

Personal Profile

Name	Monicah Wairimu Karanja
Date of Birth	30/09/1982
Name of Firm	Kenya Electricity Generating Company PLC (KenGen)
Profession	Electrical Engineer
Position in Firm	Chief Engineer & Technical Assistant to Operations Director
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Objective: To exploit my multiple skills and experience in electricity power generation, maintenance of power generating equipment, and the acquired knowledge in project planning and management to make a significant difference in the engineering field.

Membership in Professional Associations

- Member of Engineers Board of Kenya (EBK) - A3394
- Member of Institute of Engineers of Kenya (IEK) - M5028

Education

- Certified Productivity Coach, The Coaching Hub, 2019
- Masters of Arts Degree in Project Planning and Management, University of Nairobi 2012.
- Bachelor of Science in Electrical and Electronics Engineering (2nd class honours), Jomo Kenyatta University of Agriculture and Technology (JKUAT) 2006.
- Certificate in Programmable Logic Controller (PLCs) & SCADA systems, Industrial Data Communications (IDC) 2009

Key Qualifications:

I am a registered Professional Engineer with both the EBK and IEK, and I have over thirteen (13) years of experience in operation and maintenance of electricity generating machines, programming and maintenance of Supervisory Control and Data Acquisition (SCADA) system, installation and commissioning of power transformers, excitation systems, plant control systems and protection systems. I am also proficient in carrying out Factory Acceptance Tests (FAT) of equipment, tender document preparation and evaluation, tariff energy meter programming and calibration. I have spent most of the 13 years in maintenance of hydroelectric power generating machines with a total capacity of 612MW. I am a team player with excellent communication skills.

As a certified productivity coach, I have employed the coaching techniques to assist individuals and myself to improve on time management, develop plans and attain the set out goals.

WORK EXPERIENCE

Chief Engineer & TA to Operations Director (June 2018 to date)

During this period I have been offering technical assistance to the Operations Director. This entails:

- Steering the divisional strategy to ensure that the power plant equipment are operated optimally and maintained as necessary
- Enhancing human capital readiness
- Creating and maintaining an environment that increases employee motivation within the division
- Driving operations efficiency (OPEX) initiatives that include:
 - ❖ Improvement of wrench time
 - ❖ Work order process,
 - ❖ Standard operating procedures
 - ❖ Improvement of power plant maintenance strategies among others.

Senior Engineer Operations Director's Office, (December 2016 to May 2018).

During this period I was offering technical assistance to the Operations Director, and I was involved in development of operations efficiency (OPEX) initiatives in the Division and preparing the Divisional reports.

Senior Engineer, Technical Services in Eastern Hydro (December 2014 to November 2016).

I was in-charge of a standby team tasked with responding to machine breakdowns. This was in addition to carrying out operation and maintenance tasks. I was also involved in the following projects:

- Reengineering of the Distributed Control System (DCS) at Tana Power Station.
In this project I was involved in programming of the generating units' Programmable Logic Controllers (PLCs).
- Configuration of the SCADA system and PLCs at Kamburu power station
I was the team lead in modification of the SCADA and PLC programs to accommodate new features that came with rehabilitated systems e.g. the protection system, excitation system. The modification also led to decommissioning of the obsolete data logger.

During this period, I was also attached to McKinsey and Company consultants, during development of the revamped Good to Great (G2G) Horizon II strategy and consequently nominated to represent Operations Division in the Pilot Support Team (PST) mandated to drive revamped G2G Horizon II initiatives.

Engineer 1, Technical Services in Eastern Hydro (October 2009 – November 2014).

As an Engineer 1 in Eastern Hydro I was responsible for installation and commissioning of generator transformers, metering systems, automation of generating process by programming of Schneider Telemecanique PLCs and programming of Human Machine Interface (HMI) running on PcVue version 8.0 platform. Key projects that I was involved in are:

- Installation and commissioning of bulk energy metering system at Gitaru unit 1
My responsibilities were: carrying out pre outage works, testing of the instrument transformers, installation and commissioning of the energy metering system.
- Modification of the SCADA programs at Masinga power station
I led a team in a successful modification of the HMI program at Masinga power station during an upgrade of the governor, excitation, motor control centre and the control systems.
- Installation and commissioning of power transformer rated 11/220kV, 100MVA at Kiambere power station (Jan – Feb 2014).
In this project I was mandated to study the existing unit protection & control scheme and interface the new power transformer control and protection scheme with the existing ones. I led a team in modification of the protection system setting in order to cater for the different current transformer ratio and in carrying out functional and commissioning tests for the power transformer
- Programming of SCADA system and upgrade of Governor Systems in Hydro power generating plant (2No. machines at Masinga Power Station rated 20 MW each, July-December 2012 and 2No. machines at Gitaru Power Station rated 72.5 MW each, April – July 2010, November 2011- January 2012) :
I was involved in installation and commissioning of governor, motor control centre and manual control systems. Other tasks involved programming of SCADA systems at the power station in order to incorporate the new controls of the governor, motor control centre and manual control systems.
- Replacement of a power transformer rated 11/132kV, 25MVA (Kindaruma Power Station rated 20MegaWatts) (May –June 2011)
I was in charge of installation and commissioning of the power transformer. This involved relocation of the power transformer, carrying out tests on the transformer to ascertain its status, interfacing the replacement transformer controls to the existing machine controls and carrying out functional tests and protection tests. It also included modification of the protection system setting to cater for the different current transformer ratio.
- Commissioning of Kiambere upgrade (2No. electricity generating machines at Gitaru Power Station rated 82 Megawatts each) (2009)
I was involved in carrying out the factory acceptance test of the SCADA system, carrying out site acceptance tests that entailed carrying out signal checks and control sequence tests. The control sequence tests involved machine controls from a manual control panel and also from the PLC.
- Commissioning of Masinga SCADA and PLC system
This entailed carrying out signal checks and control sequence tests. The control sequence tests involved machine controls from a manual control panel and also from the PLC.
- Routine maintenance and attending to breakdowns of electricity generating machines in Eastern Hydropower.

The maintenances that I was involved in include monthly, semi-annual and annual inspection and maintenance of hydro power generating machines & power transformers, calibration of all instruments, meters, gauges and relay equipment.

- Tender document preparation and evaluation

This entails developing the tender specifications, criteria to be used in the evaluation and carrying out tender evaluation.

4th Assistant Engineer, Technical Services in Eastern Hydro (April 2009 to September 2009).

During this period I was involved in installation and commissioning of energy metering system in Masinga, Kindaruma and Kiambere. The tasks carried out included: preparation of the work program, developing the interface drawings for voltage transformers, current transformers and the energy meter and consequently preparing a cable schedule, testing the current transformers and voltage transformers before installation, mounting of the CT and VT and their support structures, laying of the cables and subsequent termination of the signal cables as per the cable schedule, programming of the energy meter with the current and voltage transformer parameters and finally testing accuracy of the energy metering system.

4th Assistant Engineer at Central Engineering Workshop (September 2007 -March 2009).

As a 4th Assistant Engineer, I was responsible for:

- Ensuring that maintenance of the power transformers was carried out as per the maintenance schedule. I also carried out analysis of the test results and advised on the action to be taken. A history of the tests carried out was stored and used to track performance and health status of the power transformers.
- Programming of the bulk energy meters, testing them and ensuring historical data of these meters was backed up. The scope of the work covered all bulk energy meters in KenGen installations.

Graduate Engineer Trainee (August 2006 to August 2007)

During the thirteen months, I got exposed to various KenGen installations and appreciated the diversity in generating machine ranging from below 1 MW to as big as 80MW per machine. The training was based on operation and maintenance practices revolving around electricity generating equipment. Maintenance of the equipment was carried out on a time based schedule, that is, quarterly, semi-annually and annually.

Overseas assignments:

- South Korea FAT for Olkaria DCS system
- India FAT for Generator circuit breakers
- Spain (Iberdrola) FAT for SCADA system

Languages and degree of proficiency:

Language	Reading	Writing	Speaking
English	Excellent	Excellent	Excellent
Kiswahili	Excellent	Excellent	Very Good

SHORT COURSES COMPLETED:

- DCS system –Honeywell
- Siemens S400 PLCs
- Schneider Telemechanique PLCs
- PcVue HMI platform
- Schneider – Sepam Protection Relays
- Protection relays –NARI
- Supervisory systems – NARI
- HV/MV Switchgear and Transformer Maintenance Technology
- EMS certification: Implementation of ISO 9001 & 14001
- Peak Performance Training program

REFEREES

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