
Metering, Billing & Collection



USAID | Iraq Economic Governance II Project

Presented To: Steering Committee Workshop

Date: 2005 Mar 1st

Contents



- Metering
 - Current Situation.
 - Way Forward.
 - Metering Accuracy Sample Survey Results.
 - Alternative Metering Systems.
 - Advantages of Prepayment Metering.
 - Potential Suppliers.
 - Decisions and Actions required.
- Billing & Collection
 - Current State of affairs.
 - Way forward.
 - Decisions and Actions required.



Metering



Metering

Current Situation

- A large proportion of the existing metering population is old – some dating back to 1966, and it is reported that it has fallen into disrepair.

Manufacturer	Type	Country	Period of use
Ferranti (Ceased manufacture 1994)	FNEA 34 Q	England	1966
Landis & Gyr	ML 3	Swiss / Philippines	1966 - 1980
Ganz (Schlumberger from 1990)	HNG 4	Hungary	1968
Grizik	ET 414 K	Czechoslovakia	1971
Diyala (Under license from L&G)	ML 230 XF3	Iraq	1975 - 2005
AEG (Actaris from 1995)	DHICZC 19 WI	Germany	1982
Siemens (No longer in metering)	7 CA 5461	Germany	1982
Holly	DT 862	China	1999
Hindi	EH-341	India	1999
Sewede (Electronics)	Unknown	Egypt	2004

- Normal (UK) established procedures require meters to be removed from site, refurbished and recalibrated at the end of 15 years, before being reinstalled. This process does not take place in Iraq.



Metering



Current Situation – continued.

- According to estimates from 2001, approximately 2.6 million out of 3 million households have electricity supply.
- In some districts up to 35% of meters are reported to be faulty, missing or compromised - a great many meters may be providing inaccurate information.
- Meters in Iraq are currently electromechanical (EM) – no tariff flexibility, no Automatic Meter Reading (AMR) potential.
- There is no Asset Management System.
- There is no Work Flow Management System.



Way Forward

- Recommendations
 - Carry out a sample survey of metering accuracy – Completed for 3 phase metering - results good.



Metering Accuracy Test Results – 3φ Meters.

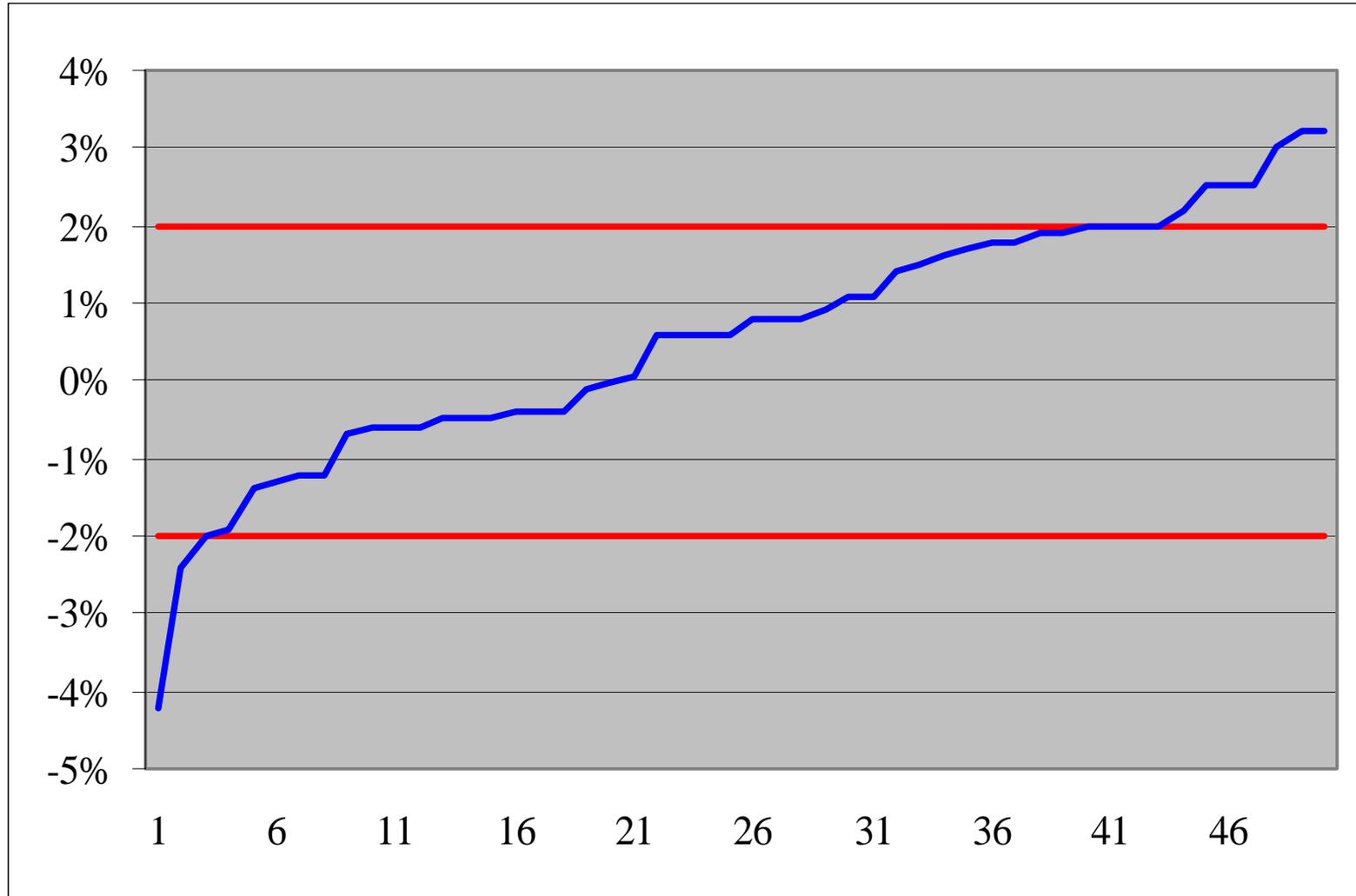


Meter Serial Number	Type	Year of Manufacture	Capacity (A)	Error Percentage
19014	Ferranti	1971	3*20	-4.20%
41697645	Landis & Gyr	1975	3*10	-2.40%
1495006	Diyala	1975	3*20	-2%
41693855	Landis & Gyr	1975	3*10	-1.90%
6001515	China	2000	3*20	-1.40%
40540	Diyala	1981	3*20	-1.30%
6024743	China	2000	3*20	-1.20%
453248	China	2000	3*20	-1.20%
140704	China	2000	3*20	-0.70%
1509442	Diyala	1978	3*20	-0.60%
6016549	China	2000	3*20	-0.60%
32289	China	2000	3*20	-0.60%
41692561	Landis & Gyr	1975	3*10	-0.50%
6011180	China	2000	3*20	-0.50%
6023768	China	2000	3*20	-0.50%
1162651	Krizak	1972	3*15	-0.40%
155999	Diyala	1978	3*20	-0.40%
6024000	China	2000	3*20	-0.40%
229262	Diyala	1975	3*20	-0.10%
41697909	Landis & Gyr	1975	3*10	-0.03%
6026850	China	2000	3*20	0.06%
43238809	Landis & Gyr	1975	3*10	0.60%
235103	Diyala	1975	3*20	0.60%
438662	Hindi	1999	3*20	0.60%
6003922	China	2000	3*20	0.60%

Meter Serial Number	Type	Year of Manufacture	Capacity (A)	Error Percentage
438689	Hindi	1999	3*20	0.80%
6016021	China	2000	3*20	0.80%
6027554	China	2000	3*20	0.80%
20000868504	China	2000	3*30	0.90%
19057	Ferranti	1977	3*20	1.10%
6027666	China	2000	3*20	1.10%
1476397	Diyala	1979	3*20	1.40%
41695127	Landis & Gyr	1975	3*10	1.50%
3002105	China	2000	3*20	1.60%
439916	Hindi	1999	3*20	1.70%
41692634	Landis & Gyr	1975	3*10	1.80%
236791	Diyala	1980	3*20	1.80%
10978	Ferranti	1972	3*20	1.90%
284807	China	2000	3*20	1.90%
41697708	Landis & Gyr	1975	3*10	2%
72542	Diyala	1978	3*20	2%
6001141	China	2000	3*20	2%
282656	China	2000	3*20	2%
3003054	China	2000	3*20	2.20%
20235	Ferranti	1971	3*20	2.50%
6020491	China	2000	3*20	2.50%
6004365	China	2000	3*20	2.50%
939	Diyala	1976	3*20	3%
6026904	China	2000	3*20	3.20%
6023170	China	2000	3*20	3.20%



Metering Accuracy Test Results – 3φ Meters.



Way Forward

- Recommendations
 - Carry out a metering population survey to ascertain full & true picture of faulty, damaged or missing meters - the application to store this data is currently in the design phase.
 - Initially conduct the population survey as a pilot in one Distribution area - Resafa has been suggested by MOE.
 - BearingPoint will offer assistance and expertise in:
 - » Survey design.
 - » Computer application for baseline database.
 - » Possible contribution towards computer hardware.
 - » Interpretation of survey results.



Way Forward - continued

- Recommendations
 - Examine the alternative metering technologies which best suit Iraq for their current needs and future direction.
 - EM or Solid State (SS)
 - Use of prepayment.



Alternative Metering Systems

- Electro Mechanical (EM)
 - Cheaper.
 - Little tariff flexibility.
 - Easy to tamper.
 - Subject to some inaccuracy with age.
 - Require periodic refurbishment to minimize inaccuracy (increases lifetime costs).
- Solid State (SS)
 - Not cheaper
 - Inbuilt tariff flexibility.
 - Better tamper inhibition.
 - Maintain accuracy.
 - Maintenance free
 - Enable Automatic Meter Reading.
 - Available as prepayment



Advantages of Prepayment Metering

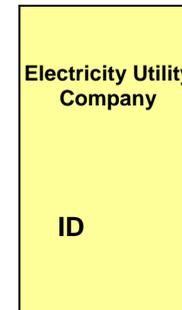
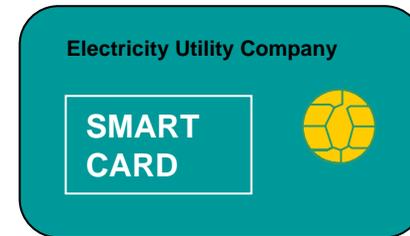
- Ensures revenue collection before usage.
- Requires no meter reading - periodic security checks.
- Enables and encourages customer budget management.
- Requires no cost for disconnections and reconnections.
- No delays in reconnection.
- Provides ability to collect back debts.
- Requires no customer deposits.



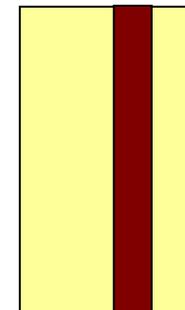
Metering

Different Systems Prepayment Metering

- Smart Card.
- Smart Key.
- Disposable Token.
- Tokenless



Front



Back

Table of Potential Solid State Meter Suppliers

Manufacturer	Location	SS Meters	PP Meters
Actaris metering system	Saudi Arabia	✓	✓
CONLOG (Schneider Electric)	South Africa	✗	✓
Henan Jinque Electric Co., Ltd	China	✓	✓
Polymeters Response International Ltd (PRI)	UK	✓	✓
Ampy Automation Ltd	UK / Egypt	✓	✓
Elgama-Elektronika Ltd	Lithuania	✓	✗
Elymer International Pvt. Ltd.	India	✓	✗
EMCO Ltd.	India	✓	✗
Genus Overseas Electronics Limited	India	✓	✗
Landis+Gyr AG	Switzerland / Singapore	✓	✗
Shenzhen Star Instrument Company Limited	China	✓	✓
Iskraemeco d.d.	Slovenia	✓	✓

✓ Available

✓ Available as Tokenless System



Decisions and Actions Required



Decisions & Actions Required

- Meter Population Survey staffing.
- Use EM or SS metering technology?
- Should Prepayment option be pursued (must be SS)?
- Select short list of Credit meter manufacturers to be included in tender process.
- Select similar short list for Prepayment meter manufacturers.
- Prepare and issue tender documentation.
- Select final manufacturers for Credit and Prepayment meters.
- Prepare installation plan & program.
- Update procedural documentation if required.
- Asset and Work Flow Management Systems.



Billing & Collection



Current Situation – Effects of Metering

- Non-technical losses, based on estimates for 2001, are 4 to 6 times the normal acceptable ranges for top utilities.
- Meter tampering, theft of power and meter corruption is not addressed in any systematic way.
- Bad and malfunctioning meters are numerous and need to be replaced in a defined program.
- New meter reading technology and methodologies should be investigated on an ongoing basis.



Current Situation – Meter Reading

- All current meter readings, if taken, are manual.
- Alternative meter reading methodologies or devices are currently not under evaluation.
- Corruption within the system exists but cannot be accurately quantified.
- Transportation is inadequate and in very poor condition.
- Meter reader route rotations are not done frequently enough and a supervisor route audit program does not exist.
- Meter reader productivity is low..



Current Situation – Billing System

- Billing is performed on a scheduled basis using four different data master files.
- The current four billing master files are inadequate to allow future growth in a Customer Service driven business environment.
- The account number is unique to the premises, not to the customer.
- The current locally designed billing system is not functionally rich or adequate for modern B&C processes.
- The current billing system does not support modern cash analytical tools, including basic aging of accounts receivable.
- The billing system is not the modern, fully functional customer information environment.



Billing & Collection



Current Situation – Revenue Collection

- Meter readers collect revenue – opportunity for fraud.
- Because accounts are linked to the premises not the consumer, past billings from one customer become the responsibility of the new owner or tenant.
- Delivery of invoices and field collection of payments are manual processes performed by meter readers.
- Mail delivery of bills is not feasible in the current poor postal service environment.
- Pre-War, some 200 cash centers across the county accepted and processed customer payments.
- Cash flow is affected by the practice of delivering domestic bills up to 4 months after the first consumption is used.
- Other payment incentive plans or options are not being evaluated.



Current Situation – Administration

- IT has deteriorated over the war and sanction period, from relatively modern mainframe architecture in the 1980s to rudimentary PC-based applications.
- Customer receivables are not aged so an accurate understanding of delinquent accounts is not readily available.
- Procedure documents are old and linked to form preparation not to the total process.
- There is no contract between the consumers and MoE.
- No systematic re-registration of customers has been done.
- Tariffs are extremely low and do not represent true costs.
- Auditing of billing transaction documents is not extensive enough.
- Formalized and systematic cash process auditing is not currently done.



Current Situation – Customer Service

- Modern pro-active customer service techniques are not employed.
- No specific customer focus program exists within ME.
- Customer billing and accounts receivable data provided to field offices for answering customer inquiries is not timely and is very basic.
- No pro-active public relations campaigns have been developed to remind customers of their responsibility to pay for energy consumed.



The Way Forward

- Executive decision to be made regarding arrears forgiveness.
- Provision of effective communication equipment.
- The implementation of new tariffs, as a measure to provide conservation incentives, and to provide appropriate funding for ME operations and maintenance.
- Four separate billing master files should be consolidated into one.
- Sample survey to ascertain billing file accuracy. (can be extracted from metering population survey).



The Way Forward - continued

- The cash offices need to be restored to pre war conditions and modernized as required.
- A new systematic revenue collection process is required, including real consequences for non-payment.
- A framework study to clearly establish the legal interfaces between ME and their consumers, including rights and responsibilities of both parties and adoption of a customer contract.
- A consumer re-registration project is required to address the problem of consumers who are connected to the distribution system but are not currently part of the billing master file.



Billing & Collection



The Way Forward - continued

- Implementation of a meter-reading route audit program, where meter reader corruption is prevented through route rotations and supervisor random route reviews.
- Introduce meter reader rotation after each billing period to reduce the potential for corrupt alliances with consumers.
- Introduction of an advanced CIS System.
- Replacement of old billing system



Decisions and Actions Required



Billing & Collection



Decisions & Actions Required

- Arrears collection or forgiveness.
- Improved Communications.
- New Tariffs.
- Master File Rationalization.
- Restoration of Cash Offices.
- Revenue Collection Process.
- Customer Contracts.
- Customer re-registration.
- Meter Reading Route Audits.
- Meter Reader Rotation.
- New CIS system
- New Billing system.

