) 5MVAX3	1 A.P.Dairy	40	0.8	1	0	1	2	32	16	0	0	2	32	16	May/03	
	2 Shanti Nagar	180	6	1	6	2	10	91	9.1	0	0	10	91	9.1	May/03	
	3 Lalapet	50	4	0	4	0	2	9	4.5	0	0	2	9	4.5	May/03	
	4 Tarnaka	100	5	2	9	1	1	20	20	0	0	1	20	20	May/03	
	5 Vijayapuri	170	5.5	1	3	0	21	227	10.8	3	296	99	24	523	21.792	May/03
25 OSMANIA UNIVERSITY 5MVA,7.5MV A	1 Osmania University	55	3	1	2	2	2	9	4.5	0	0	2	9	4.5	City-V,May/03	
	2 Boudhanagar	140	6.5	2	7	3	7	116	16.6	0	0	7	116	16.571	City-II,May/03	
	3 RTC Hospita;	125	5	1	3	2	1	5	5	2	135	68	3	140	46.667	City-V,May/03
	4 Ravindra Nagar	50	3	0	3	0	1	10	10	0	0	1	10	10	City-V,May/03	
26 PRAGA TOOLS (City- VI) 8MVAX2	1 Indoswing	120	4.62	1	6	3	3	30	10	0	0	3	30	10	May/03	
	2 T.C Balnagar	160	4.95	3	6	0	5	95	19	3	172	57	8	267	33.375	May/03
	3 Asbestos Hills	50	6.91	1	4	1	3	22	7.33	0	0	3	22	7.3333	May/03	
	4 Nagarjuna signode	130	6.91	2	11	2	6	55	9.17	3	140	47	9	195	21.667	May/03

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No	
27 ROAD NO :12 8MVAX2	1 CRPF	190					6	33	5.5	2	460	230	8	493	61.625	April/03
	2 C.Palace	55	4.06	2	5	1	8	57	7.13	2	464	232	10	521	52.1	City-IV,April/03
	3 M.Quarters	10	1.31	1	2	1	3	30	10	0	0	3	30	10	City-IV,April/03	
	4 I.T.Colony	10					1	1	1	0	0	1	1	1	March,April/03	
	5 Road No.12	125	4.45	1	5	1	8	50	6.25	3	371	124	11	421	38.273	City-I,April/03
	6 Road No.10	180	3.87	3	5	1	6	41	6.83	6	351	59	12	392	32.667	City-IV,April/03
28 SEETHA PALMANDI 8MVA,5MVA	1 Gandhi Statue	80	4	0	4	2	3	13	4.33	0	0	3	13	4.3333	City-V,April/03	
	2 Namalagundu	130	5	1	5	0	6	45	7.5	0	0	6	45	7.5	City-V,April/03	
	3 Warasiguda	70	4	0	1	0	1	3	3	0	0	1	3	3	City-V,April/03	
	4 Medibavi	155	3.51	1	5	2	2	9	4.5	0	0	2	9	4.5	City-II,April/03	
	5 Seethapahjmandi	80	3	0	3	0	1	3	3	0	0	1	3	3	City-V,April/03	
29 132/33/11KV GUNROCK 8MVAX2	1 M.Hospital	160	8.31	1	9	4										City-VI,May/03
	2 MDF	160	13.85	4	7	2	21	106	5.05	3	134	45	24	240	10	City-VI,May/03
	3 GPH	130	12.45	6	9	4	2	8	4	1	13	13	3	21	7	City-VI,May/03
	4 Medchal	140	28.16	5	8	6	13	72	5.54	1	33	33	14	105	7.5	City-VI,May/03
	5 Bowenpally	130	7.7	2	8	2	5	42	8.4	0	0	5	42	8.4	City-V,May/03	
	6 Gymkhana	120					2	14	7	0	0	2	14	7	May/03	
	7 AWHO	20	2.64	0	4	0	5	54	10.8	1	25	25	6	79	13.167	City-VI,April,May/03
	8 SPH US Cable		2.23													City-VI,May/03
30 132/33/11KV JUBLEE HILLS 8MVAX2	1 IOA	80	3.5	0	3	1	7	7	1	0	0	7	7	1	City-VI,May/03	
	2 MLA Colony	15	4.94	0	3	1	0	0	0	0	0	0	0	0	City-VI,May/03	
	3 Jubli hills	80	6.5	3	10	3	4	5	1.25	0	0	4	5	1.25	City-VI,May/03	
	4 PEI (OH)	20	2.06	0	3	0	0	0	0	0	0	0	0	0	City-VI,May/03	
	5 PEI (UG)	5	0.76	0	0	0	0	0	0	0	0	0	0	0	City-VI,May/03	
	6 Film nagar	15					0	0	0	0	0	0	0	0	May/03	
	7 AOU	20					5	5	1	0	0	5	5	1	May/03	
	8 Prasasan Nagar	20					1	1	1	0	0	1	1	1	May/03	

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No	
1 A C GUARDS 8MVAX2, 5MVA	1 Mahaveer Hospital	115	3.94	2	6	1	3	51	17	1	24	24	4	75	18.75	City-I, April/03
	2 Bazar ghat	155	10.6	2	5	1	5	41	8.2	0	0	0	5	41	8.2	City-VII, April/03
	3 Shantbi Nagar	120	8.37	1	7	1	1	16	16	2	85	43	3	101	33.667	City-VII, April/03
	4 N.M.D.C	80	3.9	0	7	0	2	53	26.5	0	0	0	2	53	26.5	City-VII, April/03
	5 Mahaveer Hospital cable	135					0	0		0	0	0	0	0		City-I, UG, April/03
	6 Mahaveer			2	5	1										City-VII, April/03
	7 Niloper Hospital															
	8 Niloufer	70	9.76	1	8	1	7	55	7.86	3	262	87	10	317	31.7	City-VII, April/03
2 AMBERPET (City-II) 8MVAX2	1 CPL feeder	35	2.14	0	4	0	0	0	0	0	0	0	0	0	0	April/03
	2 Patel Nagar	145	4.8	2	9	1	12	82	6.83	0	0	12	82	6.8333	April/03	
	3 Amberpet Feeder	145	4.72	1	7	2	8	72	9	3	154	51	11	226	20.545	April/03
	4 Zinda thilasmal	145	5.32	3	8	0	1	5	5	0	0	1	5	5	April/03	
	5 Tilaknagar	65	5.98	2	5	3	6	70	11.7	0	0	6	70	11.667	April/03	
	6 Golnaka	75	4.5	2	6	1	1	5	5	0	0	1	5	5	April/03	
3 ASIF NAGAR 8MVAX3, 5MVA	1 Gudimalkapur	210	12.82	2	9	2	16	174	10.9	0	0	16	174	10.875	City-VII, April/03	
	2 Jyothi Nagar	110	6.05	1	2	0	2	5	2.5	0	0	2	5	2.5	City-VII, April/03	
	3 Padmanabha Nagar	60	6.83	1	6	1	3	27	9	0	0	3	27	9	City-VII, April/03	
	4 Alapatnagar	120	8.73	1	11	2	1	7	7	0	0	1	7	7	City-VII, April/03	
	5 Mehdiapatnam	180	8.84	4	11	4	2	53	26.5	0	0	2	53	26.5	City-VII, April/03	
	6 Military	30	5.69	0	2	1	21	164	7.81	0	0	21	164	7.8095	City-VII, April/03	
	7 JCO Quarters	10	3.27	0	0	2	1	70	70	1	105	105	2	175	87.5	City-VII, March, April/03
	8 Hakimpet	120	10.95	1	8	1	11	97	8.82	0	0	11	97	8.8182	City-VII	
	9 Water works	10					1	125	125	0	0	1	125	125	April/03	
	10 Kakatiyanagar	110	12.97	2	6	2	4	40	10	0	0	4	40	10	City-VII, April/03	

Hyderabad Central

Substation Name	Name of Feeder	Max Load(A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
							(1) Interruption			(2) Break down			(1) + (2)				
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No		
4 HYDERGUD A (City-I) 8MVAX2	1 King kothi	160	1.88	0	4	0	5	65	13	0	0	5	65	13	May/03/03		
	2 Hyderguda	185	3.35	2	7	1	1	10	10	1	60	60	2	70	35	May/03/03	
	3 Hi May/03/03ath Nagar	140	2.34	0	6	1	4	40	10	1	30	30	5	70	14	May/03/03	
	4 Boggukunta	160	1.34	0	5	1	3	23	7.67	1	50	50	4	73	18.25	May/03	
	5 Abids	135	0.85	0	0	1	2	30	15	0	0	2	30	15	May/03/03		
	6 MLA Quarters	20	1.47	0	0	0	0	0	0	0	0	0	0	0	0	UG long	
5 HUSSAINSAGAR (City-I, VII) 5MVAX4, 7.5MVAX3	1 Maruthi Nagar	80	2.44	1	3	1	1	15	15	0	0	1	15	15	May/03		
	2 BRK Bhavan	100					1	8	8	3	507	169	4	515	128.75	UG, May/03	
	3 Lakdi-Ka-Pool	60					0	0	0	0	0	0	0	0	0	UG, May/03	
	4 AG feeder	100	1.92	0	3	0	1	6	6	0	0	1	6	6	May/03		
	5 Gunfoundry Key SS	90					1	6	6	0	0	1	6	6	UG, May/03		
	6 Nampally Key SS	100					0	0	0	0	0	0	0	0	0	UG, May/03	
	7 Kharitabad	170	5.47	3	2	2	1	15	15	0	0	1	15	15	May/03		
	8 J Block	60					0	0	0	0	0	0	0	0	0	UG, May/03	
	9 MG V															UG	
	10 Anand Nagar	160	4.98	1	3	3	2	18	9	1	50	50	3	68	22.667	May/03	
	11 Inst of Engineers	20					0	0	0	0	0	0	0	0	0	UG, May/03	
	12 HACA	200					2	8	4	0	0	2	8	4	UG, May/03		
	13 Telephone Bhavan+Secretariat Press	110					0	0	0	0	0	0	0	0	0	UG, May/03	
	14 RBI	90					1	3	3	0	0	1	3	3	UG, May/03		
	15 Secretariat	60					0	0	0	0	0	0	0	0	0	UG, May/03	
	16 Adarsh Nagar	40	3.69	1	3	0	1	24	24	2	129	65	3	153	51	May/03	
	17 Lumbini Park	30					3	41	13.7	0	0	3	41	13.667	UG, May/03		
	18 I.G.Mint	10					1	5	5	0	0	1	5	5	UG, May/03		
	19 Andhra Bank ECR (Mint Compound)	60														UG	
	20 Tank Bund	130	4.02	1	6	2	2	14	7	0	0	2	14	7	May/03		
	21 Basheer Bash	140	1.73	0	2	0	12	41	3.42	1	101	101	13	142	10.923	May/03	
	22 LIC	160	4.04	3	3	2	0	0	0	0	0	0	0	0	0	UG, May/03	
	23 Multi purpose		1.97	1	1	0											
	24 ECR																UG New
	25 Secretariat Press																UG New
	26 Multi purpose	130	6.75	2	2	1	5	26	5.2	0	0	5	26	5.2	City-VII, April/03		

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
							(1) Interruption			(2) Break down			(1) + (2)				
							No	Minute	Average	No	Minute	Average	No	Minute	Average		
6	CHILKAL-GUDA 8MVAX2	1 Dandu pentaiah	75	2.8	1	3	1	4	29	7.25	1	32	32	5	61	12.2	City-V, April/03
		2 Pragatools	75	3.95	2	3	1	2	24	12	0	0	2	24	12	City-I, April/03	
		3 New Boiguda	90	4	0	1	0	2	27	13.5	1	13	13	3	40	13.333	City-V, April/03
		4 P.R.Nagar	85	3	1	5	1	7	58	8.29	0	0	7	58	8.2857	City-V, April/03	
		5 Parsigutta	110	6.63	4	6	2	1	4	4	0	0	1	4	4	City-II, April/03	
		6 Musheerabad	120	2.29	2	4	1	5	30	6	0	0	5	30	6	City-I, April/03	
		7 GolcondaX Road	150	3.15	3	4	2	1	7	7	0	0	1	7	7	City-II, April/03	
7	EXHIBITION GROUNDS 8MVAX3	1 Jawaharlal Nehru	175	3.25	3	4	2	5	116	23.2	0	0	5	116	23.2	City-I, April/03	
		2 Nampally Hospital	150	5.74	1	5	2	6	93	15.5	0	0	6	93	15.5	City-VII, April/03	
		3 Collection Office	110					3	40	13.3	0	0	3	40	13.333	April/03	
		4 Exhibition Gandhi Bhavan															
		5 Seetharampet	140					8	123	15.4	0	0	8	123	15.375	April/03	
		6 Exhibition - Ajantha Gate	2					0	0		0	0	0	0	0	0	April/03
		7 Ware House	70	1.32	0	1	1	2	20	10	0	0	2	20	10	City-I, New, April/03	
		8 Exhibition															City-I, UG, New
8	GOLCONDA 8MVAX2	1 Golconda	100	5.32	0	2	0	7	45		0	0				City-VII, April/03	
		2 Motimahal	180	14.7	0	7	2	9	75		3	90				City-VII, April/03	
		3 Adityanagar	100	10.3	1	4	2	8	60		2	60				City-VII, April/03	
		4 Darga	70	13.7	2	10	1	9	155		2	150				City-VII, April/03	
		5 Waterworks	5	0.86	0	0	0	3	20		1	55				City-VII, April/03	
		6 Q.O.Tombs	20					4	20		1	37					April/03
		7 Colconda AB Cable	55	6.36	1	3	2										City-VII

Hyderabad Central

Substation Name	Name of Feeder	Max Load(A)	Length (km)	Nos of sectionizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
							(1) Interruption			(2) Break down			(1) + (2)				
							No	Minute	Average	No	Minute	Average	No	Minute	Average		
9	INDUSTRIAL AREA(City-II) 8MVAX3	1 Shankermutt	90	7.98	4	5	3	1	13	13	0	0	1	13	13	April/03	
		2 Ram Nagar	160	4.67	2	4	2	4	29	7.25	0	0	4	29	7.25	April/03	
		3 R.O.M	50	3.48	0	4	1	2	62	31	0	0	2	62	31	April/03	
		4 11 KV DDH	80	8.97	6	7	2	10	82	8.2	0	0	10	82	8.2	April/03	
		5 11 KV RTC X road	110	4.79	5	4	3	5	69	13.8	0	0	5	69	13.8	April/03	
		6 Azamabad	100	5.42	5	4	1	6	73	12.2	0	0	6	73	12.167	April/03	
		7 Barkatpura	180	7	3	8	3	7	59	8.43	0	0	7	59	8.4286	April/03	
		8 11 KV VST	80	1.35	0	3	0	0	0	0	0	0	0	0	0	UG, April/03	
		9 11 KV Azamabad Key SS	60	2.95	0	3	1	4	51	12.8	1	63	63	5	114	22.8	UG, April/03
		10 11kV DDH UG		1.48	1	1	0										UG
10	NARAYAN-GUDA 8MVAX2	1 Lingampally	145	4.38	4	7	2	7	61	8.71	0	0	7	61	8.7143	City-I, II, April/03	
		2 Chikkadpally	55	3.48	2	4	2	2	20	10	0	0	2	20	10	City-II, April/03	
		3 Narayanaguda	85	3.58	2	5	1	5	55	11	1	45	45	6	100	16.667	City-I, II, April/03
		4 Preventive medicine	95	4.77	1	5	1	2	13	6.5	3	144	48	5	157	31.4	City-II, April/03
		5 Preventive medicine(UG)		3.4	0	1	0										City-II, UG
		6 Lingampally		4.6	0	2	0										City-I, II, UG
11	INDIRA PARK (City-I) 8MVAX3	1 Vivek Nagar	150	2.98	1	4	2	4	38	9.5	0	0	4	38	9.5	May/03	
		2 Gandhi Nagar		6.74	3	11	3	2	25	12.5	0	0	2	25	12.5	May/03	
		3 Bakaram->TallaBshi	60	5.11	1	7	1	1	9	9	0	0	1	9	9	May/03	
		4 Jawahar Nagar	50	2.27	0	6	2	1	2	2	0	0	1	2	2	May/03	
		5 Ashok Nagar	175	3.85	1	7	1	4	31	7.75	0	0	4	31	7.75	May/03	
		6 R.K.Mutt	120	4.47	0	8	2	2	20	10	1	60	60	3	80	26.667	May/03
		7 Lower Tank Bund	150	3.34	3	7	2	6	44	7.33	0	0	6	44	7.3333	May/03	
		8 Kawadiguda	150	2.75	0	4	2	0	0	0	0	0	0	0	0	May/03	
		9 Indian Express	40														UG
		10 Vaartha															UG

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad Central

Substation Name	Name of Feeder	Max Load(A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No	
12 LAKE VIEW(City-I) 8MVAX2	1 Vidyut Soudha	60					0	0		0	0	0	0	0	0	UG,may/03
	2 Dilkusha	105	3.46	1	6	1	5	29	5.8	1	49	49	6	78	13	May/03
	3 Raj Bhavan															UG
	4 Lake View	25					0	0		0	0	0	0	0		no data on City map
	5 Medinova	140	2.79	0	5	1	2	17	8.5	0	0	2	17	8.5		May/03
	6 Eenadu	100					1	6	6	0	0	1	6	6		UG,may/03
13 PUBLIC GARDEN (City-I) 8MVAX2	1 Parshiram Bhavan	160	0.71	1	2	2	1	5	5	1	45	45	2	50	25	May/03
	2 Nampally OH	180	3.87	1	3	1	2	10	5	0	0	2	10	5		May/03
	3 Ravindra Bharathi	120					1	5	5	0	0	1	5	5		UG,May/03
	4 Assembly	10					0	0		0	0	0	0			UG,May/03
	5 Nampally															UG
	6 LB Stadium															UG
14 S.D. HOSPITAL 8MVAX2	1 Police Mess	75	5.55	1	4	1	6	174	29	0	0	6	174	29		City-VII, April/03
	2 Crsent Hospital	85	6.84	1	7	3	9	209	23.2	0	0	9	209	23.222		City-VII, April/03
	3 Hu May/03un Nagar	170	8.72	1	5	1	8	392	49	0	0	8	392	49		City-VI, April/03
	4 Ahmednagar	140	9.17	3	8	2	9	205	22.8	0	0	9	205	22.778		City-VII, April/03
	5 Chacha Nehru Nagar	55	5.35	1	3	0	4	40	10	0	0	4	40	10		City-VII, April/03
	6 S.D.Hospital	10					2	61	30.5	0	0	2	61	30.5		April/03

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks
							(1) Interruption			(2) Break down			(1) + (2)			
							No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No	
1 ASMANGADH (City-VIII) 8MVAX2	1 SAIBABA	140	4.1	2	9	5	1	2	2	0	0	1	2	2		City-VIII, May/03
	2 KODANDARAM NGR	130	4.32	2	7	2	5	17	3.4	1	52	52	6	69	11.5	City-VIII, May/03
	3 VIDYUTH NGR	55	1.82	1	1	1	3	8	2.67	0	0	3	8	2.6667		City-VIII, May/03
	4 SHANKESH BZR	120	5.25	2	8	3	3	7	2.33	0	0	3	7	2.3333		City-VIII, May/03
	5 ASMANGADH	140	5.45	1	12	5	1	2	2	0	0	1	2	2		City-VIII, May/03
	6 TV STATION	10	0.84	0	0	0	0	0	0	0	0	0	0	0		City-VIII, May/03
2 ATTAPUR (City-III) 8MVAX2	1 NM GUDA	140	6.27	1	6	1	16	127	7.94	0	0	16	127	7.9375		May/03
	2 DEVIGAUGH	150	4.62	2	4	4	7	39	5.57	0	0	7	39	5.5714		May/03
	3 BHADURPURA	200	9.8	1	5	3	14	95	6.79	0	0	14	95	6.7857		May/03
	4 KISHAN BAUGH	120	3.26	0	6	0	4	22	5.5	0	0	4	22	5.5		May/03
3 CHANCHALGU DA (City-VIII) 8MVAX3	1 CHANCHALGUDA	90	3.36	1	4	1	1	30	30	0	0	1	30	30		May/03
	2 ARAYA SAMAJ	150	3.9	2	7	3	6	43	7.17	2	75	38	8	118	14.75	May/03
	3 CHOWNI	180	2.35	0	3	1	9	65	7.22	0	0	9	65	7.2222		May/03
	4 MADANNAPET	90	2.26	0	4	1	3	20	6.67	1	72	72	4	92	23	May/03
	5 SAIDABAD	90	3.59	5	10	5	3	15	5	1	45	45	4	60	15	May/03
	6 GOVT. PRESS															
4 ENT (City-IX) 8MVA 5MVA	1 TROOP BAZAR	55	1.56	0	5	0	1	5	5	0	0	1	5	5		UG, May/03
	2 CENTRAL BANK OF INDIA	115	2.55	3	6	5	2	14	7	0	0	2	14	7		May/03
	3 RANGA MAHAL ROAD	45	1.47	1	5	2	0	0	0	0	0	0	0	0		May/03
	4 ENT HOSPITAL		0.07	0	0	0										UG
	5 JAM BAGH	105	2.7	1	5	1	11	89	8.09	1	12	12	12	101	8.4167	May/03
	6 GURUDWARA	95	2.54	1	6	2	1	5	5	0	0	1	5	5		May/03

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of section-izing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks		
							(1) Interruption			(2) Break down			(1) + (2)					
							No	Minute	Hours/No	No	Minute	Hours/No	No	Minute	Minute/No			
5 FALAKNUMA 8MVAX3	1 CRPF																	
	2 C'GUTTA	140	5.15	4	5	2	7	84	12	0	0		7	84	12		City-III,May/03	
	3 BARKAS																	
	4 FALAKNAMA	80	3.64	1	7	3	4	50	12.5	0	0		4	50	12.5		City-III, 03/04pre.mon. May/03	
	5 J'METT	100	6.41	2	5	4	10	57	5.7	0	0		10	57	5.7		City-III,May/03	
	6 CHATRINAKA	180	5.6	1	6	3	6	28	4.67	0	0		6	28	4.6667		City-III,May/03	
6 KARWAN 8MVAX2	1 ZIAGUDA	160	5.88	2	7	1	7	79	11.3	3	147	49	10	226	22.6		City-IX, April/03	
	2 KARWAN	170	5.12	2	6	2	6	30	5	2	140	70	8	170	21.25		City-IX, April/03	
	3 TALLAGADDA	170	5.52	1	9	4	4	28	7	1	40	40	5	68	13.6		City-IX, April/03	
	4 LANGER HOUSE	140	10.15	1	7	0	4	35	8.75	3	177	59	7	212	30.286		City-VII, April/03	
7 KHILWATH (City-III) 8MVAX2	1 TELEPHONE EXCHANGE	80	5.81	0	4	0	4	21	5.25	0	0		4	21	5.25		UG, May/03	
	2 KHILWATH	150	4.31	1	5	2	6	30	5	0	0		6	30	5		May/03	
	3 CHARMINAR	140	3.75	0	3	2	2	10	5	0	0		2	10	5		May/03	
	4 MOGHALPURA	200	6.72	2	6	3	6	30	5	0	0		6	30	5		May/03	
	5 LALDARWAZA	200	5.95	2	7	5	10	62	6.2	0	0		10	62	6.2		May/03	
	6 IQ BAL-UD-DOULA			0	1	0												
8 KANCHANBAG H 8MVAX2	1 OWASI HOSPITAL	20	0.35	0	0	0	0	0	0	0	0		0	0	0		City-VIII,UG,May/03	
	2 VINAY NGR	70	2.76	2	4	1	2	10	5	0	0		2	10	5		City-VIII,May/03	
	3 IS SDAN	110	2.73	0	4	0	3	19	6.33	0	0		3	19	6.3333		City-VIII,May/03	
	4 DARGA	140						5	90	18	0	0		5	90	18		May/03
	5 RAKSHAPURAM	55		2	7	5	3	19	6.33	0	0		3	19	6.3333		City-III,May/03	
	6 KANCHAN BAUGH	5	1.57	1	2	1	0	0		0	0		0	0	0		City-VIII,May/03	

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of section-izing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
							(1) Interruption			(2) Break down			(1) + (2)				
							No	Minute	Hours/No	No	Minute	Hours/No	No	Minute	Minute/No		
9 MALAKPET 8MVAX3	1 DABEERPURA	160	1.41	2	2	0	3	47	15.7	0	0		3	47	15.667		City-VIII, April/03
	2 MALAKPET (EM)	150	4.76	3	6	0	1	65	65	0	0		1	65	65		City-VIII, April/03
	3 AKBERBAUGH	130	2.63	2	4	2	3	85	28.3	0	0		3	85	28.333		City-VIII, April/03
	4 AIR	10	1.32	5	0	0	1	107	107	1	2,911	2,911	2	3,018	1,509		City-VIII, April/03
	5 CHADERGHAT (EM)	170	3.92	3	6	2	7	100	14.3	0	0		7	100	14.286		City-VIII, April/03
	6 AZAMPURA	180	4.1	4	6	2	9	224	24.9	0	0		9	224	24.889		City-VIII, April/03
	7 MM HOSPITAL	10	2.96	0	1	3	1	3	3	0	0		1	3	3		UG, City-VIII, April/03
	8 KACHIGUDA	150	4.13	2	7	1	6	147	24.5	0	0		6	147	24.5		City-II, April/03
10 MIRALAM (City-III) 8MVAX3	1 ZOOPARK	180	8.89	2	5	1	10	99	9.9	0	0		10	99	9.9		May/03
	2 INDUSTRIAL	180	5.99	1	7	1	7	29	4.14	0	0		7	29	4.1429		May/03
	3 TADBAN	170	6.83	0	7	4	15	109	7.27	0	0		15	109	7.2667		May/03
	4 FATHE DARWAZA	140	3.85	1	5	2	4	23	5.75	0	0		4	23	5.75		May/03
	5 SHAMSHER GUNJ	190	6.44	0	5	3	3	15	5	0	0		3	15	5		May/03
	6 WATER WORKS (ETM) (M.F.B)	20	2.45	1	1	0	1	4	4	0	0		1	4	4		May/03
	7 JAHNUMA (EM)	140	4.69	1	3	2	5	28	5.6	0	0		5	28	5.6		May/03
11 MOOSARAMBA GH (City-VIII) 8MVAX2	1 SBI COLONY	30	2.18	1	4	1	1	5	5	0	0		1	5	5		May/03
	2 SRIPURAM CLY	65	3.08	1	3	0	2	15	7.5	0	0		2	15	7.5		May/03
	3 SALEEM NGR	70	3.58	2	6	2	2	10	5	0	0		2	10	5		May/03
	4 SV NAGAR	70	2.83	0	5	0	5	25	5	4	385	96	9	410	45.556		May/03
	5 AB COLONY	130	5.5	1	9	3	0	0		0	0		0	0			May/03
	6 DILSUKH NGR	65	3.03	1	7	1	0	0		0	0		0	0			May/03

添付資料 4.2 変電所・フィーダ調査結果

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks		
							(1) Interruption			(2) Break down			(1) + (2)					
							No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No			
12 OSMANIA HOSPITAL 8MVAX3	1 BEGUM BAZAR	140	3.19	3	8	3	0	0	0	0	0	0	0	0	0	0	City-IX,May/03	
	2 PURANA PHOOL	130	2.72	0	5	4	3	14	4.67	0	0	0	3	14	4.6657	City-IX,May/03		
	3 HIGH COURT	20	2.49	0	2	0	1	5	5	0	0	1	5	5	5	City-III,UG,May/03		
	4 PUTHLI BOWLI	80	1.76	1	2	2	4	15	3.75	1	43	43	5	58	11.6	City-IX,May/03		
	5 GOWLIGUDA	10	1.18	1	4	1	0	0	0	1	42	42	1	42	42	City-IX,May/03		
	6 OSMAN GUNJ	130	3.08	1	6	0	2	5	2.5	0	0	2	5	2.5	2.5	City-IX,May/03		
	7 OSMANIA HOSPITAL	10								1	2	2	0	0	1	2	2	May/03
	8 GOWLIGUDA TEL EXCHA									7	33	4.71	1	25	25	8	58	7.25
13 SALARJUNG 8MVAX3	1 SALARJUNG	60	1.96	0	0	0	3	110	36.7	1	5	5	4	115	28.75	UG,02/03		
	2 MADINA	180	5.43	2	7	2	9	32	3.56	0	0	9	32	3.5556	May/03			
	3 HUSSAINILALAM	130	5.67	2	4	3	4	27	6.75	0	0	4	27	6.75	May/03			
	4 PATHARGATTI	180	3.68	0	4	0	1	10	10	0	0	1	10	10	10	May/03		
	5 YAKUTPURA	190						8	83	10.4	0	0	8	83	10.375	May/03		
	6 PURANIHAVELI	200	5.71	1	5	3	9	65	7.22	0	0	9	65	7.2222	May/03			
	7 DARULSHAFI	100	2.14	0	2	1	0	0	0	0	0	0	0	0	0	0	May/03	
14 SANTOSH NAGAR 8MVAX3	1 SANTOSH NAGAR	50	0.95	0	1	0	0	0	0	0	0	0	0	0	0	0	City-VIII,April,May/03	
	2 REIN BAZAR	140	1.86	0	3	2	1	10	10	0	0	1	10	10	10	10	City-VIII,May/03	
	3 DRYLAND	90	1.95	0	3	1	3	40	13.3	0	0	3	40	13.333	City-VIII,May/03			
	4 BHAVANI NAGAR	170	5.76	2	8	3	6	53	8.83	0	0	6	53	8.8333	City-VIII,May/03			
	5 EDI BAZAR	210	5.2	5	7	1	14	135	9.64	0	0	14	135	9.6429	City-VIII,May/03			
	6 RIYASATH NAGAR	100	4.97	2	6	2	6	53	8.83	0	0	6	53	8.8333	City-III,02/03,May/03			
	7 MOINBAGH	110	6.62	1	7	3	8	110	13.8	0	0	8	110	13.75	City-III,02/03,May/03			

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Length (km)	Nos of sectionalizing SW	Nos of spur line	Nos of alternate line	Fault(per month)									Remarks	
							(1) Interruption			(2) Break down			(1) + (2)				
							No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No		
15 SEETARAMBA GH 8MVAX2,5MVA	1 SEETHARAMBAGH	90	2.12	2	3	2	4	14	3.5	0	0	4	14	3.5	3.5	City-IX,April/03	
	2 DHOOLPET	160	4.13	3	7	0	4	50	12.5	1	53	53	5	103	20.6	City-IX,April/03	
	3 ASIFNAGAR	70	2.49	1	5	0	1	4	4	0	0	1	4	4	4	City-VII,April/03	
	4 AGAPURA	70	1.7	1	6	0	4	58	14.5	0	0	4	58	14.5	City-IX,April/03		
	5 ZINCHICHOWRAHA	140	3.9	1	11	0	11	76	6.91	0	0	11	76	6.9091	City-IX,April/03		
	6 DATTATREYA	110	6.93	1	6	1	2	10	5	0	0	2	10	5	5	City-VII,April/03	
16 SULTAN BAZAR 8MVAX2	1 SULTAN BAZAR	165	3.48	3	8	8	7	50	7.14	0	0	7	50	7.1429	City-IX,April/03		
	2 KOTI FEEDER	185	3.44	3	4	1	2	10	5	0	0	2	10	5	5	City-IX,April/03	
	3 KENDRIYA SADAN	140	2.91	1	5	1	1	8	8	0	0	1	8	8	8	City-II,April/03	
	4 TARAKARAMA	195	4.24	12	7	3	8	76	9.5	0	0	8	76	9.5	City-IX,April/03		
	5 IMA UG		3.24	0	3	1										City-II,UG	
17 CRPF (City-III) 7.5MVAX2	1 JAMAL BANDA	80	1.37					0	0	0	0	0	0	0	0	0	May/03
	2 BARKAS	50	1.33	2	5	1	2	15	7.5	0	0	2	15	7.5	7.5	May/03	
	3 SALAL	130	4.17					6	30	5	0	0	6	30	5	5	May/03
	4 CRPF BAZAR	36	4.2					3	36	12	0	0	3	36	12	12	May/03
	5 BALAPUR	125	7.88					4	18	4.5	0	0	4	18	4.5	4.5	May/03
	6 KESHAVAGIRI	145	4.8					7	45	6.43	1	35	35	8	80	10	10

添付資料 4.3 停電データおよび供給支障電力量

添付資料 4.3 停電データおよび供給支障電力量

List of Substations Covered by SCADA(Outage Energy Study)

Ranga Reddy

No.	North, South	Name	11kV feeder			Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			No	Data No	Max Load(A)	(1) Interruption			(2) Break down			(1) + (2)					
						No	minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
1	N	Gachibowli(GACH)	4	4	120	12	123	10.3	0	0		12	123	10.3	9,590	0	9,590
2	N	111 T(Indian Institute of Information Technology)	4	3	32	1	5	5.0	0	0		1	5	5.0	204	0	204
3	N	Aliabad(ALIA)	7	6	500	75	260	3.5	0	0		75	260	3.5	70,736	0	70,736
4	N	Chandanagar(CHAN)	4	4	630	60	650	10.8	2	70	35.0	62	720	11.6	229,099	30,154	259,253
5	N	Dommarapochampally(DOMM)	4	4	464	25	180	7.2	0	0		25	180	7.2	47,384	0	47,384
6	N	ESCI	3	0		25	180	7.2	0	0		25	180	7.2			
7	N	Gundlapochampally(GPPL)	4	0		47	255	5.4	0	0		47	255	5.4			
8	N	Jeedimetla-1(JEED)	7	7	985	52	345	6.6	5	290	58.0	57	635	11.1	111,489	78,501	189,990
9	N	Jeedimetla-2(JEED)	6	6	730	43	270	6.3	9	491	54.6	52	761	14.6	77,878	142,107	219,985
10	N	Kukatpally(KUKA)	7	6	765	38	395	10.4	0	0		38	395	10.4	125,489	0	125,489
11	N	Medchal(MEC)	8	8	837	157	850	5.4	4	185	46.3	161	1035	6.4	268,401	52,429	320,830
12	N	Medicity(MEDI)	3	0		25	135		1	70	70.0	26	205	7.9			
13	N	Charlapally(CHER)	6	6	770	4	20	5.0	3	325	108.3	7	345	49.3	7,142	98,736	105,878
14	N	Gatkesar(GATK)	8	7	415	10	62	6.2	0	0		10	62	6.2	7,459	0	7,459
15	N	Keesara(KEES)	3	3	360	0	0		0	0		0	0		0	0	0
16	N	Malkajgiri(MLKJ)	4	4	590	0	0		2	90	45.0	2	90	45.0	0	23,692	23,692
17	N	Mallapur(MALL)	4	4	315	3	15	5.0	2	165	82.5	5	180	36.0	3,401	37,409	40,809
18	N	Moulali(MOUL)	8	8	940	3	15	5.0	3	125	41.7	6	140	23.3	3,628	24,599	28,226
19	N	Nacharam(NARC)	7	7	705	3	15	5.0	1	65	65.0	4	80	20.0	5,101	4,421	9,522
20	N	NGRI(NGRI)	6	6	730	22	176	8.0	1	65	65.0	23	241	10.5	36,615	30,947	67,562
21	N	Sainikpuri(SAIN)	7	7	1080	18	100	5.6	6	385	64.2	24	485	20.2	34,801	116,987	151,788
22	N	Uppal(UPPA)	7	5	580	15	80	5.3	1	75	75.0	16	155	9.7	22,332	22,105	44,437
23	S	Kothapet(KOTH)	4	4	370	25	119	4.8	3	240	80.0	28	359	12.8	31,854	92,501	124,355
24	S	Katedan(KATE)	5	5	880	36	189	5.3	5	828	165.6	41	1017	24.8	78,399	400,748	479,148
25	S	AP Police Academy(APPA)	3	3	217	5	25	5.0	1	50	50.0	6	75	12.5	4,829	20,405	25,234
26	S	Champapet(CHAMP)	5	5	510	65	204	3.1	4	217	54.3	69	421	6.1	57,655	53,007	110,661

No.	North, South	Name	11kV feeder			Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			No	Data No	Max Load(A)	(1) Interruption			(2) Break down			(1) + (2)					
						No	minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
27	S	Gaganpahad(GAGA)	6	6	620	62	739	11.9	4	637	159.3	66	1376	20.8	230,732	88,511	319,243
28	S	Havatnagar(HAYAT)	7	7	550	34	134	3.9	2	85	42.5	36	219	6.1	25,857	17,684	43,541
29	S	Ibrahimbagh(IBRA)	5	5	500	41	256	6.2	4	300	75.0	45	556	12.4	67,970	68,356	136,326
30	S	Mamidipally(MAMI)	4	4	430	20	105	5.3	3	135	45.0	23	240	10.4	33,611	50,105	83,716
31	S	NationalPoliceAcademy(NPPA)	5	5	433	13	65	5.0	5	115	23.0	18	180	10.0	16,312	27,116	43,428
32	S	Shamshabad(SHAM)	5	5	600	29	795	27.4	8	453	56.6	37	1248	33.7	230,800	146,574	377,373
33	S	Turkavajjal(TURK)	2	2	240	20	1439	72.0	1	45	45.0	21	1484	70.7	391,498	12,243	403,741
34	S	Vanastalipuram(VANA)	4	4	590	81	2052	25.3	6	400	66.7	87	2452	28.2	690,291	138,525	828,816
35	S	Bandlaguda(BAND)(132/33/11kV)	3	3	265	53	271	5.1	0	0		53	271	5.1	74,522	0	74,522

North Total	121	105	11548	638	4131	6.5	40	2401	60.0	678	6532	9.6	1,060,749	662,087	1,722,836
South Total	58	58	6205	484	6393	13.2	46	3505	76.2	530	9898	18.7	1,934,331	1,115,774	3,050,105
Gross Total	179	163	17753	1122	10524	9.4	86	5906	68.7	1208	16430	13.6	2,995,080	1,777,861	4,772,941

Average per feeder

Area	11kV feeder			Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
	No	Data No	Max Load(A)	(1) Interruption			(2) Break down			(1) + (2)					
				No	minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
North			110.6	5.8	37.7	6.6	0.6	36.4	60.0	5.7	55.6	9.7	8,840	5,517	14,357
South			107.0	8.5	112.2	13.2	1.0	79.7	76.2	9.1	170.7	18.7	33,351	19,237	52,588
Gross			109.3	6.7	62.8	9.4	0.8	53.7	68.7	6.9	93.3	13.6	16,826	9,988	26,814

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad City

No.	North, Central, South	Name	11kV feeder			Fault(per month)						Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)			
			No	Data No	Max Load(A)	(1) Interruption			(2) Break down						(1) + (2)		
						No	minute	Minute/No	No	Minute	Minute/No				No	Minute	Minute/No
1	N	Gunrock(132/33)(City-V)	1	1	130	5	42	8.4	0	0	5	42	8.4	12,379	0	12,379	
		Gunrock(132/33)(City-VI)	7	5	610	41	240	5.9	6	205	34.2	47	445	9.5	66,111	64,048	130,159
2	N	Jubilee Hills(132/33)(City-IV)	5	5	200	11	12	1.1	0	0	11	12	1.1	2,177	0	2,177	
		Jubilee Hills(132/33)	3														
3	N	Air Port(City-IV)	6	6	700	6	67	11.2	1	60	60.0	7	127	18.1	26,141	19,044	45,185
4	N	Allwyn SS(City-IV)	8	7	470	10	40	4.0	4	207	51.8	14	247	17.6	5,872	24,350	30,222
5	N	Banjara Hills Road No.12(City-I)	1	1	125	8	50	6.3	3	371	123.7	11	421	38.3	14,170	105,141	119,311
		Banjara Hills Road No.12(City-II)	5	3	245	17	128	7.5	8	815	101.9	25	943	37.7	24,520	201,100	225,619
6	N	Banjara Hills Road No.2(City-IV)	6	4	335	17	57	3.4	1	55	55.0	18	112	6.2	12,118	8,729	20,847
7	N	Begumpet SS(City-IV)	8	6	805	9	61	6.8	5	127	25.4	14	188	13.4	20,813	51,159	71,972
8	N	Bowenpally(City-VI)	6	5	660	26	199	7.7	0	0	#DIV/0!	26	199	7.7	65,964	0	65,964
9	N	Clock Tower(City-V)	4	4	755	13	107	8.2	1	37	37.0	14	144	10.3	46,727	18,455	65,182
10	N	Film Nagar(City-IV)	6	6	260	8	49	6.1	0	0	8	49	6.1	6,076	0	6,076	
11	N	Greenland SS(City-IV)	4	4	780	15	73	4.9	0	0	15	73	4.9	32,251	0	32,251	
12	N	H.A.L.(City-VI)	5	5	460	3	20	6.7	2	130	65.0	5	150	30.0	5,668	56,000	61,668
		H.A.L.	1	0													
13	N	H.M.T.(City-VI)	3	2	190	19	143	7.5	7	219	31.3	26	362	13.9	32,625	40,900	73,525
		H.M.T.	2	0													
14	N	Hakimpet(City-VI)	4	3	245	20	180	9.0	1	20	20.0	21	200	9.5	37,624	3,401	41,025
15	N	J.D.P.L.(City-VI)	6	6	720	26	146	5.6	1	40	40.0	27	186	6.9	41,059	11,789	52,848
		J.D.P.L.	3	0													
16	N	James Street(City-V)	4	4	590	4	52	13.0	1	69	69.0	5	121	24.2	11,744	14,079	25,823
		James Street	2	0													
17	N	Kalyan Nagar(City-IV)	8	6	600	13	71	5.5	2	69	34.5	0	0	17,865	13,603	0	
18	N	Lalaguda(City-V)	5	5	540	36	379	10.5	3	296	98.7	39	675	17.3	135,084	114,085	247,169
19	N	Madhapur(City-IV)	4	3	220	15	115	7.7	2	151	75.5	17	266	15.6	17,457	20,341	37,998
		Madhapur	1	0													
20	N	Maredpally(City-V)	3	3	435	9	42	4.7	2	55	27.5	11	97	8.8	13,966	16,675	30,641
		Maredpally(City-VI)	3	3	115	5	20	4.0	0	0	5	20	4.0	2,528	0	2,528	
21	N	Mytrivanam(City-IV)	6	6	550	18	144	8.0	3	125	41.7	21	269	12.8	35,413	51,012	86,425
22	N	NIMS(City-I)	2	2	160	5	80	16.0	2	1578	789.0	7	1658	236.9	12,923	303,395	316,318
		NIMS(City-IV)	7	5	545	16	156	9.8	8	944	118.0	24	1100	45.8	53,245	369,042	422,286
23	N	Osmania University(City-II)	1	1	140	7	116	16.6	0	0	7	116	16.6	36,819	0	36,819	
		Osmania University(City-V)	3	3	230	4	24	6.0	2	135	67.5	6	159	26.5	3,673	38,259	41,932
24	N	Patisgadda	6	6	659	24	322	13.4	2	236	118.0	26	558	21.5	115,341	101,661	217,002
25	N	Praga Tools(City-VI)	4	4	460	17	202	11.9	6	312	52.0	23	514	22.3	61,327	103,656	164,983

No.	North, Central, South	Name	11kV feeder			Fault(per month)						Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)			
			No	Data No	Max Load(A)	(1) Interruption			(2) Break down						(1) + (2)		
						No	minute	Minute/No	No	Minute	Minute/No				No	Minute	Minute/No
26	N	R.P. Nilayam(City-VI)	4	3	310	15	185	12.3	0	0	15	185	12.3	40,809	0	40,809	
27	N	Seethapal Mandi(City-II)	1	1	155	2	9	4.5	0	0	2	9	4.5	3,163	0	3,163	
		Seethapal Mandi(City-V)	4	4	360	11	64	5.8	0	0	11	64	5.8	16,641	0	16,641	
28	N	Srinagar Colony(City-IV)	5	5	720	18	100	5.6	1	20	20.0	19	120	6.3	34,235	3,628	37,862
		Srinagar Colony	1	0													
29	N	Yousufguda(City-IV)	5	5	385	24	181	7.5	6	592	98.7	30	773	25.8	46,001	165,958	211,959
		Yousufguda	1	0													
30	N	Gyankhans(City-V)	4	4	620	25	278	11.1	1	43	43.0	26	321	12.3	105,027	20,473	125,500
		AC Guards(City-I)	1	1	115	3	51	17.0	1	24	24.0	4	75	18.8	13,297	6,257	19,554
31	C	AC Guards(City-VII)	5	5	425	15	165	11.0	5	347	69.4	20	512	25.6	37,103	64,706	101,808
		AC Guards	1	0													
32	C	Amberpet(City-II)	6	6	610	28	234	8.4	3	154	51.3	31	388	12.5	63,436	50,626	114,062
33	C	Asif Nagar(City-VII)	9	9	950	61	637	10.4	1	105	105.0	62	742	12.0	160,404	2,381	162,784
		Asif Nagar	1	0													
		Chikalguda(City-I)	2	2	195	7	54	7.7	0	0	7	54	7.7	12,243	0	12,243	
34	C	Chikalguda(City-II)	2	2	260	2	11	5.5	0	0	2	11	5.5	3,378	0	3,378	
		Chikalguda(City-V)	3	3	250	13	114	8.8	2	45	22.5	15	159	10.6	21,618	8,094	29,711
		Exhibition Ground(City-I)	2	2	245	7	136	19.4	0	0	7	136	19.4	49,198	0	49,198	
35	C	Exhibition Ground(City-VII)	1	1	150	6	93	15.5	0	0	6	93	15.5	31,627	0	31,627	
		Exhibition Ground	4	0													
36	C	Golconda(City-VII)	6	6	510	36	355	9.9	8	355	44.4	0	0	79,238	74,761	0	
		Golconda	1	0													
37	C	Hussain Sagar(City-I)	8	8	820	20	133	6.7	4	280	70.0	24	413	17.2	35,708	61,894	97,602
		Hussain Sagar(City-VII)	1	1	130	5	26	5.2	0	0	5	26	5.2	7,663	0	7,663	
38	C	Hyderguda(City-I)	5	5	780	15	168	11.2	3	140	46.7	18	308	17.1	57,995	52,825	110,820
39	C	Indira Park(City-I)	8	8	855	20	169	8.5	1	60	60.0	21	229	10.9	47,078	16,324	63,402
40	C	Industrial Area(City-II)	7	7	770	35	387	11.1	0	0	35	387	11.1	92,909	0	92,909	
41	C	Lakeview(City-I)	2	2	245	7	46	6.6	1	49	49.0	8	95	11.9	12,299	11,665	23,964
42	C	Narayanguda(City-I)	2	2	230	12	116	9.7	1	45	45.0	13	161	12.4	30,652	8,672	39,324
		Narayanguda(City-II)	2	2	150	4	33	8.3	3	144	48.0	7	177	25.3	5,294	31,015	36,309
43	C	Public Garden(City-I)	2	2	340	3	15	5.0	1	45	45.0	4	60	15.0	5,895	16,324	22,218
44	C	S.D. Hospital(City-VII)	5	5	525	36	1020	28.3	0	0	36	1020	28.3	291,005	0	291,005	
		S.D. Hospital	1	0													
45	S	Asmangadh(City-VIII)	6	6	595	13	36	2.8	1	52	52.0	14	88	6.3	9,182	15,326	24,508
46	S	Atapur(City-III)	4	4	610	41	283	6.9	0	0	41	283	6.9	102,636	0	102,636	
47	S	Chanchalguda(City-VIII)	6	5	600	22	173	7.9	4	192	48.0	26	365	14.0	54,413	49,379	103,792
48	S	E.N.T(City-IX)	6	5	415	15	113	7.5	1	12	12.0	16	125	7.8	26,537	2,857	29,394

添付資料 4.3 停電データおよび供給支障電力量

No.	North, Central, South	Name	11kV feeder			Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			No	Data No	Max Load(A)	(1) Interruption			(2) Break down			(1) + (2)					
						No	minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
49	S	Falaknuma(City-III)	4	4	500	27	219	8.1	0	0	0	27	219	8.1	60,080	0	60,080
		Falaknuma	2	0													
50	S	Kanchanbagh(City-III)	1	1	55	3	19	6.3	0	0	3	19	6.3	2,369	0	2,369	
		Kanchanbagh(City-VIII)	5	4	205	5	29	5.8	0	0	5	29	5.8	6,325	0	6,325	
51	S	Karwan(City-VII)	1	1	140	4	35	8.8	3	177	59.0	7	212	30.3	11,109	56,181	67,290
		Karwan(City-IX)	3	3	500	17	137	8.1	6	327	54.5	23	464	20.2	51,012	122,700	173,712
52	S	Rhiliwath(City-III)	5	5	770	28	153	5.5	0	0	28	153	5.5	58,902	0	58,902	
53	S	Malakpet(City-II)	1	1	150	6	147	24.5	0	0	6	147	24.5	49,991	0	49,991	
		Malakpet(City-VIII)	7	7	810	25	631	25.2	1	2911	2911.0	26	3542	136.2	196,656	65,998	262,654
54	S	Miralam(City-III)	7	7	1020	45	307	6.8	0	0	45	307	6.8	117,078	0	117,078	
55	S	Meosarambagh(City-VIII)	6	6	430	10	55	5.5	4	385	96.3	14	440	31.4	8,105	61,101	69,206
56	S	Osmania Hospital(City-III)	1	1	20	1	5	5.0	0	0	1	5	5.0	227	0	227	
		Osmania Hospital(City-IX)	7	5	490	9	34	3.8	2	85	42.5	11	119	10.8	8,321	8,751	17,072
57	S	Sararjung(City-III)	7	7	1040	34	327	9.6	1	5	5.0	35	332	9.5	105,288	680	105,968
58	S	Santhoshnagar(City-III)	2	2	210	14	163	11.6	0	0	14	163	11.6	39,449	0	39,449	
		Santhoshnagar(City-VIII)	5	5	660	24	238	9.9	0	0	24	238	9.9	96,038	0	96,038	
59	S	Seetharam bagh(City-VII)	2	2	180	3	14	4.7	0	0	3	14	4.7	3,129	0	3,129	
		Seetharam bagh(City-IX)	4	4	460	23	198	8.6	1	53	53.0	24	251	10.5	54,322	19,226	73,548
60	S	Sultan Bazar(City-II)	1	1	140	1	8	8.0	0	0	1	8	8.0	2,539	0	2,539	
		Sultan Bazar(City-IX)	3	3	545	17	136	8.0	0	0	17	136	8.0	56,498	0	56,498	
61	S	CPRE(City-III)	6	6	566	22	144	6.5	1	35	35.0	23	179	7.8	33,375	11,506	44,881
Total			367	320	35160	1266	11721	9.3	140	12938	92.4	1347	23809	17.7	3,425,177	2,759,429	5,999,138

North Total	178	146	15494	522	4154	8.0	81	6911	85.3	588	10925	18.6	1,213,555	1,940,180	3,122,267
Central Total	87	79	8555	335	3963	11.8	34	1793	52.7	325	5046	15.5	1,058,040	405,543	1,309,584
South Total	102	95	11111	409	3604	8.8	25	4234	169.4	434	7838	18.1	1,153,582	413,705	1,567,287
Gross Total	367	320	35160	1266	11721	9.3	140	12938	92.4	1347	23809	17.7	3,425,177	2,759,429	5,999,138

Average Per feeder

Area	11kV feeder			Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
	No	Data No	Max Load(A)	(1) Interruption			(2) Break down			(1) + (2)					
				No	minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
North			100.3	3.6	27.3	7.6	0.5	49.1	91.2	4.2	78.1	18.7	7,511	13,133	20,467
Central			100.4	3.5	42.9	12.1	0.4	23.1	61.5	3.7	62.2	17.0	9,279	4,350	12,346
South			116.1	4.3	38.1	8.8	0.3	43.5	163.8	4.6	81.5	17.8	11,590	4,056	15,646
Gross			104.4	3.8	34.5	9.2	0.4	40.3	95.9	4.1	74.7	18.0	9,083	8,164	16,779

*1: Length data of 1 feeder is not available.

*2:Map data of feeder is not available.

添付資料 4.3 停電データおよび供給支障電力量

PF 0.85 LF 0.7

Substation Name	Name of Feeder	Nos of feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)	
				(1) Interruption			(2) Break down			(1) + (2)						
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No				
Gachibowli (5MVA x2)	University, ALIND	4	30	3	15	5.0					3	15	5.0	1,020	0	1,020
	LINGGAMPALLY		50	6	18	3.0					6	18	3.0	2,040	0	2,040
	KOTTAGUDA		32	3	90	30.0					3	90	30.0	6,530	0	6,530
	GACHIBOWLI(KALAGAYTHY)		8	0	0						0	0		0	0	0
IIT(Indian Institute of Information Technology) (8MVA New)	STADIUM	4	11								0	0		0	0	0
	WIZCRAFT		Open								0	0		0	0	0
	SPORT VILLAGE		3								0	0		0	0	0
	SPORTVILLAGE EXTERNAL LIGHTING		18	1	5	5.0					1	5	5.0	204	0	204
Aliabad(ALLA) 8MVAX2 3.15MVA	Ravileela	7	20	0	0						0	0		0	0	0
	Thurkapally		160	25	75	3.0					25	75	3.0	27,206	0	27,206
	Bommarajpet		120	15	40	2.7					15	40	2.7	10,883	0	10,883
	Aliabad		80	15	75	5.0					15	75	5.0	13,603	0	13,603
	Jaganguda		120	20	70	3.5					20	70	3.5	19,044	0	19,044
	H.B.I.		70	0	0						0	0		0	0	0
Chandanagar(CHAN) 8MVA 3.15MVA	Survanshi	4	0	0						0	0		0	0	0	
	Taranagar		150	15	145	9.7					15	145	9.7	49,311	0	49,311
	Chandanagar		130	20	205	10.3					20	205	10.3	60,421	0	60,421
	Hifcezpeta(S.B)		160	15	145	9.7					15	145	9.7	52,599	0	52,599
Dommarapochampally (DOMM) 5MVAX2	Miyapur	4	190	10	155	15.5	2	70	35.0	12	225	18.8	66,769	30,154	96,922	
	Bowrampet		115	2	10	5.0					2	10	5.0	2,607	0	2,607
	Satyam Computers(S.B)		115	2	70	35.0					2	70	35.0	18,251	0	18,251
	Duridigal IDA		117	12	40	3.3					12	40	3.3	10,610	0	10,610
ESCI 3MVA	Gagillapur	3	117	9	60	6.7				9	60	6.7	15,916	0	15,916	
	Gachibowli			10	80	8.0					10	80	8.0	0	0	0
	Nanakramguda			15	100	6.7					15	100	6.7	0	0	0
	E.S.C.I		0	0						0	0		0	0	0	

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)	
				(1) Interruption			(2) Break down			(1) + (2)						
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No				
Gundlapochampally(GPPL) 8MVA	IDA	4		2	15	7.5					2	15	7.5	0	0	0
	Gundla Pochampally(S.B)			10	45	4.5					10	45	4.5	0	0	0
	Mysammaguda			15	75	5.0					15	75	5.0	0	0	0
	Doolapally			20	120	6.0					20	120	6.0	0	0	0
Jeedimetla-1(JEED) 8MVAX3	Phase V	7	130	5	25	5.0					5	25	5.0	7,368	0	7,368
	Vicchow		180	12	75	6.3	1	30	30.0	13	105	8.1	30,607	12,243	42,850	
	SudershanDrugs		165	2	10	5.0					2	10	5.0	3,741	0	3,741
	Phase I		175	8	65	8.1					8	65	8.1	25,789	0	25,789
	Subhashnagar		120	12	90	7.5	1	50	50.0	13	140	10.8	24,486	13,603	38,089	
	Shapumagar		140	8	40	5.0	2	115	57.5	10	155	15.5	12,696	36,502	49,198	
Jeedimetla-2 (JEED) 8MVAX2	Phase II	6	75	5	40	8.0	1	95	95.0	6	135	22.5	6,802	16,154	22,955	
	Gajularamaram		130	5	35	7.0	2	91	45.5	7	126	18.0	10,316	26,821	37,137	
	Kompally		90	5	40	8.0					5	40	8.0	8,162	0	8,162
	Surqaram		140	10	75	7.5	2	100	50.0	12	175	14.6	23,805	31,741	55,546	
	Phase III		80	8	40	5.0	2	130	65.0	10	170	17.0	7,255	23,579	30,834	
Kukatpally(KUKA)	Phase V	7	100	5	30	6.0	1	65	65.0	6	95	15.8	6,802	14,737	21,538	
	Phase IV		190	10	50	5.0	2	105	52.5	12	155	12.9	21,538	45,230	66,769	
	Travels Feeder		100	3	50	16.7					3	50	16.7	11,336	0	11,336
	Hydemagar		140	5	70	14.0					5	70	14.0	22,218	0	22,218
	Air Force			6	90	15.0					6	90	15.0	0	0	0
	Venkateshwara		180	10	140	14.0					10	140	14.0	57,133	0	57,133
	Bhagyanagar		120	6	45	7.5					6	45	7.5	12,243	0	12,243
Medchal(MEC) 5MVAX2	JNTUCF	8	130	3	40	13.3				3	40	13.3	11,789	0	11,789	
	KPHB		95	11	50	4.5					11	50	4.5	10,769	0	10,769
	Yellampet		83	15	70	4.7					15	70	4.7	13,172	0	13,172
	Ravalkole		150	35	250	7.1					35	250	7.1	85,020	0	85,020
	IDA Medchal II(S.B)		125	15	60	4.0	2	95	47.5	17	155	9.1	17,004	26,923	43,927	
	Rural Medchal		70	25	75	3.0					25	75	3.0	11,903	0	11,903
	IDA Medchal I		125	12	60	5.0	2	90	45.0	14	150	10.7	17,004	25,506	42,510	
kandlakoya	185	35	270	7.7					35	270	7.7	113,246	0	113,246		
Srinath Spinning Mills	Medchal Town	8	75	20	65	3.3				20	65	3.3	11,053	0	11,053	
	Medchal		24	0	0					0	0		0	0	0	

添付資料 4.3 停電データおよび供給支障電力量

Ranga Reddy North															
Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
				(1) Interruption			(2) Break down			(1) + (2)					
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
Medicity(MEDI) 5MVA,1.6MVA	Padur	3		15	75	5.0	1	70	70.0	16	145	9.1	0	0	0
	Raj Bollaram			10	60	6.0				10	60	6.0	0	0	0
	Medicity			0	0					0	0	0.0	0	0	0
Charlapally(CHER)	ECIL	6	50	0	0		1	115	115.0	1	115	115.0	0	13,036	13,036
	IDA Phase-I		70	0	0		0	0		0	0	0.0	0	0	0
	IDA Phase-II		160	2	10	5.0	0	0		2	10	5.0	3,628	0	3,628
	Krupp		190	1	5	5.0	0	0		1	5	5.0	2,154	0	2,154
	Rampally		180	0	0		2	210	105.0	2	210	105.0	0	85,700	85,700
	Nagaram		120	1	5	5.0	0	0		1	5	5.0	1,360	0	1,360
Gatkesar(GATK)	Ghatkesar	8	120	2	7	3.5	0	0		2	7	3.5	1,904	0	1,904
	Keesara												0	0	0
	Eduabad		80	2	10	5.0	0	0		2	10	5.0	1,814	0	1,814
	Aushapur		110	1	5	5.0	0	0		1	5	5.0	1,247	0	1,247
	Medipally		70	2	10	5.0	0	0		2	10	5.0	1,587	0	1,587
	Syndicate		20	1	10	10.0	0	0		1	10	10.0	453	0	453
	HPCL		10	2	20	10.0	0	0		2	20	10.0	453	0	453
	NTPC		5				0	0		0	0	0.0	0	0	0
Keesara(KEES)	Cheral	3	170	0	0		0	0		0	0	0	0	0	
	Ankireddipally		70	0	0		0	0		0	0	0	0	0	
	Keesara		120	0	0		0	0		0	0	0	0	0	
Malkajgiri(MLKJ)	Anandbagh	4	120	0	0		1	55	55.0	1	55	55.0	0	14,963	14,963
	Durga Nagar		220	0	0		0	0		0	0	0	0	0	
	M.K. Nagar		110	0	0		1	35	35.0	1	35	35.0	0	8,729	8,729
	Suryanagar		140	0	0		0	0		0	0	0	0	0	
Mallapur(MALL)	Mallapur Village	4	100	3	15	5.0	2	165	82.5	5	180	36.0	3,401	37,409	40,809
	IDA Phase-II		80	0	0		0	0		0	0	0	0	0	
	BEL		105	0	0		0	0		0	0	0	0	0	
	A.P. Food		30	0	0		0	0		0	0	0	0	0	

Ranga Reddy North															
Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
				(1) Interruption			(2) Break down			(1) + (2)					
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
Moulali(MOUL)	FBP	8	10	1	5	5.0	1	45	45.0	2	50	25.0	113	1,020	1,134
	HCL		180	0	0		0	0		0	0	0.0	0	0	0
	HMT		40	0	0		0	0		0	0	0.0	0	0	0
	Malkajgiri		180	1	5	5.0				1	5	5.0	2,040	0	2,040
	Meerpet		130	0	0		0	0		0	0	0.0	0	0	0
	Mirjalguda		130	1	5	5.0	2	80	40.0	3	85	28.3	1,474	23,579	25,052
	Moula-Ali		140	0	0		0	0		0	0	0.0	0	0	0
	Spectra		130	0	0		0	0		0	0	0.0	0	0	0
Nacharam(NARC)	S.R. Feeder	7	130	0	0		0	0		0	0	0	0	0	
	Multisteel		30	0	0		1	65	65.0	1	65	65.0	0	4,421	4,421
	Tungabhadra		220	0	0		0	0		0	0	0.0	0	0	0
	IPM		120	0	0		0	0		0	0	0.0	0	0	0
	Laxmi Starch		150	3	15	5.0	0	0		3	15	5.0	5,101	0	5,101
	NILE		45	0	0		0	0		0	0	0.0	0	0	0
NGRI(NGRI)	India Extruction	6	10	0	0		0	0		0	0	0	0	0	
	Habsiguda		170	2	10	5.0	0	0		2	10	5.0	3,854	0	3,854
	HMT		210	3	13	4.3	1	65	65.0	4	78	19.5	6,189	30,947	37,137
	Kalyanpuri		130	5	30	6.0	0	0		5	30	6.0	8,842	0	8,842
	NGRI		40	4	23	5.8	0	0		4	23	5.8	2,086	0	2,086
	Penguin		20	1	65	65.0	0	0		1	65	65.0	2,947	0	2,947
Sainikpuri(SAIN)	S.O.I	7	160	7	35	5.0	0	0		7	35	5.0	12,696	0	12,696
	ASRAO Nagar		200	0	0		0	0		0	0	0.0	0	0	0
	Kamalanagar		100	0	0		1	80	80.0	1	80	80.0	0	18,138	18,138
	Kapra		110	3	15	5.0				3	15	5.0	3,741	0	3,741
	Kushaiguda		170	4	20	5.0	1	30	30.0	5	50	10.0	7,708	11,563	19,271
	Neredmet		180	6	30	5.0				6	30	5.0	12,243	0	12,243
	Sainikpuri		180							0	0	0.0	0	0	0
Yapral	140	5	35	7.0	4	275	68.8	9	310	34.4	11,109	87,287	98,396		

添付資料 4.3 停電データおよび供給支障電力量

Ranga Reddy North

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
				(1) Interruption			(2) Break down			(1) + (2)					
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
Uppal(UPPA)	Boduppal	7	120	7	35	5.0	0	0		7	35	5.0	9,522	0	9,522
	Doordarshan								0	0			0	0	0
	Indi Ghatkesar		130	3	15	5.0	1	75	75.0	4	90	22.5	4,421	22,105	26,526
	Nav Bharath		180	2	15	7.5	0	0		2	15	7.5	6,121	0	6,121
	Ramanthapur									0	0		0	0	0
	Uppal		50	2	10	5.0	0	0		2	10	5.0	1,134	0	1,134
	Gangappa		100	1	5	5.0	0	0		1	5	5.0	1,134	0	1,134

Ranga Reddy South

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
				(1) Interruption			(2) Break down			(1) + (2)					
				No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
Kothapet(Mixed)(8MVAx2)	Kamalangar	4	85	7	29	4.1				7	29	4.1	5,589	0	5,589
	Sroornagar		170	16	52	3.3	3	240	80.0	19	292	15.4	20,042	92,501	112,543
	Stadium(old Kothapet)		75	1	35	35.0				1	35	35.0	5,951	0	5,951
	Huda Complex		40	1	3	3.0				1	3	3.0	272	0	272
Katedan(Industry)(8MVAx2)	Katedan 1	5	170	5	30	6.0				5	30	6.0	11,563	0	11,563
	Katedan 2		160	7	35	5.0	1	90	90.0	8	125	15.6	12,696	32,648	45,344
	Balapur		220	12	62	5.2	4	738	184.5	16	800	50.0	30,924	368,101	399,025
	Katedan 3		160	6	30	5.0				6	30	5.0	10,883	0	10,883
	Katedan 4	170	6	32	5.3				6	32	5.3	12,334	0	12,334	
AP Police Academy(Himayar Sagar)(5MVAx1)	AP Police Academy	3	15							0	0		0	0	0
	Himayar Sagar		22	3	15	5.0				3	15	5.0	748	0	748
	Azz Nagar		180	2	10	5.0	1	50	50.0	3	60	20.0	4,081	20,405	24,486
Champapet(8MVAx2)	Kharmanghat	5	130	13	60	4.6	0	0		13	60	4.6	17,684	0	17,684
	Champapet		80	7	29	4.1	0	0		7	29	4.1	5,260	0	5,260
	Sulthanvillua		40	2	14	7.0	1	67	67.0	3	81	27.0	1,270	6,076	7,346
	Meerpat		150	17	91	5.4	2	105	52.5	19	196	10.3	30,947	35,708	66,655
	Balapur		110	26	10	0.4	1	45	45.0	27	55	2.0	2,494	11,223	13,716
Gaganpahad (GAGA) 8MVAx2	NPA(55mm2, 172A)	6	40	0	0		1	355	355.0	1	355	355.0	0	32,194	32,194
	Gagan Pahad(ditto)		150	15	515	34.3	0	0		15	515	34.3	175,140	0	175,140
	Jai Bhawani(ditto)		120	4	25	6.3	0	0		4	25	6.3	6,802	0	6,802
	Manage(ditto)		140	18	90	5.0	1	38	38.0	19	128	6.7	28,567	12,061	40,628
	Ralendra Nagar(ditto)		80	24	89	3.7	2	244	122.0	26	333	12.8	16,142	44,256	60,398
	Shiva Shathi(ditto)		90	1	20	20.0	0	0		1	20	20.0	4,081	0	4,081
Hyath Nagar(8MVAx3)	L.B. Nagar	7	45	5	21	4.2				5	21	4.2	2,142	0	2,142
	Mansurabad		115	6	22	3.7				6	22	3.7	5,736	0	5,736
	Mothfr Dairy		120	5	19	3.8				5	19	3.8	5,169	0	5,169
	AutoNagar, HighCourtColonv		120	7	27	3.9	1	45	45.0	8	72	9.0	7,346	12,243	19,589
	Hyat Nagar		80	3	13	4.3				3	13	4.3	2,358	0	2,358
	A.J.R.		10	3	11	3.7				3	11	3.7	249	0	249
	SERIER		60	5	21	4.2	1	40	40.0	6	61	10.2	2,857	5,441	8,298

添付資料 4.3 停電データおよび供給支障電力量

Ranga Reddy South

Substation Name	Name of Feeder	Nos of feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
				(1) Interruption			(2) Break down			(1) + (2)					
				No	Minute	Min/A/No	No	Minute	Min/A/No	No	Minute	Min/A/No			
Ibrahimbagh(8MVAx2)	New Military	5	40	5	40	8.0				5	40	8.0	3,628	0	3,628
	Osman Sagar		160	9	95	10.6	2	75	37.5	11	170	15.5	34,461	27,206	61,668
	Military I		130	14	46	3.3	1	40	40.0	15	86	5.7	13,558	11,789	25,347
	Military II		70	1	10	10.0	1	185	185.0	2	195	97.5	1,587	29,360	30,947
	Pedda Mangalalan		100	12	65	5.4	0	0		12	65	5.4	14,737	0	14,737
Mamidipally(MAMI) SMVAX2	Errakunta(34mm2, 150A)	4	120	6	35	5.8	0	0		6	35	5.8	9,522	0	9,522
	Pahachisharey(ditto)		125	4	20	5.0	1	40	40.0	5	60	12.0	5,668	11,336	17,004
	Thukkuguda(ditto)		180	9	45	5.0	2	95	47.5	11	140	12.7	18,364	38,769	57,133
	Catalytic(ditto)		5	1	5	5.0	0	0		1	5	5.0	57	0	57
NationalPoliceAcademy(NPPA)SMVAX2	Sastri Puram(55mm2)	5	53	5	20	4.0	1	30	30.0	6	50	8.3	2,403	3,605	6,008
	Uppar Pally(ditto)		175	4	25	6.3	1	20	20.0	5	45	9.0	9,919	7,935	17,854
	Shivarampally(ditto)		134	2	10	5.0	2	45	22.5	4	55	13.8	3,038	13,671	16,709
	NPA(ditto)		29	0	0	0	0	0		0	0	0	0	0	0
	Kattadan(ditto)		42	2	10	5.0	1	20	20.0	3	30	10.0	952	1,904	2,857
Shamshabad (SHAM) 8MVAX2	OmJaiBhavani(34mm2)	5	60	3	95	31.7	2	90	45.0	5	185	37.0	12,923	12,243	25,166
	Shamshabad(ditto)		120	12	335	27.9	1	15	15.0	13	350	26.9	91,141	4,081	95,222
	Narkuda(ditto)		200	4	175	43.8	2	213	106.5	6	388	64.7	79,352	96,582	175,934
	Raikunta(ditto)		110	5	90	18.0	2	115	57.5	7	205	29.3	22,445	28,680	51,125
	HameedullaNagar(ditto)		110	5	100	20.0	1	20	20.0	6	120	20.0	24,939	4,988	29,927
Turkayamjal(TURK)(5+3.5)MVA	Turka Yanjal(55mm2)	2	120	8	864	108.0	1	45	45.0	9	909	101.0	235,062	12,243	247,305
	Manneguda(55mm2)		120	12	575	47.9	0	0		12	575	47.9	156,436	0	156,436
Vanasthalipuram (VANA) 8MVAX2	Vanasthalipuram(55mm2)	4	140	12	329	27.4	1	20	20.0	13	349	26.8	104,427	6,348	110,775
	NGO's(55mm2)		170	11	203	18.5	0	0		11	203	18.5	78,241	0	78,241
	Iojarpoor(55mm2)		170	41	945	23.0	3	275	91.7	44	1220	27.7	364,224	105,991	470,215
	Bairamaguda(55mm2)		110	17	575	33.8	2	105	52.5	19	680	35.8	143,400	26,186	169,586
Bandlaguda(BAND)(132/33/11kV) SMVAX1	Nagole(55mm2)	3	150	22	146	6.6	0	0		22	146	6.6	49,651	0	49,651
	Alkapuri(55mm2)		100	21	107	5.1	0	0		21	107	5.1	24,259	0	24,259
	GS(55mm2)		15	10	18	1.8	0	0		10	18	1.8	612	0	612

添付資料 4.3 停電データおよび供給支障電力量

PF 0.85 LF 0.7

Hyderabad North		Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
(1) Interruption					(2) Break down			(1) + (2)								
No	Minute				Minute/No	No	Minute	Minute/No	No	Minute	Minute/No					
1	ALLWYN (City-IV) 8MVAX2	1 Industrial Estate	80	2	9	4.5	0	0	2	9	4.5	1,632.4	0.0	1,632.4		
		2 Crown Carting	10	1	2	2	0	0	1	2	2	45.3	0.0	45.3		
		3 IOL	140	1	6	6	0	0	1	6	6	1,904.4	0.0	1,904.4		
		4 Motinagar	80	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
		5 ESI	20	5	18	3.6	3	147	49	8	165	20,625	816.2	6,665.5	7,481.7	
		6 Sanathnagar	130	1	5	5	1	60	60	2	65	32.5	1,473.7	17,684.1	19,157.7	
		7 Tele Exchange	10	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
		8 Allwyn Compressor	10	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
2	AIRPORT (City-IV) 8MVAX2	1 Air port	80	2	10	5	0	0	2	10	5	1,813.8	0.0	1,813.8		
		2 International Airport	60	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
		3 Domestic Airport	60	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
		4 Chikoti Garden	140	0	0	1	60	60	1	60	60	0.0	19,044.4	19,044.4		
		5 Prakash Nagar	190	3	52	17.3	0	0	3	52	17.333	22,399.8	0.0	22,399.8		
		6 Motilal Nagar	170	1	5	5	0	0	1	5	5	1,927.1	0.0	1,927.1		
3	ROAD NO: 2 8MVAX2	1 Sagar society	70	2	10	5	1	55	55	3	65	21,667	1,587.0	8,728.7	10,315.7	
		2 Road No.02	115	5	25	5	0	0	5	25	5	6,518.2	0.0	6,518.2		
		3 Road No.10	85	9	17	1.89	0	0	9	17	1.8889	3,276.1	0.0	3,276.1		
		4 Road No.14	145	2	10	5	0	0	2	10	5	3,287.4	0.0	3,287.4		
		5 L.V.Prasad Marg	65	1	5	5	0	0	1	5	5	736.8	0.0	736.8		
		6 LV.Prasad film Lab	40													

Hyderabad North		Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
(1) Interruption					(2) Break down			(1) + (2)								
No	Minute				Minute/No	No	Minute	Minute/No	No	Minute	Minute/No					
4	BEGUMPET (City-IV) 8MVAX2	1 S.R.Nagar	145	3	19	6.33	2	50	25	5	69	13.8	6,246.1	16,437.1	22,683.2	
		2 Yellamma Temple	65	0	0	0	0	0	0	0	0	0.0	0.0	0.0		
		3 Shantibagh	145	4	30	7.5	1	20	20	5	50	10	9,862.3	6,574.8	16,437.1	
		4 AMP	55	0	0	1	25	25	1	25	25	0.0	3,117.4	3,117.4		
		5 DKR	345	1	5	5	1	32	32	2	37	18.5	3,910.9	25,029.8	28,940.7	
		6 Hyderabad Public School	120	8	43	5.38	1	20	20	9	63	7	11,698.7	5,441.3	17,139.9	
		7 Maitrivanam	50	1	7	7	0	0	1	7	7	793.5	0.0	793.5		
		8 Vidyut Soudha		0	0	0	0	0	0	0	0	0.0	0.0	0.0		
5	BOWENPLL Y (City-VI) 8MVAX2	1 Bapuji Nagar	195	9	53	5.89	0	0	9	53	5.8889	23,431.4	0.0	23,431.4		
		2 Bowenpally	100	2	25	12.5	0	0	2	25	12.5	5,668.0	0.0	5,668.0		
		3 Tadbund	100	5	53	10.6	0	0	5	53	10.6	12,016.1	0.0	12,016.1		
		4 IAF	25	1	20	20	0	0	1	20	20	1,133.6	0.0	1,133.6		
		5 Gputham Nagar	170	9	60	6.67	0	0	9	60	6.6667	23,125.3	0.0	23,125.3		
		6 Ferroj guda	95	1	8	8	0	0	1	8	8	1,723.1	0.0	1,723.1		
6	CLOCKTOWER (City-V) 8MVAX2 7.5MVA	1 Sangeeth	180	3	17	5.67	0	0	3	17	5.6667	6,937.6	0.0	6,937.6		
		2 Minerva	170	5	45	9	0	0	5	45	9	17,344.0	0.0	17,344.0		
		3 Natraj	185	0	0	0	0	0	0	0	0.0	0.0	0.0			
		4 St.Road	220	5	45	9	1	37	37	6	82	13.667	22,445.2	18,454.9	40,900.1	
7	GREENLANDS (City-IV) 8MVAX2	1 Ameerpet	195	1	8	8	0	0	1	8	8	3,536.8	0.0	3,536.8		
		2 Kundan bagh	190	0	0	0	0	0	0	0	0.0	0.0	0.0			
		3 Rajiv Gandhi	190	9	44	4.89	0	0	9	44	4.8889	18,953.7	0.0	18,953.7		
		4 Somajiguda	205	5	21		0	0	5	21	4.2	9,760.2	0.0	9,760.2		

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No			
8 GYMKHANA (City-V) 8MVAX2	1 Paredgrounds	210	10	135	13.5	1	43	43	11	178	16.182	64,274.8	20,472.7	84,747.5
	2 Sikh village	85	4	31	7.75	0	0	0	4	31	7.75	5,974.0	0.0	5,974.0
	3 Vikram Puri	195	3	12	4	0	0	0	3	12	4	5,305.2	0.0	5,305.2
	4 Marredpally	130	8	100	12.5	0	0	0	8	100	12.5	29,473.4	0.0	29,473.4
9 HAKIMPET (City-VI) 8MVAX2	1 M.Bollaram	110	10	106	10.6	0	0	0	10	106	10.6	26,435.4	0.0	26,435.4
	2 Hakimpet Airforce	65	6	38	6.33	0	0	0	6	38	6.3333	5,600.0	0.0	5,600.0
	3 Allen by lines	60	6	41	6.83	0	0	0	6	41	6.8333	5,577.3	0.0	5,577.3
	4 Risak Bazar	75	4	33	8.25	1	20	20	5	53	10.6	5,611.3	3,400.8	9,012.1
10 HAL 8MVAX2	1 Sowbhagya Nagar	60	2	10	5	0	0	0	2	10	5	1,360.3	0.0	1,360.3
	2 Sri Rama	50	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	3 NRSA	100	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	4 SAMRAT	190	1	10	10	2	130	65	3	140	46.667	4,307.7	55,999.5	60,307.2
	5 HAL	30	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	6 I.A.L	60	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
11 HMT 8MVAX2	1 Chintal	150	13	60	4.62	1	75	75	14	135	9.6429	20,404.7	25,505.9	45,910.6
	2 HMT Road	40	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	3 QBP	110	16	78	4.88	2	125	63	18	203	11.278	19,452.5	31,173.8	50,626.3
	4 G.N.R	60	9	60	6.67	4	149	37	13	209	16.077	8,161.9	20,268.7	28,430.5
	5 A.O.L	130	10	83	8.3	3	70	23	13	153	11.769	24,463.0	20,631.4	45,094.4

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No			
12 IDPL 3MVAX2(6.6kV) 5MVA 8MVAX3	1 6.6kV IDPL	60	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	2 SIFCO	80	2	8	4	0	0	0	2	8	4	1,451.0	0.0	1,451.0
	3 SVCIE	130	4	44	11	1	40	40	5	84	16.8	12,968.3	11,789.4	24,757.7
	4 Vijaya Electricals	130	12	41	3.42	0	0	0	12	41	3.4167	12,084.1	0.0	12,084.1
	5 Oblum	150	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	6 Balanagar	100	4	25	6.25	0	0	0	4	25	6.25	5,668.0	0.0	5,668.0
	7 IE	140	4	28	7	0	0	0	4	28	7	8,887.4	0.0	8,887.4
	8 Moosapet	170	10	47	4.7	0	0	0	10	47	4.7	18,114.8	0.0	18,114.8
	9 Bharath Nagar	80	3	8	2.67	0	0	0	3	8	2.6667	1,451.0	0.0	1,451.0
13 FILMNAGAR (City-IV) 8MVAX2	1 Ambedkar Nagar	20	1	5	5	0	0	0	1	5	5	226.7	0.0	226.7
	2 MLA colony	85	2	14	7	0	0	0	2	14	7	2,698.0	0.0	2,698.0
	3 Padmalaya Studio	35	2	13	6.5	0	0	0	2	13	6.5	1,031.6	0.0	1,031.6
	4 Ramanaidu Studio	25	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	5 Appollo	40	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	6 Bharathiya Vidya Bhavan	55	3	17	5.67	0	0	0	3	17	5.6667	2,119.8	0.0	2,119.8
14 JAMES STREET 8MVAX2	1 Park Lane	185	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	2 P.G Road	190	1	5	5	0	0	0	1	5	5	2,153.8	0.0	2,153.8
	3 M.G Road	125	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
	4 Mahankali Temple	90	3	47	15.7	1	69	69	4	116	29	9,590.2	14,079.2	23,669.4
	5 S.D Temple											0.0	0.0	0.0
	6 S.P Road											0.0	0.0	0.0

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Hours/No	No	Minute	Hours/No	No	Minute	Hours/No			
15 KALYANNAGAR (City-IV) 8MVAX3	1 Krishna Nagar	80	4	22		0	0					3,990.3	0.0	0.0
	2 Yousuf Guda	200	1	5		0	0					2,267.2	0.0	0.0
	3 Madhura Nagar	160	5	26		1	27					9,431.5	9,794.3	0.0
	4 V.Road Nagar	40	0	0		1	42					0.0	3,808.9	0.0
	5 A.G.Colony	80	1	6		0	0					1,088.3	0.0	0.0
	6 Sri.Ram Nagar	40	2	12								1,088.3	0.0	0.0
	7 CTI	5										0.0	0.0	0.0
	8 SCADA											0.0	0.0	0.0
16 MADHAPUR 8MVAX2	1 Shilparamaam	50	0	0		0	0		0	0		0.0	0.0	0.0
	2 APIIC-II	60	7	75	10.7	0	0		7	75	10.714	10,202.3	0.0	10,202.3
	3 APIICI	100	4	20	5	0	0		4	20	5	4,534.4	0.0	4,534.4
	4 HUDA	60	4	20	5	2	151	76	6	171	28.5	2,720.6	20,540.7	23,261.3
	5 NAC GROUNDS											0.0	0.0	0.0
17 MAITRIVANAM (City-IV) 8MVAX2	1 Sarathi Studio	80	4	66	16.5	0	0		4	66	16.5	11,970.8	0.0	11,970.8
	2 Srinivas Colony	30	2	10	5	0	0		2	10	5	680.2	0.0	680.2
	3 Mathrivanam	110	4	20	5	0	0		4	20	5	4,987.8	0.0	4,987.8
	4 Amberpet	180	6	38	6.33	3	125	42	9	163	18.111	15,507.6	51,011.7	66,519.3
	5 Anandbagh	100	2	10	5	0	0		2	10	5	2,267.2	0.0	2,267.2
	6 Aditya	50	0	0		0	0		0	0		0.0	0.0	0.0
18 MARREDPALLY 8MVAX2	1 AOC	10	0	0		0	0		0	0		0.0	0.0	0.0
	2 Mahindra Hills	130	5	21	4.2	1	14	14	6	35	5.8333	6,189.4	4,126.3	10,315.7
	3 Nehru Nagar	170	3	17	5.67	0	0		3	17	5.6667	6,552.2	0.0	6,552.2
	4 Military Hospital	20	2	9	4.5	0	0		2	9	4.5	408.1	0.0	408.1
	5 Rly. Colony	135	1	4	4	1	41	41	2	45	22.5	1,224.3	12,548.9	13,773.2
	6 R.K.Puram	85	3	11	3.67	0	0		3	11	3.6667	2,119.8	0.0	2,119.8

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Hours/No	No	Minute	Hours/No	No	Minute	Hours/No			
19 NIMS 8MVAX3	1 GVK Hotel	90	0	0		0	0		0	0		0.0	0.0	0.0
	2 Banjara Hills	70	4	75	18.8	1	410	410	5	485	97	11,902.7	65,068.3	76,971.0
	3 Panjagutta	80	1	25	25	2	162	81	3	187	62.333	4,534.4	29,382.8	33,917.1
	4 NIMS	75	4	75	18.8	0	0		4	75	18.75	12,752.9	0.0	12,752.9
	5 Tata Rao	65	1	27	27	2	173	87	3	200	66.667	3,978.9	25,494.5	29,473.4
	6 Sai baba temple	60	3	33	11	1	72	72	4	105	26.25	4,489.0	9,794.3	14,283.3
	7 Road No.5	80	3	16	5.33	2	614	307	5	630	126	2,902.0	111,364.3	114,266.3
	8 Erramanzil	90	1	5	5	1	1168	1168	2	1173	586.5	1,020.2	238,326.8	239,347.0
	9 Andhra Jyothi	250	11	71	6.45	3	537	179	14	608	43.429	40,242.6	304,370.0	344,612.6
	10 BhaskaraPalace											0.0	0.0	0.0
20 PATIGADDA 8MVAX3	1 Ranigunj	115	4	100	25	0	0		4	100	25	26,072.7	0.0	26,072.7
	2 Rasoolpura	130	2	15	7.5	0	0		2	15	7.5	4,421.0	0.0	4,421.0
	3 Budda Bhavan	14	1	6	6	0	0		1	6	6	190.4	0.0	190.4
	4 Zeera	190	8	56	7	1	150	150	9	206	22.889	24,122.9	64,614.9	88,737.7
	5 Minister Road	190	8	140	17.5	1	86	86	9	226	25.111	60,307.2	37,045.9	97,353.1
	6 Sangeevaiah park	20	1	5	5	0	0		1	5	5	226.7	0.0	226.7
21 R.P.NILAYAM (City-VI) 7.5MVA 8MVA	1 Alwal	110	6	100	16.7	0	0		6	100	16.667	24,939.1	0.0	24,939.1
	2 EME	80	8	80	10	0	0		8	80	10	14,510.0	0.0	14,510.0
	3 V.Puram	120	1	5	5	0	0		1	5	5	1,360.3	0.0	1,360.3
	4 R.P.Nilayam	5	0	0		0	0		0	0		0.0	0.0	0.0
22 SRINAGAR COLONY 8MVAX2	1 Udyog Nagar	80	3	15	5	1	20	20	4	35	8.75	2,720.6	3,627.5	6,348.1
	2 Kamlapuri colony	120	6	30	5	2	95	48	8	125	15.625	8,161.9	25,845.9	34,007.8
	3 Srinagar colony	180	5	25	5	0	0		5	25	5	10,202.3	0.0	10,202.3
	4 Yella reddy guda	170	4	20	5	0	0		4	20	5	7,708.4	0.0	7,708.4
	5 Satya sai nigam	150	6	40	6.67	0	0		6	40	6.6667	13,603.1	0.0	13,603.1
	6 Nagarjuna Nagar	140	0	0		0	0		0	0		0.0	0.0	0.0

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
23 YOUSUF GUDA 8MVAX2	1 Borabonda	85	3	25	8.33	0	0		3	25	8.3333	4,817.8	0.0	4,817.8
	2 Vinayak Nagar	110	8	62	7.75	3	390	130	11	452	41.091	15,462.2	97,262.4	112,724.6
	3 Police Lines	150	10	75	7.5	3	202	67	13	277	21.308	25,505.9	68,695.8	94,201.7
	4 Gayatri Hills	35	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
	5 IOA	5	3	19	6.33	0	0	0	3	19	6.3333	215.4	0.0	215.4
	6 MLA colony	5	1	15	15	0	0	0	1	15	15	170.0	0.0	170.0
24 LALAGUDA (City-V) SMVAX3	1 A.P.Dairy	40	2	32	16	0	0		2	32	16	2,902.0	0.0	2,902.0
	2 Shanti Nagar	180	10	91	9.1	0	0		10	91	9.1	37,136.5	0.0	37,136.5
	3 Lalapet	50	2	9	4.5	0	0		2	9	4.5	1,020.2	0.0	1,020.2
	4 Tarnaka	100	1	20	20	0	0		1	20	20	4,534.4	0.0	4,534.4
	5 Vijayapuri	170	21	227	10.8	3	296	99	24	523	21.792	87,490.8	114,084.9	201,575.7
25 OSMANIA UNIVERSITY SMVA,7.5MV A	1 Osmania University	55	2	9	4.5	0	0		2	9	4.5	1,122.3	0.0	1,122.3
	2 Boudhanagar	140	7	116	16.6	0	0		7	116	16.571	36,819.1	0.0	36,819.1
	3 RTC Hospita;	125	1	5	5	2	135	68	3	140	46.667	1,417.0	38,258.8	39,675.8
	4 Ravindra Nagar	50	1	10	10	0	0		1	10	10	1,133.6	0.0	1,133.6
26 PRAGA TOOLS (City- V) 8MVAX2	1 Indoswing	120	3	30	10	0	0		3	30	10	8,161.9	0.0	8,161.9
	2 T.C Balnagar	160	5	95	19	3	172	57	8	267	33.375	34,461.3	62,393.0	96,854.3
	3 Asbestos Hills	50	3	22	7.33	0	0		3	22	7.3333	2,493.9	0.0	2,493.9
	4 Nagarjuna signode	130	6	55	9.17	3	140	47	9	195	21.667	16,210.4	41,262.8	57,473.2

Hyderabad North

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No			
27 ROAD NO :12 8MVAX2	1 CRPF	190	6	33	5.5	2	460	230	8	493	61.625	14,215.3	198,152.2	212,367.5
	2 C.Palace	55	8	57	7.13	2	464	232	10	521	52.1	7,107.6	57,858.6	64,966.3
	3 M.Quarters	10	3	30	10	0	0		3	30	10	680.2	0.0	680.2
	4 I.T.Colony	10	1	1	1	0	0		1	1	1	22.7	0.0	22.7
	5 Road No.12	125	8	50	6.25	3	371	124	11	421	38.273	14,169.9	105,140.8	119,310.8
	6 Road No.10	180	6	41	6.83	6	351	59	12	392	32.667	16,731.8	143,240.9	159,972.8
28 SEETHA PALMANDI 8MVA,5MVA	1 Gandhi Statue	80	3	13	4.33	0	0		3	13	4.3333	2,357.9	0.0	2,357.9
	2 Namalagundu	130	6	45	7.5	0	0		6	45	7.5	13,263.0	0.0	13,263.0
	3 Warasiguda	70	1	3	3	0	0		1	3	3	476.1	0.0	476.1
	4 Medibavi	155	2	9	4.5	0	0		2	9	4.5	3,162.7	0.0	3,162.7
	5 Seethapahlmandi	80	1	3	3	0	0		1	3	3	544.1	0.0	544.1
29 132/33/11KV GUNROCK 8MVAX2	1 M.Hospital	160										0.0	0.0	0.0
	2 MDF	160	21	106	5.05	3	134	45	24	240	10	38,451.5	48,608.5	87,060.0
	3 GPH	130	2	8	4	1	13	13	3	21	7	2,357.9	3,831.5	6,189.4
	4 Medchal	140	13	72	5.54	1	33	33	14	105	7.5	22,853.3	10,474.4	33,327.7
	5 Bowenpally	130	5	42	8.4	0	0		5	42	8.4	12,378.8	0.0	12,378.8
	6 Gymkhana	120	2	14	7	0	0		2	14	7	3,808.9	0.0	3,808.9
	7 AWHO	20	5	54	10.8	1	25	25	6	79	13.167	2,448.6	1,133.6	3,582.2
	8 SPH US Cable											0.0	0.0	0.0
30 132/33/11KV JUBLEE HILLS 8MVAX2	1 IOA	80	7	7	1	0	0		7	7	1	1,269.6	0.0	1,269.6
	2 MLA Colony	15	0	0	0	0	0		0	0	0	0.0	0.0	0.0
	3 Jubli hills	80	4	5	1.25	0	0		4	5	1.25	906.9	0.0	906.9
	4 PEI (OH)	20	0	0	0	0	0		0	0	0	0.0	0.0	0.0
	5 PEI (UG)	5	0	0	0	0	0		0	0	0	0.0	0.0	0.0
	6 Film nagar	15	0	0	0	0	0		0	0	0	0.0	0.0	0.0
	7 AOU	20	5	5	1	0	0		5	5	1	226.7	0.0	226.7
	8 Prasasan Nagar	20	1	1	1	0	0		1	1	1	45.3	0.0	45.3

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
1 A C GUARDS 8MVAX2, 5MVA	1 Mahaveer Hospital	115	3	51	17	1	24	24	4	75	18.75	13,297.1	6,257.4	19,554.5
	2 Bazar ghat	155	5	41	8.2	0	0	0	5	41	8.2	14,408.0	0.0	14,408.0
	3 Shanthi Nagar	120	1	16	16	2	85	43	3	101	33.667	4,353.0	23,125.3	27,478.3
	4 N.M.D.C	80	2	53	26.5	0	0	0	2	53	26.5	9,612.9	0.0	9,612.9
	5 Mahaveer Hospital cable	135	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
	6 Mahaveer											0.0	0.0	0.0
	7 Niloper Hospital											0.0	0.0	0.0
	8 Niloufer	70	7	55	7.86	3	262	87	10	317	31.7	8,728.7	41,580.2	50,308.9
2 AMBERPET (City-II) 8MVAX2	1 CPL feeder	35	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
	2 Patel Nagar	145	12	82	6.83	0	0	0	12	82	6.8333	26,956.9	0.0	26,956.9
	3 Amberpet Feeder	145	8	72	9	3	154	51	11	226	20.545	23,669.4	50,626.3	74,295.8
	4 Zinda thilasmal	145	1	5	5	0	0	0	1	5	5	1,643.7	0.0	1,643.7
	5 Tilaknagar	65	6	70	11.7	0	0	0	6	70	11.667	10,315.7	0.0	10,315.7
	6 Golnaka	75	1	5	5	0	0	0	1	5	5	850.2	0.0	850.2
3 ASIF NAGAR 8MVAX3, 5MVA	1 Gudimalkapur	210	16	174	10.9	0	0	0	16	174	10.875	82,843.0	0.0	82,843.0
	2 Jyothi Nagar	110	2	5	2.5	0	0	0	2	5	2.5	1,247.0	0.0	1,247.0
	3 Padmanabha Nagar	60	3	27	9	0	0	0	3	27	9	3,672.8	0.0	3,672.8
	4 Alapatnagar	120	1	7	7	0	0	0	1	7	7	1,904.4	0.0	1,904.4
	5 Mehdiptnam	180	2	53	26.5	0	0	0	2	53	26.5	21,629.0	0.0	21,629.0
	6 Military	30	21	164	7.81	0	0	0	21	164	7.8095	11,154.6	0.0	11,154.6
	7 JCO Quarters	10	1	70	70	1	105	105	2	175	87.5	1,587.0	2,380.5	3,967.6
	8 Hakimpet	120	11	97	8.82	0	0	0	11	97	8.8182	26,390.1	0.0	26,390.1
	9 Water works	10	1	125	125	0	0	0	1	125	125	2,834.0	0.0	2,834.0
	10 Kakatiyanagar	110	4	40	10	0	0	0	4	40	10	9,975.6	0.0	9,975.6

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Minute/No	No	Minute	Minute/No	No	Minute	Minute/No			
4 HYDERGUDA A (City-I) 8MVAX2	1 King kothi	160	5	65	13	0	0	0	5	65	13	23,578.8	0.0	23,578.8
	2 Hyderguda	185	1	10	10	1	60	60	2	70	35	4,194.3	25,165.8	29,360.1
	3 Hi May/03/03ath Nagar	140	4	40	10	1	30	30	5	70	14	12,696.3	9,522.2	22,218.4
	4 Boggukunta	160	3	23	7.67	1	50	50	4	73	18.25	8,343.3	18,137.5	26,480.8
	5 Abids	135	2	30	15	0	0	0	2	30	15	9,182.1	0.0	9,182.1
	6 MLA Quarters	20	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
5 HUSSAINSAGAR (City-I,VII) 5MVAX4, 7.5MVAX3	1 Mamthi Nagar	80	1	15	15	0	0	0	1	15	15	2,720.6	0.0	2,720.6
	2 BRK Bhavan	100	1	8	8	3	507	169	4	515	128.75	1813.8	114,946.4	116,760.2
	3 Lakdi-Ka-Pool	60	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	4 AG feeder	100	1	6	6	0	0	0	1	6	6	1,360.3	0.0	1,360.3
	5 Gunfoundry Key SS	90	1	6	6	0	0	0	1	6	6	1,224.3	0.0	1,224.3
	6 Nampally Key SS	100	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	7 Kharitabad	170	1	15	15	0	0	0	1	15	15	5,781.3	0.0	5,781.3
	8 J Block	60	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	9 MGV											0.0	0.0	0.0
	10 Anand Nagar	160	2	18	9	1	50	50	3	68	22.667	6,529.5	18,137.5	24,667.0
	11 Inst of Engineers	20	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	12 HACA	200	2	8	4	0	0	0	2	8	4	3,627.5	0.0	3,627.5
	13 Telephone Bhavan+Secretariat Press	110	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	14 RBI	90	1	3	3	0	0	0	1	3	3	612.1	0.0	612.1
	15 Secretariat	60	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	16 Adarsh Nagar	40	1	24	24	2	129	65	3	153	51	2,176.5	11,698.7	13,875.2
	17 Lumbini Park	30	3	41	13.7	0	0	0	3	41	13.667	2,788.6	0.0	2,788.6
	18 J.G.Mint	10	1	5	5	0	0	0	1	5	5	113.4	0.0	113.4
	19 Andhra Bank+ECR(Mint Compound)	60										0.0	0.0	0.0
	20 Tank Bund	130	2	14	7	0	0	0	2	14	7	4,126.3	0.0	4,126.3
	21 Basheer Bagh	140	12	41	3.42	1	101	101	13	142	10.923	13,013.7	32,058.0	45,071.7
	22 JIC	160	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	23 Multi purpose											0.0	0.0	0.0
	24 ECR											0.0	0.0	0.0
	25 Secretariat Press											0.0	0.0	0.0
	26 Multi purpose	130	5	26	5.2	0	0	0	5	26	5.2	7,663.1	0.0	7,663.1

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)	
			(1) Interruption			(2) Break down			(1) + (2)						
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No				
6	CHILKAL-GUDA 8MVAX2	1 Dandu pentaiah	75	4	29	7.25	1	32	32	5	61	12.2	4,931.1	5,441.3	10,372.4
		2 Pragatools	75	2	24	12	0	0	2	24	12	4,080.9	0.0	4,080.9	
		3 New Boiguda	90	2	27	13.5	1	13	13	3	40	13.333	5,509.3	2,652.6	8,161.9
		4 P.R.Nagar	85	7	58	8.29	0	0	7	58	8.2857	11,177.2	0.0	11,177.2	
		5 Parsigutta	110	1	4	4	0	0	1	4	4	997.6	0.0	997.6	
		6 Musheerabad	120	5	30	6	0	0	5	30	6	8,161.9	0.0	8,161.9	
		7 GolcondaX Road	150	1	7	7	0	0	1	7	7	2,380.5	0.0	2,380.5	
7	EXHIBITION GROUNDS 8MVAX3	1 Jawaharlal Nehru	175	5	116	23.2	0	0	5	116	23.2	46,023.9	0.0	46,023.9	
		2 Nampally Hospital	150	6	93	15.5	0	0	6	93	15.5	31,627.3	0.0	31,627.3	
		3 Collection Office	110	3	40	13.3	0	0	3	40	13.333	9,975.6	0.0	9,975.6	
		4 Exhibition Gandhi Bhavan										0.0	0.0	0.0	
		5 Seetharampet	140	8	123	15.4	0	0	8	123	15.375	39,041.0	0.0	39,041.0	
		6 Exhibition - Ajantha Gate	2	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
		7 Ware House	70	2	20	10	0	0	2	20	10	3,174.1	0.0	3,174.1	
		8 Exhibition										0.0	0.0	0.0	
8	GOLCONDA 8MVAX2	1 Golconda	100	7	45	0	0					10,202.3	0.0	0.0	
		2 Motimahahal	180	9	75	3	90					30,607.0	36,728.4	0.0	
		3 Adityanagar	100	8	60	2	60					13,603.1	13,603.1	0.0	
		4 Darga	70	9	155	2	150					24,599.0	23,805.5	0.0	
		5 Waterworks	5	3	20	1	55					226.7	623.5	0.0	
		6 Q.Q.Tombs	20	4	20	1	37					906.9	1,677.7	0.0	
		7 Colconda AB Cable	55									0.0	0.0	0.0	

Hyderabad Central

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)	
			(1) Interruption			(2) Break down			(1) + (2)						
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Min/No				
9	INDUSTRIAL AREA(City-II) 8MVAX3	1 Shankermutt	90	1	13	13	0	0	1	13	13	2,652.6	0.0	2,652.6	
		2 Ram Nagar	160	4	29	7.25	0	0	4	29	7.25	10,519.8	0.0	10,519.8	
		3 R.O.M	50	2	62	31	0	0	2	62	31	7,028.3	0.0	7,028.3	
		4 11 KV DDH	80	10	82	8.2	0	0	10	82	8.2	14,872.8	0.0	14,872.8	
		5 11 KV RTC X road	110	5	69	13.8	0	0	5	69	13.8	17,208.0	0.0	17,208.0	
		6 Azamabad	100	6	73	12.2	0	0	6	73	12.167	16,550.5	0.0	16,550.5	
		7 Barkatpura	180	7	59	8.43	0	0	7	59	8.4286	24,077.5	0.0	24,077.5	
		8 11 KV VST	80	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
		9 11 KV Azamabad Key SS	60	4	51	12.8	1	63	63	5	114	22.8	6,937.6	8,570.0	15,507.6
		10 11kv DDH UG										0.0	0.0	0.0	
10	NARAYAN-GUDA 8MVAX2	1 Lingampally	145	7	61	8.71	0	0	7	61	8.7143	20,053.3	0.0	20,053.3	
		2 Chikkadpally	55	2	20	10	0	0	2	20	10	2,493.9	0.0	2,493.9	
		3 Narayanaguda	85	5	55	11	1	45	45	6	100	16.667	10,599.1	8,672.0	19,271.1
		4 Preventive medicine	95	2	13	6.5	3	144	48	5	157	31.4	2,800.0	31,015.1	33,815.1
		5 Preventive medicine(UG)										0.0	0.0	0.0	
		6 Lingampally										0.0	0.0	0.0	
11	INDIRA PARK (City-I) 8MVAX3	1 Vivek Nagar	150	4	38	9.5	0	0	4	38	9.5	12,923.0	0.0	12,923.0	
		2 Gandhi Nagar		2	25	12.5	0	0	2	25	12.5	0.0	0.0	0.0	
		3 Bakaram->TallaBshi	60	1	9	9	0	0	1	9	9	1,224.3	0.0	1,224.3	
		4 Jawahar Nagar	50	1	2	2	0	0	1	2	2	226.7	0.0	226.7	
		5 Ashok Nagar	175	4	31	7.75	0	0	4	31	7.75	12,299.5	0.0	12,299.5	
		6 R.K.Mutt	120	2	20	10	1	60	60	3	80	26.667	5,441.3	16,323.8	21,765.0
		7 Lower Tank Bund	150	6	44	7.33	0	0	6	44	7.3333	14,963.4	0.0	14,963.4	
		8 Kawadiguda	150	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
		9 Indian Express	40									0.0	0.0	0.0	
		10 Vaartha										0.0	0.0	0.0	

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad Central

Substation Name	Name of Feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Minutes/No	No	Minute	Minutes/No	No	Minute	Minutes/No			
12 LAKE VIEW(City-I) 8MVAX2	1 Vidvut Soudha	60	0	0		0	0		0	0		0.0	0.0	0.0
	2 Dilkusha	105	5	29	5.8	1	49	49	6	78	13	6,903.6	11,664.7	18,568.3
	3 Raj Bhavan											0.0	0.0	0.0
	4 Lake View	25	0	0		0	0		0	0		0.0	0.0	0.0
	5 Medinova	140	2	17	8.5	0	0		2	17	8.5	5,395.9	0.0	5,395.9
	6 Eenadu	100	1	6	6	0	0		1	6	6	1,360.3	0.0	1,360.3
13 PUBLIC GARDEN (City-I) 8MVAX2	1 Parshiram Bhavan	160	1	5	5	1	45	45	2	50	25	1,813.8	16,323.8	18,137.5
	2 Nampally OH	180	2	10	5	0	0		2	10	5	4,080.9	0.0	4,080.9
	3 Ravindra Bharathi	120	1	5	5	0	0		1	5	5	1,360.3	0.0	1,360.3
	4 Assembly	10	0	0		0	0		0	0		0.0	0.0	0.0
	5 Nampally											0.0	0.0	0.0
	6 LB Stadium											0.0	0.0	0.0
14 S.D. HOSPITAL 8MVAX2	1 Police Mess	75	6	174	29	0	0		6	174	29	29,586.8	0.0	29,586.8
	2 Crsnet Hospital	85	9	209	23.2	0	0		9	209	23.222	40,276.6	0.0	40,276.6
	3 Hu May/03un Nagar	170	8	392	49	0	0		8	392	49	151,085.4	0.0	151,085.4
	4 Ahmednagar	140	9	205	22.8	0	0		9	205	22.778	65,068.3	0.0	65,068.3
	5 Chacha Nehru Nagar	55	4	40	10	0	0		4	40	10	4,987.8	0.0	4,987.8
	6 S.D.Hospital	10	2	61	30.5	0	0		2	61	30.5	1,383.0	0.0	1,383.0

Hyderabad South

Substation Name	Name of Feeder	Max Load(A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Minutes/No	No	Minute	Minutes/No	No	Minute	Minutes/No			
1 ASMANGADH (City-VIII) 8MVAX2	1 SAIBABA	140	1	2	2	0	0		1	2	2	634.8	0.0	634.8
	2 KODANDARAM NGR	130	5	17	3.4	1	52	52	6	69	11.5	5,010.5	15,326.2	20,336.7
	3 VIDYUTH NGR	55	3	8	2.67	0	0		3	8	2.6667	997.6	0.0	997.6
	4 SHANKESH BZR	120	3	7	2.33	0	0		3	7	2.3333	1,904.4	0.0	1,904.4
	5 ASMANGADH	140	1	2	2	0	0		1	2	2	634.8	0.0	634.8
	6 TV STATION	10	0	0		0	0		0	0		0.0	0.0	0.0
2 ATTAPUR (City-III) 8MVAX2	1 NM GUDA	140	16	127	7.94	0	0		16	127	7.9375	40,310.6	0.0	40,310.6
	2 DEVIGAUGH	150	7	39	5.57	0	0		7	39	5.5714	13,263.0	0.0	13,263.0
	3 BHADURPURA	200	14	95	6.79	0	0		14	95	6.7857	43,076.6	0.0	43,076.6
	4 KISHAN BAUGH	120	4	22	5.5	0	0		4	22	5.5	5,985.4	0.0	5,985.4
3 CHANCHALGU DA (City-VIII) 8MVAX3	1 CHANCHALGUDA	90	1	30	30	0	0		1	30	30	6,121.4	0.0	6,121.4
	2 ARAYA SAMAJ	150	6	43	7.17	2	75	38	8	118	14.75	14,623.4	25,505.9	40,129.2
	3 CHOWNI	180	9	65	7.22	0	0		9	65	7.2222	26,526.1	0.0	26,526.1
	4 MADANNAPET	90	3	20	6.67	1	72	72	4	92	23	4,080.9	14,691.4	18,772.3
	5 SAIDABAD	90	3	15	5	1	45	45	4	60	15	3,060.7	9,182.1	12,242.8
	6 GOVT. PRESS											0.0	0.0	0.0
4 ENT (City-IX) 8MVA 5MVA	1 TROOP BAZAR	55	1	5	5	0	0		1	5	5	623.5	0.0	623.5
	2 CENTRAL BANK OF INDIA	115	2	14	7	0	0		2	14	7	3,650.2	0.0	3,650.2
	3 RANGA MAHAL ROAD	45	0	0		0	0		0	0		0.0	0.0	0.0
	4 ENT HOSPITAL											0.0	0.0	0.0
	5 JAM BAGH	105	11	89	8.09	1	12	12	12	101	8.4167	21,186.9	2,856.7	24,043.5
	6 GURUDWARA	95	1	5	5	0	0		1	5	5	1,076.9	0.0	1,076.9

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No			
5 FALAKNUMA 8MVAX3	1 CRPF											0.0	0.0	0.0
	2 C'GUTTA	140	7	84	12	0	0	7	84	12	26,662.1	0.0	26,662.1	
	3 BARKAS										0.0	0.0	0.0	
	4 FALAKNAMA	80	4	50	12.5	0	0	4	50	12.5	9,068.8	0.0	9,068.8	
	5 J'METT	100	10	57	5.7	0	0	10	57	5.7	12,923.0	0.0	12,923.0	
	6 CHATRINAKA	180	6	28	4.67	0	0	6	28	4.6667	11,426.6	0.0	11,426.6	
6 KARWAN 8MVAX2	1 ZIAGUDA	160	7	79	11.3	3	147	49	10	226	22.6	28,657.3	53,324.3	81,981.5
	2 KARWAN	170	6	30	5	2	140	70	8	170	21.25	11,562.7	53,959.1	65,521.7
	3 TALLAGADDA	170	4	28	7	1	40	40	5	68	13.6	10,791.8	15,416.9	26,208.7
	4 LANGER HOUSE	140	4	35	8.75	3	177	59	7	212	30.286	11,109.2	56,180.9	67,290.1
7 KHILWATH (City-III) 8MVAX2	1 TELEPHONE EXCHANGE	80	4	21	5.25	0	0	4	21	5.25	3,808.9	0.0	3,808.9	
	2 KHILWATH	150	6	30	5	0	0	6	30	5	10,202.3	0.0	10,202.3	
	3 CHARMINAR	140	2	10	5	0	0	2	10	5	3,174.1	0.0	3,174.1	
	4 MOGHALPURA	200	6	30	5	0	0	6	30	5	13,603.1	0.0	13,603.1	
	5 LALDARWAZA	200	10	62	6.2	0	0	10	62	6.2	28,113.1	0.0	28,113.1	
	6 IQ BAL-UD-DOULA													
8 KANCHANBAG H 8MVAX2	1 OWASI HOSPITAL	20	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	2 VINAY NGR	70	2	10	5	0	0	2	10	5	1,587.0	0.0	1,587.0	
	3 IS SDAN	110	3	19	6.333	0	0	3	19	6.3333	4,738.4	0.0	4,738.4	
	4 DARGA	140	5	90	18	0	0	5	90	18	28,566.6	0.0	28,566.6	
	5 RAKSHAPURAM	55	3	19	6.33	0	0	3	19	6.3333	2,369.2	0.0	2,369.2	
	6 KANCHAN BAUGH	5	0	0	0	0	0	0	0	0	0.0	0.0	0.0	

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)
			(1) Interruption			(2) Break down			(1) + (2)					
			No	Minute	Min/No	No	Minute	Min/No	No	Minute	Minute/No			
9 MALAKPET 8MVAX3	1 DABERPURA	160	3	47	15.7	0	0	3	47	15.667	17,049.3	0.0	17,049.3	
	2 MALAKPET (EM)	150	1	65	65	0	0	1	65	65	22,105.1	0.0	22,105.1	
	3 AKBERBAUGH	130	3	85	28.3	0	0	3	85	28.333	25,052.4	0.0	25,052.4	
	4 AIR	10	1	107	107	1	2911	2	3018	1509	2,425.9	65,997.8	68,423.7	
	5 CHADERGHAT (EM)	170	7	100	14.3	0	0	7	100	14.286	38,542.2	0.0	38,542.2	
	6 AZAMPURA	180	9	224	24.9	0	0	9	224	24.889	91,413.0	0.0	91,413.0	
	7 MM HOSPITAL	10	1	3	3	0	0	1	3	3	68.0	0.0	68.0	
	8 KACHIGUDA	150	6	147	24.5	0	0	6	147	24.5	49,991.5	0.0	49,991.5	
10 MIRALAM (City-III) 8MVAX3	1 ZOOPARK	180	10	99	9.9	0	0	10	99	9.9	40,401.3	0.0	40,401.3	
	2 INDUSTRIAL	180	7	29	4.14	0	0	7	29	4.1429	11,834.7	0.0	11,834.7	
	3 TADBAN	170	15	109	7.27	0	0	15	109	7.2667	42,011.0	0.0	42,011.0	
	4 FATHE DARWAZA	140	4	23	5.75	0	0	4	23	5.75	7,300.3	0.0	7,300.3	
	5 SHAMSHER GUNJ	190	3	15	5	0	0	3	15	5	6,461.5	0.0	6,461.5	
	6 WATER WORKS (ETM) (M.F.B)	20	1	4	4	0	0	1	4	4	181.4	0.0	181.4	
	7 JAHNUMA (EM)	140	5	28	5.6	0	0	5	28	5.6	8,887.4	0.0	8,887.4	
11 MOOSARAMBA GH (City-VIII) 8MVAX2	1 SBI COLONY	30	1	5	5	0	0	1	5	5	340.1	0.0	340.1	
	2 SRIPURAM CLY	65	2	15	7.5	0	0	2	15	7.5	2,210.5	0.0	2,210.5	
	3 SALEEM NGR	70	2	10	5	0	0	2	10	5	1,587.0	0.0	1,587.0	
	4 SV NAGAR	70	5	25	5	4	385	96	9	410	45.556	3,967.6	61,100.7	65,068.3
	5 AB COLONY	130	0	0	0	0	0	0	0	0	0.0	0.0	0.0	
	6 DILSUKH NGR	65	0	0	0	0	0	0	0	0	0.0	0.0	0.0	

添付資料 4.3 停電データおよび供給支障電力量

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)		
			(1) Interruption			(2) Break down			(1) + (2)							
			No	Minute	Minutes/No	No	Minute	Minutes/No	No	Minute	Minutes/No					
12	OSMANIA HOSPITAL 8MVAX3	1	BEGUM BAZAR	140	0	0		0	0		0	0	0.0	0.0	0.0	
		2	PURANA PHOOL	130	3	14	4.67	0	0	3	14	4.6667	4,126.3	0.0	4,126.3	
		3	HIGH COURT	20	1	5	5	0	0	1	5	5	226.7	0.0	226.7	
		4	PUTHLI BOWLI	80	4	15	3.75	1	43	43	58	11.6	2,720.6	7,799.1	10,519.8	
		5	GOWLIGUDA	10	0	0		1	42	42	1	42	42	0.0	952.2	952.2
		6	OSMAN GUNJ	130	2	5	2.5	0	0	2	5	2.5	1,473.7	0.0	1,473.7	
		7	OSMANIA HOSPITAL	10	1	2	2	0	0	1	2	2	45.3	0.0	45.3	
		8	GOWLIGUDA TEL EXCHA		7	33	4.71	1	25	25	8	58	7.25	0.0	0.0	0.0
13	SALARJUNG 8MVAX3	1	SALARJUNG	60	3	110	36.7	1	5	5	4	115	28.75	14,963.4	680.2	15,643.6
		2	MADINA	180	9	32	3.56	0	0	9	32	3.5556	13,059.0	0.0	13,059.0	
		3	HUSSAINILALAM	130	4	27	6.75	0	0	4	27	6.75	7,957.8	0.0	7,957.8	
		4	PATHARGATTI	180	1	10	10	0	0	1	10	10	4,080.9	0.0	4,080.9	
		5	YAKUTPURA	190	8	83	10.4	0	0	8	83	10.375	35,753.6	0.0	35,753.6	
		6	PURANIHAVELI	200	9	65	7.22	0	0	9	65	7.2222	29,473.4	0.0	29,473.4	
		7	DARULSHAFI	100	0	0		0	0	0	0		0.0	0.0	0.0	
14	SANTOSH NAGAR 8MVAX3	1	SANTOSH NAGAR	50	0	0		0	0	0	0		0.0	0.0	0.0	
		2	REIN BAZAR	140	1	10	10	0	0	1	10	10	3,174.1	0.0	3,174.1	
		3	DRYLAND	90	3	40	13.3	0	0	3	40	13.333	8,161.9	0.0	8,161.9	
		4	BHAVANI NAGAR	170	6	53	8.83	0	0	6	53	8.8333	20,427.4	0.0	20,427.4	
		5	EDI BAZAR	210	14	135	9.64	0	0	14	135	9.6429	64,274.8	0.0	64,274.8	
		6	RIVASATH NAGAR	100	6	53	8.83	0	0	6	53	8.8333	12,016.1	0.0	12,016.1	
		7	MOINBAGH	110	8	110	13.8	0	0	8	110	13.75	27,433.0	0.0	27,433.0	

Hyderabad South

Substation Name	Name of Feeder	Max Load (A)	Fault(per month)									Interrupt Outage Energy (kWh)	B.D. Outage Energy (kWh)	Int.+B.D. Outage Energy (kWh)		
			(1) Interruption			(2) Break down			(1) + (2)							
			No	Minute	Minutes/No	No	Minute	Minutes/No	No	Minute	Minutes/No					
15	SEETARAMBA GH 8MVAX2,5MVA	1	SEETHARAMBAGH	90	4	14	3.5	0	0	4	14	3.5	2,856.7	0.0	2,856.7	
		2	DHOOLPET	160	4	50	12.5	1	53	53	5	103	20.6	18,137.5	19,225.8	37,363.3
		3	ASIFNAGAR	70	1	4	4	0	0	1	4	4	634.8	0.0	634.8	
		4	AGAPURA	70	4	58	14.5	0	0	4	58	14.5	9,204.8	0.0	9,204.8	
		5	ZINCHICHOWRAHA	140	11	76	6.91	0	0	11	76	6.9091	24,122.9	0.0	24,122.9	
		6	DATTATREYA	110	2	10	5	0	0	2	10	5	2,493.9	0.0	2,493.9	
16	SULTAN BAZAR 8MVAX2	1	SULTAN BAZAR	165	7	50	7.14	0	0	7	50	7.1429	18,704.3	0.0	18,704.3	
		2	KOTI FEEDER	185	2	10	5	0	0	2	10	5	4,194.3	0.0	4,194.3	
		3	KENDRIYA SADAN	140	1	8	8	0	0	1	8	8	2,539.3	0.0	2,539.3	
		4	TARAKARAMA	195	8	76	9.5	0	0	8	76	9.5	33,599.7	0.0	33,599.7	
		5	IMA UG													
17	CRPF (City-III) 7.5MVAX2	1	JAMAL BANDA	80	0	0		0	0	0	0		0.0	0.0	0.0	
		2	BARKAS	50	2	15	7.5	0	0	2	15	7.5	1,700.4	0.0	1,700.4	
		3	SALAL	130	6	30	5	0	0	6	30	5	8,842.0	0.0	8,842.0	
		4	CRPF BAZAR	36	3	36	12	0	0	3	36	12	2,938.3	0.0	2,938.3	
		5	BALAPUR	125	4	18	4.5	0	0	4	18	4.5	5,101.2	0.0	5,101.2	
		6	KESHAVAGIRI	145	7	45	6.43	1	35	35	8	80	10	14,793.4	11,506.0	26,299.4