



THE WORLD BANK
IBRD • IDA



ESMAP

Energy Sector Management
Assistance Program



UMEME
Powering Uganda

Digitization of Time of Use Customers – Prepayment Metering

Presenter:

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The Challenge..

- ❖ Unmanageable Electricity Bills - Government Installations
- ❖ No available Technology in the world
- ❖ Auto Disconnect & Reconnect for HT customers
- ❖ Incorporation of Maximum Demand & Reactive Energy in Prepayment mode

Journey to Solution

Requests

- Request for Information (RFI)
- RFI evaluation
- Solution Spec draw up
- Request for Proposal (RFP)
- RFP evaluation



Tests

- Pre – Factory Acceptance Test (FAT)
- FAT
- Production
- Installation & Commissioning
- Site Acceptance Test (SAT) & Go live
- User Acceptance Test
- Project Closure

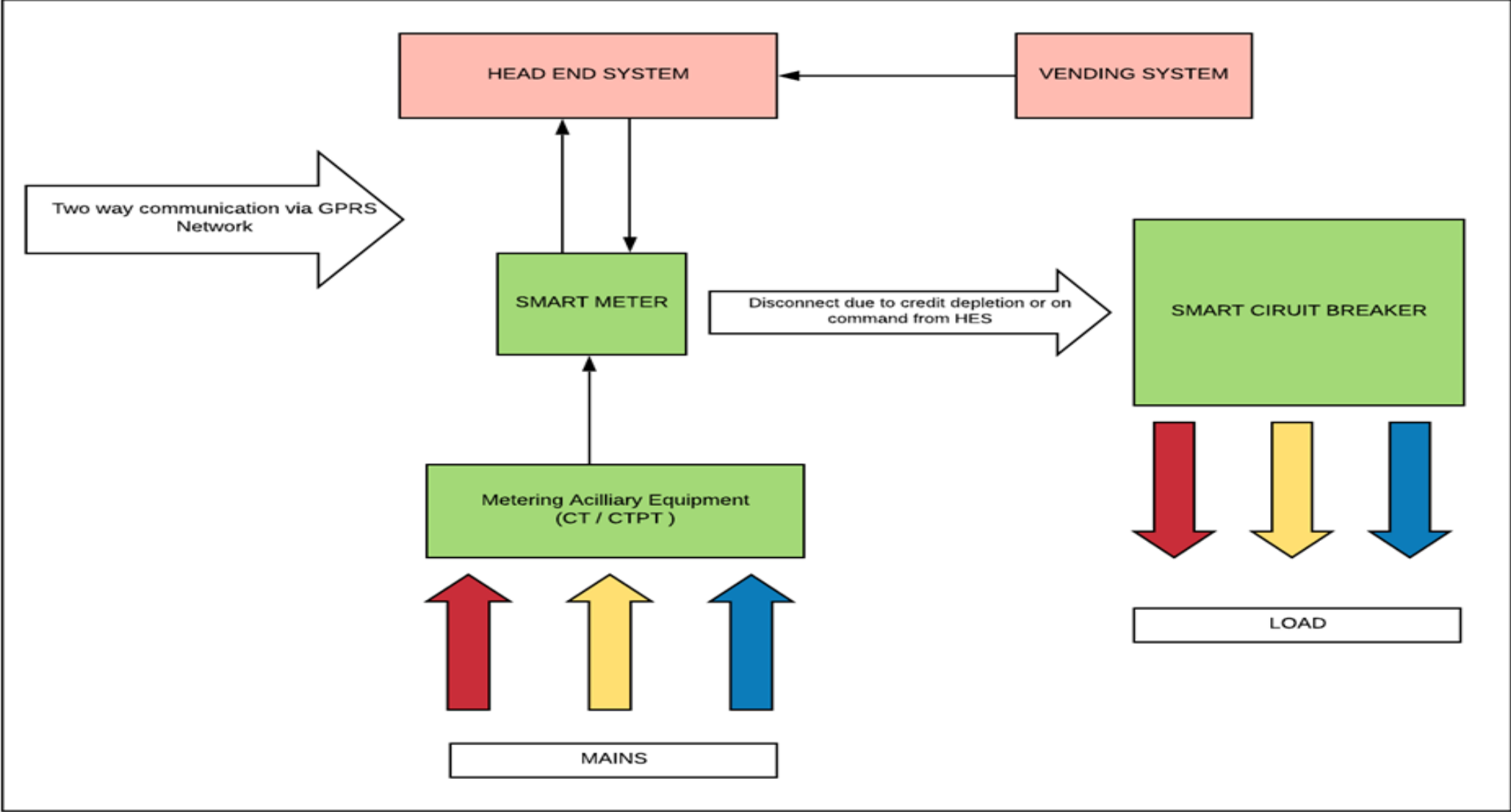


Technical Evaluation

- Solution Demo
- Contract Award
- Engineering Workshop
- Functional Design Specification



Conceptual Design



Solution Outlook



- Direct Connect Meter
- Up to 100 A
- Smart Breaker inbuilt in meter

Solution Outlook

- CT Operated Meter
- 800/400/200 : 5A
- Smart Breaker outside meter



(Disconnection/reconnection happens outside meter through circuit breaker)

Solution Outlook



**CTPT
Output**

**Breaker
Control**



11kV Ground mounted CB



11kV Overhead CB

- CTPT Solution
- Both 33kV & 11 kV
- Smart Breaker outside meter

Project Benefits

- Impact of electricity usage (energy optimization)
- Energy Usage monitoring – Instrumentation data (2-minute update)
- Optimization of Time of use Tariff – Energy Usage during off peak
- Load management – Disconnection of non-essential loads in security barracks
- Emergency Credit Facility – Essential facilities
- Power Usage audits
- Impact of debt management and electricity sales
- Impact on losses management because of real time visibility

Lessons Learnt

- ❖ Comprehensive Stakeholder Engagements –
Internal & External
- ❖ Need for Customer Cultural behavioral Change
- ❖ Need for internal culture transition from analogue to digital
based decision making