



DKZ ELEKTRİK MÜHENDİSLİK İNŞAAT TURİZM SAN. ve TİC. LTD. ŞTİ.

- **154/380 kV GIS SUBSTATIONS**
- **154/380 kV OUTDOOR SWITCHYARD SUBSTATIONS**
- **250 MW POWERSHIP SUBSTATIONS**
- **WPP/HEPP/GPP SUBSTATIONS**
- **154/380 PS and ETL PROJECTS**
- **154/380 POWER TRANSFORMER INSTALLATION AND OIL TREATMENT**
- **SUPERVISION SERVICES**
- **TESTING AND COMMISSIONING**
- **CERTIFICATIONS**



DKZ ELEKTRİK MÜHENDİSLİK İNŞ. SAN. ve TİC. LTD. ŞTİ.

Cumhuriyet Bulv. No:139 Kat: 8 Alsancak / İZMİR
Tel: 0232 463 16 51 - 421 94 41 • Fax: 0232 422 29 69

1. ABOUT US

We have improved our experiences and quality thanks to the plant services for substations we have provided both in Turkey and various countries of the World since 1992; and we have set the target of completing our projects within the frameworks in compliance with national and international standards.

2. AL KHAIRAT/IRAQ GIS SUBSTATION (ÇALIK ENERJİ)

This is a 10X125 MW natural gas cycle plant. (The greatest 420kV indoor switchgear of Middle East is incorporated here.) Installation and oil treatment services for 400 kV 29 diameter (78 unit breaker), 132kV 20 feeder GIS substation and 5 pieces of 420/15/15 kV 320/350 MVA GSU Transformers, 6 pieces 400/138,6/11Kv 2x3x(83,3/25MVA) single phase autotransformers were completed in 2013.



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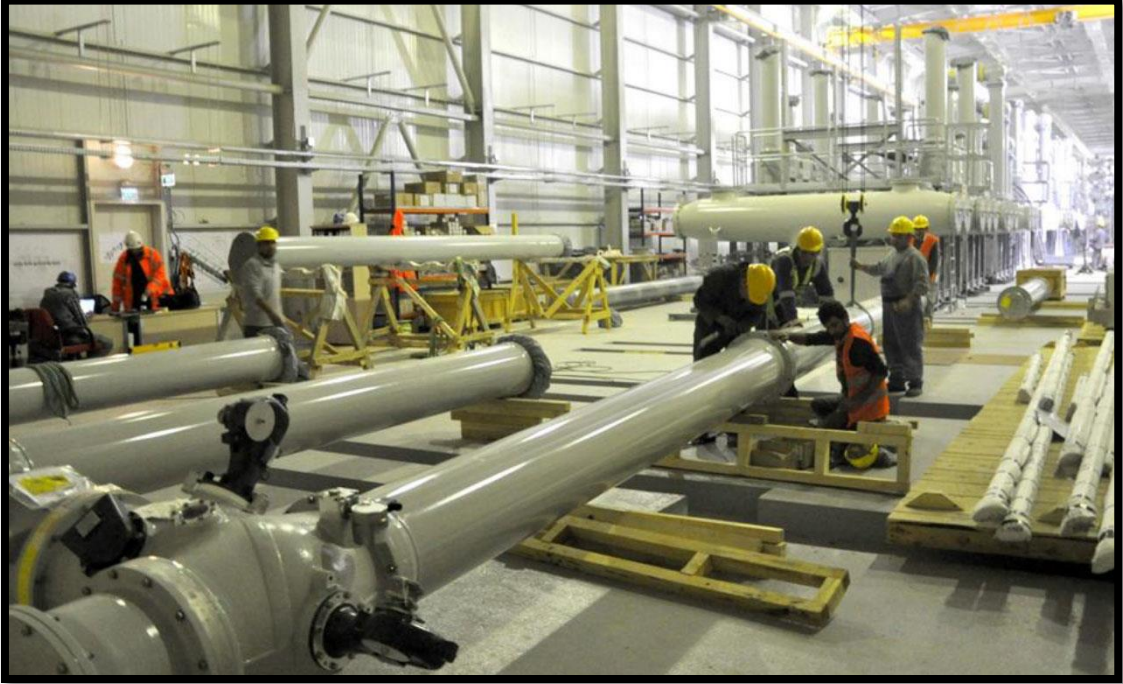


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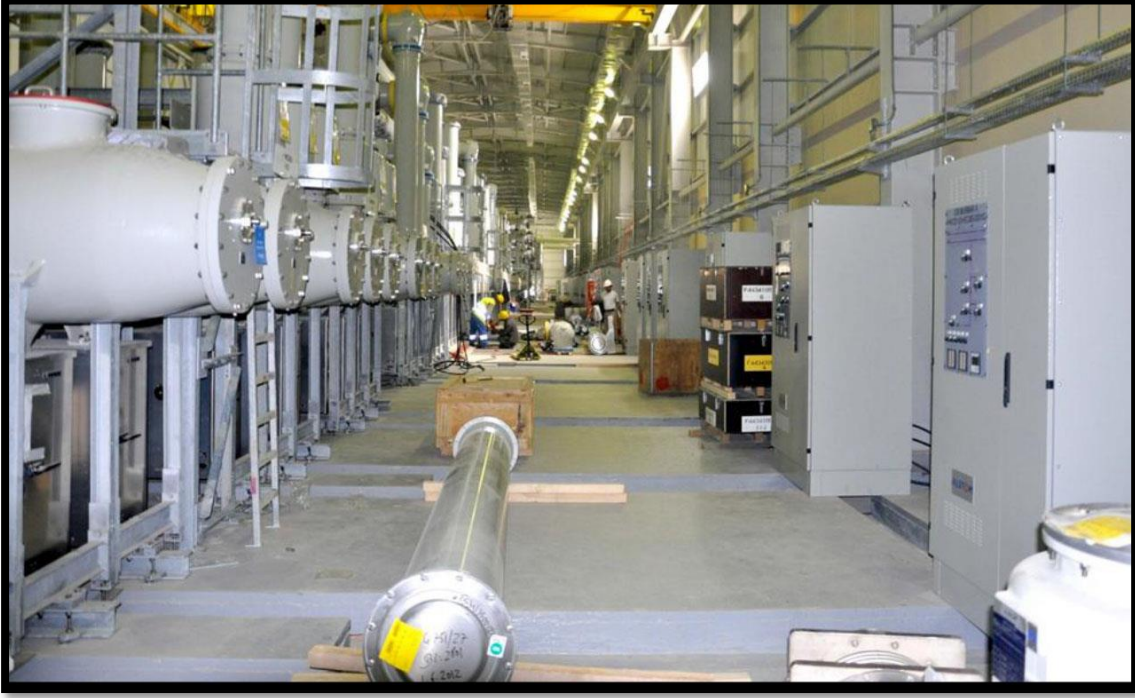


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ENR / California / USA

31.03.2014

Çalık Enerji'ye Amerika'dan En İyi Global Proje Ödülü

Çalık Enerji, Irak'ın Kerbela Bölgesi'nde gerçekleştirdiği Al Khairat Elektrik Santrali projesiyle dünyanın en büyük mühendislik ve müteahhittik ödülü olarak kabul edilen "Best Global Project" ödülünü kazandı.

Kredi derecelendirme kuruluşu Standart and Poors'un (S&P)'da grup şirketleri içinde yer aldığı, McGraw-Hill Grubu'nun mühendislik sektöründeki en saygın yayın kuruluşu olarak kabul edilen ENR Magazine (Engineering News Record) Dergisi'nin Jüri Kurulu, "Endüstriyel Tesis" kategorisinde 1250 megavatlık Al-Khairat Elektrik Santrali projesini yılın en iyi projesi seçti. Bu kategoride Amerikan işahhittik şirketi Bechtel'in Suudi Arabistan'da gerçekleştirdiği döküm fabrikası ise ikincilik ödülü olarak değerlendirilerek "Award of Merit" ödülü kazandı.

ENR Jüri Heyeti'nin belirlediği kriterler çerçevesinde değerlendirmeler sonrasında ödül kazananlar ENR Dergisi Editörü Scott Blair imzasıyla açıklanarak ilan edildi. ENR Jüri Kurulu, endüstriyel tesis kategorisinin yanı sıra köprü/önel, kültürel projeler, hükümet binaları, yeşil projeler, üretim tesisleri, ofis projeleri, renovasyon projeleri, konut projeleri, sulama ve geri dönüşüm kazanım projeleri, karma ofis/konferans/proje gibi kategorilerde de bu yıl kazananları açıkladı.

Çalık Enerji'ye ödülü 13-15 Mayıs tarihleri arasında New York'ta düzenlenecek ENR Global Summit kapsamında düzenlenecek gala gecesinde verilecek.

Çalık Enerji Genel Müdürü Doç. Dr. Osman Saim Dinç, Irak'ın elektriğinin beşte birini karşılayacak olan santralin, ülkenin en büyüklerinden biri olarak dikkati çektiğini belirterek, "Irak'ın yeniden inşasında en önemli altyapı projelerinden biri olarak gösteriliyor. Bu ödül Türk mühendisliğinin ve müteahhittliğinin dünyada geldiği yerin çok önemli göstergesi" ifadelerini kullandı.

Irak'ta 2011 yılının ilk çeyreğinde yapımına başladığımız iki büyük enerji santralini müşterimiz olan Elektrik Bakanlığına devrediyoruz. Kerbela bölgesinde bulunan 1.250 MW kapasiteli Al-Khairat santrali Irak'ın en büyük enerji santrallerinden biri olup, geçen senenin 10. ayından beri tam kapasite çalışmaktadır. Santralde enerjiyi üreten 10 adet GE 9E modeli türbin yer almaktadır. Irak'ın kuzeyinde, Musul ve Erbil'e yaklaşık 60-70 km mesafede bulunan Nainawa bölgesindeki 750 MW kapasiteli santral ise 6 adet GE 9E türbin ihtiva etmektedir. Burada da tüm türbinler devreye alınmış olup elektrik üretmeye hazır durumdadır.

Projelerin önemi vurgulayan bazı bilgiler :

Toplam 2.000 MW kapasiteli iki santral:

- Irak mevcut kapasitesinin % 20'sini teşkil etmektedir.
- Tek firma tarafından eş zamanlı hizmete sunulan en yüksek kapasitedir.
- Orta Doğu'nun en büyük kapalı çalıtını bünyesinde barındırmaktadır.
- Khairat ve Nainawa tam kapasite çalıştığında yıllık üretim 15 milyar kW saat olacaktır. (2012 Türkiye yıllık üretiminin % 7'si)
- Elektriklin ulaşacağı nüfus 7 milyon kişi olarak hesaplanmaktadır.



Yaşanan tüm zorluklara rağmen, bu büyük ödüle layık görülen Proje'nin alınmasında ve yürütülmesinde; emeği geçen, Irak Al Khairat çalışanlarımıza, Irak'ta ve Ankara Merkez Ofisimizde görev yapan, desteklerini esirgemeyen tüm personelimize Teşekkürlerimizi Sunarız.

Osman Saim Dinç



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3. KPS 2-3-4-5-6-7-9 POWERSHIP 250 MW SUBSTATION (KARADENİZ ENERJİ)

This work is projection and complete installation of substations of 3 vessels and 4 barges which are the major floating station projects in the world. Installation of KPS 10 and 11 is on-going. Supervision, testing and commissioning works in order to connect the vessels, installation of which are completed, to foreign ports have also been realized in addition.



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4. ADULARYA 380 kV OUTDOOR SWITCHYARD SUBSTATION

This work is the installation, testing and commissioning of 6 feeder Substation of the thermic power plant established by Adularya Enerji in Eskişehir province, Mihalıççık district. It has been completed in 2014.



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5. İZDEMİR 380 KV GIS SUBSTATION

This is the substation of the thermic power plant established in Izmir province, Aliağa district. Installation of 5 feeder GIS, 380 kV 420MVA Step-Up Transformer, 2 pieces of 380kV 50 MVA Transformer installation and oil treatment works have been completed in 2013.

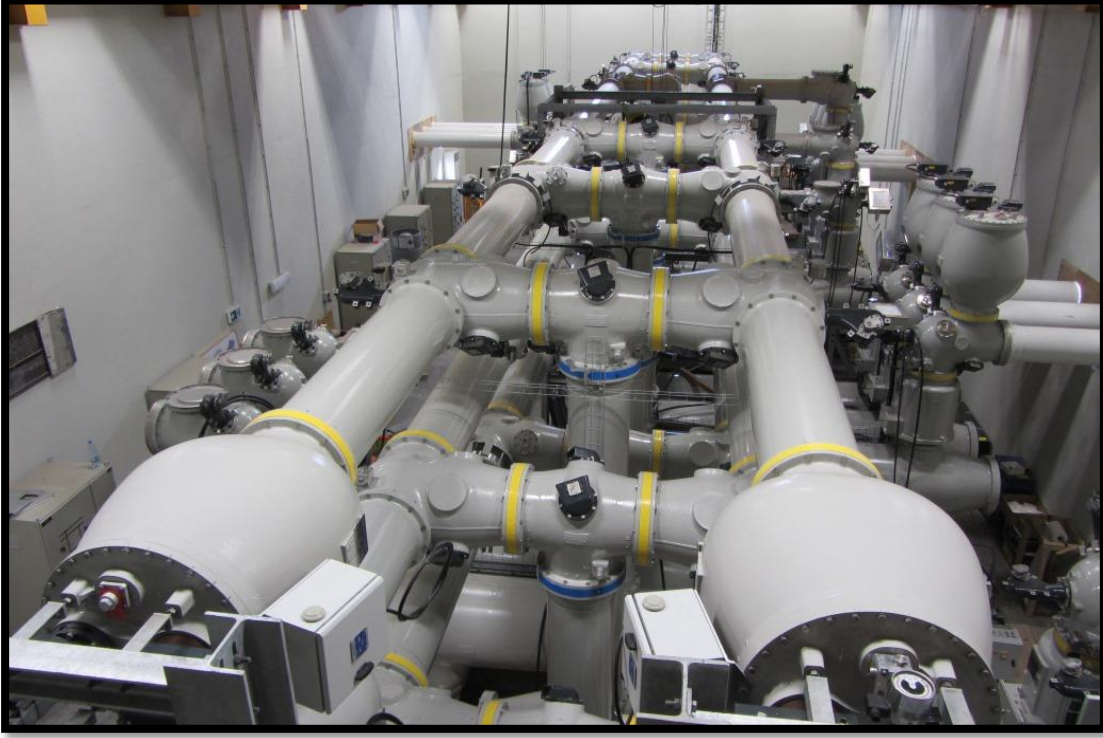


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6. META-NİKEL SUBSTATION

This is the 154kV Substation of Meta-Nikal established in Akhisar province, Gördes district. This works consists of 1 line feeder, 2 Transformers and 1 transfer feeder; in addition, installations of TEİAŞ Akhisar Substaion-Meta Nikel line feeder, 10 pieces of 36 kV metal clad cubicles have been performed; and the project was completed in 2013 in complete turn-key basis including construction, installation, testing and commissioning.



7. OUR REFERENCES

List of works we have completed in terms of installation, project, secondary testing and commissioning, oil treatment of all kinds of substations and power transformers is below

LINE	WORK DESCRIPTION	COMPANY TITLE	QTY.	POWER TRANSFORMER INSTALLATION
1	154 kV MOSB SS 160 MVA TRANSFORMER FEEDER ADDITION AND TELECOMMUNICATION WORKS	BEST AŞ		





2	AYDIN GEOTHERMAL POWER PLANT 7 KM 2(3x477) ETL PROJECT WORK	KARKEY KARADENİZ ELEKTRİK ÜRETİM AŞ		
3	KPS-10 and KPS-11 POWERSHIP SS ELECTRICAL İNSTALLATION WORK	KARPOWERSHIP COMPANY LİMİTED	7 Pcs.	132/11 KV, 80/100 MVA
4	154 kv SÖĞÜTÖZÜ HEPP SS ELECTRICAL İNSTALLATION WORK	ABB ELEKTRİK A.Ş.		
5	154 kv OTLUCA HEPP SS ELECTRICAL İNSTALLATION WORK	ALSTOM GRİD ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/33,6 kv 25/31,5 MVA
6	154 KV KADIKOY GİS SS İNSTALLATION WORK	ALSTOM GRİD ENERJİ ENDÜSTRİSİ A.Ş.	2 Pcs.	154/33,6 KV, 80/100 MVA
			1 Pc.	154/33,6 KV, 50/62,5 MVA
7	380 KV İZDEMİR GİS SS İNSTALLATION WORK	ALSTOM GRİD ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	STEP-UP TRANSFORMER 380/20 KV, 420 MVA
			1 Pc.	STAND BY TRANSFORMER 380/6,3 KV, 50 MVA
			1 Pc.	AUX. TRANSFORMERS 50 MVA
8	380 kv YUNUS EMRE/ADULARYA SS İNSTALLATION, TESTING AND COMMISSIONING	ABB ELEKTRİK A.Ş.		
9	IRAK AL KHAİRAT 10X125 MW NATURAL GAS PLANT 380/132 KV GIS SUBSTATION COMPLETE	ÇALIK ENERJİ AŞ	5 Pcs.	STEP-UP TRANSFORMERS 420/15/15 KV, 320/350 MVA, ONAN/ONAF





	İNSTALLATION WORK		6 Pcs.	AUTO TRANSFORMERS SINGLE PHASE 400/138,6/11 KV, 2x(3x(83,3/83,3/25)) MVA ONAN/ONAF/OFAF
			2 Pcs.	INTERBUS AUTO TRANSFORMERS
			2 Pcs.	STATION TRANSFORMERS 132/6,9 KV, 10 MVA
10	154 kV META NIKEL and AKHİSAR SUBSTATIONS' ELECTRICAL AND CONSTRUCTION WORKS, TESTING AND COMMISSIONING WORKS	ABB ELEKTRİK AŞ		
11	KPS-7 220 MW POWERSHIP 154 kV SUBSTATION ELECTRICAL İNSTALLATION WORKS 154 KV Electricity, steel constructions, project, testing and commissioning.	KPS KARADENİZ POWERSHIP COMPANY A.Ş.	6 Pcs.	132/11 kV, 60/75 MVA
12	LEBANON JE. SUBSTATION Project, consulted manufacture and installation works	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
13	LEBANON JE. SUBSTATION Project, consultancy and supervision works	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
14	SİLOPİ POWER PLANT 220 MW SUBSTATION MODIFICATION WORKS	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		





	Project, Steel constructions, material supply, electrical installation, testing and commissioning			
15	154 kV KIZILDERE 1 AND KIZILDERE 2 GEOTHERMAL POWER PLANT SUBSTATION Material supply, Steel constructions, electrical installation and commissioning works	ABB ELEKTRİK AŞ		
16	ANSALDO ENERJİ 3 power transformer installation work.	ALSTOM GRID A.Ş.	2 Pcs.	400/18 kV, 200/320 MVA
17	154/33 kV BÜYÜKDÜZ SS AND HAVZA SS PRIMARY SECONDARY ELECTRICAL İNSTALLATION WORK HEPP 154 kV plant switchyard and TEİAŞ 154 kV Feeder addition	ABB ELEKTRİK AŞ		
18	KPS-3, KPS-4 AND KPS-5 POWERSHIP ELECTRICAL İNSTALLATION WORKS 3 pieces of vessel indoor and outdoor electrical installation (including diesel gensets, LV/KV and Control cable electrical equipment and cable laying)	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
19	GİRESUN/DERELİ, YÜCE HEPP OIL TREATMENT WORK	ESSENTİUM ENERJİ AŞ	1 Pc.	154/31,5 kV, 25 MVA
20	BOREAS/EDİRNE WIND POWER PLANT ELECTRICAL İNSTALLATION WORKS Complete electrical installation works	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş. - 2010	1 Pc.	154/34,5 kv, 25/31,5 MVA





21	POWERSHIP COMMISSIONING WORK IN PAKISTAN 154 KV Switchyard and automation commissioning works	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
22	KPS 2 POWERSHIP COMMISSIONING WORK IN SINGAPOURE 154 KV Switchyard and automation commissioning works	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
23	MANİSA PROVINCE STEP-DOWN AND DISTRIBUTION CENTRES' POWER TRANSFORMERS OIL TREATMENT WORK	GEDİZ ELEKTRİK DAĞITIM AŞ	9 Pcs.	34,5/... AT VARIOUS VOLTAGES AND POWER RATINGS
24	KPS 5 POWERSHIP COMMISSIONING WORK IN IRAQ PERSIAN GULF 154 KV Switchyard and automation commissioning works	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
25	KEKLİCEK/MALATYA HEPP ELECTRICAL İNSTALLATION WORKS Complete electrical installation works.	KARADENİZ ENERJİ A.Ş.		
26	ÇATALCA/İSTANBUL WPP ELECTRICAL İNSTALLATION WORKS 34,5-154 kV Primary and secondary installation works.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		
27	154 kV BARES and 154 kV BANDIRMA WPP SS Primary and secondary installation works.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/33 kV, 28/35,25 MVA ONAN-ONAF





28	BARES A.Ş. – BİLGİN ENERJİ 32 MVA WPP underground cable MV Distribution, 20 concrete kiosks, secondary testing and commissioning turn-key installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		
29	PS3 SİLOPI POWER PLANT DEMOUNTING AND MOUNTING WORKS Demounting from Batman/Pasinler power plant, mounting in Silopi-Şırnak power plant.	KARADENİZ ENERJİ A.Ş.		
30	ARES WPP İNSTALLATION WORK Alaçatı wind power plant MV electrical installation works. (Installed power 7.2 MVA)	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		
31	SRI LANKA 154 KV SS ELECTRICAL PROJECT WORK Steel Construction, Electrical primary and secondary project work.	KPS KARADENİZ POWERSHIP COMPANY A.Ş.		
32	KPS9 AND KPS 11 POWERSHIP 154 KV SS ELECTRICAL, STEEL PROJECT WORK Steel Construction, Electrical primary and secondary project work.	KPS KARADENİZ POWERSHIP COMPANY		





33	KPS 1, KPS 4, KPS 5 POWERSHIP 154 KV SS ELECTRICAL, STEEL PROJECT WORK Steel Construction, Electrical primary and secondary project work.	KPS KARADENİZ POWERSHIP COMPANY		
34	MANİSA ORGANIZED INDUSTRIAL ZONE POWER PLANT MORSEB SS (160 MVA) Electrical installation work.	ALSTOM ELEKTRİK ENDÜSTRİSİ AŞ	1 Pc.	154/33 kV 140/160 MVA ONAN/ONAF
35	MANİSA ORGANIZED INDUSTRIAL ZONE POWER PLANT MORSEB SS (160 MVA) Electrical, steel, construction project work.	MORSEB ENERJİ AŞ		
36	154 KV KANDİL WPP SUPERVISION SERVICE Connection to autoproducer plant 154 kV transmission system, engineering, project and consultancy, controlling works. (2x100 MVA)	ALSTOM ELEKTRİK ENDÜSTRİSİ AŞ		
37	MANİSA OİZ - BİRLEŞİK İSİ A.Ş. Connection to autoproducer plant 154 kV transmission system, engineering, project and consultancy, controlling works. (2x100 MVA)	MANİSA OSB		
38	154 kV ZAKHO (IRAQ) SUBSTATION electrical project work.	KARADENİZ ENERJİ A.Ş.		
39	154 KV SUBSTATION OF KPS-9 POWERSHIP Steel construction, Primary and secondary installation works.	KPS KARADENİZ POWERSHIP COMPANY	4 Ad	132/11 kV, 60/75 MVA





40	380/33 kV ERMENEK SUBSTATION 154 KV SUBSTATION Steel construction, Primary and secondary installation works..	MET MÜHENDİSLİK A.Ş.	1 Pc.	154/11 kV, 50/62,5 MVA
41	154 KV SUBSTATION OF KPS-6 POWERSHIP Steel construction, Primary and secondary installation works.	KPS KARADENİZ POWERSHIP COMPANY	3 Pcs.	154/11 kV, 50/62,5 MVA
42	154 kV YENİKAPI GIS SUBSTATION Primary and secondary installation works.	ALSTOM ELEKTRİK ENDÜSTRİSİ AŞ	2 Pcs.	154/33,6 kV, 80/100 MVA
			1 Pc.	154/33,6 kV, 50/62,5 MVA
43	KPS 3, KPS 4 AND KPS 5 POWERSHIP 154 KV SS ELECTRICAL, STEEL İNSTALLATION WORK	KPS KARADENİZ POWERSHIP COMPANY	11 Pcs.	154/11 kV, 50/82,5 MVA
44	CONNECTIONS BETWEEN DISTRIBUTION CENTRES USING 54 kV MOIZ SS XLPE CABLES Power transmission using 1x400/35 Al. Xlpe cables, excavation, installation works.	MANİSA OSB		
45	380 KV TOSÇELİK SUBSTATION ELECTRICAL İNSTALLATION WORK Primary and secondary, steel construction installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		
46	380 KV YOLBULAN SUBSTATION ELECTRICAL İNSTALLATION WORK Primary and secondary, steel construction installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		





47	MANCARLIK/İZMİR GIS (GAS INSULATED) / İSTANBUL SS WITHIN THE SCOPE OF TEAŞ ATT.13 Primary and secondary installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/33,6 KV, 80/100 MVA
48	ALSANCAK/İZMİR GIS (GAS INSULATED) / İSTANBUL SS WITHIN THE SCOPE OF TEAŞ ATT.13 Primary and secondary installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	3 Pcs.	154/11,1 kV, 20/25 MVA
			1 Pc.	154/33 kV, 50/62,5 MVA
49	ALTINTEPE GIS (GAS INSULATED) / İSTANBUL SS WITHIN THE SCOPE OF TEAŞ ATT.11 Primary and secondary installation work.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	2 Pcs.	154/33,6 kV, 80/100 MVA
			1 Pc.	154/33,6 kV, 50/62,5 MVA
50	154 kV İSPARTA/EĞRİDİR SS WITHIN THE SCOPE OF TEAŞ ITM Primary and secondary installation work	AEG-GENEL A.Ş.	1 Pc.	154/31,5 kV, 16/20 MVA
51	TRAÇİM AND PINARHİSAR 154 kV SUBSTATIONS WORK Primary and secondary installation work	AEG-GENEL A.Ş.	1 Pc.	154±8x1.25%/6.3 kV Uk:%12 ONAN 40 MVA,YNyn0
52	154 kV KEMER/ANTALYA SS, SİİRT SS, ÇERKEZKÖY/İSTANBUL SS WITHIN THE SCOPE OF TEAŞ ITM Primary and secondary installation work	AEG-GENEL A.Ş.	1 Pc.	154/33,6 KV, 80/100 MVA





53	Installation works of 154 kV ANTALYA Gazipaşa, Lara 380 kV Konya-Sivas Substations. Complete turn-key primary and secondary installation work in 4 substations	ŞA-RAA.Ş.	1 Pc.	154/33 kV, 80/100 MVA
			2 Pcs.	154/33 kV, 50/62,5 MVA
54	154 kV MOIZ SS installation work substation installation work. MOIZ SUBSTATION 2 pieces of 100 MVA complete new	AEG - GENEL A.Ş.	2 Pcs.	154/33 kV 80/100 MVA ONAN/ONAF
55	154 kV Zakho (IRAQ) SUBSTATION 154/132 kV 100 MVA autotransformer feeder installation.	KARADENİZ ENERJİ A.Ş.	1 Pc.	REGEL TRANSFORMER 154/132 kV, 100 MVA
56	154 kV ENTEK AUTOPRODUCER GROUP 154/11 kV 100 MVA transformer and feeder installation and complete 11 kV partial installation.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/11 kV, 100 MVA
57	154 kV ŞİŞLİ GIS 154/34,5 kV 100 MVA Transformer and 4 metal clad cubicle installation.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/34,5 kV, 80/100 MVA
58	KORTEKS A.Ş. 34,5 KV 16 MVA Transformer and 16 metal clad cubicle installation	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.		
59	154 kV Kaynarca SS Plant extension. 154/34 kV 50 MVA Power transformer, 1 line, 1 transformer feeder installation.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/34 kV 50 MVA





60	154 KV Büyük Bakkal SS Completely new SS installation.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/34 kV 50 MVA
61	154 KV Akçay SS Completely new SS installation.	AREVA T&D ENERJİ ENDÜSTRİSİ A.Ş.	1 Pc.	154/34 kV 50 MVA
62	154 kV Van (Engil) SS Plant extension. 154/34 kV 25 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.		154/34 kV 25 MVA
63	154 kV Vezirköprü SS Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
64	154 kV Ardahan SS Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
65	154 kV Çayeli SS Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
66	154 KV İçmeler SS Completely new SS installation.	ŞA-RA A.Ş.	2 Pcs.	154/34 kV 80/100 MVA
67	154 kV Denizli SS Plant extension. 154 kV 2 lines 1 transfer feeder installation.	ŞA-RA A.Ş.		
68	154 kV Akbük SS Plant extension . 154/34 kV 50 MVA Power transformer and feeder installation.	ŞA-RA A.Ş.	1 Pc.	154/34 kV 50 MVA
69	154 kV Alaçatı SS Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	ŞA-RA A.Ş.	1 Pc.	154/34 kV 50 MVA,





70	154 kV University SS Completely new SS installation.	ŞA-RAA.Ş.	1 Pc.	154/34 kV 50 MVA
71	154 kV Manavgat HEPP Drinking Water Energy Supply. 154/34 kV 25 MVA Power transformer and feeder installation.	ABB ELEKTRİK A.Ş.	1 Pc.	154/34 kV 25 MVA
72	154 kV Manisa OIZ SUBSTATION Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
73	154 kV Bergama substation Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
74	154 kV Bodrum substation Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
75	154 kV Tire II substation Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation.	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
76	154 kV Urla substation Plant extension. 154/34 kV 50 MVA Power transformer and feeder installation	AEG - GENEL A.Ş.	1 Pc.	154/34 kV 50 MVA
77	154 kV Pamukova substation Completely new SS installation.	KEPEZ ELEKTRİK A.Ş.	2 Pcs.	154/34 kV 50 MVA
78	154/31,5 kV Alanya SUBSTATION Plant extension 36 kV 8 cubicle installation	KEPEZ ELEKTRİK A.Ş.		
79	154/31,5 kV Finike substation Transformer B feeder. (154/34,5 kV 50 MVA)	KEPEZ ELEKTRİK A.Ş.	1 Pc.	154/34,5 kV 50 MVA





80	154/31,5 kV Serik substation Transformer B feeder. (154/34,5 kV 50 MVA)	KEPEZ ELEKTRİK A.Ş.	1 Pc.	154/34,5 kV 50 MVA
81	154/34,5 kV Datça substation Completely new SS installation.	GÜNEŞ ELEKTRİK A.Ş./BARMEK	2 Pcs.	154/34 kV 50 MVA
82	154/34,5 kV Nazilli substation 34,5 KV cubicle demounting and mounting. (18 pcs.)	GÜNEŞ ELEKTRİK A.Ş./BARMEK		
83	154 kV Çanakkale substation 154 kV Çanakkale Cement line feeder installation.	GÜNEŞ ELEKTRİK A.Ş./BARMEK		
84	154 kV Çanakkale Çimento substation 154 kV transfer feeder (1 pc.) 154 kV Çan. II line feeder installation.	GÜNEŞ ELEKTRİK A.Ş./BARMEK		
85	154/34,5/15,8 kV Bodrum substation. Complete installation of new SS.	HAYRİ KOCA A.Ş.	2 Pcs.	154/34 kV 80/100 MVA
86	380 kV Seyitömer TPP Transformer Bank feeder and Bozoyük line feeder installation.	HAYRİ KOCA A.Ş.		
87	1154 kV Köseköy substation 54 kV Transfer feeder (1 pc.), 154 kV Hat feeder. (2 pcs.)	HAYRİ KOCA A.Ş.		
88	154 KV Karabağlar substation 154 kV Uzundere feeder installation.	HAYRİ KOCA A.Ş.		





DKZElektrik
Mühendislik İnş. San. ve Tic. Ltd. Şti.

89	380/154 kV Uzundere substation 154 kV Karabağlar feeder installation.	HAYRİ KOCA A.Ş.		
90	Yazıcı Demir Çelik A.Ş. 154/34.5 kV 100 MVA Transformer feeder 34.5 kV cubicle installation. (16 pcs.)	GÜNEŞ ELEKTRİK A.Ş./BARMEK	1 Pc.	154/34.5 kV, 100 MVA
91	K.Maraş-Göksun HEPP 154/34.5 kV 25 MVA Transformer and switchyard installation.	AYEN ENERJİ A.Ş.	1 Pc.	154/34.5 kV 25 MVA



DKZ ELEKTRİK MÜHENDİSLİK İNŞ. SAN. ve TİC. LTD. ŞTİ.

Cumhuriyet Bulv. No:139 Kat: 8 Alsancak / İZMİR
Tel: 0232 463 16 51 - 421 94 41 • Fax: 0232 422 29 69



DKZ ELEKTRİK MÜHENDİSLİK İNŞAAT TURİZM SAN. VE TİC. LTD. ŞTİ.



TRANSFORMER INSTALLATION

AND

OIL TREATMENT EQUIPMENT



DKZ ELEKTRİK MÜHENDİSLİK İNŞ. SAN. ve TİC. LTD. ŞTİ.

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1. TRANSFORMER INSTALLATION

Our Company has successfully performed transformer installation works in 154 kV and 380 kV plants with any brand and any power rating since the day it was established with its experienced personnel.

Our services with regards to transformers:

- Transformer installation and commissioning
- Transformer failure expertise and repairs
- Transformer on-site maintenance works
- Transformer tests
- Removal of transformer oil leakages
- Transformer oil change and treatment
- Transformer oil and gas analysis



2. OIL TREATMENT EQUIPMENT :

2.1 WHAT DOES OIL TREATMENT DO?

Oil transformers operate under different temperatures due to changes in load status during operation. Heated transformer oil expands sometimes less sometimes more. During such times, air is breathed in and out by the expansion tank by means of a dehumidifier. Even though such air exchange is performed by the dehumidifier, sometimes it gathers moisture in long-term sometimes due to the fact that the dehumidifier is saturated and sometimes due to the fact that the air is too moist; and in addition it slowly deposits also with the impact of heating. Such moisture passes also on insulations off windings. This causes capacity decrease between windings and failures. Oil treatment equipment purifies the oil by filtering the moisture, dust and gas in the oil. At the end of process, power factor, disruptive voltage and inner-surface tension of the oil increases. In addition, oil treatment process is applied during oil filling stage in the transformers newly installed. The reason for this is to purify the moisture and dust that may possibly be present in the new oil being filled.





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2.2 PROCEEDING PERFORMED DURING TREATMENT:

Supply voltage of the transformer decided to be treated is cut-off, the transformer is decommissioned. Equipment connections are provided using suction and delivery hoses connected to valves at lower and upper parts of the filter press of the transformer. The oil taken from filter press lower connection valve is passed through the coarse filter located at the input of the equipment and particles upto 5µm are cleaned; cleaned oil is heated upto 75°C by means of oil heaters and sent to the vacuum tank of 0,5 mbar. The heated oil sent to the tank is crashed and it is purified from existing water and melted gases; and purified from particles upto 0,5µm by means of the filter located on the delivery pump of the equipment and delivered to the transformer. This process continues until the required quality on the oil is provided.

(An additional vacuum that can be included in the vacuum using an external vacuum pump of 300m³/hour capacity within the period of time designated by the plant at the preparation stage of transformers to be treated.)



2.3 TREATMENT EQUIPMENT TECHNICAL DOCUMENT

Our Company can swiftly treat oil with 2 Hering brand oil treatment equipment, oil tank of 8,5 tons. Technical properties of the equipment is as follows:

Performance Data (20°C, 100ppm water, 12% gas mixture)

End of first cycle	Water contents	≤5		End of few cycles	Water contents	≤3	
	Gas contents	<0,1	(Vol. %)		Gas contents	<0,1	(Vol. %)
	Disruptive Voltage	>70	(KV/2,5mm)		Disruptive Voltage	>75	(KV/2,5mm)



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Heater

Heater Capacity	90	(kW)	Heater Group	4	(Pcs.)
Temperature Level	20 - 80	(°C)	Temperature Increase	30	(°C)

Oil Pump

Pump Speed	6000	(l/h)	Pump Power	1,5	(kW)
Max. Pump Pressure	4	(bar)	Rated Voltage	400 / 50	(V) / Hz

Vacuum Pump

Pump Speed	300	(m ³ /h)	Pump Power	5,5	(kW)
Max. Vacuum	0,5	(mbar)	Rated Voltage	400 / 50	(V) / Hz

Roots Pump

Pump Speed	1000	(m ³ /h)	Pump Power	4	(kW)
Max. Pressure	0,05	(mbar)	Rated Voltage	400 / 50	(V) / Hz

Filter

Input Filter Pore Size	5	(m μ)	Output Filter Pore Size	0,5	(m μ)
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DKZ ELEKTRİK MÜHENDİSLİK İNŞ. SAN. ve TİC. LTD. ŞTİ.

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GERMAN CERT

Environmental Management System Certificate

DKZ ELEKTRİK MUHENDİSLİK İNŞAAT SANAYİ VE TİCARET LTD. ŞTİ.

located at
CUMHURİYET BULVARI KULTUR MAH. NO:139 KAT:8 ARPACIOĞLU İS
MERKEZİ ALSANCAK / İZMİR / TURKEY

German Cert Co., Ltd. hereby certifies that the environmental management system of the above organization has been evaluated and found to be in line with the requirements of the following standard:

ISO 14001:2004

for the scope of

Repair and Maintenance Activities of Low and High Voltage Electric Distribution Networks, Management of High Voltage Downloader and High Voltage Distribution Substations, Electrical Installation Activities of Urban and Rural Networks Low and Medium Voltage, Electrical Installation Activities of Low and High Voltage City Underground Cable Networks, Reading of Counter Index, Opening and Cutting Activities of Electricity and 154/380 kV Substations Electrical Installation Works, Construction Activities of Housing and Villa and Sales of Construction Materials

Certificate Number: KorE-113733

This certificate is valid from April 18, 2014 until April 17, 2015.

Initial certification date: April 19, 2011
GC certification date: April 18, 2014
Certification valid until: April 17, 2017



Scheme Manager



GERMAN CERT
ENVIRONMENTAL MANAGEMENT SYSTEM

10F, Jeongwoo Bldg. Yeouido-dong, Eunhaeng-ro 29, Yeongdeungpo-gu, Seoul 150-739, Korea
This certificate is a sole property of GERMAN CERT and therefore shall be returned to it upon its request. (Rev.4)



Cumhuriyet Bulv. No:139 Kat: 8 Alsancak / İZMİR
Tel: 0232 463 16 51 - 421 94 41 • Fax: 0232 422 29 69



GERMAN CERT

OH&S Management System Certificate

DKZ ELEKTRİK MUHENDİSLİK İNŞAAT SANAYİ VE TİCARET LTD. STİ.

located at
CUMHURİYET BULVARI KULTUR MAH. NO:139 KAT:8 ARPACIOĞLU İS
MERKEZİ ALSANCAK / İZMİR / TURKEY

German Cert Co., Ltd. hereby certifies that the occupational health and safety management system of the above organization has been evaluated and found to be in line with the requirements of the following standard:

OHSAS 18001:2007

for the scope of

Repair and Maintenance Activities of Low and High Voltage Electric Distribution Networks, Management of High Voltage Downloader and High Voltage Distribution Substations, Electrical Installation Activities of Urban and Rural Networks Low and Medium Voltage, Electrical Installation Activities of Low and High Voltage City Underground Cable Networks, Reading of Counter Index, Opening and Cutting Activities of Electricity and 154/380 kV Substations Electrical Installation Works, Construction Activities of Housing and Villa and Sales of Construction Materials

Certificate Number: KorO-110014

This certificate is valid from April 18, 2014 until April 17, 2015.

Initial certification date: April 19, 2011
GC certification date: April 18, 2014
Certification valid until: April 17, 2017



Scheme Manager



GERMAN CERT
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

10F, Jeongwoo Bldg. Yeouido-dong, Eunhaeng-ro 29, Yeongdeungpo-gu, Seoul 150-739, Korea
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Cumhuriyet Bulv. No:139 Kat: 8 Alsancak / İZMİR
Tel: 0232 463 16 51 - 421 94 41 • Fax: 0232 422 29 69



DKZ Elektrik
Mühendislik İnş. San. ve Tic. Ltd. Şti.

BUREAU VERITAS
Certification



**DKZ ELEKTRİK MÜHENDİSLİK İNŞAAT
SANAYİ VE TİCARET LTD. ŞTİ.**

**KÜLTÜR MAH. CUMHURİYET BULVARI NO: 139/8
ALSANCAK, İZMİR, TURKEY**

*Bureau Veritas Certification certify that the Management System of the
above organisation has been audited and found to be in accordance
with the requirements of the management system standards detailed below*

Standards

ISO 9001:2008

Scope of certification

1. REPAIR AND MAINTENANCE WORK WITHIN HIGH AND LOW VOLTAGE ELECTRICAL DISTRIBUTION NETWORK;
2. HIGH/HIGH VOLTAGE REDUCTION AND HIGH VOLTAGE DISTRIBUTION OPERATIONS IN TRANSFORMER STATIONS;
3. LOW AND MEDIUM VOLTAGE ELECTRICAL FACILITY WORK WITHIN CITY AND VILLAGE NETWORK;
4. HIGH AND LOW VOLTAGE CITY NETWORK UNDERGROUND CABLING ELECTRICAL FACILITY WORK;
5. READ INDEX COUNTER AND SWITCH ON AND DISCONNECTION OF ELECTRICITY WORK;
6. 154/380 kV TRANSFORMER STATIONS ELECTRICAL FACILITY WORK

Original Approval Date: **06 November 2007**

*Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: **14 September 2016***

To check this certificate validity please call +90 216 518 40 50

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation. This certificate is valid as long as the company meets its liabilities to Bureau Veritas.

Certificate Number: **TR001999-1**

Date: **13 September 2013**


VİCDAN UZUNOĞLU
Operation Manager



Bureau Veritas Gözetim Hizmetleri Ltd.Şti.

Aydınevler Sanayi Caddesi, Centrum İş Merkezi, No:3 Kat.:1 34854, Küçükyalı, İstanbul, TURKEY

Cumhuriyet Bulv. No:139 Kat: 8 Alsancak / İZMİR
Tel: 0232 463 16 51 - 421 94 41 • Fax: 0232 422 29 69