



DEMAND RESPONSE

OUR RESPONSE TO CRITICAL CHALLENGES

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COMPANY

Overview



- The Company develops, and manufactures smart grid solutions for electricity, water and gas utilities.
- The Company's Advanced Meter Infrastructure (AMI) portfolio includes a data management system housed at utilities data centres, smart meters and concentrators, intelligent consumer monitoring solutions, as well as load limitation devices.
- The Company also provides solutions for industrial users including sub-metering applications.
- The Company is certified worldwide by KEMA.
- The Company is supported by a strong design group based in Israel as well as subsidiaries in India, South Africa, and Hong Kong.

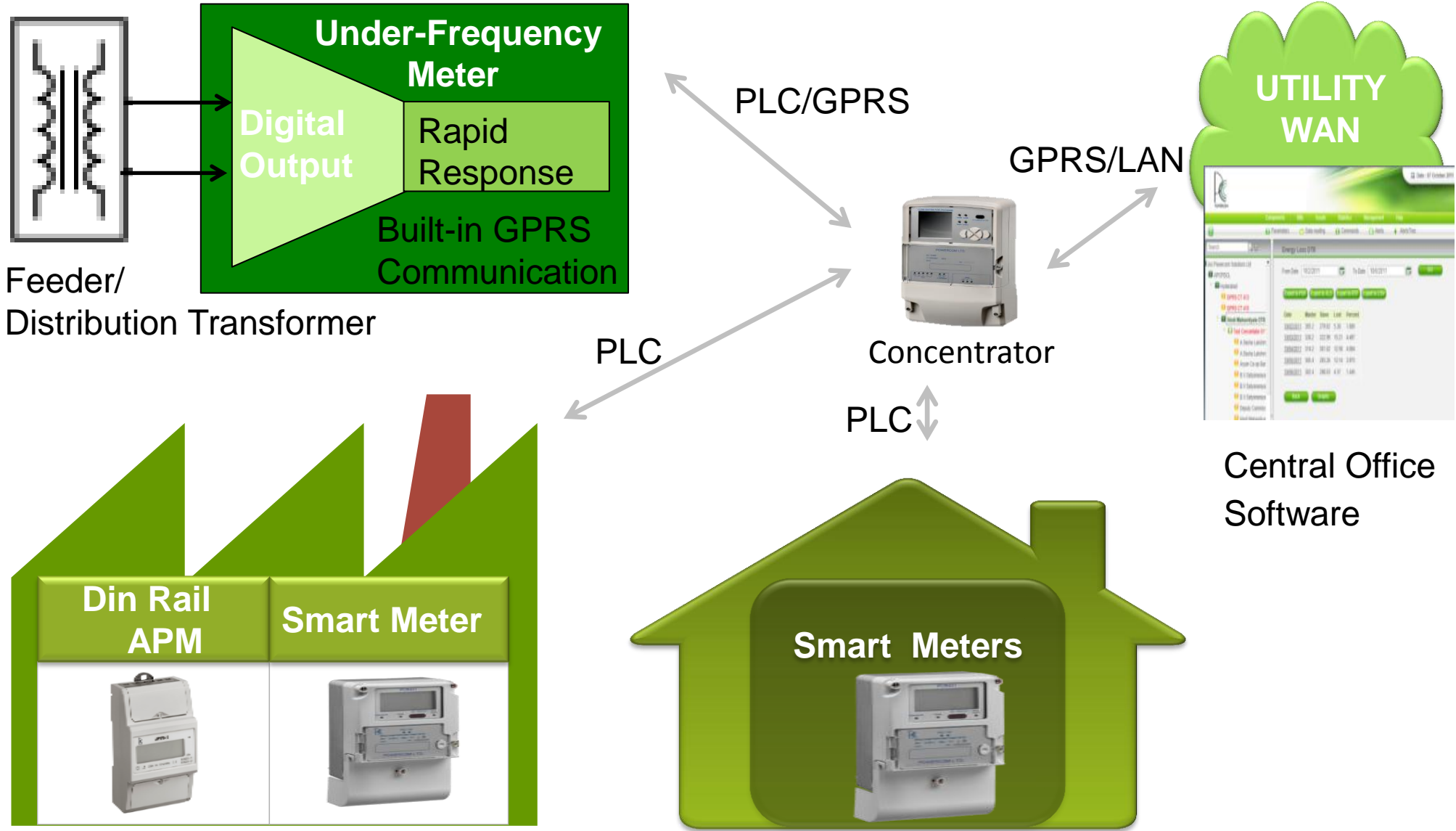


Key Elements

- **Under Frequency Load Management**
- **Demand Response Using Smart Meters**
- **Distribution Demand Automation**

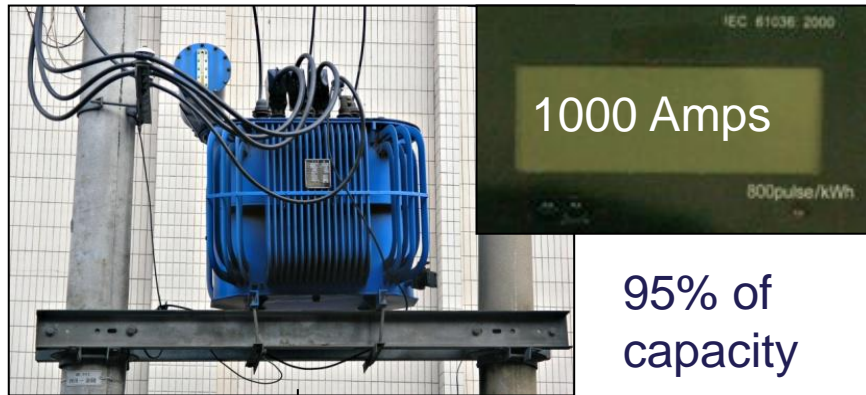
ENERGY SUPPLY PROTECTION

Overview

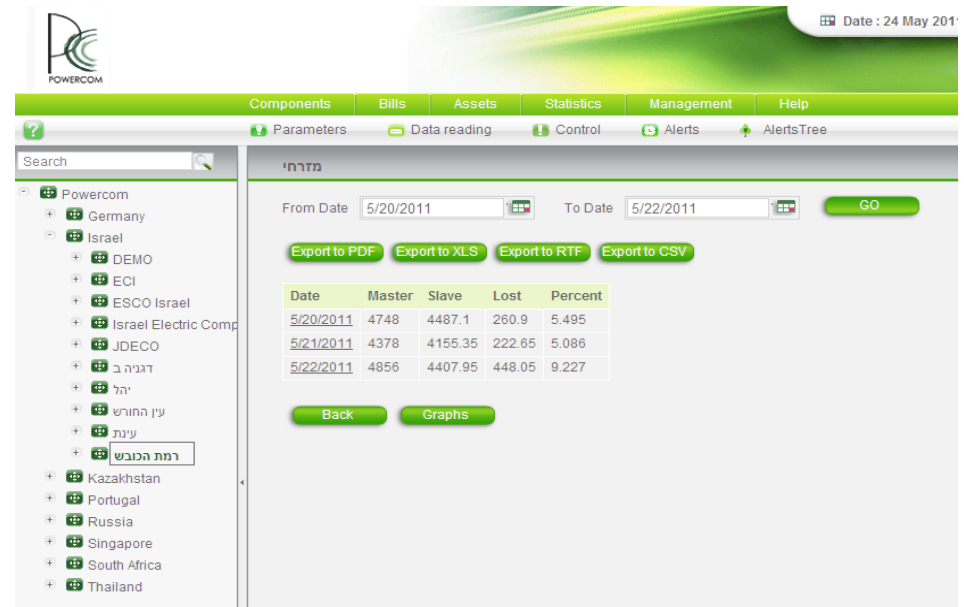


SYSTEM ELEMENTS

Overview



95% of capacity



Concentrator + CT



Unrestricted Demand

100 Amp 150 Amp 150 Amp 180 Amp 230 Amp 140 Amp

New Max. Demand

50 Amp 75 Amp 75 Amp 90 Amp 115 Amp 70 Amp

SYSTEM ELEMENTS

Under Frequency Meters

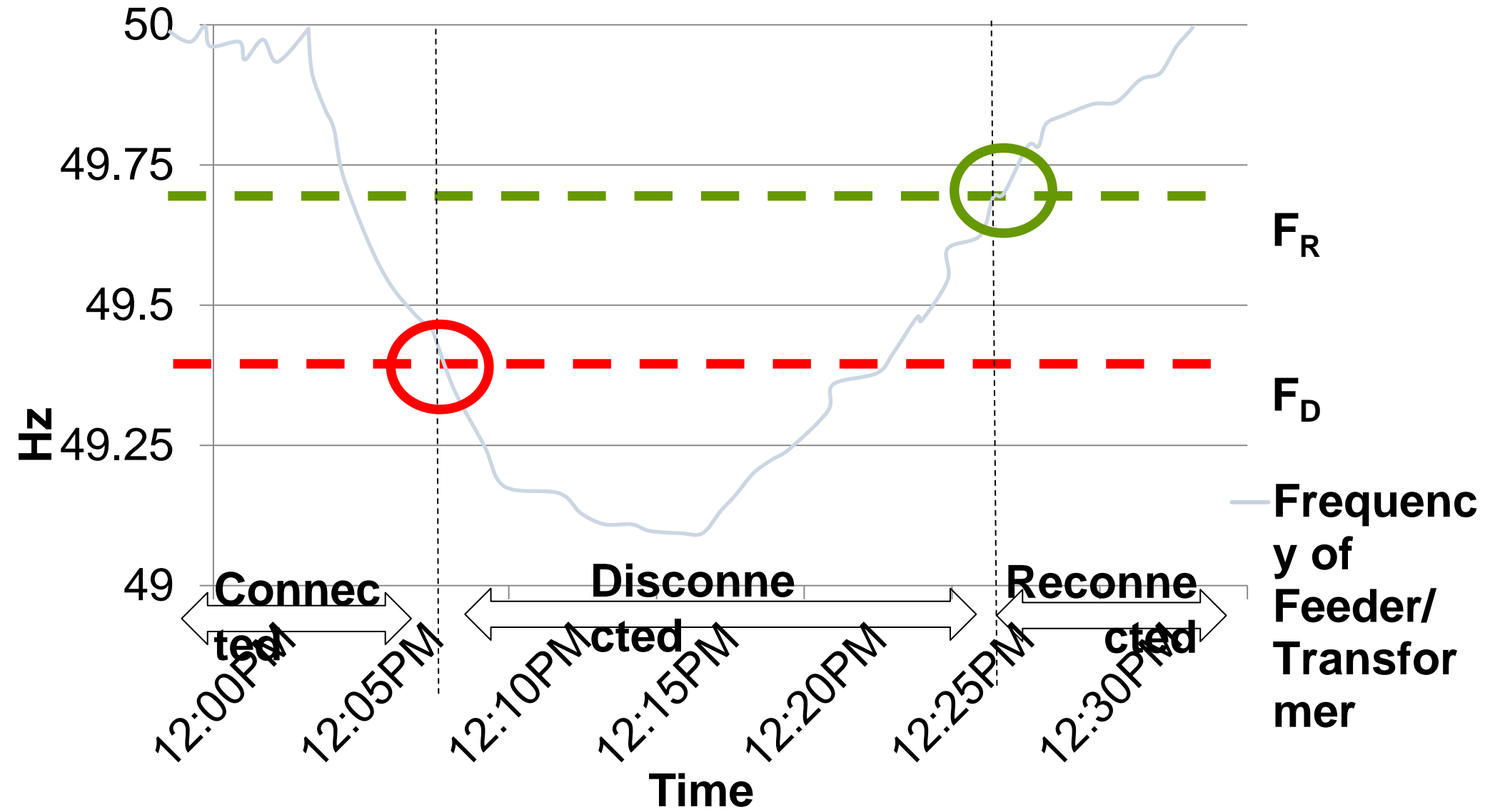


Overview

- Special circuitry installed within three phase/HT/MV meters.
- Installed on feeders, and distribution transformers.
- Continuously monitors frequencies and reacts with 70ms to frequency variations nearing full capacity by activating a digital output to connect or reconnect certain lines exceeding configurable value.
- Automatic reconnection after a configurable period if power consumption is within limits defined.
- Customizable limits on individual or groups of consumers.
- Remote activation via communications of critical condition limits by automation or manual operation.

SYSTEM ELEMENTS

Under Frequency Response



SYSTEM ELEMENTS

Load Control Element



- Installed in industrial and commercial customers where significant non-critical power usage justifies the cost.
- Relay to isolate and disconnect non-critical machinery remotely. The machinery/appliances themselves do not need any smart nodes built-in.
- Optional din-rail devices which communicate with the Meter to disconnect specific lines.

SYSTEM ELEMENTS

PowerCom Smart Meters

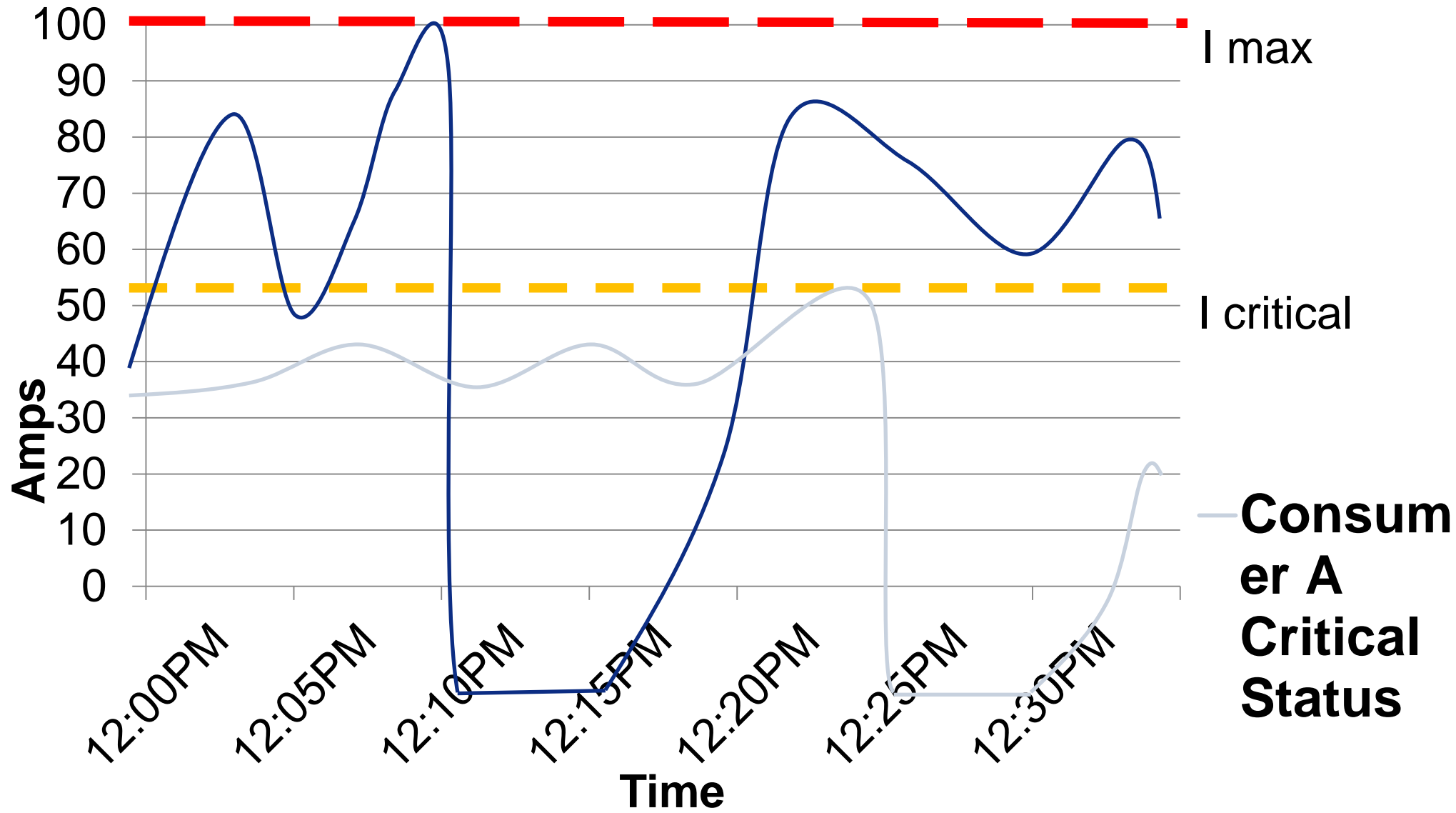


- **I max** - predefined setting protects the circuit breakers belonging to the utility. i.e. automatic disconnection above 100 amps.
- **I critical** – During critical status when transformer is supplying near maximum capacity, select customers are limited at varying power levels. i.e. automatic disconnection above 60 amps.

Certain category groups of customers may be defined as exempt from load limitations (frail/elderly and emergency services).

SYSTEM ELEMENTS

PowerCom Smart Meters



SYSTEM ELEMENTS

Load Limitation Settings



Components Bills Assets Statistics Management Help

Parameters Data reading Commands Electricity Alerts Water Alerts AlertsTree

Search

- 3rd House
 - Noida Power
 - PGCIL
 - GURGON
 - DCU 132**
 - A Block Light
 - A block Rav
 - B Block Light
 - B Block Rav
 - Transforme
 - Transforme
 - Transforme
 - TSECL
 - Tripura
 - Agartala
 - DCU 69
 - UHBVN-PANCHKULA
 - Panchkula

DCU EMeter

Reversing / Over load

Reversing Threshold (Kw) 0

Reversing Period (s) 0

Over Load Threshold (Kw) 0

Over Load Period (s) 0

Loss

Phase UL-U (V) 0

Phase UL-I (A) 0

Phase Period (s) 0

Relay Off Minutes 0

Load Profile Interval 0

Load Limit

Normal power Critical power Frequency Voltage

Load Limit Threshold (Kw) 0

Load Limit Period (s) 0

PF Limit Threshold (Kw) 0

PF Limit Period (s) 0

Normal

Power setting (KW) 0

Exceed time (min) 0

Disconnect time (min) 0

Critical

Power setting (KW) 0

Exceed time (min) 0

Disconnect time (min) 0

SYSTEM ELEMENTS

Load Limitation Settings



Parameters Energy Control Sub devices **Load limitation** Load Profile Lcd Display

Power - A Block Lighting

Read

<input type="radio"/> Get Loss Of Phase UL-U	<input type="radio"/> Get Loss Of Phase UL-I	<input type="radio"/> Get Loss Of Phase Sustain Period	<input type="radio"/> Get PF Limit Treshold
<input type="radio"/> Get Power Reversing Threshold	<input type="radio"/> Get Power Reversing Sustain Period	<input type="radio"/> Get Over Load Treshold	<input type="radio"/> Get PF Limit Sustain Period
<input type="radio"/> Get Over Load Sustain Period	<input type="radio"/> Get Load Limit Treshold	<input type="radio"/> Get Load Limit Sustain Period	<input type="radio"/> Get load limit mode
<input type="radio"/> Get power setting	<input type="radio"/> Get exceed time	<input type="radio"/> Get disconnect time	
<input type="radio"/> Get power setting critical	<input type="radio"/> Get exceed time critical	<input type="radio"/> Get disconnect time critical	

Write

<input type="radio"/> Set Loss Of Phase UL-U	<input type="radio"/> Set Loss Of Phase UL-I	<input type="radio"/> Set Loss Of Phase Sustain Period	<input type="radio"/> Set PF Limit Treshold
<input type="radio"/> Set Powe rReversing Threshold	<input type="radio"/> Set Power Reversing Sustain Period	<input type="radio"/> Set Over Load Treshold	<input type="radio"/> Set PF Limit Sustain Period
<input type="radio"/> Set Over Load Sustain Period	<input type="radio"/> Set Load Limit Treshold	<input type="radio"/> Set Load Limit Sustain Period	<input type="radio"/> Set load limit mode
<input type="radio"/> Set power setting	<input type="radio"/> Set exceed time	<input type="radio"/> Set disconnect time	
<input type="radio"/> Set power setting critical	<input type="radio"/> Set exceed time critical	<input type="radio"/> Set disconnect time critical	

LOAD MANAGEMENT

Benefits



Protect Assets

Avoid massive energy pulses by staggering load shedding frequencies.

Prevent transformer overload.
Protect dist. transformers.

Automation

Grouping of Customers.

User friendly software.

Peak shaving & load shifting.
Reduce infrastructure invest.

Customer Satisfaction

Modifiable frequency disconnection levels - same consumers not always the first affected.

Personalized pricing.

Real-Time

Two-way reliable and low-cost communications.

Modify configuration values remotely.