NATIONAL OCCUPATIONAL STANDARD

ELECTRICITY DISTRIBUTION SCADA OPERATOR
LEVEL 5

REFERENCE CODE /13UMS0333-5

OFFICIAL GAZETTE DATE-ISSUE / OCTOBER 03, 2013-28784 (Duplicated)

Occupation:	**ELECTRICITY DISTRIBUTION SCADA OPERATOR**
Level:	**5**[1]
Reference Code:	**13UMS0333-5**
Prepared by:	**Electricity Distribution Services Association (EDSA)**
Verified by:	**VQA Electricity and Electronics Sector Committee**
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[1] Vocational Qualification Level is determined as Level 5 in the octal (8) level matrix.

TERMS, SYMBOLS AND ABBREVIATIONS

FID: Fault Indicating Device,

LOW VOLTAGE (LV): Voltage level of which effective strength is 1000 Volt and below,

SWITCHING: Switching On/Off the electrical equipment like breaker, disconnector by certain procedure and using functions like create, arrange, select, sort, run and etc. in the SCADA system,

DISCONNECTOR: Device switching on/off no-load electrical circuits,

ON-LINE EQUIPMENT: Breaker, Current Transformer and Voltage Transformer, Rectifier and etc.,

BUSBAR: Conductor to which feeder with the same voltage are connected,

SKILL: Skill to fulfill the duties and responsibilities related to a certain work,

BUCHHOLZ (RELAY): Safety device used for protecting the oil-cooled power transformers against various hazardous effects,

CIRCUIT DIAGRAM: Technical drawing of electrical device housing one or more electrical circuits,

RESISTOR: Degree of difficulty against electric current,

DIRECT CURRENT (DC): Fixed flowing of electric charges from high potential to low potential,

EHCF: Electrical High Current Facilities,

ELECTRICAL DISTRIBUTION SWITCHBOARD: Control panel providing and controlling electricity distribution within the facility,

ELECTRICAL INSTALLATION: Electric cables and fitting systems and circuits of lines, generator, entryphone, phone, antenna, fire alarm, internet cable, security, conductor, exterior lighting, grounding and etc. related to the internal lines, lines of machines/devices,

ELECTRICAL TUNING: Electrical changes and arrangements made on the machine, device or electrical installation,

EMRA: Energy Market Regulatory Authority,

MENS: Ministry of Energy and Natural Resources,

FEEDER: Line or cable outlet transferring energy from a central busbar to a client or client group,

CELL: Breaker and module for high voltage of 35 kV and below in the facility,

IED: Intelligent Electronic Device,

ISCO: International Standard Classification of Occupations,

OHS: Occupational Health & Safety,

PLANT OR EDC: Electricity Distribution Company,

GENERATOR: Electric generator converting energy types to electric energy and usually used as auxiliary energy source in case of power failure,

CALIBRATION: Reporting of measurement results by comparing a reference measuring device which is certified to be accurate (traceable) and a measuring device which is not certified to be accurate,

BREAKER: Device used for switching on/off electrical circuits in case of on load,

PERSONAL PROTECTIVE EQUIPMENT (PPE): All kinds of tools, instruments, appliances and devices which are worn, put on or hold by the worker and which protect the worker from one or more hazards arising from the work and effect the health and safety of the worker, and which are designed to suit such purpose,

ELECTRIC TERMINAL: Appliance for engaging conductorsi,

AUTHORITY: Energy Market Regulatory Authority,

kV: Kilovolt,

OPERATION: Processes carried out with breaker and disconnectors to activate or deactivate some sections of the system,

RECTIFIER: Rectifier end used for charging the accumulator (battery) to provide energy backup, converting Alternating Current (AC) to Direct Current (DC),

RİSK ASSESSMENT: Works to be carried out for determining hazards in the workplace or from outside, analyzing and grading the factors causing these hazards to become risk and risks arising from hazards and deciding on the control measures,

RISK: Potential of loss, injury or other damages to arise from hazards,

RELAY: Element for electromechanical switch on/off and protection,

RTU: Remote Terminal Unit,

DEVIATION: Difference between the standard values on the device and measured value,

SCADA (SUPERVISORY CONTROL AND DATA ACQUISITION): Supervisory control and Data Collection,

SCENARIO: Recording of switching on/off procedures of various electrical equipment like breaker, disconnector and etc. to the SCADA system and applying with a single key, if required,

SYSTEM: Electric distribution facilities and network operated or owned by an electricity distribution company in its certain region,

SWITCH: Switch,

KEY SWITCH: Switch for on/off electrical circuit,

HAZARD: Potential damage or injury to effect employee or workplace available in the workplace or outsourced,

TEDC: Turkish Electricity Distribution Corporation

SINGLE LINE DIAGRAM: Single phase diagram showing the connection of elements like busbar, conductor, power transformer and compensation equipment at a certain section of the network**,**

GROUNDİNG: Earth wire connection of inactive section in the power plants and zero conductors with their related sections by an electrode,

TRANSFORMER OR POWER DISTRIBUTION UNIT: Voltage regulator regulating the electric energy it receives from the high voltage line to the voltage level useable in the facility or increasing the low voltage in the power plants,

UI: User Interface,

UPS: Uninterrupted power supply,

VOLTMETER: Device for measuring the voltage between any two points of an electrical circuit,

DATA: Any kind of information and input/entry collected in the general, ad hoc process and systems or to be used for reporting,

SOFTWARE: Algorithms achieved by high level programming languages for providing requirements and functions to the user like storing, analyzing and displaying information of electric distribution network in the SCADA system,

LOAD: Any kind of machine/device/equipment consuming energy in the electrical circuit or system,

LOAD DISCONNECTOR: Switchgears capable of on/off below load in the internal or external environments in the high voltage systems,

HIGH VOLTAGE (HV): Voltage level of which effective voltage is over 1000 Volt.

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1. INTRODUCTION

National Occupational Standard titled Electricity Distribution SCADA Operator (Level 5) was issued by the **Electricity Distribution Services Association (EDSA)** assigned as per the provisions of Vocational Qualifications Authority (VQA) Law No. 5544 and "Bylaw on Drawing up National Occupational Standards" and "Regulation on the Establishment, Duties and Operation Procedures and Principles of the Sector Committees of Vocational Qualification Authority" introduced pursuant to the aforementioned Law.

National Occupational Standard titled Electricity Distribution SCADA Operator (Level 5), was assessed upon receiving the opinions of the related institutions and organizations in the sector, and approved by VQA Board of Directors upon examination of the **VQA Electricity and Electronics Sector Committee**.

2. INTRODUCTION OF THE OCCUPATION

2.1. Definition of the Occupation

Electricity Distribution SCADA Operator (Level 5) is the person operating the electricity distribution network effectively and safely by taking occupational health and safety measures, using the distribution network equipment in accordance with the environmental protection legislation and quality management system documents and monitoring the electricity distribution network.

Electricity Distribution SCADA Operator (Level 5) applies remote on/off, switching processes to ensure the clients to be effected minimum in case of scheduled or unscheduled power failures. Furthermore, informing operations and changes in the electricity distribution network; receiving required reports and submitting such reports to the relevant persons/departments in case of shift change are among his/her responsibilities.

2.2. Working Environment and Conditions

Electricity Distribution SCADA Operator (Level 5) monitors and operates the electricity distribution network in closed areas; well-lit, ventilated, thermal comfort conditions and at appropriate noise level, in environments prepared according to the office ergonomics as standing or sitting. Working hours are not regular. S/he may work at night or on holidays.

2.3. Other Requirements Regarding the Occupation

Electricity Distribution SCADA Operator (Level 5) shall be subjected to checkup in accordance with the Article 15 of the OHS Law No. 6331 and shall have authorizations and permits according to the applicable Regulation on Electric Power Installations No. 24246 for working under high voltage.

3. OCCUPATIONAL PROFILE

3.1. Duties, Tasks and Performance Criteria

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
A	To apply occupational health and safety, fire and emergency rules	**A.1**	To apply legal and workplace rules regarding occupational health and safety	**A.1.1**	Participates in the trainings organized by the company or institutions other than the company for understanding the norms regarding Occupational Health and Safety.
				A.1.2	Applies basic emergency procedures in case of negative conditions occurred in the workplace like accident, injury and etc.
				A.1.3	Contributes to preventing the working environment from hazards. .
				A.1.4	Ensures that the protection and response tools for Occupational Health and Safety are made available as appropriate and operative.
				A.1.5	Ensures that national and international instructions and regulations related to the Occupational Health and Safety are followed.
				A.1.6	Ensures that the required measures are taken against cases which arise from the workplace activities and may endanger occupational health according to the related legislation and standards.
		A.2	To decrease risk factors	**A.2.1**	Follows the workplace procedures for controlling the risks.
				A.2.2	Determines and reports the risk factors he/she faces or risks he/she may face.
		A.3	To take occupational health and safety measures	**A.3.1**	Positions the height of computer display in accordance with the neck and eye health.
				A.3.2	Adjusts the screen resolution within the hardware limits and as easy to read.
				A.3.3	Sits at the desk in accordance with the rules for protecting the body health.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
A	To apply occupational health and safety, fire and emergency rules	**A.3**	To take occupational health and safety measures	**A.3.4**	Adjusts the period of continuously sitting at the desk and intervals for taking a break in accordance with the rules.
				A.3.5	Applies measures like ventilation, heating-cooling, lighting before starting to work according to the instructions. .
				A.3.6	Acts according to the safety and health procedures in the work environment.
		A.4	To apply emergency procedures	**A.4.1**	Participates in and contributes to the periodic trainings, works and action drills related to emergency exit or escape.
				A.4.2	Fulfills the duties assigned to him/her in cases of emergency.
				A.4.3	Applies the exit and escape procedures in cases of emergency.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
B	To contribute to decreasing environmental risks	**B.1**	To apply environmental protection standards procedures	**B.1.1**	Assists in environmental-dimensional-impact assessment by his/her assignment.
				B.1.2	Carries out the works on determination of environmental impacts related to the performed activities correctly.
				B.1.3	Participates in periodic trainings for environmental protection requirements and practices.
				B.1.4	Observes the environmental impacts during application of work processes.
		B.2	To contribute to decreasing environmental risks	**B.2.1**	Carries out classification and sorting by classes required for recycling of recyclable materials.
				B.2.2	Ensures that flammable and combustible materials are stored safely.
				B.2.3	Determines the safety deficiencies of the assets related to his/her work in the electricity distribution network, internal and external environments of the buildings and takes the required action.
		B.3	To ensure productivity of operating assets	**B.3.1**	Uses/Ensures use of operating assets like available energy, consumables, time in the work processes economically and productively.
				B.3.2	It's recommended that the electronic material, equipment and tools to be requests for using in the work processes shall be energy saving and productive.
				B.3.3	Applies operating measures stated in the instructions of device and systems for the system and devices to operate with maximum productivity and minimum energy.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
C	To work in accordance with the quality management system regulations	**C.1**	To apply the quality requirements defined in the operating quality book	**C.1.1**	Applies the quality requirements by permitted tolerance and deviations according to the instructions and plans stated in the task forms.
				C.1.2	Works in accordance with the quality requirements of machine, tool, equipment or system.
		C.2	To work in accordance with the job definition and operating internal processes	**C.2.1**	Determines the issues hindering the work processes stated in the job definition.
				C.2.2	Develops and submits for approval the suggestions and forms regarding the work processes stated in the job definition.
				C.2.3	Creates a working environment in conformity with the other departments in case of junction of processes related to his/her work.
		C.3	To participate in the activities related to prevention of faults and defects determined in the processes	**C.3.1**	Records the faults and defects determined during the work.
				C.3.2	Submits the recorded faults and defects to the relevant person/department.
				C.3.3	Contributes to determination and elimination of the reasons causing the faults and defects.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
D	To prepare SCADA operating inventory	**D.1**	To keep SCADA operating inventory up-to-date.	**D.1.1**	Keeps the Single Line Diagrams of Electricity Distribution System up-to-date.
				D.1.2	Keeps SCADA operating inventory continuously up-to-date by additions and changes.
		D.2	To supervise operability of work equipment, devices/ tools	**D.2.1**	Periodically controls the status of operating equipment like user computer, printer, cabling, user interface (UI) and operability of safety mechanisms in accordance with the instructions.
				D.2.2	Informs the relevant person/department for carrying out the procedures required for replacement or repair of defective hardware and equipment.
				D.2.3	Determines tear and wear and defects in the hardware and devices; informs the relevant person/department for replacement of the defective hardware and devices by using the procedure decided by the company.
				D.2.4	Controls whether imaging equipment operate properly or not.
		D.3	To enter system	**D.3.1**	Enters the system by using the defined user name and password.
				D.3.2	Changes his/her password periodically.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
Men	To follow up and report operability of SCADA equipment	**E.1**	To determine and follow up defects and deficiencies in the site equipment	**E.1.1**	Determines the defects/position fault signals of electronic equipment like Intelligent Electronic Device (IED), Remote Terminal Unit (RTU) and electrical equipment like breaker, disconnector, fuse, power distribution unit protection, and switch and informs such data with the test report to the relevant person/department.
				E.1.2	Takes the action required for solving the problem by directing the relevant person/department site team to the points of fault signals.
				E.1.3	Reports the results of performed works.
		E.2	To ensure fulfillment of material requirements in the SCADA control center	**E.2.1**	Creates a requirement list.
				E.2.2	Supports determination of technical specifications of the materials to be procured.
		E.3	To carry out the technical assessment and test procedures in the procurement process	**E.3.1**	Supports benchmarking required for conformity of submitted proposals with the requested specifications in the procurement process.
				E.3.2	Carries out physical controls of the materials supplied for the operator's; tests their operability and informs the department manager.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
F	To carry out work organization	**F.1**	To direct the relevant breakdown team	**F.1.1**	Examines the defect occurred.
				F.1.2	Determines the optimal team and number of teams for defect repair by the nature, scope and environmental specifications of the defect occurred.
				F.1.3	Selects and directs the team to interfere the place of defect as soon as possible by using the support programs.
		F.2	To assist the teams working in the site in preparation of proper working environment	**F.2.1**	Controls whether the power is cut off and there is switching against occupational safety on the installation to be repaired via the SCADA system and mutually confirms with the site personnel the accuracy of the control data.
				F.2.2	Ensures that the required groundings are carried out in the defect area to be repaired for providing safety of the persons to carry out the repair works and equipment to be used accordingly.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
G	To follow up the SCADA signals and alarms	**G.1**	To follow up internal alarms	**G.1.1**	The current-voltage transformer in the available system compares the site values with the values displayed on the SCADA screen and confirms their accuracy.
				G.1.2	Follows up the alarms related to the position changes in the electrical equipment and breaker on/off status, relay numerical values, disconnector position, transformer temperature, Bucholz, DC resource, Remote Terminal Unit (RTU) feed and etc.
				G.1.3	Follows up the limit excess in the analogue values and reports to the relevant person/department for making the required arrangements.
		G.2	To follow up external alarms	**G.2.1**	Follows up external alarms like fire at site, door is open, action, rectifier from the SCADA control center and ensures that the required works and procedures are carried out.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
H	To manage SCADA operations	**H.1**	To detect defects occurred in the network	**H.1.1**	Determines the defective area as soon as possible by using the data like site team, SCADA functions, AGD, analyzer, failure warning in case of defect occurred in the network within the scope of SCADA.
				H.1.2	Determines the defective equipment, network section as soon as possible by using the data he/she determines.
		H.2	To ensure that the defective area is isolated	**H.2.1**	Applies the ready scenarios in the SCADA system or carries out new switches according to the condition provided that the outage hours are minimum.
				H.2.2	Ensures that the defective area is fully isolated from the electricity distribution network by providing that the site team is directed.
		H.3	To switch the system to normal feed	**H.3.1**	Notifies the relevant persons/departments for repairing the defect.
				H.3.2	Receives the feedback that the defect is repaired and records them.
				H.3.3	Carries out the SCADA switching procedures or ready scenarios required for returning to regular feed at the scheduled time in coordination with the site teams.
		H.4	To coordinate scheduled power failures	**H.4.1**	Carries out the preliminary works of the related area where scheduled power failure will be done; ensures coordination for making the required operations and feeds; creates the required switching or appropriate scenarios in the SCADA system.
				H.4.2	Carries out bleed off/power failures by using the SCADA switching procedures or ready scenarios required in the distribution network in accordance with the request of TETC (Turkish Electricity Transmission Corporation) or other relevant Institutions and within the knowledge of the relevant persons/departments.
				H.4.3	Creates Electricity Distribution HV network load flow scenarios.
				H.4.4	Assists in determination of weak points of distribution network by making simulations of load flow scenarios and informs the department manager. .
				H.4.5	Records the optimal load flow scenarios in the SCADA.
				H.4.6	Applies these scenarios in scheduled and unscheduled power failures.
		H.5	To carry out load transfers	**H.5.1**	Follows up the contract loads related to TETC (Turkish Electricity Transmission Corporation) in the substations and carries out load transfers, if required. .

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
I	To create reporting	**I.1**	To report the works performed	**I.1.1**	Reports the defect records.
				I.1.2	Records the power failure times and ensures that the required statistics are created.
				I.1.3	Makes a list of defective equipment and notifies such data to the relevant department.
				I.1.4	Follows up installation life, reports the materials to be maintained and replaced.
		I.2	To prepare the reports required by the legislation	**I.2.1**	Prepares the requested reports regarding the electric energy supplied to the Distribution system and submits them to the relevant departments in accordance with the Regulation On Service Quality Of Electricity Distribution and Retail Sale.

Duties		Tasks		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Title**
J	To participate in the professional development activities	**J.1**	To carry out training planning and organizations	**J.1.1**	Receives his/her training requirements from the relevant department and assesses them.
				J.1.2	Assesses periodic and ad hoc trainings by time planning.
		J.2	To carry out studies on the individual professional development	**J.2.1**	Carries out research activities for professional and personal development.
				J.2.2	Follows up developments related to the SCADA procedures and new technologies.
		J.3	To give vocational training to his/her inferiors and other employees	**J.3.1**	Shares his/her knowledge and experience with his/her colleagues.
				J.3.2	Applies limited information and trainings related to the SCADA procedures.

1.1. Tools, Appliances and Equipment Used

1. Computer, Monitor (CRT, LCD, LED), and peripheral units (printer, barcode reader, scanner, etc.)
2. Operating systems and office software
3. Storage media (CD, DVD, Diskette, etc.)
4. Converters (DVI, HDMI, PATA, USB)
5. Communication devices (phone, cell phone, voice recorder, teleconference systems, radio, telex, wireless internet access devices, etc.)
6. Stationary materials (paper, pen, puncher, etc.)
7. Office appliances (fax, photocopier, projection device, calculator, cabinet w/locking system)
8. Security, identification, troubleshooting, and data recovery tools
9. Uninterruptable power supply (UPS)
10. Safe door entrance card
11. Work Permit Request, Power Cutting-electrification, tool, etc. forms

1.2. Knowledge & Skills

1. Analytical thinking skills
2. Basic first-aid knowledge
3. Knowledge on computer hardware and peripheral units
4. Knowledge on client-server architecture and SCADA systems connection
5. Knowledge on efficient use of natural resources
6. Team management and direction skills
7. Equipment and materials protection and cleaning knowledge
8. Knowledge on power distribution network and connection elements
9. Knowledge and ability of using internet
10. Business organization and planning skills
11. Knowledge on Occupational Health and Safety Precautions
12. Knowledge on operating systems and server software
13. Knowledge on quality standards and application techniques
14. Professional mathematics and term knowledge
15. Ability to use office software
16. Skill of learning and being able to share what s/he learned
17. Ability and knowledge of problem solving
18. Ability to use SCADA operating system
19. Oral and written communication skills
20. Stress management ability
21. Knowledge and ability to read and understand technical documents
22. Knowledge on basic labor legislation
23. Data collection, record keeping, and reporting knowledge and skills
24. Fire prevention, struggle, emergency, and evacuation knowledge
25. Time management knowledge and ability

1.3. Attitudes and Behaviors

1. To be cold blooded in emergency and stressful situations
2. To ensure work discipline of subordinates
3. To make decisions within knowledge, experience, and authority
4. To inspect carefully status of work equipment and machinery
5. To use her/his time effectively and efficiently in accordance with work orders
6. To adopt regulations set forth in environmental, quality, and OHS legislation
7. To share experience with associates
8. To be careful and rigorous
9. To be sensitive about using operating assets and recycling
10. To be enthusiastic about teaching and training
11. To follow and apply innovations regarding with her/his task
12. To respect hierarchy of business place
13. To pay attention to the usage of tools, appliances and equipments belonging to workplace
14. To ensure his/her own safety and safety of other people
15. To be open to research for occupational development
16. To determine negative environmental effects
17. To contribute to risk and hazard analysis studies at system and field level
18. To know his/her responsibilities and fulfilling the same
19. To take care of process quality
20. To comply with instructions and guidelines
21. To use handling, lifting, and transportation equipment correctly
22. To inform relevant people of dangerous situations
23. To sense and assess dangerous situations carefully
24. To take care of cleanness, tidiness, and order of workplace
25. To share information at shift changes in efficient, open, and correct manner
26. To inform concerned people about the malfunctions which are not under his/her authority

4. TESTING, ASSESSMENT AND CERTIFICATION

Testing and assessment for certification with respect to national qualifications based on Power Distribution SCADA Operator (Level 5) Occupational Standard shall be held in written and/or oral forms, theoretically and practically, in testing and assessment centers where required conditions are met.

Testing and assessment method and practice principles shall be detailed with national qualifications to be drawn up pursuant to this occupational standard. Activities regarding testing, assessment and certification shall be conducted within the framework of Vocational Qualification Authority, Testing and Certification Regulation.

Note: This part shall not be published in the Official Gazette. It will be published in VQA website only.

1. Institutions participated in the Occupational Standard Preparation Process

Osman Nuri ÇALİİKAN	(EnerjiSA Başkent)	Senior Electrical-Electronics Eng.
İbrahim AKGÜN	(Enera Enerji)	Petroleum and Natural Gas Eng.
Adem ÇİFTÇİ	(SEDAİ)	Electrical-Electronics Eng.
Fadıl KARAMAZI	(Fırat EDAİ)	Electrical-Electronics Eng.
İlknur YILMAZ	(Çalık YEDAİ)	Senior Electrical Eng.
Mustafa ALTUN	(Meram EDAİ)	Electrical Teacher
Süleyman ER	(Osmangazi EDAİ)	Electrical-Electronics Eng.

2. People, Institutions, and Organizations Asked for Opinion:

Akedaş Power Distribution Corporation
Ankara Chamber of Industry (ASO)
Ankara Chamber of Trade (ATO)
Aydem Power Distribution Corporation
Bosphorus University Department of Electrical and Electronics Engineering
Ministry of Labor and Social Security
Çamlıbel EDCO
Çoruh EDCO
State Personnel Administration
Confederation of Revolutionary Trade Unions of Turkey (DISK)
Aegean Region Chamber of Industry (EBSO)
Power Generation Corporation
Energy Market Regulatory Authority
Ministry of Energy and Natural Resources
EnerjiSA Başkent Power Distribution Corporation
HAK-IS Trade Union Confederation
Istanbul Chamber of Electrical Technicians Tradesmen and Craftsmen
Istanbul Chamber of Industry Professional Committee of Power Generation, Electrical Motors, Transformers, and Control Devices Industry
Istanbul Technical University School of Electrical and Electronics
Istanbul Chamber of Trade (ITO)
Kayseri Area Electricity Corporation
Kocaeli Chamber of Industry
Small and Medium Industry Development and Supporting Administration (KOSGEB)
MoE Life-Time Learning Directorate General
MoE Occupational and Technical Education Directorate General
MoE Innovation and Education Technologies Directorate General
Meram Power Distribution Corporation
Middle East Technical University Department of Electrical and Electronics Engineering
Osmangazi Power Distribution Corporation
Association of Measuring Industrialists and Business People
Sakarya Power Distribution Corporation
Ministry of Industry and Trade
TMMOB- Chamber of Electrical Engineers
Trakya Power Distribution Corporation
Association of Consumers' Rights
Association of Researches in Favor of Consumers (YUYADER)
Türkiye Power Distribution Corporation
Federation of Turkish Electrical and Electronics Technicians Craftsmen and Tradesmen
Turkish Power Transmission Corporation
Turkish Power Industry Union
Turkish Power Trade and Commitment Corporation

Turkish Electrical Crane Manufacturer's Association (TEVİD)
Confederation of Turkish Tradesmen and Craftsmen (TESK)
Turkish Exporters Assembly (TIM)
Turkish Statistical Institute (TUIK)
Turkish Labor Institution (Department of Work and Profession Consultancy)
Confederation of Turkish Trade Unions (TURK-IS)
Turkish Confederation of Employer Associations (TISK)
Turkish Union of Chambers and Exchange Commodities (TOBB)
Uludağ Power Distribution Corporation Yeşilırmak Power Distribution Corporation
Yıldız Technical University School of Electrical and Electronics
Board of Higher Education (YOK)

3. Sector Committee Members and Experts

Abdullah KAYA,	President	Confederation of Turkish Tradesmen and Craftsmen - TESK
Haydar BATTALOĞLU,	Acting President	Ministry of National Education
Prof.Dr. Murat DOĞRUEL,	Member	Board of Higher Education (YOK)
Nasip Gül ERÇOBAN,	Member	Ministry of Labor and Social Security
Edip TÜRKAY,	Member	Ministry of Energy and Natural Resources
Zekeriya KAHVECİ,	Member	Ministry of Science Industry and Technology
Oğuz BEDİR,	Member	Turkish Confederation of Employer Associations
Ertuğrul CAN,	Member	Turkish Union of Chambers and Exchange Commodities - TOBB
Ahmet BALIK,	Member	Hak-İş Trade Union Confederation
Aykut ENGİN,	Member	Turkish Confederation of Employer Associations
Hacı Ali EROĞLU,	Member	Vocational Qualification Authority
Firuzan SİLAHİÖR,	Başkan Yardımcısı V.	Vocational Qualification Authority

4. Executive Board

Bayram AKBAL,	Ministry of Labor and Social Security Repr.	President
Doç.Dr. Ömer AÇIKGÖZ,	Ministry of National Education Repr.	Acting President
Prof. Dr. Mahmut ÖZER,	Board of Higher Education Repr.	Member
Bendevi PALANDÖKEN,	Professional Organizations Repr.	Member
Dr. Osman YILDIZ,	Confederation of Turkish Trade Unions Repr.	Member
Mustafa DEMİR,	Turkish Confederation of Employer Associations Repr.	Member