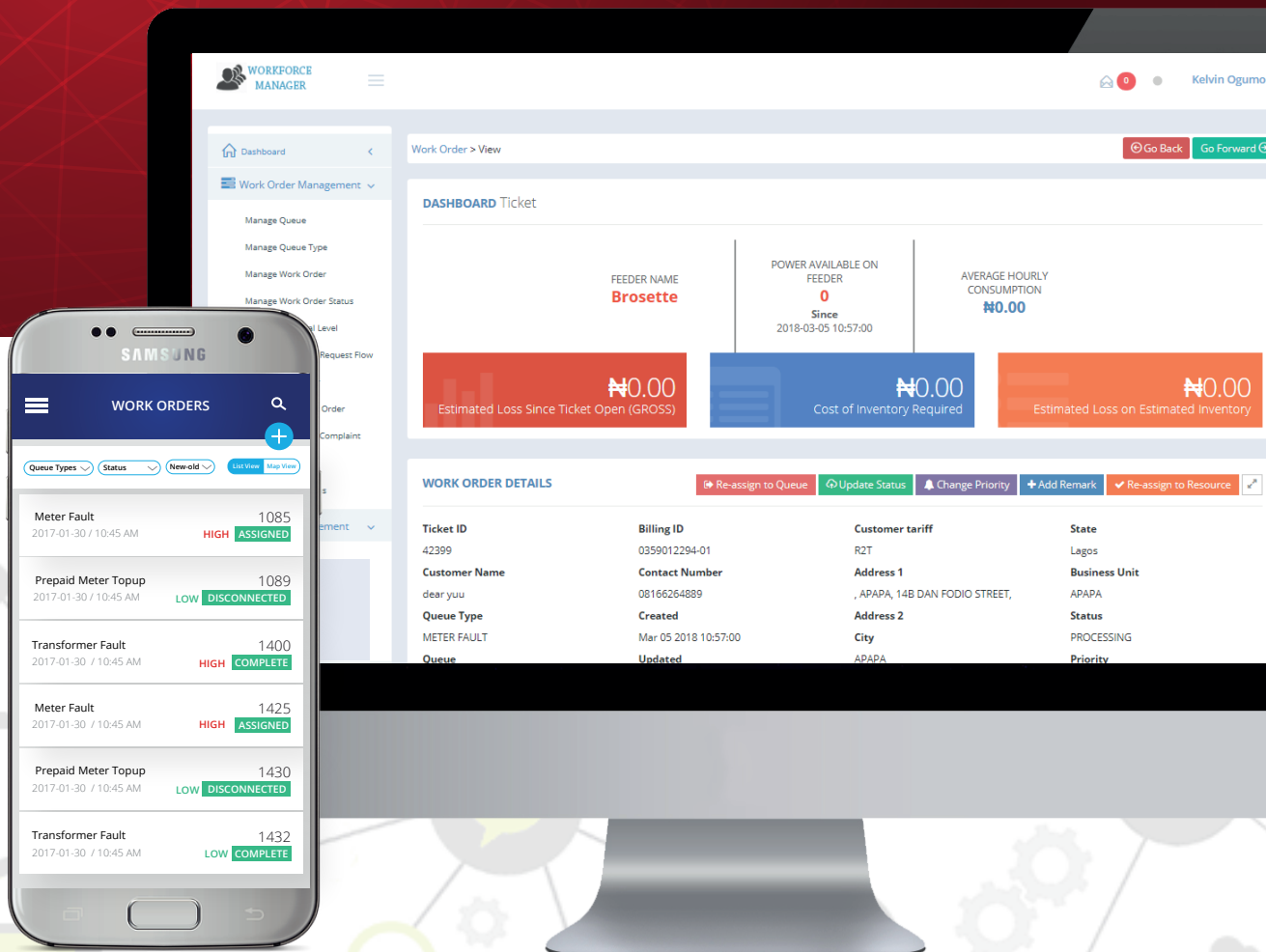


# Automate Preventive Maintenance and Fault Life Cycle Management

The key to maximizing return on investments  
on technical assets in the **Power Sector**



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# Overview

Poor maintenance of assets and delayed resolution of fault complaints brings about loss of revenue to the business, this impacts the business ability to be effective in service delivery.

Maintenance of assets maximizes asset availability and Utilization, It increases safety and enhances the delivery of power to the customer at an optimized cost.

Managing and maintaining assets must include an effective Preventive and Fault Lifecycle Management

## Preventive Maintenance

To provide maximum care for the electrical distribution equipment, the importance of preventive maintenance cannot be over emphasized. Regular diagnostic makes it possible to identify symptoms of an undetected malfunction or degradation in an installation before a fault or breakdown happens.

To carry out maintenance on any equipment, adequate historical data must be available about each equipment.

- **Preventive Maintenance plan/Schedule:** The plan/schedule for preventive maintenance on equipment will be set up on Energy Management Control Center. Based on the created schedule and approval of the schedule, work orders are initiated from the Energy Management Control Center into Workforce Manager.
- **Initiate work orders for any equipment:** Work orders can be raised manually from the Energy Management Control Center into Workflow Manager if maintenance for any equipment is required, the lifecycle will be managed from the Workflow Manager system.
- **Recommend equipment for preventive maintenance:** Based on fault history and revenue potentials on equipment, preventive maintenance can be recommended. The recommended equipment are archived for preventive maintenance. An approval of the recommendation will raise preventive maintenance work orders for the equipment.
- **Run report on the conditions of the equipment:** The report presents the fault history on equipment count of faults, type of fault and findings by patrolling team. Preventive maintenance can be recommended for an equipment based on the report.

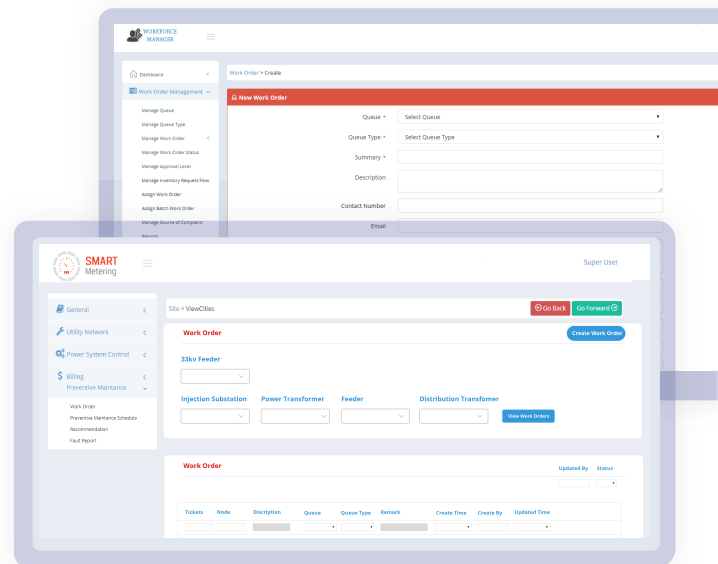
The screenshot shows the 'Preventive Maintenance Schedule' interface in the SMART Metering system. It features a sidebar with navigation options: General, Utility Network, Power System Control, Billing, Regions, and Preventive Maintenance. The main content area displays a table with columns for Tickets, Node, Start Date, End Date, Created By, Created On, Updated By, Updated On, Approved By, Approved On, and Status. The table lists four feeders (Feeder 1 to Feeder 4) with their respective maintenance schedules. Below the table, there are buttons for 'Go Back' and 'Go Forward'. The interface is designed for a 'Super User' and includes a 'Create' button at the top right.

The screenshot shows the 'Fault Report' interface in the SMART Metering system. It features a sidebar with navigation options: General, Utility Network, Power System Control, Billing, Regions, and Preventive Maintenance. The main content area displays a form for creating a fault report, with fields for '33kV Feeder', 'Injection Substation', 'Power Transformer', 'Feeder', and 'Distribution Transformer'. Below the form, there are buttons for 'Start Date' and 'End Date'. The interface also includes a summary section with three cards: 'Estimated Revenue Loss on Node' (₦270,120), 'Total Number of Earth Faults' (200), and 'Total Number of Over Currents' (300). At the bottom, there is a 'Report' section with a table showing fault details, including Node, Tripping Indicator, Fault Duration, No of Faults, Type of Fault, Last Fault date, and Resolved date. The interface is designed for a 'Super User' and includes a 'Go Back' and 'Go Forward' button at the top right.

## Multi Channel Reporting

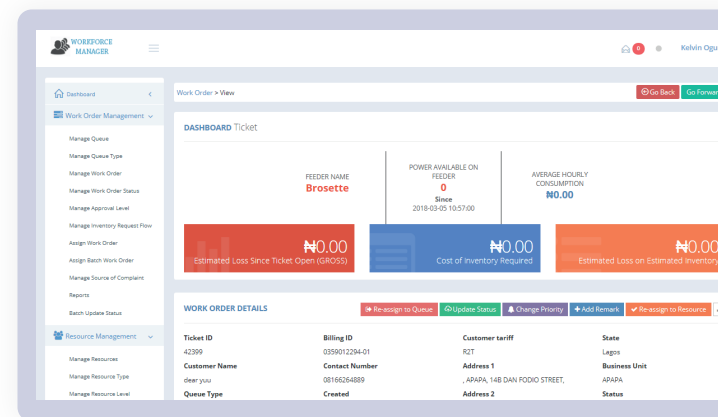
Fault reporting can be done from different channels, channels includes SMS, Self Care, Call Center and Workforce Manager.

After the fault has been reported a ticket is created on workforce manager which generates a unique ticket number for the fault. This ticket has information required to know the correct resources to be deployed.



## The Opportunity Cost

Where a fault has been reported and ticket created for it, that fault should be located and fixed on time. The business loses revenue each day the fault is not fixed. If the cost to fixed a fault is less than the daily expected revenue, it is of great importance that the fault is managed and fixed.

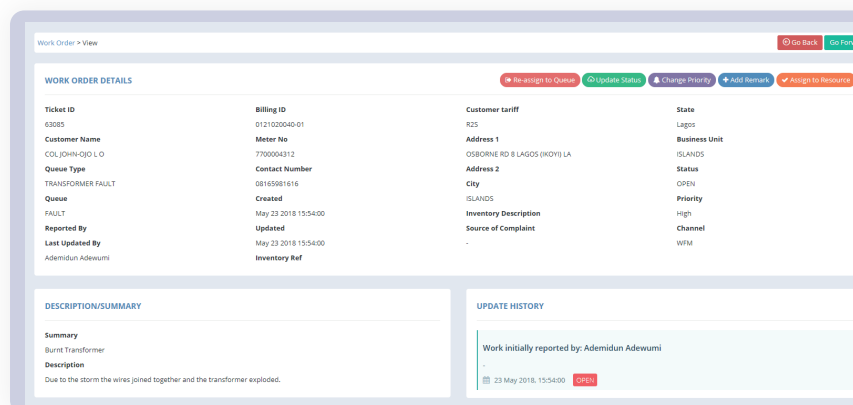


## SLA Management

With the right information the personnel knows the the qualified and available resources, the resource will be assigned the ticket.

## Fault Ticket Assignment and Tracking

Fault tickets raised via various channels into the workforce management system are assigned to an engineer for investigation. These tickets run a status life cycle from when it comes into the system in 'Open' status, to when the ticket is resolved in 'Closed status' which can be viewed by all with access rights to view fault complaints and monitored by the customer through the self-care application.



## Permit to Work

This permit is an approval that allows the Protection and Testing team to visit fault location and carry out technical evaluation on equipment to determine the magnitude of damage on the reported issue.

## Protection and Testing

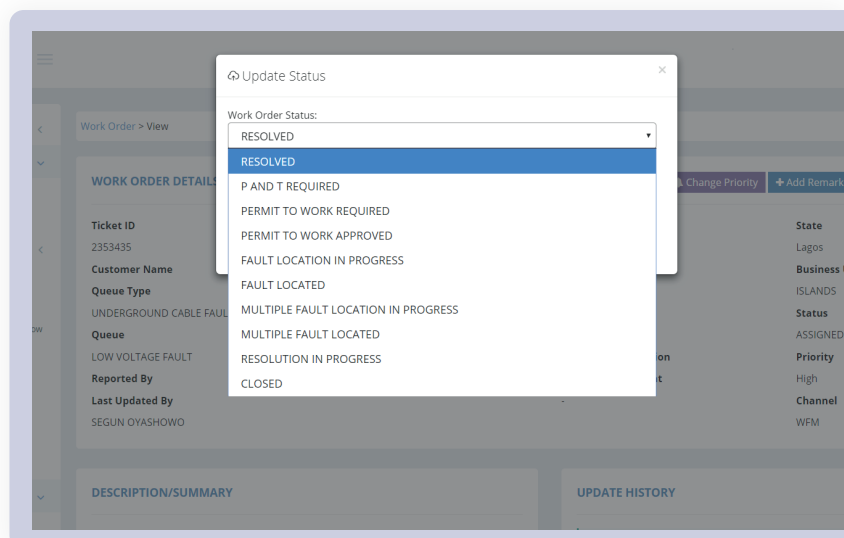
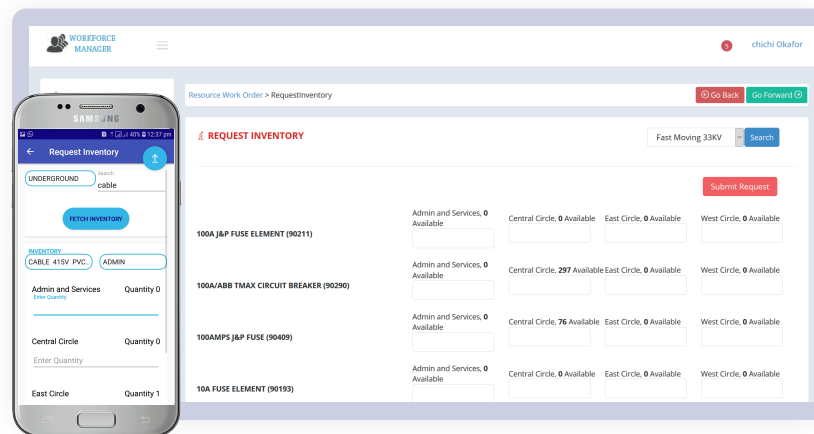
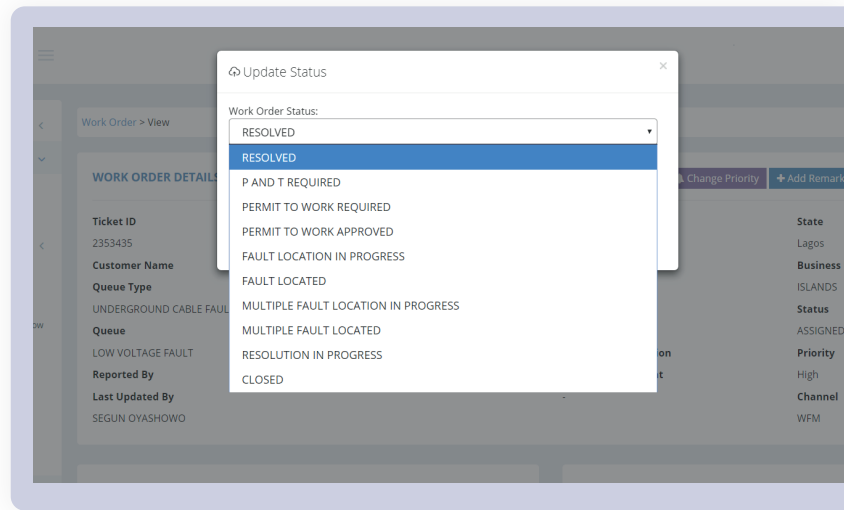
The fault is located and tested to diagnose the equipment on which complaint was raised and recommendations are made in line with the evaluation. These recommendations are viewed by the Operations and Maintenance department for resolution.

## Material Request and Pickup

The recommendations made by the Protection and Testing team are looked into by the Operations and maintenance engineers for repairs on equipment. The engineers give feedback by updating the status of the ticket raised on progress made.

## Fault Resolution

The recommendations made by the Protection and Testing team are looked into by the Operations and maintenance engineers for repairs on equipment. The engineers give feedback by updating the status of the ticket raised on progress made.



### ABOUT US

Crown Interactive is a software company dedicated to the provision of innovative business support systems to customer centric organizations.

As a world class indigenous software company our technology road map for the power sector is influenced by the regulatory requirements of NERC and the unique challenges of the Nigerian Electricity Supply Industry (NESI).

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