Wanaag Engineering was formed in the year 2008 by a group of engineers with the committed objective of offering world class engineering service to Djibouti market with a strong emphasis on value added operations, stringent quality norms and strong adherence to professional commitments. The “customer’s need satisfaction” philosophy was a major, guiding spirit in the ensuing years and resulted in earning an ever growing customer’s loyalty.

Wanaag Engineering has specialized in offering front end solutions while always meeting its customer’s specifics requirements such as employment generation, optimal resource utilization and suitable technology. At the same time appropriate technology up gradations are also offered so as to keep in line with global trends. Equipped with a team of high qualified professionals, the company delivers quality service based upon in-depth knowledge of international Standards and has a quality management system.

I. Wanaag Engineering mission statement

Wanaag Engineering aim to create value for its stake holders (customers, staff, community and shareholders) by:

-Providing responsible technology solution as leading engineering company.

-Promoting the use of renewable energy sources through investment and service support.

-Recruiting, training and retaining competent staff and dedicated staff at all level.

Wanaag Engineering as a leading engineering company sets to promote the transfer of relevant technology using its network of partners.

II. Wanaag Engineering’s services scope.

In its early years of operation, the company has structured it self around offering an integrated electrical engineering service. Scope of intervention includes complete electrification solutions and maintenance of existing facilities, consulting and control quality.

1. Electrification solutions to our clients

We offer a concept to commissioning through a single window service including field surveys, formulation of specifications, system design, procurement (including inspection and testing), erection/ testing/ commissioning of the project equipment and system, including associated civil works.

Backed by extensive expertise and knowledge, we offer decentralized electrification solutions to our customers either:

-As Diesel generation and associated transmission networks/substations, distribution systems for rural areas.

Or

-As location specific distributed electrification solutions based on renewable energy source and especially on solar power.

2. Sub stations projects

Wanaag Engineering offers service in line with customer demand for substations up 20 KV voltage level. The services offered are the following:

-Complete electrical design of the substation including one line diagrams, layout plans, relay schematics, relay coordination, Earthing system cable schedules, Control room design, safety systems design.

-Complete erection, testing, and commissioning of the sub station.

-Training of the end users personnel in the operation and maintenance of the system and its components.

We can supply all required equipments to complete the scope of works (power transformers, all switchgear, control and protective relay panels, lightening arresters, SCADA system, cables, steel gantries, earthing systems, AC-DC control and local power stations, safety systems for transformers and switchgear, specialized instruments and facilities required for operation and maintenance of the sub station) in line with accepted international standards like IEC, BS, NEC, NF, etc.

3. Transmission lines projects

Wanaag Engineering offers service for transmission line projects up to 20 KV voltage level. The services offered are the following:

-Final check survey of the transmission route including support location, spotting and pegging, finalizing of the service drawing and details.

- Preparation of final bill of material based upon final check survey.

- Design of support foundations and associated civil works like embankments, gabions etc.

-Complete erection, testing and commissioning of the transmission line including foundations, stringing of conductors.

We can supply all required equipments to complete the scope of works (support structures, main conductors (ACSR, AAAC, AAC, ACAW etc), insulators and associated hardware, line hardware material, Earth wire / OPGW, support earthing system, tools, equipment and systems for the erection, operation and maintenance of transmission lines.

4. Local distribution systems

The project range extends up to customer connection, electrification of major public areas and buildings. These projects can be totally new or an extension / up gradation or rehabilitation of existing systems.

As this is the “last mile” in the electrification process, distribution systems have to be carefully designed keeping in mind the local present loads, future demands, ample scope for extension as well as provision of sufficient safeguards and sub systems to ensure minimum technical and commercial losses in the system and hence maximize revenue collection. The services offered are the following:

-Detailed physical and electrical survey of the area to be electrified. This survey is done using GIS based systems in conjunction with advanced computer software. The result is a total scenario of the proposed electrification with respect to the simulated loads. With such a survey, the physical details and profile of the system is arrived at along with the electrical profile which gives the optimum feeder lengths / conductor sizes for maintaining voltages levels optimum location of distribution transformers, minimum losses, final and complete bill of material etc.

-Complete erection testing and commissioning of the distribution system.

-Training of the end users personnel in the operation and maintenance of the system and its components.

We can supply all required equipments to complete the scope of works : distribution transformers / compact sub station up to 20 KV, all switch gear MT / LT, RMU’s up to 20 KV, poles or others type of line supports, insulators and associated hardware, pole and line hardware and structures, lightening arresters, conductors (ACSR, AAC, AAAC), underground cables up to 20 KV, ABC cables MT / LT and accessories, XLPE / PVC cables, bulk metering systems, consumer connections / metering systems, steel lighting systems with various types of luminaries and lamps, complete erection testing and commissioning of the distribution system.

5. Fire Alarm and Fire Fighting Systems

To protect your important labour force, facilities and equipments from destructions caused by the fire, you should be in touch with Wanaag engineering. We are the only Djiboutian Company that can be quietly trusted in the implementation of your fire alarm and fighting systems requirements. We have so far successfully implemented design, installation or maintenance of several fire alarm and fire fighting systems and a lot of others are also now on our hands.

The good news is that we are authorised dealer and agent of ESSER (Branch of Honeywell Life safety). Wanaag Engineeting has competent, certified and qualified engineers which undertook in abroad extensive specialised training programs.

6. Renewable Energy

Sensible technology for the wide use of renewable energy must be simple and reliable, accessible to the less developed area or outside of the power grid communities. Electrification of remote / rural areas by grid based power is a major challenge due to high initial capital investment and low revenue collection due to smaller consumer based with limited resources. For such scenarios, Wanaag Engineering keeping with "Distributed Generator" concept for electrification of such remote has developed standard electrification systems based upon solar energy. The services offered are the following:

-Study of the area to be electrified so as to arrive at an optimum solution for most effective utilization of the available resources with respect to the nature of loads to be electrified.

-Supply, erection, testing and commissioning of the complete systems based upon the above mentioned energy resources.

We can supply all required equipments to complete the scope of works: solar panels, either mono or poly crystalline type, charge controllers and inverters (if so required), long life deep discharge low maintenance lead acid batteries, material for building electrification comprising of CFL / LED lamps, cables and accessories switches / sockets etc, specialized equipment suitable for operating on solar electric supply such as Fans, Agricultural pump sets, street lights, TV's, vaccine refrigerators (WHO standards) etc.

Despite its youth Wanaag Engineering is already an integrated electrical engineering service provider in Djibouti. Confident in the future Wanaag Engineering is investing considerable resources to develop the required expertise to allow Djibouti tap its considerable renewable energy sources.

7. Mechanical Works

Mechanical works cover wide range of the modern life requirements and from this point Wanaag Engineering offers you number of mechanical works services that keep you competent in your construction and installation of mechanical structures and systems. Details of our services are as follows.

Installation and Maintenance of production lines: Wanaag Engineering have experienced engineers capable to install and maintain conventional and advanced conversion machines, material handling systems such as long and short conveyors and raw materials storages(Silos).

Design, Fabrication and Installation of Hangars and structural steel frames: We have latest structural steel designing technologies and personnel. We use AutoCAD, Pro

E, Tekla and Unigraphincs. These engineering software applications help us to develop and deploy 3D and 2D models of any kind of steel structures. Furthermore these packages can also simulate loads and stresses that could be subjected to the designed steel structure.

Design, Installation and Maintenance of Pipelines: Steel, PVC and HDPE pipes are the most used pipes in the modern fluid supply applications. We use latest pipeline design technologies in order to model pipeline networks, and evaluate sizes of the pipes and most important flow parameters such as fluid discharge, pressure and velocity. We also have qualified plastic and steel pipes Welders and advanced welding facilities.
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III. Wanaag Engineering “customer need satisfaction” philosophy

Wanaag Engineering “customer need satisfaction” encompasses both the technical advice of clients in selecting the best solution to address their needs and the strict respect of contractual agreements including the delivery schedule.

Though both parties sign all erections, testing and commissioning, Wanaag Engineering sees its responsibility stretching beyond the formal transfer of responsibility. In fact a delivered project is often the start of lasting relation through which technical support and training opportunity is extended to client engineers and technicians.

Various sectors industry’s leaders have entrusted for outsourcing their facility maintenance to Wanaag Engineering.

IV.Wanaag Engineering team

Each project and maintenance contract undertaken by Wanaag Engineering is closely supervised by a senior engineer supported by a team of competent technicians and administrative staff.

The company principal engineer Abdourazak Yonis has an impressive experience both in design and field project gained in various US electrical engineering companies for a period spanning over 3 decades. He is ultimately responsible for delivering Wanaag Engineering " customer need satisfaction" promise. He is assisted by a number of younger talents who have been given a hands on training to provide the required resource for coming projects.

ABDOURAZAK YONIS

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PROFILE

Experienced electrical engineer offering proven performance in electrical design, and installation, for large-scale projects, such as industrial, commercial, and residential. Both new constructions, and remodelling. Thoroughly knowledgeable regarding industrial controls network planning, control panel design, and power distribution. Talented project manager well versed in all traditional project phases from client consult, to planning, to specifications, to installation and upgrade, to finish. Sharp ability to design custom systems with ease of control, accommodates growth and expansion, and minimizes maintenance costs.

AREAS OF EXPERTISE

- Commercial Office
- Tenant Finish
- Data Centers Installation
- Manufacturing / Warehousing
- Colleges, & Universities/Hospitals
- High-Rise Buildings
- Multifamily Residential
- Telecommunications System
- Hotels
- Lighting Design

EDUCATION BACKGROUND

1999	**BACHELOR OF SCIENCE, Electrical Engineering 1999** **The University of Colorado, Denver, CO Shell Djibouti.**
LANGUAGES	**English:** Bilingual **French:** Fluent
Computer Knowledge IT	Microsoft Office (Word, Excel, SGBD Access), Various specialized application for electrical engineering.

PROFESSIONAL EXPERIENCE

2008-2009	**CAVEO CONSULTING ENGINEERS; Englewood, CO 2008 to Present.** **Electrical Engineer-** Direct all successive phases of Healthcare electrical engineering projects, which

	principally encompass electrical system design, code research, specifications development, and field investigation. Coordinate with clients, architects, contractors, and other trades, as well as with utility services providers. Key Achievements: -Fully coordinated projects including design of power distribution systems core and shell, lighting design, layout devices, power specifications to healthcare equipment and life safety systems, standby power/Generator sizing, computer rooms and UPS systems, and emergency power lighting. -Continually provide expertise to solve project issues and deliver projects that meet clients' objectives, particularly regarding time constraints and budgetary guidelines. Identify methods to achieve the objectives at minimum expense.
2000-2008.	**COREY ELECTRICAL ENGINEERING, INC., Englewood, CO 2000 to 2008** **Project Engineer –** Direct all successive phases of commercial and industrial electrical engineering projects, which principally encompass electrical system design, code research, specifications development, and field investigation. Coordinate with clients, architects, contractors, and other trades, as well as with utility services providers. Key Achievements: -Fully coordinated projects including design of power distribution systems core and shell, tenant finish power, lighting design, layout devices, and life safety systems, standby power, computer rooms and UPS systems, and emergency power lighting. -Continually provide expertise to solve project issues and deliver projects that meet clients' objectives, particularly regarding time constraints and budgetary guidelines. Identify methods to achieve the objectives at minimum expense.
1999-2000	**AHEC COMMUNICATIONS AT AURARIA COMPUS, Denver, CO.** ***Telecommunications / Electronic Specialist II –*** Executed moves, adds, and changes of telephone and data technology. The key project was a series of installation and upgrade projects at the Auraria Higher Education Centre, Community College of Denver, Metropolitan State College of Denver, and the University of Colorado at Denver. Interpreted blue prints, estimated project costs, maintained inventory, and logged billable time. Performed projects while the buildings were fully staffed and in operation, which necessitated work in phases for minimal business interruption. Conducted diagnosis and repair of telecommunications equipment.
1999	**UTILITY ENGINEERING, Denver, CO.** **Electrical Engineering Intern –** Provided key engineering support in the design of a power plant control retrofit, by assisting the engineering team in design of control units, preparing designs for equipment layout, and writing diagrams. Additionally, updated motor schematics and assisted in the design of exciters, motor controls, thermocouples and control panels.
1998	**US WEST (QUEST) COMMUNICATIONS, Littleton, CO.** **Design Engineering Intern –** Performed design changes in the network to achieve greater capacity for customer demand. Also contributed to project cost estimation, and ordered project supplies
Leisure	Football fan, passionate by travelling, reading scientific revues.

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PROFILE

Wanaag Engineering, field operations manager. Competent in residential, commercial, and industrial electrical power design, solar system design and installing, electrical power safety and control quality, electrical power system maintenance plan.

AREAS OF EXPERTISE

- Tenant finish□□□
- Commercial facilities
- Energy Conversion
- Warehousing
- Project field supervision

EDUCATION

2007	**Bs in Electrical Engineering Mai 2007** University of Colorado at Boulder – United states
Languages	**English:** Bilingual **French:** Bilingual **Arabic:** Fluent
Computer Knowledge IT	C, C++, Matlab, MS Office, Windows XP, Microsoft project, PSpice, Electronic Workbench, Verilog, Autocad.

Professional Experience

2009 to present	**Wanaag Engineering** Principal and field operations manager
2008	**SALT INVESTMENT** **Control quality engineer assistant.** • Assistant project manager and quality control engineer for the following projects: Construction/renovation of housing compound. Upgrade electrical power of a mess hall servicing 120 people. Installation of two 10 ton and 5 ton cranes for bulldozers/front loaders and Astra trucks. Installation of a two set of 455 KVA generators. Construction of 400 meters long dig, to protect salt warehouses and facility. Construction of 8 Km haul road. Reviewing power supply and electrical/electronic devices for salt plant's conveyors
2007	**ENGINEERING PROJECTS** •Vending Machine; implemented a Vending Machine using logic design and Verilog Code with a team of two students. • Boost Switching DC-DC Power Converter: Designed and built a system that steps-up an incoming voltage of 12 volts to 200 volts with a team of two students. • Home Control System; designed and built a control unit, which enables one's home to control and monitor it (light, garage door, heating/cooling system) from a remote place using a touch-tone phone or through Internet. • Solar system design and installation; designed and installed a grid tied solar system for Habitat for humanity project.
2002-2005	**AVIS RENT A CAR, DENVER, CO.** **Customer Service** Provided customer service and processed customer's rent paperwork
200062001	**AUTOLIV, AURORA, CO.** **Machine Operator.** • Run a welding machine processing the airbag ignition device.
Leisure	Football fan, passionate by renewable energy, Somali poetry, and reading scientific magazines.

Ali Mogueh Hassan
64-90-48

PROFILE

Wanaag Engineering fire alarm system technician

AREAS OF EXPERTISE

- Fire alarm system and metal detector
- Installation, maintenance, diagnostic and troubleshooting

EDUCATION

2000	**Baccalauréat Sciences et Techniques Industrielles** **Option : Génie électrotechnique** Lycée Industriel et Commercial – Djibouti
Languages	**French:** Bilingual **English:** Bilingual **Arabic:** Fluent
Computer & IT	Microsoft Word, Excel, Access and Power Point, Windows XP, Microsoft project

Professional Experience

2009-Present	**Wanaag SARL** Fire alarm and metal detector technician, and team leader - Installed and maintained fire alarm and fire extinguishers of Palmier en zinc building - Installed fire alarm and fire extinguishers at Laboratoire d'elevage
2007-2009	**Eagle Med** Fire alarm and metal detector technician, and security supervisor Fully installed and maintained fire alarm system at the following sites: - Banque Indosuez MR (archives and server rooms) - HCR office building - UNICEF office building - UNDP office building - ODERBRETCH (DTC) Fully installed and maintained metal detector at the following sites: - UNDP office building - UNICEF office building
2006-2007	**Inap** Electrical, and plumbing maintenance
2002-2005	**KBR company, Lemonier US base** Translator, safety in charge, and plumbing supervisor - Trained 450 employees for safety and CPR classes - Trained 25 employees for plumbing

Abdi Farah Ahmad

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PROFILE

Worked with Electrical Engineering projects of different scale, in Norway and in Africa.
My responsibilities included to prepare engineering plans, specifications, project schedules, design circuit diagrams. Estimated for construction and maintenance of power generation projects. Created and presented economic feasibility studies.Coordinated projects with other departments, outside agencies, contractors and consultants. Provided technical support for system operations and maintenance.

AREAS OF EXPERTISE

Computer Technologies	Router Programming □ROUTER
Java Programming	Routing Technologies
□Telecommunications System Installation	VOIP Technologies
□Cisco	Autocad Electrical
Network Engineering	□Lighting Design

EDUCATION BACKGROUND

1999	**BACHELOR OF SCIENCE, Electrical Engineering 2004** **Oslo University College, Oslo, Norway**.
LANGUAGES	**English:** Bilingual **Norwegian** Fluent **Somali:** Fluent
Computer Knowledge IT	Platform - Windows, linux, Sun. Server Technology - Apache, IIS. Server-Side Script - PHP, ASP.JSP. Business Logic - C, C++, J2EE, .Net, PHP Client-Side Script - XML,XHTML, JavaScript GUI Applications – Java, PHP.

PROFESSIONAL EXPERIENCE

2011-Present	**Electrical Engineer Project Manager: Wanaag SERL** Prepare electrical drawings, plan, layout and specifications. Managed project schedules and budgets, and obtain permits for operations. Made engineering calculations in connection with field and office assignments. Investigated problems and recommend solutions. Ensured compliance with safety requirements and standards procedures. Prepare requests for proposals and evaluate bids.

2007-2009.	**Network Engineer: CBK Telecom Oslo, Norway Voip** Configured, implemented, and designed telecommunication network platforms; - Monitoring the operational performance of networks using advanced telephony tools and devises. Investigating and resolving telecommunication network problems of moderate to high complexity. Possessing and applying the broad level of skills and knowledge of a seasoned professional in telephony network technology. Recommending solutions to problems of moderate to high complexity and scope; Working with minimum supervision.
2005-2007	**Electrical Engineer Assistant: Green Energy Oslo, Norway** Prepared engineering plans, specifications, project schedules, design circuit diagrams. Estimated for construction and maintenance of power generation projects. Created and presented economic feasibility studies. Coordinated projects with other departments, outside agencies, contractors and consultants. Provided technical support for system operations and maintenance. .
2004-2005	**LAN/WAN Support Engineer: Telenor R&D Oslo, Norway** Analyzed, designed, tested, documented, implementation/configuration and support of WAN/LAN/MAN and converged network technologies Analyzed and recommended contemporary and emerging technologies for deployment across the enterprise, including but not limited to MPLS WAN in a dual carrier topology, QoS marking and policy mapping, core LAN switching, caching, and voice/video/data convergence Performed integration of new acquisitions onto enterprise network Provided 3rd level support for LAN/WAN MAN infrastructure as required
Leisure	Reading, Sport,

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PROFILE

Wanaag Engineering, Mechanical works manager.

AREAS OF EXPERTISE

- Production Management
- Installation and Maintenance of production facilities
- Maintenance of earth moving equipments
- Design and installation of steel structures
- Design and installation of the pipelines

EDUCATION

2007	**BE in Mechanial Engineering Mai 2003** Mehran University of Engineering and technology at Jamshoro – Pakistan
Languages	**English:** Fluent **Arabic:** Fluent
Computer Knowledge IT	C, C++, Matlab, MS Office, Windows XP, Microsoft project, PSpice, Electronic Workbench, Verilog, Autocad. Solid Adge, Flowmaster

Professional Experience

2010 to present	**Wanaag Engineering** Mechanical works manager
2010-2008	**Dawaleh Construction Enterprise** Manger of the mechanical works.

2007- 2003	**SIMCON INTERNATIONAL** • Head of production planning and material control department • Jop shop production process engineer CAD/CAM engineer
Leisure	Football fan, passionate by renewable energy, Somali poetry, and reading scientific magazines.